PROJECT REPORT

TO: PLANNING COMMISSION **AGENDA DATE: December 13, 2023**

FROM: PLANNING & DEVELOPMENT SERVICES **AGENDA TIME 9:00 AM/ No.9**

(Continuation from September 13, 2023 & October 25, 2023 Hearings)

PROJECT TYPE: SMP Gold Corp (Oro Cruz) RP #21-0001 SUPERVISOR DISTRICT #5

LOCATION: On BLM Lands, East of Olgilby Rd, northwest of Yuma, Az APN: 050-110-006 et al

T15S, R20E, Sec. 1, 2, 12, 13 and T15S, R21E Sec. 6, 7, 18 PROJECT SIZE: +/- 21.3 acre

GENERAL PLAN (existing) Recreation\Open Space GENERAL PLAN (proposed) N/A

ZONE (existing) S-2 (Open Space\Preservation) ZONE (proposed) N/A

GENERAL PLAN FINDINGS ☒ CONSISTENT ☐ INCONSISTENT ☐ MAY BE/FINDINGS

PLANNING COMMISSION DECISION: HEARING DATE: 10/25/2023

☐ APPROVED ☐ DENIED ☐ OTHER

PLANNING DIRECTORS DECISION: HEARING DATE: _____

☐ APPROVED ☐ DENIED ☐ OTHER

ENVIROMENTAL EVALUATION COMMITTEE DECISION: HEARING DATE: 11/17/2022

INITIAL STUDY: 21-0029

☐ NEGATIVE DECLARATION ☒ MITIGATED NEG. DECLARATION ☐ EIR

DEPARTMENTAL REPORTS / APPROVALS:

PUBLIC WORKS	☒ NONE	☐ ATTACHED
AG	☐ NONE	☒ ATTACHED
APCD	☐ NONE	☒ ATTACHED
E.H.S.	☒ NONE	☐ ATTACHED
FIRE / OES	☒ NONE	☐ ATTACHED
SHERIFF	☒ NONE	☐ ATTACHED
OTHER	MCAS Yuma, Center for Biological Diversity, CA Dept. of Fish & Wild Life, US EPA	

REQUESTED ACTION:

IT IS RECOMMENDED THAT YOU CONDUCT A PUBLIC HEARING AND HEAR ALL THE OPPONENTS AND PROPONENTS OF THE PROPOSED PROJECT. STAFF WOULD THEN RECOMMEND THAT YOU TAKE THE FOLLOWING ACTION:

1. **ADOPT THE MITIGATED NEGATIVE DECLARATION BY FINDING THAT THE PROPOSED PROJECT WOULD NOT HAVE A SIGNIFICANT EFFECT ON THE ENVIRONMENT AS RECOMMENDED AT THE ENVIRONMENTAL EVALUATION COMMITTEE (EEC) HEARING ON NOVEMBER 17, 2022; AND,**
2. **MAKE THE DE MINIMUS FINDINGS AS RECOMMENDED AT THE NOVEMBER 17, 2022 EEC HEARING THAT THE PROJECT WILL NOT INDIVIDUALLY OR CUMULATIVELY HAVE AN ADVERSE EFFECT ON FISH AND WILDLIFE RESOURCES, AS DEFINED IN SECTION 711.2 OF THE FISH AND GAME CODES; AND**
3. **APPROVE THE ATTACHED RESOLUTION(S), SUPPORTING FINDINGS, AND RECLAMATION PLAN (RP) #21-0001.**

STAFF REPORT
Planning Commission
December 13, 2023
(Continuation from October 25, 2023, Hearing)
(Continuation from September 13, 2023, Hearing)
Reclamation Plan (RP) #21-0001

Subject: SMP Gold Corp. Mineral Exploration Drilling

Applicant: SMP Gold Corp. (aka Oro Cruz)
912 N. Division Street
Carson City, NV 89703

Project Location:
The proposed project is located on mined Bureau of Land Management (BLM) administered lands further identified as Assessor's Parcel Number(s) (APNs) 050-110-006, 050-110-007, 050-110-008, 050-110-009, 050-110-023, 050-110-024, 050-280-001, 050-280-012, and 050-280-013 within T15S, R20E, Sections 1, 2, and 13 and T15S, R21E, Sections 6, 7, and 18 of the San Bernardino Base and Meridian (S.B.B.M.), situated approximately 2.3 miles east of the Gold Rock Ranch RV Resort and approximately 15 miles northwest of the unincorporated townsite of Winterhaven, in an unincorporated area of the County of Imperial, State of California.

The proposed project site is located within the historic Cargo Muchacho-Tumco Mining District, area historically disturbed by mining activities with surrounding land uses that include prospecting and recreation. The subject area is bounded by Ogilby Road (State Route 34) on the East and by Interstate 8 (I-8) on the South and surrounded by vacant desert parcels administered by the Bureau of Land Management on the North, South, East, and West.

Project Summary:
SMP Gold Corp. (aka Oro Cruz) proposes to conduct mineral exploration drilling activities that would result in minor surface reworking of previously mined and disturbed areas. SMP Gold Corp. would conduct up to 20.54 acres of surface mineral exploration within a 626.3-acre area to locate and delineate precious metal (gold) deposits.

Mineral exploration activities would consist of utilizing and improving the existing access road network: constructing approximately (2) two miles of road improvements for existing roads, constructing approximately 6.2 miles of new, temporary 12-foot-wide exploration drilling access roads. The project would also entail (8) eight helicopter landing pads, sixty-five (65) drill pads to support exploration in seven (7) drilling areas, construction of 1.8 miles of a new 15-foot-wide permanent access road, and a 2.8-acre staging area for access to the Oro Cruz Mine Portal on BLM-administered lands.

SMP's exploration activities would not significantly increase the number of vehicles on local public roadways. Specifically, the number of onsite workers/contractors at any given operating day during the course of the Project would be minimal (estimated up to 13 onsite employees). Hours of operation would be contiguous. Project personnel would include one

operator and foreman per drill rig and one water truck driver for two 12-hour shifts per day. A geologist would also be on-site each day. Project operations would be temporary within each Drill Area, occurring over up to two weeks at up to two drill sites at a time before moving to a new drill site.

Project personnel would access the Project Area in four-wheel drive vehicles. Up to two track-mounted drill rigs would be used for drilling in the Project Area at once. A CAT D8 bulldozer, or equivalent, and a track hoe and/or hoe ram would be used to construct the roads and drill sites where needed. Roads and drill sites would be reclaimed using a bulldozer and/or CAT excavator or equivalent. At any time, one track-mounted drill rig, two 1,000-gallon water trucks, one 2,000-gallon portable water tank for water delivery to the Project, up to five support vehicles, one pipe truck, one 125-kilowatt (kW) generator associated with the drill rig and two 125-kW generators associated with the staging area, two portable air compressors, and one diesel fuel tank would be present within the Project Area.

The helicopter used for access to the eight proposed drill pads not accessible via road or vehicle and to and from the staging area would be flown during daylight hours and would originate from the Yuma Airport. The helicopter would operate up to 10 trips per day during drilling operations and would provide drilling crew member access and delivery of water, fuel, and drilling supplies. The helicopter would be in use at the Project for up to 64 days as drilling operations would be conducted at each drill site for four to eight days over the life of the Project.

Planning and prevention of fires would also be managed throughout the life of the Project through the appropriate handling and storage of fuels, inspections and recordkeeping, spill prevention and response procedures, proper use of safety equipment, resource management training, and fire prevention training.

Solid waste generated by the Project would be collected in appropriate containers and removed from the Project Area. Project-related refuse would be hauled to an authorized landfill for disposal in accordance with applicable laws and regulations. No refuse would be disposed of on-site in the Project Area.

Surface and groundwater within the Project Area would not be used as a source for water for the drilling. Rather, water for drilling and dust suppression would be provided by the drilling company via a mobile water truck. Specifically, the water would be procured from Gold Rock Ranch and/or another local water purveyor. It is anticipated that two 1,000-gallon water trucks would be required onsite each day. Additionally, a 2,000-gallon portable water storage tank would be kept onsite for drilling and dust suppression. A mobile water truck would be utilized onsite for dust suppression, and applied water would either naturally evaporate or infiltrate into the ground.

Proposed mineral exploration activities would be limited to 12 to 24 months. Once the project area is no longer required by SMP, the majority of the proposed project area would be reclaimed and revegetated, after which point it would be monitored and maintained annually in late spring or early summer for (3) three years to ensure revegetation efforts have been established and reclaimed areas are stable.

Land Use Analysis:
Per Imperial County's General Plan, the land use designation for this project is "Recreation/Open Space" and zoned as S-2 (Open Space/Preservation) on BLM-administered lands per Zoning Map #70 of the Imperial County Title 9 Land Use Ordinance. Per County's Land Use Ordinance (Title 9), Division 5, Section 90519.01, Subsection (g), mineral extraction is an allowed use in the S-2 (Open Space/Preservation) permitting mineral exploration activities for gold. The proposed project is consistent with the County's General Plan and County's Land Use Ordinance (Title 9).

Surrounding Land Uses, Zoning and General Plan Designations:

DIRECTION	CURRENT LAND	ZONING	GENERAL PLAN
Project Site	Vacant/Open Desert Space	S-2 (Open Space/Preservation) on BLM Lands	Recreation/Open Space
North	Vacant/Open Desert Space	S-2 (Open Space/Preservation) on BLM Lands	Recreation/Open Space
South	Vacant/Open Desert Space	S-2 (Open Space/Preservation) on BLM Lands	Recreation/Open Space
East	Vacant/Open Desert Space	S-2 (Open Space/Preservation) on BLM Lands	Recreation/Open Space
West	Vacant/Open Desert Space	S-2 (Open Space/Preservation) on BLM Lands	Recreation/Open Space

Environmental Determination:
On November 17, 2022, the Environmental Evaluation Committee (EEC) determined that Reclamation Plan (RP) #21-0001 for mineral exploration drilling activities, with proposed mitigation measures, would not have a significant effect on the environment and recommended a Mitigated Negative Declaration (MND) to be prepared. The EEC Committee consists of a seven (7) member panel, integrated by the Director of Environmental Health Services, Imperial County Fire Chief, Agricultural Commissioner, Air Pollution Control Officer, Director of the Department of Public Works, Imperial County Sheriff, and the Director of Planning and Development Services. The EEC also made the De Minimus Finding that the project will not individually or cumulatively have an adverse effect on Fish and Wildlife Resources, as defined in Section 711.2 of the Fish and Game Codes.

On December 13, 2022, the public notice for the Mitigated Negative Declaration was filed with the Imperial County Clerk-Recorder, posted and circulated for a 35-day comment period from 12/13/2022 to 01/20/2023. Comments received were made part of this package.

Staff Recommendation:

It is recommended that you conduct a public hearing and hear all the opponents and proponents of the proposed project. Staff would then recommend that you take the following action:

1. Adopt the Mitigated Negative Declaration by finding that the proposed project would not have a significant effect on the environment as recommended at the Environmental Evaluation Committee (EEC) hearing on November 17, 2022; and,

2. Make the De Minimis findings as recommended at the November 17, 2022 EEC hearing that the project will not individually or cumulatively have an adverse effect on Fish and Wildlife Resources, as defined in Section 711.2 of the Fish and Game Codes; and

3. Approve the attached Resolution(s), Supporting Findings, and Reclamation Plan (RP) #21-0001.

PREPARED BY: Gerardo A. Quero, Planner I
Planning & Development Services #345

REVIEWED BY: Michael Abraham, AICP, Assistant Director
Planning & Development Services

APPROVED BY: Jim Minnick, Director
Planning & Development Services

ATTACHMENTS:
A. Vicinity Map
B. Site Plan/Plot Plan
C. CEQA Resolution
D. Environmental Assessment (EA)/Mitigated Negative Declaration (MND)
E. Reclamation Plan Resolution
F. Reclamation Plan #21-0001
G. Application
H. Comment Letters Received During Public Noticing
I. Response to Comment Letters Received During Public Noticing
J. Letters from Applicant Regarding Consultation

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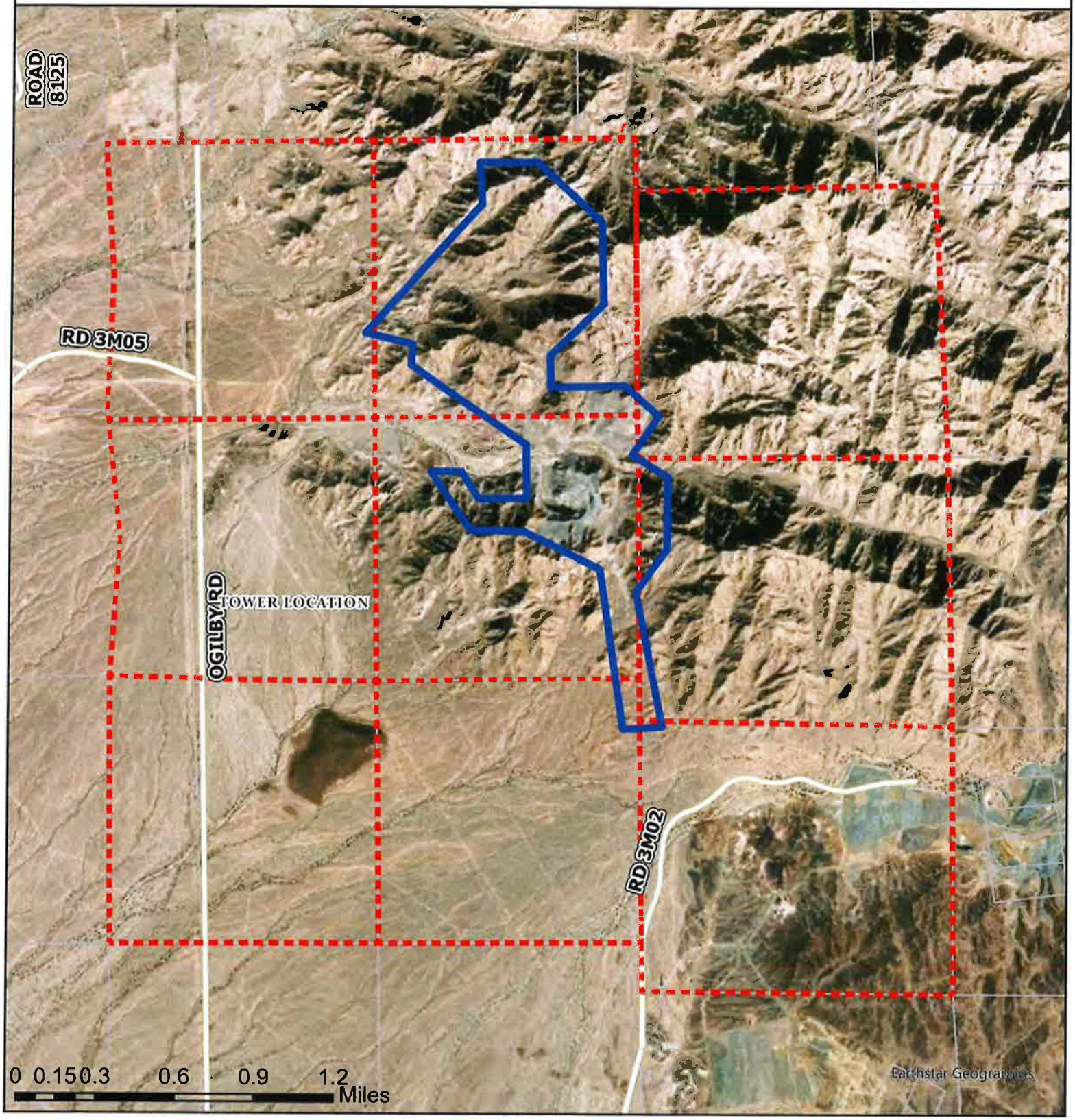
ATTACHMENT "A" – VICINITY MAP

PROJECT LOCATION MAP



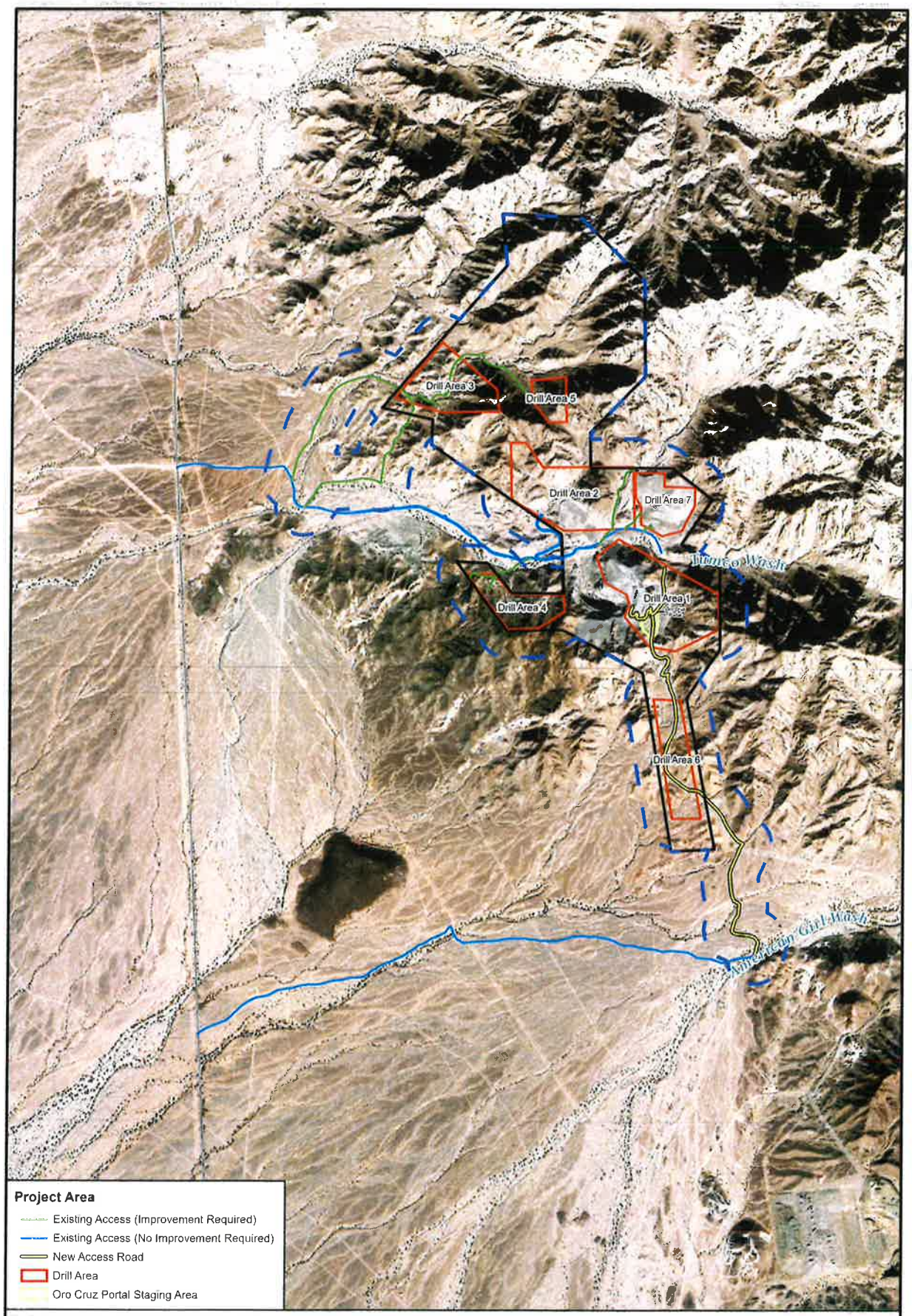
IMPERIAL COUNTY CALIFORNIA

SMP GOLD CORP.
(AKA ORO CRUZ)
RP #21-0001
APN 050-110-006, 007, 008, 009, 023, 024 AND 050-280-001, 012, 013

HIGHWAYS
PROJECT LOCATION
ORO CRUZ EXPLORATION PLAN

N

ATTACHMENT "B" – SITE PLAN/PLOT PLAN



T15S, R20E, Portions of Sections 1, 2, 11, 12 and 13,
T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California,
Data Source: SMP
Image Source: ArcGIS Online, World Imagery, 2018

WestLand Resources

Legend

Oro Cruz Exploration Plan of Operations Area

Analysis Area

N

0 800 1,600 Feet

0 400 800 Meters

Oro Cruz Pit Area Exploration Project
Biological Resource Technical Report
and Assessment

ANALYSIS AREA
Figure 2

ATTACHMENT "C" – CEQA RESOLUTIONS

RESOLUTION NO._____

A RESOLUTION OF THE PLANNING COMMISSION OF THE COUNTY OF IMPERIAL, CALIFORNIA, ADOPTING THE "MITIGATED NEGATIVE DECLARATION" FOR RECLAMATION PLAN #21-0001.

WHEREAS, on November 3, 2022, a Public Notice was mailed to the surrounding property owners advising them of the Environmental Evaluation Committee hearing scheduled for November 17, 2022;

WHEREAS, a Mitigated Negative Declaration and CEQA findings were prepared in accordance with the requirements of the California Environmental Quality Act, State Guidelines, and the County's "Rules and Regulations to Implement CEQA, as Amended";

WHEREAS, the Environmental Evaluation Committee recommended to the Planning Commission of the County of Imperial to adopt the Mitigated Negative Declaration for Reclamation Plan #21-0001;

WHEREAS, the Mitigated Negative Declaration was circulated for 35 days from December 13, 2022 to January 20, 2023;

WHEREAS, the Planning Commission of the County of Imperial has been designated with the responsibility of adoptions and certifications;

NOW, THEREFORE, the Planning Commission of the County of Imperial **DOES HEREBY RESOLVE** as follows:

The Planning Commission has reviewed the attached Mitigated Negative Declaration (MND) prior to approval of Reclamation Plan #21-0001. The Planning Commission finds and determines that the Mitigated Negative Declaration is adequate and prepared in accordance with the requirements of the Imperial County General Plan and Land Use Ordinance, and the California Environmental Quality Act (CEQA) which analyzes the project's environmental effects, based upon the following findings and determinations:

1. That the recital set forth herein are true, correct, and valid; and,

2. That the Planning Commission has reviewed the attached Mitigated Negative Declaration (MND) for Reclamation Plan #21-0001 and considered the information contained in the Mitigated Negative Declaration together with all comments received during the public review period and prior to approving the Reclamation Plan; and,

3. That the Mitigated Negative Declaration reflects the Planning Commission independent judgment and analysis.

NOW, THEREFORE, the County of Imperial Planning Commission **DOES HEREBY ADOPT** the Mitigated Negative Declaration for Reclamation Plan #21-0001.

Rudy Schaffner, Chairperson
Imperial County Planning Commission

I hereby certified that the preceding Resolution was taken by the Planning Commission at a meeting conducted on **September 13, 2023** by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

ATTEST:

Jim Minnick, Interim Director of Planning & Development Services
Secretary to the Imperial County Planning Commission

ATTACHMENT "D" – ENVIRONMENTAL ASSESSMENT (EA)/MITIGATED NEGATIVE DECLARATION (MND)

Environmental Assessment/Mitigated Negative Declaration (EA/MND)
Oro Cruz Exploration Project

Bureau of Land Management, California Desert District, El Centro Field Office
DOI-BLM-CA-D070-2022-0012-EA

Imperial County Planning Department
IS #21-0029
August 2023

Lead Agencies:
United States Department of the Interior, Bureau of Land Management
California Desert District Office, El Centro Field Office
1661 S 4th Street
El Centro, California 92243

Imperial County Planning & Development Services
801 Main Street
EL Centro, California 92243

Applicant:
SMP Gold Corp
912 N. Division Street
Carson City, Nevada 89703

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1.0 Introduction

SMP Gold Corp. (SMP) proposes underground and surface mineral exploration activities for the Oro Cruz Exploration Project (Project) at the existing Oro Cruz Pit Area within lands administered and managed by the Bureau of Land Management (BLM), California Desert District Office, El Centro Field Office (ECFO), in Imperial County, California. The Project is located in the Cargo Muchacho Mountains of the Imperial Valley in southeastern California on BLM-administered lands within Township 15 South, Range 20 East, Sections 1, 2, 12, and 13, and Township 15 South, Range 21 East, Sections 6, 7, and 18 (**Figure 1-1**). The Project is approximately 15 miles northwest of Winterhaven, California, 50 miles east of El Centro, California, and 23 miles northwest of Yuma, Arizona, by road travel. Area within and surrounding the Project has been previously disturbed by mining activities, and current surrounding land uses include prospecting and recreation. The Project Area is located within the historic Cargo Muchacho-Tumco Mining District, with over 200 years of historical mining activity (Clark 1970). The Project would occur within the Picacho Area of Critical Environmental Concern (ACEC), as designated under the Desert Renewable Energy Conservation Plan (DRECP).

SMP submitted a Plan of Operations (**Appendix A**) for the proposed exploration activities in accordance with BLM regulations published in the Code of Federal Regulations (CFR) in 43 CFR 3809 and 43 CFR 3715. Pursuant to 43 CFR 3809.11 and 3809.401, the Project would result in minor surface reworking of previously mined and disturbed areas, and measures would be taken to prevent unnecessary or undue degradation during Project operations. The Project would comply with the performance standards in 43 CFR 3809.420 and other Federal and state laws related to environmental protection and protection of cultural resources. The Project is "reasonably incident" to mining as defined in 43 CFR 3715.0-5, and the Project would attain the stated level of protection and reclamation required by specific laws in the California Desert Conservation Area. The Project would allow SMP to conduct up to 20.54 acres of surface mineral exploration within a 626.3-acre area (Project Area) (SMP 2021). This document analyzes effects resulting from surface disturbance only. Underground exploration is not discussed further in this document as it is not subject to permitting under the 43 CFR 3809 Surface Management regulations and is therefore not under the decision-making realm of the BLM as it pertains to the proposed Project.

1.1 BLM Purpose and Need for Action

On lands open to location under the General Mining Law of 1872, as amended (Mining Law), the BLM administers the surface of public land and federal subsurface mineral estate under the Mining Law and the Federal Land Policy and Management Act of 1876 (FLPMA). FLPMA also governs the BLM's administration of public land not open to location under the Mining Law. The purpose of the mineral exploration portion of the Proposed Action is to provide SMP the opportunity to explore, locate, and delineate precious metal (gold) deposits on its mining claims on public lands, as provided under the Mining Law. The need for action is established by the BLM's responsibility under Section 302 of FLPMA and the BLM Surface Management Regulations at 43 CFR 3809 to respond to a plan of operations to allow an operator to prospect, explore, and assess locatable mineral resources on public lands, and to take any action to prevent unnecessary or undue degradation of the public lands.

The BLM is required to respond to SMP's Plan to conduct mining operations for locatable minerals in accordance with the Surface Management Regulations (43 CFR 3809) and Use and Occupancy Under the Mining Law (43 CFR 3715) and other applicable laws such as FLPMA and the National Environmental Policy Act of 1969 (NEPA).

1.2 Imperial County Planning Department Objectives

The Imperial County Planning Department (Imperial County) has applied a land use designation of "Recreation/Open Space" to the Project Area per the current Imperial County General Plan (Imperial County 2015). Imperial County must comply with the California Environmental Quality Act of 1970 (CEQA) when it undertakes an activity defined by CEQA as a "project" that must receive some level of discretionary approval (i.e., Imperial County has the authority to deny the requested lease, permit, or other approval) which may cause either a direct physical change in the environment or a reasonably foreseeable indirect change in the environment. While the BLM is the lead agency with authority over the proposed exploratory drilling activities (described in the Plan), pursuant to requirements under the California Surface Mining and Reclamation Act of 1975 (SMARA) for projects that would entail over one acre of surface disturbance, a Reclamation Plan is also required to be approved by Imperial County, which addresses the reclamation activities that would be undertaken following completion of the proposed exploratory drilling activities. As the authorized SMARA lead agency, Imperial County has sole discretion over approval of the Reclamation Plan for the proposed Project. A Reclamation Plan (Sespe 2022) has been submitted to Imperial County (Reclamation Plan #21-0001) in compliance with SMARA and would be implemented should the Project be approved by Imperial County. Reclamation of the proposed 20.54 acres of surface disturbance associated with mineral exploration (described further in **Section 2.1.2** and in the Reclamation Plan on file with Imperial County) in accordance with SMARA, is the "project" as defined under CEQA, and evaluated within this document.

1.3 Decision to Be Made

The decision the BLM would make, based on the analysis conducted under NEPA, includes the following options: 1) approve the Plan with no modifications; 2) approve the Plan with additional mitigation measures that are needed to prevent unnecessary or undue degradation of public lands and to reduce or eliminate the effects of the Proposed Action or Action Alternatives; or 3) deny the approval of the Plan as currently written and not authorize the Project if it is found that the Proposed Action does not comply with the 43 CFR 3809 regulations and FLPMA mandate to prevent unnecessary or undue degradation.

The decision Imperial County would make, based on the analysis conducted under CEQA, would be determined by whether the results of the IS show there is no substantial evidence that the Project may have a significant effect on the environment, or if the IS identifies potentially significant effects but a proposed MND shows that the Project would avoid the effects or mitigate the effects to a level where no significant effects would occur. Pursuant to the County of Imperial Guidelines for Implementing CEQA, Imperial County is the designated CEQA Lead Agency in accordance with Section 15050 of the referenced guidelines; therefore, Imperial County has the principal responsibility for approving the necessary environmental clearances and analysis for any project within Imperial County, as well as for certifying the appropriate CEQA document, for which the Project's Reclamation Plan would be approved under SMARA. Imperial County's discretionary authority relates to approval of the Reclamation Plan.

1.4 Land Use Plan Conformance

The BLM is responsible for the preparation of this EA, which was prepared in conformance with NEPA, applicable laws and regulations passed subsequently, including President's Council on Environmental Quality (CEQ) regulations implementing NEPA (40 CFR 1500-1508), United States (US) Department of the Interior requirements, and the policy guidance provided in the BLM NEPA Handbook H-1790-1 (BLM 2008). Under 43 CFR 3809.415, the operator of the plan of operations must prevent unnecessary or undue degradation to the public lands. The Proposed Action is in conformance with FLPMA in ensuring that resource protection is not compromised in accordance with the mandated principles of FLPMA. The Proposed Action is also in conformance with the California Code of Regulations, Title 14, Chapter 3,

Section 15000, et. seq., for Imperial County implementation of CEQA and the Imperial County General Plan, which was completed in 1993 to provide a balance of land use policies and programs with the goal of maintaining the "quality of life" in the region (Imperial County 2015). The Project would not result in changes to the Imperial County General Plan or existing zoning designations (the Project Area is zoned as "BLM").

The Proposed Action is in conformance with the California Desert Conservation Area (CDCA) Plan and the DRECP Land Use Plan Amendment (LUPA), which amended the CDCA Plan. Relevant LUPA and ACEC goals and objectives under the DRECP for biological, air, cultural, mineral, paleontological, soil and water, and visual resource management resources are outlined in the Conservation Management Action (CMA) tables provided in **Appendix B**. The Proposed Action detailed above specifically conforms to the following Land Use Plan objectives from the CDCA and DRECP:

- Encourage the development of mineral resources in a manner which satisfies national and local needs and provides for economically and environmentally sound exploration, extraction and reclamation practices.

- Support responsible mining and energy development operations necessary for California's infrastructure, commerce and economic well-being.

The Proposed Action would include the implementation of best management practices (BMPs), applicant-committed environmental protection measures (Project Design Features [PDFs], **Appendix F**), and avoidance and minimization measures. Additional CMAs and mitigation measures would also be implemented in conformance with the DRECP LUPA (BLM 2016) and per BLM requirements (**Appendix F**). CMA LUPA-MIN-6 for new or expanded mineral operations would be implemented for consideration of all resources and compliance (**Appendix F**).

1.5 Relationship to Statutes, Regulations, Other NEPA Documents

This EA/MND has been prepared to comply with NEPA, one of many authorities that contain procedural requirements that pertain to treatment of elements of the environment when the BLM is considering a federal action, and with CEQA. The Proposed Action and the No Action Alternative are consistent with federal, state, and local laws, regulations, and plans and programs. The Proposed Action and the No Action Alternative are also consistent with state plans and policies for the management of mineral and water resources, conservation of threatened and endangered species (Endangered Species Act of 1972 [ESA]) and special status species, and cultural resources protection (National Historic Preservation Act of 1966 [NHPA]), including the DRECP LUPA (BLM 2016) and the Imperial County General Plan (Imperial County 2015). The Proposed Action is in compliance with Sections 401 and 404 of the Clean Water Act (CWA) and the Navigable Waters Protection Rule (NWPR), California Water Code (Chapter 2 Section 13050), and the California Fish and Game Code (Section 1600) for Project permitting in relation to determining jurisdictional waters and aquatic resources. The Project would also comply with SMARA, including applicable performance standards related to post-exploration site reclamation. Any decision would assure that the action is in the public interest, that there are no hazards to public health and safety, and that the action minimizes and mitigates environmental damage. All activities discussed in the sections below would be in compliance with appropriate federal, state, and local laws in cooperation with all appropriate federal, state, and local agencies.

1.6 Organization and How to Use This EA/MND

The purpose of this Environmental Assessment (EA)/Mitigated Negative Declaration (MND) is to identify issues, analyze alternatives, and disclose any potential environmental impacts associated with the Project as well as to complete an Initial Study (IS) for the Project and disclose impact analyses and any required

mitigation measures in instances where potential impacts were found to be significant. NEPA mandates that the BLM evaluate or analyze the environmental impacts of a proposed project (Proposed Action) and reasonable alternatives (including the No Action Alternative) and determine if the Proposed Action would create unnecessary or undue degradation of the public lands, as defined by the 43 CFR 3809 Regulations, and also consider and evaluate appropriate mitigation measures. Similarly, CEQA mandates that Imperial County evaluated an analyze the environmental impacts of the proposed Project, which, in the case of CEQA, is the approval of the Reclamation Plan and the undertaking of the activities described therein. Furthermore, CEQA also mandates that any environmental impacts found to be potentially significant be avoided or mitigated.

This EA/MND is intended to provide the BLM, as the lead federal agency under NEPA (42 United States Code [USC] 4321 et seq.), and Imperial County, as the state Lead Agency under CEQA (Public Resources Code 21000 et seq.), and other cooperating agencies with the information required to exercise their discretionary responsibilities with respect to the Project. An EA is prepared in accordance with NEPA to analyze impacts of the Project and to issue a Finding of No Significant Impact, if applicable. An IS/MND are prepared in accordance with CEQA to analyze and disclose impacts of a project when project revisions and/or mitigation measures are made or agreed to by the Proponent that ensure potential significant effects on the environment would be avoided or mitigated to a point where clearly no significant effect on the environment would occur and to where there is no substantial evidence that a project may have a significant effect on the environment. This EA/MND is a joint document to fulfill both NEPA and CEQA requirements for analysis of the Project. **Table 1-1** includes a list of terminology that is comparable in NEPA and CEQA and throughout this document.

Table 1-1 Equivalent NEPA and CEQA Terminology

NEPA Terminology	CEQA Terminology
Environmental Assessment • Proposed Action	Mitigated Negative Declaration • Project • Proposed Project
Purpose and Need	Project Objectives
Affected Environment	Environmental Setting
Environmental Impacts	IS Checklist and Impact Analysis

This document is organized as follows:

- **Chapter 1** provides the Lead Agency information, purpose and need/Project objectives, the decision to be made, conformance to existing land use plans and relevant statutes and regulations, and document organization.

- **Chapter 2** provides a description of the proposed Project, including the location and PDFs/applicant-committed environmental protection measures. Chapter 2 also describes the No Action Alternative as required under 40 CFR 1502.14(c) to provide an appropriate basis to compare all other alternatives and discussion of alternatives considered but eliminated from detailed analysis.

- **Chapter 3** provides the IS for the Project and impact analysis under CEQA, as well as mitigation measures required for the affected resources, as appropriate. This chapter also provides a description of the affected environment, analysis of the environmental impacts under NEPA for the Proposed Action and No Action Alternative, and a discussion of cumulative effects from the Project for the affected resources, as appropriate.

- **Chapter 4** provides an overview of the consultation, coordination, and public participation efforts made for the Project and review of this EA/MND.

A complete list of acronyms and abbreviations used in this document is provided in **Appendix C**, and a list of references cited in this document is provided in **Appendix D**.

2.0 Proposed Action and Alternatives

This chapter describes the proposed Project, referred to herein as the Proposed Action, the No Action Alternative, and other alternatives considered but eliminated from analysis in this EA. In accordance with 40 CFR 1501.5, agencies must include brief discussions of the alternatives to the Proposed Action under the requirements of Section 102(2)(E) of NEPA, which requires agencies to study, develop, and describe appropriate alternatives to recommended courses of action in any proposal that involves unresolved conflicts concerning alternative uses of available resources. Alternatives should be explored and objectively evaluated in the EA.

The BLM NEPA Handbook (H-1790-1) indicates that the range of alternatives should explore alternative means of meeting the Purpose and Need for the action (BLM 2008). The Purpose and Need statement helps to define the range of alternatives. Within the range of alternatives evaluated, the EA must at least consider the Proposed Action and No Action Alternative and provide a description of alternatives eliminated from further analysis (if any exist), with the rationale for elimination. The agency must analyze those alternatives that are necessary to permit a reasoned choice.

2.1 Proposed Action

Exploration activities would consist of utilizing the existing road network for Project access; constructing approximately two miles of road improvements for existing roads, constructing approximately 6.2 miles of new, temporary 12-foot-wide exploration drilling access roads (which would be dependent on accessibility of drill site locations chosen for exploration activities), eight helicopter landing pads, and 65 drill pads to support exploration in seven drill areas; and constructing 1.8 miles of a new 15-foot-wide access road and a staging area for access to the Project Area and the underground existing Oro Cruz Mine Portal for underground exploration within Drill Area 1, all on BLM-administered lands (**Figure 2-1**). The proposed disturbance would create up to 20.54 acres of surface disturbance under the Proposed Action. **Table 2-1** outlines the total acreage of proposed surface disturbance by type of disturbance and the total disturbance for the Project.

The exact location of proposed surface disturbance may change based on exploration results as exploration operations progress; therefore, the full extent of the disturbance locations has not been defined. Each campaign of drilling would determine the subsequent locations of proposed disturbance based on the geology or mineralization found. Additional details regarding the Proposed Action, along with specific safety plans, can be found in the Existing Oro Cruz Pit Area Exploration Plan of Operations (Plan) (SMP 2021) (**Appendix A**).

Table 2-1 Proposed Surface Disturbance

Surface Disturbing Activity	Proposed Surface Disturbance (acres)*
Improvements to Existing Access Roads	1.43
New Project Access Road	3.31
Staging Area	2.80
Drill Area 1	1.85
Drill Area 2	3.83
Drill Area 3	1.69
Drill Area 4	1.18
Drill Area 5	1.19
Drill Area 6	0.77
Drill Area 7	2.48
Total Proposed Surface Disturbance	**20.54**

Source: SMP 2021
*Total proposed surface disturbance within Drill Areas 1 through 7 includes the acres of the approximately 6.2 miles (non-consecutive) of proposed temporary drilling access roads anticipated to be constructed within each respective drill area, and the associated drill pads for exploratory drilling sites.

Project personnel would include one operator and foreman per drill rig and one water truck driver for two 12-hour shifts per day. A geologist would also be on-site each day (Tupper 2022).

Project personnel would access the Project Area in four-wheel drive vehicles. Up to two track-mounted drill rigs would be used for drilling in the Project Area at once. Generally, a CAT D8 bulldozer, or equivalent, and a track hoe and/or hoe ram would be used to construct the roads and drill sites where needed. Roads and drill sites would be reclaimed using a bulldozer and/or CAT excavator or equivalent. At any time, one track-mounted drill rig, two 1,000-gallon water trucks, one 2,000-gallon portable water tank for water delivery to the Project, up to five support vehicles, one pipe truck, one 125-kilowatt (kW) generator associated with the drill rig and two 125-kW generators associated with the staging area, two portable air compressors, and one diesel fuel tank would be present within the Project Area.

The helicopter used for access to the eight proposed drill pads not accessible via road or vehicle and to and from the staging area would be flown during daylight hours and would originate from the Yuma Airport. The helicopter would operate up to 10 trips per day during drilling operations and would provide drilling crew member access and delivery of water, fuel, and drilling supplies. The helicopter would be in use at the Project for up to 64 days as drilling operations would be conducted at each drill site for four to eight days over the life of the Project.

2.1.1 Construction Methods

Staging Area
SMP would construct a 2.8-acre staging area in the Project Area to be used as an ancillary area and for exploration activities within the proposed Drill Areas and to access the underground Oro Cruz Mine portal for underground exploration. The staging area would house a 1,000-gallon diesel fuel tank and fueling station, helicopter landing area with a 300-gallon jet fuel tank and refueling station, two diesel-powered generators, two portable compressors, parking for access to the underground mine, a small office and dry shop, and laydown areas for exploration drilling. The staging area would be fenced and gated to prevent public access during Project implementation and through reclamation.

Drilling Areas and Drilling Procedures
Up to 65 drill sites for boreholes are proposed within the Project boundary using reverse circulation or core techniques. The boreholes would be sited within seven Drill Areas (**Figure 2-1**) using a track-mounted drill rig. The anticipated maximum depth for each borehole is approximately 800 feet. Once each borehole is completed, drillers would abandon the hole in accordance with the most current edition of State Water Resources Control Board Bulletin #74-81 and #74-90 prior to continuing on to the next drill site. Each drill site would require a drill pad that would encompass approximately 0.06 acres of surface disturbance within the Project Area. Drill pads would be constructed at approximately 60 feet by 40 feet, the area of which would be cleared in order to hold the drilling collar and sumps for drilling mud (wastewater and fluid), along with all drilling equipment and personnel during construction. Sumps would be approximately 12 feet by 12 feet, six feet deep, and sloped at a ratio of approximately 2H:1V (horizontal to vertical) on one side to allow for wildlife egress out of the sump, if needed. Any water encountered or generated by drilling would be fully contained within the drill sumps, which would be backfilled when drilling is completed and once all water is evaporated.

<u>Helicopter-Accessed Drill Sites</u>
Drill sites requiring helicopter access would be cleared by hand where necessary and would require a drill area that is at maximum 60 feet by 40 feet. The proposed helicopter drill rigs are unitized to enable

disassembly, and complete equipment specifications are further described in the Plan (SMP 2021). The helicopter would be used to complete heavy lifts and deliver the drilling rig components in sequence on a long-line lanyard for reassembly at each site. A steel skid would be placed directly on the ground surface if a level drill is able to be established using hand tools. If additional leveling is required, 10-inch by 10-inch timbers would be used to create a temporary cribbing structure for the skid set to sit on. The cribbing would not exceed four feet in height at the low elevation points of the drill site. The cribbing would be fastened together using steel spikes and fully disassembled and removed upon completion of each drill hole. Helicopter-accessed drill sites would include all drilling equipment and personnel during construction and operation, as well as two hand dug sumps (12-feet by 12-feet) on the downslope sidehill. A portable toilet would be provided at each site. No support trucks or water trucks would be provided at the helicopter-accessed sites, as they would be accessed by helicopter and cleared entirely by hand. Water, fuel, and supplies required for the drilling process would be delivered by helicopter. When necessary, daily crew changes would be conducted by helicopter.

Access, Road Improvements, and Construction

Access to the proposed drill pads would be gained via existing and new roadways and via a helicopter originating daily from the Yuma Airport. Existing BLM-authorized access roads would be used to the extent possible, including Interstate 8, Blythe Ogilby Road (State Route 34), and Gold Rock Ranch Road. Where existing access roads are not accessible for the Project Area, SMP proposes to construct an estimated 6.2 miles of temporary access roads for exploration drilling. New access roads for exploration drilling would not disrupt the surface except where necessary to gain safe access. These roads would be used temporarily for access to the drill sites and would require a 12-foot width for drilling equipment access. New access roads would be used strictly for Project support vehicles to access the exploration Drill Areas and would be equipped with signage noting restricted access. The exact location of proposed surface disturbance associated with the new temporary access roads may change as exploration activities progress, dependent upon the exact drill sites chosen; therefore, the full extent of the disturbance locations has not been defined because each campaign of drilling would determine the subsequent locations of proposed disturbance based on the geology or mineralization found during drilling activities within each Drill Area. SMP also proposes to construct an estimated 9,640 linear feet (1.8 miles) of a new 15-foot-wide road for access to the proposed staging area, which would remain as a post-closure feature after the one to two years of exploratory drilling has been completed to support reclamation, monitoring, and underground exploration activities, which would be completed and remaining surface disturbance reclaimed within five years from Project implementation. The road would be secured from unauthorized access for the duration of the Project, including post-closure activities. A gate would be constructed and placed across the road along with implementation of sufficient deterrents (fencing, a berm, or large boulder) on either side of the gate.

The helicopter used for access to up to eight drill pads would be flown during daylight hours and would be in use up to 64 days at the Project. The helicopter would operate up to 10 trips per day during drilling operations and would provide drilling crew member access and delivery of water, fuel, and drilling supplies.

To restrict access to Drill Areas 1 and 6, where needed, barriers constructed of on-site materials from areas disturbed by the Project would be installed to prevent unauthorized vehicular traffic from interfering with the reclamation of access roads, and signs would be posted indicating such roads were accessible for authorized use only. The conceptual locations of the planned safety barriers (or berms) are shown in **Figure 2-1**. Berms would be six feet in height and placed along new access routes to prevent public access to the Drill Areas. To restrict access to Drill Areas 2 through 5 and Drill Area 7, Gold Rock Ranch Road is equipped with an existing gate at the intersection with Tumco Wash that would serve as a safety barrier from the Project Area access roads. Road fill would be stabilized and maintained during and following construction to prevent erosion.

Road construction would be conducted using a CAT D8 bulldozer or equivalent. Vegetation disturbance would be avoided to the maximum extent possible. No maintenance is planned for improved existing roads,

as the Project would use existing roads for approximately 12 to 24 months during active drilling, after which the roads would be reclaimed to pre-disturbance conditions through revegetation. Road improvements would require selected stretches of existing access roads to be bladed and cleared of vegetation. Most of the existing roads in the Project Area are approximately six feet wide, and it is assumed that road improvements would require approximately six feet of additional disturbance for road widening.

Water Management
Water would be required during drilling activities, and the drill holes could encounter groundwater during such activities. Water for both drilling and dust suppression would be provided by the drilling company via a water truck and would be procured from the nearby Gold Rock Ranch RV Resort, a local water purveyor, and/or the City of Yuma. It is anticipated that two 1,000-gallon water trucks would be required on-site each day. A 2,000-gallon portable water storage tank would also be available on-site for drilling and dust suppression.

Potentially encountered groundwater from drilling would be minimal in volume and would mix with bentonite drilling mud and ground rock at depth within a drill hole. Water would be managed at each drill site after it is pumped out of the drill holes by recirculating it for use in the drilling process, removing the water and hauling it away, or by evaporation and allowing solids to settle in excavated mud pits or sumps at the drill site. The sumps would be backfilled after the water has evaporated and drilling operations have been completed at the drill site. There would be no discharges outside the drill site or in surface tributaries, and no pollutants would be discharged in accordance with requirements of the CWA. Additionally, as required, the Project would be conducted pursuant to the State of California Construction General Permit for stormwater discharges.

Upon completion of exploration activities, exploratory boreholes would be sealed and abandoned in compliance with the most current edition of the State Water Resources Control Board Bulletin #74-81 and #74-90.

Hazardous and Solid Waste Management
No hazardous substances would be used during exploration activities, and no hazardous substances would be generated by the Project.

Fuel and lubricants would be stored in a reservoir to prevent leakage. During exploratory drilling activities, the drill rig would be parked on top of plastic sheeting overlain by absorbent clay or shale substances. A Spill Contingency Plan is outlined in Section 4.8 of the Plan (**Appendix A**) to prevent, control, and mitigate releases of oil and petroleum products to the environment (SMP 2021).

Solid waste generated by the Project would be collected in appropriate containers and removed from the Project Area. Project-related refuse would be hauled to an authorized landfill for disposal in accordance with applicable laws and regulations. No refuse would be disposed of on-site in the Project Area.

Schedule
Project mobilization, road construction, drilling, and borehole abandonment would be completed within 12 to 24 months. Drilling operations would be conducted at each drill site for four to eight days. Construction activities at the staging area, underground drilling via the Oro Cruz Mine Portal (located within Drill Area 1), and exploratory drilling within Drill Area 1 (**Figure 2-1**) would be implemented first. It is anticipated that one or two drill rigs would be in operation at a time within the Project Area and would operate on either a 12- or 24-hour-per-day schedule, at 12 hours per shift. Drill Areas would potentially be revisited a second or third time for additional drill site locations based on the initial findings.

2.1.2 Reclamation and Monitoring

As stated in **Section 1.1**, a Reclamation Plan has been prepared for the Project in accordance with the requirements under SMARA. The proposed exploration operations and site reclamation of the Project is evaluated within this EA/MND pursuant to CEQA. A summary of the Reclamation Plan is provided below, and complete details are provided in *SMP – Oro Cruz Exploration Project Reclamation Plan* (Sespe 2022), on file with Imperial County (Reclamation Plan #21-0001).

Reclamation Schedule
Exploration activities would occur over approximately two years, inclusive of ongoing reclamation at completed drill sites throughout the life of the Project, with active drilling exploration expected to occur in stages over that period. SMP would reclaim the Project Area to a state readily adaptable for land uses consistent with mining, recreational uses, and open space to complement adjacent land uses. Exploration and reclamation activities would comply with all Mine Safety and Health Administration (MSHA) and California's Division of Occupational Safety and Health safety regulations concerning operating standards and operation of equipment (Sespe 2021).

Due to the small-scale nature of the Proposed Action, the Project is not anticipated to result in substantial environmental impacts and, thus, would not require extensive monitoring upon closure. Reclamation would occur concurrently with exploration activities. Once access to the Project Area is no longer required by SMP, the Project Area would be reclaimed and revegetated, after which point it would be monitored and maintained annually in late spring or early summer for three years to ensure that revegetation efforts have been established and reclaimed areas are stable.

Project reclamation would be completed concurrently for exploratory drilling activities, and monitoring for the success of reclamation of those areas would be completed within five years of Project implementation. The access road for access to Drill Area 1, the staging area, and underground activities at the Oro Cruz Mine Portal within Drill Area 1 would remain post-closure until underground exploration activities are completed, which would be completed and remaining surface disturbance reclaimed within five years from Project implementation.

Drill Pads
Once drilling is completed, each drill pad would be graded and recontoured, and a seed mix would be applied to reestablish vegetation communities. Revegetation would require site-appropriate, BLM-approved native seed mixtures. A diverse native plant community would be targeted through the definition of seed mixtures and application rates. Just prior to seeding, the qualified biologist/revegetation specialist would determine the final species type and application rates based on the amount and quality of the seeds that are sourced for the Project. The seed mix would be designed to include native, non-invasive species that are compatible with the existing landscape and diversity of species and plant type to promote a sustainable vegetative cover as well as a variety of germination periods and seasonal growth. Detailed information of the type and amount of seeds planted would be recorded. During construction, the sumps at each drill pad would house drilling fluids, and the excavated materials would be placed at the sites of the pads and stored until backfilled into the sumps as part of reclamation, which would be followed by pushing any salvaged topsoil/subsoils. The sumps would be allowed to evaporate before backfilling would occur.

Roads
The proposed new roads that would be constructed under the Proposed Action would be temporary and reclaimed concurrently throughout the life of the Project, except for the new road for access to the underground portal (**Figure 2-1**), which would be considered the main entrance road to the Project Area after construction and would remain through completion of underground exploration and post-closure reclamation and monitoring activities, which would be completed and remaining surface disturbance reclaimed within five years from Project implementation. The interface between existing roads and the

proposed temporary access roads would be camouflaged with vertical mulching. Roads would be reclaimed by placing recovered topsoil/subsoil stored along the roadway edges and blading the surfaces prior to revegetating. The same seed mix that would be applied to the drill pads would be used for revegetation along the roads. Pre-existing roads would be maintained per existing conditions and would not be reclaimed as they represent pre-existing disturbance and would continue to be used in the future as they are currently.

Closure of roads that are not needed for post-closure access would involve recontouring fill while maintaining satisfactory drainage. Roads not needed for post-closure access would be reclaimed. Where necessary, rock or earthen berms and water bars would be placed to prevent vehicular access and reduce erosion.

Slopes and Regrading
Significant recontouring and/or revegetation of slopes is not anticipated as no significant slopes would be created as a result of the proposed exploratory drilling and related ancillary operations. If needed, SMP would flatten all slopes and floors using mobile equipment to ensure no slopes exceed a 2H:1V (horizontal to vertical) angle in accordance with the performance standards of SMARA Section 3704. Following abandonment of the exploratory boreholes, any remaining drill cuttings would be spread out on the drill pad surfaces and reseeded in accordance with the revegetation measures discussed below. Proposed revegetation in applicable portions of the Project Area would help to further stabilize any regraded areas and slopes and would prevent erosion once roots are established.

Backfilling
No mining excavation would occur as the Project includes exploration drilling activities; therefore, significant backfilling of materials would not be required, and no mine wastes and/or tailings would be generated by the Project.

Salvaged Soil
There is limited potential to salvage topsoil and subsoil for use as a growth medium for revegetation; topsoil and subsoil would be salvaged where feasible by pushing the material along the edge of the drill pads and along the sides of the proposed new access roads. Once drilling is complete, the stored topsoil and subsoil would be spread out and reseeded.

Exploratory drilling would utilize mud sumps to house drilling fluids, which would be dug during development of the drill pads or as part of the drill rig setup. Once drilling is complete, each exploratory borehole would be abandoned in accordance with Imperial County drilling permit conditions and applicable state standards. The mud pits would be allowed to evaporate, and the stored excavated materials would then be reintroduced into the pits, followed by pushing salvaged topsoil/subsoils. Any topsoil or subsoil that is salvaged would be reseeded as part of the revegetation efforts.

Revegetation
Portions of the Project that are proposed to be reclaimed for open space would be reseeded to establish a vegetative landscape that is generally similar to the existing plant communities within the Project Area. Following completion of exploratory drilling, equipment demobilization, and surface preparation of the roads and drill pads, revegetation activities would be undertaken, including installation of erosion control devices where necessary, such as waddles; application of seed mix either by hydroseeding or mechanical broadcasting; and maintenance and monitoring. Prior to application of the proposed seed mixes, SMP would work closely with a qualified biologist/revegetation specialist to review the final contours, hydrology, and soil composition of the areas proposed for revegetation to determine optimal broadcast rates and modify the overall revegetation plan, as appropriate. Revegetation would ultimately be achieved through a combination of site preparations, planting activities, and ongoing maintenance procedures. A detailed revegetation plan, including proposed seed mix specifics, is provided in the Reclamation Plan (Sespe 2022).

2.1.3 Project Design Features

PDFs would be implemented to protect resources during mineral exploration activities that would be conducted under the Proposed Action. PDFs that would be implemented under the Proposed Action are included in the Plan (SMP 2021) and **Appendix F**.

2.2 No Action Alternative (NEPA)

Under the No Action Alternative, the Project would not be approved by the BLM. The 626.3-acre project area would remain available for other existing and future multiple-use activities, including future mineral exploration and mining activities, or for other purposes, as approved by the BLM.

2.3 Alternatives Considered but not Analyzed in Detail (NEPA)

2.3.1 Access Road Restriction Alternative

Under this alternative, the BLM considered restricting access to the Project via the existing access road (an unnamed BLM road) off of Blythe Ogilby Road that runs through the Tumco Wash (**Figure 2-1**) to prevent vehicles and equipment from traveling and operating within the wash. This alternative was assessed to determine feasibility of restricting Project access away from the washes, thus reducing impacts to desert tortoise habitat that is used for forage and shelter. This altemative was ultimately dismissed, as the existing access road through the Tumco Wash (**Figure 2-1**) would require no improvements and would be necessary for access to the west and north portions of the Project Area with minimal environmental impacts beyond existing conditions as the road is currently used by commercial activities for access to existing operations in the vicinity. Therefore, this alternative was deemed not environmentally reasonable, as road improvements or new road construction for Project Area access would have greater environmental impacts than use of the existing access road through the Tumco Wash that does not require improvements. Under the Proposed Action, SMP has included several PDFs (**Appendix F**) to minimize impacts to desert tortoise, and the BLM would require a mitigation measure for SMP to install exclusionary fencing around the access road to prevent desert tortoise crossings and collisions with individual species within the wash.

2.3.2 Seasonal Restriction Alternative

Under this alternative, Project activities would be restricted to the summer season (June through August). This alternative was assessed to determine feasibility of conducting exploratory drilling and associated activities during the recreation off-season when recreationalists would be less likely to visit the Project Area due to extreme temperatures. This alternative was not carried forward for analysis as the seasonal restriction would overlap with the avian nesting season (February 1 – August 31), potentially causing additional impacts to avian species and their nests that are present in the Project Area if exploratory drilling activities were to commence only during the summer months, making this alternative not environmentally feasible as it would lead to greater environmental impacts to wildlife species. Additionally, this alternative could lead to greater human health and safety concerns due to Project personnel working in high temperatures during the summer season, which could lead to unsafe working conditions and greater risk of heat stress. Therefore, this alternative was deemed infeasible. Under the Proposed Action, notices would be posted on the BLM's website and at designated recreational sites in the area notifying the public of dates and times that drilling would occur, bringing awareness to potential elevated levels of noise and activity in the Project Area.

2.3.3 Helicopter Access Only Alternative

This alternative was assessed to determine the feasibility of accessing all proposed drill sites by helicopter to minimize surface disturbance. Under this alternative, there would be no construction of new access roads or any road improvements. This alternative was dismissed from analysis as it was determined that it would lead to greater human health, safety, and biological concerns; therefore, this alternative was deemed not environmentally reasonable. As described in the Plan, SMP requires the construction of a new road to access the Oro Cruz Mine Portal and staging area within Drill Area 1 (**Figure 2-1**). The increase in noise generated by helicopter use for access to all drill sites would increase impacts to wildlife and recreation, and human health and safety would be impacted from the safety concerns of increased helicopter use.

3.0 Affected Environment and Environmental Impacts

This chapter describes the affected environment and existing conditions that have the potential to be affected by activities related to the Proposed Action and alternatives described in **Chapter 2**, as well as the anticipated environmental impacts and impact analyses of implementing these actions. This chapter combines the discussion of environmental impacts in accordance with the requirements of NEPA and the analysis of the Project's potential impacts on the environment in accordance with CEQA, which is presented using the CEQA IS format, specifically Imperial County's applicable checklist from Appendix G of the State CEQA Guidelines (CCR, Title 14, Division 6, Chapter 3, 15000-15387).

To comply with NEPA, the BLM is required to address specific elements of the environment that are subject to requirements specified in statutes, regulations, or by Executive Order (EO). The resources listed in **Table G-1** of **Appendix G** have been reviewed and identified by BLM resource specialists as either 1) not present in the area impacted by the proposed or alternative actions, 2) present, but not affected to a degree that detailed analysis is required, or 3) present with potential for relevant impact that needs to be analyzed in detail in the EA. **Table G-1** of **Appendix G** lists the resources considered for analysis that may be affected by the Proposed Action or alternatives and that are discussed further in this chapter. Those elements listed in **Appendix G** that are not present within the Project Area or areas of analysis are not discussed further in this EA. The IS/MND identifies site-specific conditions and Project-specific impacts, evaluates their potential significance pursuant to applicable CEQA thresholds, and proposes ways to sufficiently avoid or mitigate impacts that are potentially significant to less than significant levels. The IS/MND was completed by Imperial County as the lead agency analyzing the Project, specifically approval of the Reclamation Plan, in accordance with CEQA. The information, analysis, and conclusions included in the IS/MND provide the basis for determining the appropriate document needed to comply with NEPA and CEQA. Based on the analysis provided herein, it was determined that the Project would not have a significant impact on the environment through implementation of applicable mitigation measures. The determination of significance under NEPA occurs via a FONSI, as appropriate. The FONSI has been prepared under separate cover and was published, unsigned, for a 30-day public review period concurrent with the EA. Based on the results of the IS/MND, the BLM and Imperial County determined that an EA/MND was the appropriate NEPA and CEQA document for the Project per the analysis provided in this chapter.

3.1 NEPA Environmental Impacts

This chapter presents an analysis of the potential environmental impacts of the Proposed Action and the No Action Alternative in accordance with NEPA. The analysis areas vary by resource and are discussed under each respective Affected Environment section below. The analysis of the Project includes direct, indirect, and cumulative effects. The CEQ Regulations define direct effects as those which are caused by the action and occur at the same time and place, and indirect effects as those which are caused by the action and occur later in time or are further removed in distance. In accordance with NEPA, determination of significance is reserved for the FONSI prepared for the Project, as appropriate. The effects analysis definitions considered for each of the resources considered for analysis in this chapter are provided below:

Negligible: Impacts to resources could occur, but they would be so slight as to not be measurable or distinguishable from existing conditions.

Minor: Impacts to resources would be measurable or perceptible and local; however, the overall viability of the resource would not be affected, and without further adverse impacts, the resource would recover. Impacts would be detectable.

Moderate: Impacts would be sufficient to cause a change in the resource viability; however, the effect would remain local. The change would be measurable and perceptible, but the negative effects may be reversed in the long term.

Major: Impacts would be substantial, highly noticeable, and may be permanent in their effect on resources without active management.

Short-term: Impacts to resources would occur up to two years, which is the anticipated duration of Project construction and operations.

Long-term: Impacts to resources would occur past the life of the Project and reclamation, which in total is anticipated to occur up to five years.

Localized: Impacts are confined to a small part of the resource area of analysis or range, or within the Project Area.

Regional: Impacts would affect a widespread area beyond the resource's area of analysis.

Cumulative impacts are determined by analyzing potential impacts from past, present, and reasonably foreseeable future actions (RFFAs) combined with the action alternatives within the Cumulative Effects Study Area (CESA) specific to the resources for which impacts may be anticipated. This analysis focuses on cumulative impacts of the Proposed Action and the action alternatives within the CESA. Major past and present land uses and disturbances within the CESAs that are projected to continue into the future include mineral development and exploration, utilities, infrastructure and public purpose projects, and roads. Dispersed recreation (including hunting and off-highway vehicle [OHV] use) also occurs and is expected to continue in portions of the CESAs. Past and present actions are included in the affected environment descriptions in this chapter as they are part of the existing environment. Cumulative impacts are analyzed for resources where an impact above negligible was identified within the analysis of environmental impacts. If the Proposed Action was determined to have a negligible or no impact with the implementation of PDFs or additional mitigation measures, a cumulative analysis was not completed as there would be no impact to add to the environment (see BLM Handbook H-1790-1, p. 57). Cumulative impacts for Air Quality, ACECs, Climate Change, Conservation Lands, Cultural Resources, Environmental Justice, Noise, Travel and Transportation, Visual Resources, and Water Resources were not included based on the outcome of the impact analysis herein. The boundaries of the CESAs delineated for a cumulative impacts analysis vary by resource and considered the extent to which the environmental effect from the Project could be reasonably detected and defined the geographic area impacted. Cumulative effects were evaluated in terms of the specific resource, ecosystem, and human community being impacted.

3.2 CEQA Checklist and Impact Analysis

The IS (IS #21-0029) evaluates environmental impacts based in part on the checklist criteria contained in Appendix G of the State CEQA Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3, 15000-15387); these questions, which are included in an impact assessment matrix for each environmental/resource category are guidelines "intended to encourage thoughtful assessment of impacts" and guide the determination of significance of potential project impacts. Where there is a possibility for the action to affect a specific resource, there is a discussion of the direction and magnitude of the impact. Each question is followed by a check-marked box with column headings that are defined below:

- **Potentially Significant Impact.** This column is checked if there is substantial evidence that a Project-related environmental effect may be significant. If there are one or more "Potentially Significant Impacts," a Project EIR may need to be prepared.

- **Less than Significant with Mitigation.** This column is checked when the Project may result in a significant environmental impact, but the incorporation of identified Project revisions or mitigation measures would reduce the identified effect(s) to a less than significant level.
- **Less than Significant Impact.** This column is checked when the Project would not result in any significant effects. The Project's impact is less than significant even without the incorporation of Project-specific mitigation measures.
- **No Impact.** This column is checked when the Project would not result in any impact in the category or the category does not apply. When the determination in the checklist is "No Impact", and there is no possibility for the Project to have an effect on the resource, there is no explanation of the answer. Where this Project could be presumed to have an effect on the resource in question, there is an explanation provided for any "No Impact" determinations. All other determinations are accompanied by an explanation.

3.2.1 Potentially Affected Environmental Factors

The following environmental factors below in **Table 3-1** would be potentially affected by this Project.

Table 3-1 Environmental Checklist

☒	Aesthetics	☒	Agriculture and Forestry Resources	☒	Air Quality
☒	Biological Resources	☒	Cultural Resources	☒	Energy
☒	Geology /Soils	☒	Greenhouse Gas Emissions	☒	Hazards & Hazardous Materials
☒	Hydrology / Water Quality	☒	Land Use / Planning	☒	Mineral Resources
☒	Noise	☒	Population / Housing	☒	Public Services
☒	Recreation	☒	Transportation	☒	Tribal Cultural Resources
☒	Utilities/Service Systems	☒	Wildfire	☒	Mandatory Findings of Significance

Detailed descriptions and impacts from Project activities and the basis for their significance determinations are provided for each environmental factor in the remainder of this chapter. Relevant laws, regulations, and policies potentially applicable to the Project Area are discussed in **Section 1.4**.

3.2.2 Agency Determination

After review of the Initial Study (IS #21-0029, incorporated herein throughout the remainder of this chapter), the Environmental Evaluation Committee has:

☐ Found that the proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ Found that although the proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the Project have been made by or agreed to by the Project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ Found that the proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE DE MINIMIS IMPACT FINDING: ☐ Yes ☐ No

for [illegible] 8-31-2023

Signature Date

Jim Minnick
Director of Planning/Environmental Evaluation Committee Chairman
Imperial County Planning Department

3.3 Air Quality

3.3.1 Initial Study Determination (CEQA)

Table 3-2 provides the impact determinations for air quality based on significance criteria established by the Imperial County Air Pollution Control District (ICAPCD).

Table 3-2 Air Quality Environmental Checklist

Air Quality Criteria		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a)	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b)	Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c)	Expose sensitive receptors to substantial pollutants concentrations?	☐	☐	☒	☐
d)	Result in other emissions (such as those leading to odors adversely affecting a substantial number of people)?	☐	☐	☐	☒

3.3.2 Affected Environment

The area of analysis is the Project Area and proposed disturbance footprint, which includes drill areas and access roads (**Figure 3-1**). The federal Clean Air Act is the primary controlling legislation over air quality. Ambient air quality and the emission of air pollutants are regulated under both federal and state law and regulations. Ambient air quality is affected by the type and amount of air pollutants emitted into the atmosphere, the size and topography of the air basin, prevailing meteorological conditions, and the conversion of air pollutants and other particles by a complex series of chemical and photochemical reactions in the atmosphere. Regulatory air standards that are potentially applicable to the Project include the National Ambient Air Quality Standards (NAAQS) and the California Ambient Air Quality Standards (CAAQS) and are summarized in **Table 3-3**. The California Air Resources Board (CARB) is the agency in the State of California delegated with the responsibility for air quality monitoring via the California Ambient Air Monitoring Network and administering a State Implementation Plan (SIP), which delineates strategies for compliance with federal clean air standards (CARB 2021). The CARB additionally is responsible for overseeing the state's 35 air pollution control districts (APCDs), which are responsible for issuing pre-construction and operating permits within their jurisdictions. The ICAPCD is responsible for enforcing the rules outlined in Regulations I through IX in the California SIP within the district, as well as for implementing the Prevention of Significant Deterioration Program (EPA 2021a).

Table 3-3 National Ambient Air Quality Standards and California Ambient Air Quality Standards within the Area of Analysis

Pollutant	Averaging Period	CAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
PM_{10}	24-hour	50	150
	Annual	20	N/A

Pollutant	Averaging Period	CAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
$PM_{2.5}$	24-hour	N/A	35
	Annual	12	12
SO_2	1-hour	655	196
	3-hour	N/A	1,300
	24-hour	105	N/A
	Annual	N/A	N/A
NO_x	1-hour	339	188
	Annual	57	100
CO	1-hour	23,000	40,000
	8-hour	10,000	10,000

CARB 2022a
PM_{10} = particulate matter 10 microns in diameter or less
$PM_{2.5}$ = particulate matter 2.5 microns in diameter or less
SO_2 = sulfur dioxide
NO_x = nitrogen oxide
CO = carbon monoxide
$\mu g/m^3$ = micrograms per cubic meter

Climate and Meteorology

The Project Area is located in the northwestern portion of the Cargo Muchacho Mountains of the Imperial Valley in southeastern California, with elevations ranging from 600 to 800 feet above mean sea level (AMSL) (SMP 2021). Per data from the Gold Rock Ranch Cooperative Station, located approximately three miles west of the Project Area, average maximum summer (June through August) temperatures are approximately 106 degrees Fahrenheit (°F), and average maximum winter (December through February) temperatures are approximately 48°F, and the average annual precipitation is approximately 0.32 inches (WRCC 2021).

Current Conditions

The BLM published the final Rapid Ecoregional Assessment Report for the Sonoran Desert in 2012 (Strittholt et al. 2012), which examines climate change and other widespread environmental influences affecting western landscapes to assist with land use planning and resource management. The Sonoran Desert is considered a subtropical desert that experiences seasonal variability in temperatures, and the Project Area is located within the subregion of the low and dry Colorado Desert. Over the past several decades, the weather, vegetation cover, wildfire regimes, and changes in wildlife habitat have evolved, suggesting a change in climate regime. These changes have been expressed in changes in vegetation communities and land cover, invasive species encroachment, changes in desert tortoise (*G. agassizi* and *G. morafkai*) and big game habitat and population density, and hydrologic alterations in both quality and quantity. Persistent wind and water erosion within the Sonoran Desert Ecoregion have also contributed to changes in soil erosion, leading to higher concentrations of airborne soil particles affecting air quality and visibility (Strittholt et al. 2012).

The Project Area has been previously disturbed by mining activities, and current surrounding land uses include prospecting and recreation. The ICAPCD has designated the area of analysis as an attainment area for all pollutants that have a NAAQS except PM_{10}.

3.3.3 Environmental Impacts (NEPA) – Proposed Action

Travel on access roads and exploratory activities within the Project Area would create emissions, which would have a potential impact on air quality. Fugitive dust, in the form of PM_{10} and $PM_{2.5}$, would result

from operation of the following equipment: excavator; five support vehicles; pipe truck; track hoe; hoe ram; two 1,000-gallon water trucks; two portable compressors; one drill rig; two generators; and one bulldozer.

Vehicle emissions, in the form of SO_2, NO_x, CO, volatile organic compounds (VOCs), greenhouse gases (GHGs), and hazardous air pollutant (HAP) emissions would occur any time the internal combustion engines on Project vehicles or aircraft (i.e., helicopters) are operating. An emissions inventory was compiled using US Environmental Protection Agency (EPA)-Air Pollution 42 emission factors. Although unlikely, the two largest phases of the Proposed Action, construction and operations, were conservatively assumed to occur at full capacity, during the same time, to calculate a scenario of potential maximums. The emissions generated by the Project were compared to the EPA's significant emission rates (40 CFR 52.21) to determine Project impacts on air quality. The calculated tons of emissions for the above identified pollutants, as well as the EPA's significant emission rates, are provided in **Table 3-4**.

Table 3-4 Annual Emissions Associated with the Proposed Action

Project Emissions Summary* (tons/year)									
Emission Type	**PM**	**PM_{10}**	**$PM_{2.5}$**	**SO_2**	**NO_x**	**CO**	**VOCs**	**GHG CO_{2e}**	**HAP Total**
Fugitive Emissions	30.36	7.79	0.79	0.00	0.00	0.00	0.00	0.00	0.00
Non-Fugitive Emissions	0.28	0.28	0.67	0.03	10.90	17.62	1.04	3,021	0.07
EPA Significant Emission Rate	25	15	10	40	40	100	50	75,000	25
Federal Conformity Threshold	NA	100	100	100	100	100	50	NA	NA

CO_{2e} = carbon dioxide equivalent
NA = not available
* Project emissions in this table include both the construction and operations phases under the Proposed Action with controls (i.e., watering for dust suppression).

As shown in **Table 3-4**, maximum yearly predicted emissions generated from the Proposed Action would be below the EPA's significant emission rates, except for PM, which would exceed the EPA significant emission rate of 25 tons per year. Airborne PM is a mixture of many chemical species of pollutants, including PM_{10} and $PM_{2.5}$, rather than a single pollutant. Some PM particles less than 10 micrometers in diameter can pose human health risks as they can get deep into the lungs or bloodstream, and finer particles less than 2.5 micrometers in diameter post the greatest risks as they can lead to more chronic conditions (EPA 2023b). Particles deposited on a lung surface can cause tissue damage and lung inflammation. Emissions of PM have also been shown to reduce visibility outdoors and adversely affect climate and ecosystems (CARB 2023). As noted above, the annual predicted emissions under the Proposed Action in **Table 3-4** include both the construction and operations phases of the Project to estimate the maximum emissions; however, all phases of the Project would not be continuously operating simultaneously. The highest emissions under the Project would result from exploratory drilling and laydown yard activities, which would occur simultaneously for approximately four to six months during the first year of the two-year Project operations. After Project start-up, activities would occur more dispersed over time due to the intermittent nature of exploratory drilling. Therefore, the estimated annual emissions would not reach the maximum emissions shown in **Table 3-4** as all phases of the Project would not be operating simultaneously each year, leading to much lower overall emissions that would not exceed any federal thresholds. Federal Conformity *de minimis* thresholds are not available for PM, CO_{2e}, or HAPs; however, predicted Project emissions for all other pollutants would be in below the applicable Federal Conformity *de minimis* threshold given in 40 CFR 93.153(b) and would not exceed the federal annual emissions thresholds.

In addition to the annual maximum emissions summarized in **Table 3-4** above, maximum daily emissions resulting from the Proposed Action were also calculated. The daily operational emissions anticipated to be generated by the Proposed Action were compared to the ICAPCD's emission thresholds (ICAPCD 2022) to determine if Project impacts on air quality require a comprehensive air quality analysis. The calculated daily emissions from the Proposed Action, as well as the ICAPCD operational emissions thresholds, are provided below in **Table 3-5**.

Table 3-5 Daily Operational Emissions Associated with the Proposed Action

Project Emissions Summary (lbs/day)						
Emission Type	**PM_{10}**	**$PM_{2.5}$**	**SO_2**	**NO_x**	**CO**	**VOCs**
Proposed Action Operational Emissions*	98.90	20.07	0.22	117.97	107.41	10.56
ICAPCD Operational Emission Thresholds	150	550	150	137	550	137

*Proposed Action emissions included fugitive and non-fugitive emissions

As shown in **Table 3-5**, maximum daily operational emissions generated from the Proposed Action would be below the ICAPCD's emission thresholds. Emissions were calculated using Tier III emission factors for non-road diesel engines specified in 40 CFR 1039. Anticipated daily operational emissions under the Proposed Action would be below the ICAPCD emissions thresholds. As discussed above relative to federal conformity of anticipated emissions, the highest emissions under the Proposed Action would result from exploratory drilling and laydown yard activities, which would occur simultaneously for approximately four to six months during the first year of the two-year Project operations. After Project start-up, activities would occur more dispersed over time due to the intermittent nature of exploratory drilling. Consistent with ICAPCD guidelines and Imperial County requirements, construction and operation emissions have been quantified separately and compared to the appropriate thresholds in **Tables 3-6** and **3-7** below (note that **Table 3-5** above also summarizes the maximum daily operational emissions associated with the Proposed Action). Per the PDFs for fugitive dust control in **Appendix F**, SMP would comply with all applicable State of California and ICAPCD rules for fugitive dust emissions and GHG emissions. The following relevant standard mitigation measures for construction combustion equipment specified in Section 7.1 of ICAPCD CEQA Air Quality Handbook (ICAPCD 2017) would be implemented:

- Use of alternative fuel or catalyst equipped diesel construction equipment, including all off-road and portable diesel-powered equipment
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to five minutes maximum.
- Limit, to the extent feasible, the hours of operation of heavy-duty equipment and/or the amount of equipment in use.

With the implementation of PDFs for fugitive dust control to commit to state and county emissions requirements as stated above and included in **Appendix F**, the BLM required mitigation measures listed below, and because the conservative emissions inventory provided above for construction and operations to occur at the same time would be unlikely over a full year, Project emissions for all pollutants would be below all thresholds in **Table 3-4** and **Table 3-5** and would, overall, be in conformance with federal emissions thresholds (40 CFR 93.153(b)). As the implementing authority for the Clean Air Act for projects located in Imperial County, the ICAPCD would be responsible for issuing the permit for operation of stationary sources and the Project would be required to comply with all conditions of the ICAPCD permit. Impacts to air quality under the Proposed Action would be negligible, short-term, and localized.

To further reduce the anticipated PM emissions from road construction, helicopter use/landing, and daily use, the BLM would require the following mitigation measures:

- Idling of all vehicles would be reduced to a minimum necessary for operational capacity.
- The staging area would be stabilized using BLM approved methods during use, and staging area soils would be stabilized upon Project completion.

3.3.4 Environmental Impacts (NEPA) – No Action Alternative

Under the No Action Alternative, the Project would not be approved by the BLM; however, the area would remain available for other multiple-use activities as approved by the BLM. Impacts to air quality are not anticipated under the No Action Alternative except for those occurring under existing conditions.

3.3.5 Impact Analysis (CEQA)

a) Would the Project conflict with or obstruct implementation of the applicable air quality plan?

Less Than Significant: The Project is located in the Salton Sea Air Basin under the jurisdiction of the ICAPCD. The ICAPCD's CEQA Air Quality Handbook (ICAPCD 2017) is the primary guidance document by which potential air quality impacts from residential, commercial, and industrial developments can be quantified and the level of significance determined pursuant to CEQA. In addition to the CEQA Air Quality Handbook, the ICAPCD has also prepared various implementation and maintenance plans that outline steps and rules meant to reduce pollutant emissions and bring the region back into attainment for certain pollutants. Specifically, the ICAPCD has published State Implementation Plans (SIPs) related to ozone (O_3) and particulate matter (both PM_{10} and $PM_{2.5}$).

Per the CEQA Air Quality Handbook, the ICAPCD generally notes that a detailed project-specific consistency analysis "is required for large residential developments and large commercial developments, which are required to develop an EIR and/or a Comprehensive Air Quality Analysis Report" (ICAPCD 2017) and "should demonstrate compliance with the most recent ozone Air Quality Attainment Plan (AQAP) and PM_{10} State Implementation Plan (SIP)" (ICAPCD 2017). A proposed project should also demonstrate compliance with the Imperial County Rules and Regulations as well as applicable state and federal regulations.

Because the Project is a relatively small-scale industrial drilling exploration project, and not a large residential or commercial development, a comprehensive consistency analysis is not required. The Project would also comply with regional air quality rules promulgated by the ICAPCD, as applicable, and participate in reducing regional air pollutant emissions, including those covered by the published SIPs, through compliance with these applicable rules. Furthermore, as discussed under CEQA Criteria b) below, with the implementation of the standard ICAPCD mitigation measures disclosed under **Section 3.3.3** above and the BLM required mitigation measures, Project-specific air emissions during both the construction and operational phases would not exceed the applicable ICAPCD numerical threshold published within the CEQA Air Quality Handbook (ICAPCD 2017). Therefore, through compliance with applicable rules and regulations, and implementation of required control measures, the Project would not conflict with or obstruct implementation of an applicable air quality plan, and impacts would be less than significant with no mitigation required.

b) Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Less Than Significant: See response to CEQA Criteria a) above. No, the proposed Project would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard. CEQA defines cumulative impacts as two or more individual effects which, when considered together, are either significant or "cumulatively considerable," meaning they add considerably to a significant environmental impact.

By its very nature, air pollution is largely a cumulative impact. The non-attainment status of regional pollutants is a result of past and present development. Future attainment of state and federal ambient air quality standards is a function of successful implementation of the ICAPCD's attainment plans. Consequently, the ICAPCD's application of thresholds of significance for criteria pollutants is relevant to the determination of whether a project's individual emissions would have a cumulatively significant impact on air quality.

As discussed in the CEQA Air Quality Handbook (ICAPCD 2017), the ICAPCD has established significance thresholds to assist lead agencies (in this case the county) in determining whether a proposed project may have a significant air quality impact. Projects whose emissions exceed the thresholds of significance for both the construction and operational phases would be deemed to have a potentially significant adverse impact on air quality. Thus, if Project emissions (change from baseline) exceed thresholds for NO_x, ROG, PM_{10}, SO_x, CO, or $PM_{2.5}$, then the Project would result in a cumulatively considerable net increase of a criteria pollutant for which the ICAPCD is in non-attainment under applicable federal or state ambient air quality standards.

Based upon the proposed Project activities with the potential to generate criteria pollutants (e.g., vehicles, mobile equipment, drill rig operations, etc.), the Project's air emissions were quantified. See **Appendix E**, which includes a summary of the estimate Project air emissions, for both construction and operational activities. **Tables 3-6** and **3-7** below were taken from the CEQA Air Quality Handbook and summarize the applicable numerical thresholds by which the Project's emissions should be compared to determine potential significance pursuant to CEQA. Note that per ICAPCD guidance, for industrial development projects the ICAPCD indicates that the thresholds in **Table 3-7** should be used only to determine significance of the emissions from mobile sources, as stationary source emissions are already subject to mitigation according to ICAPCD Rule 207 (New and Modified Stationary Source) and Rule 201 (Permits Required).

Table 3-6 ICAPCD Thresholds of Significance for Project Construction

Parameters	PM_{10} (lbs/day)	ROG (lbs/day)	NO_x (lbs/day)	CO (lbs/day)
Construction	35.12	4.35	63.65	59.50
Threshold	150	75	100	550
Significant	No	No	No	No

Note: Project construction emissions would be generated as a result of "road construction" and "drill site construction." See **Appendix E** for details regarding the emissions calculations.

Table 3-7 ICAPCD Thresholds of Significance for Project Operations

Parameters	NO_x (lbs/day)	ROG (lbs/day)	PM_{10} (lbs/day)	SO_x (lbs/day)	CO (lbs/day)	$PM_{2.5}$ (lbs/day)
Operations	117.97	10.56	98.90	0.22	107.41	20.07
Threshold	137	137	150	150	550	550
Significant	No	No	No	No	No	No

Note: Project construction emissions would be generated as a result of "exploratory drilling" and "laydown yard activities." See **Appendix E** for details regarding the emissions calculations.

Project air emissions resulting from construction activities are estimated to be below the applicable ICAPCD construction thresholds for all pollutants. Project air emissions resulting from operational activities are estimated to be below the applicable ICAPCD operational daily thresholds for all pollutants. Furthermore, with the implementation of standard mitigation measures for construction combustion equipment from the ICAPCD CEQA Air Quality Handbook (ICAPCD 2017), as specified above in **Section 3.3.3**, which were not accounted for in the emissions estimates presented above, the Project would generate fewer pollutant emissions than was conservatively accounted for in **Table 3-6** and **Table 3-7** above.

Furthermore, while construction PM_{10} emissions can vary greatly depending on the phase of construction, level of activity, and other factors, there are feasible mitigation or control measures that can be reasonably implemented to significantly reduce PM_{10} emissions. Because particulate emissions from construction activities have the potential of leading to adverse health effects as well as nuisance concerns, such as reduced visibility, all projects are required to mitigate construction impacts by regulation. The CEQA Air Quality Handbook (ICAPCD 2017) presents a summary of standard mitigation measures for the control PM_{10} as adopted by the ICAPCD in a set of rules, collectively known as Regulation VIII (Fugitive Dust Rules). Another source of construction-related emissions comes from the use of diesel-powered construction equipment, which has been known to produce ozone precursor emissions and combustion-related particulate emissions. In accordance with ICAPCD requirements, these standard construction mitigation measures would be implemented to reduce PM_{10} and ozone precursor emissions during road and drill pad construction. Specifically, the Project would comply with ICAPCD Regulation VIII – Fugitive Dust Rules, specifically Rules 800 through 806, which prescribe measures for the management of windblown dust. Additionally, consistent with ICAPCD Rule 801, SMP will develop a site-specific Operation Dust Control Plan. SMP will submit the Operation Dust Control Plan to the ICAPCD, and consistent with Rule 801 requirements, approval would be obtained a minimum of 10 days prior to the first ground disturbing activities as a result of the Project.

Therefore, through implementation of the ICAPCD's standard construction fugitive dust controls and standard construction mitigation measures, the Project would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard. Because the Project would not result in a significant net increase in criteria pollutant emissions, the Project would have less than significant impacts related to criteria air pollutant emissions.

c) Would the Project expose sensitive receptors to substantial pollutants concentrations?

Less Than Significant: See responses to CEQA Criteria a) and b) above. No, the proposed Project would not expose sensitive receptors to substantial pollutant concentrations. Sensitive receptors include schools, playgrounds, childcare centers, long-term health care facilities, rehabilitation centers, convalescent homes, hospitals, retirement homes, and residences. The closest sensitive receptor is the Gold Rock Ranch RV Resort located approximately 2.3 miles west of the Project Area.

When evaluating whether a development proposal that has the potential to result in localized impacts, the nature of the air pollutant emissions, the proximity between the emitting facility and sensitive receptors, the direction of prevailing winds, and local topography must be considered.

The ICAPCD does not have any published numerical thresholds related to Project-specific toxic or hazardous air pollutant emissions. Project activities that could potentially result in Toxic Air Emissions (TACs) include operations of equipment and vehicles, which would generate Diesel Particulate Matter (DPM), as well as disturbance of soils, as various substances found in fugitive dust emissions could potentially result in health risks (e.g., metals and crystalline silica). However, due to the relatively low level of on-site industrial activity, and the large distance between the Project Area and the nearest sensitive receptor, the Project's potential health risk impacts are considered low. Furthermore, in accordance with

EPA requirements, total annual emissions of Hazardous Air Pollutants (HAPs) were estimated. Total Project HAPs emissions were estimated to be 0.04 tons per year, which is well below the applicable National Emission Standards for Hazardous Air Pollutants (NESHAP) limit of 10 tons per year applied to "area sources."

Due to the distance between the Project site and nearby receptors, the proposed exploration activities, the short-term nature of the Project (i.e., operations would be limited to 12 to 24 months), and the fact that SMP would comply with applicable Imperial County rules and regulations required to limit air emissions, the Project would not expose nearby sensitive receptors to substantial pollutant concentrations; therefore, there would be less than significant impacts related to TAC emissions.

d) Would the Project result in other emissions (such as those leading to odors adversely affecting a substantial number of people?

No Impact: See response to CEQA Criteria a), b), and c) above. No, the proposed Project would not result in other emissions, such as odor, adversely affecting a substantial number of people. None of SMP's proposed exploration operations (i.e., drill pad/access road formation, exploratory drilling, ancillary activities) would generate significant odor emissions that could impact nearby receptors. The Project also does not fall within one of the designated "Potential Odor Sources" categories outlined in the ICAPCD's CEQA Air Quality Handbook. The Project would comply with applicable ICAPCD rules, regulations, and permit conditions, including those that control odor; therefore, the proposed Project would not adversely affect a substantial number of people, and no impacts would occur.

3.4 Agriculture and Forest Resources

3.4.1 Initial Study Determination (CEQA)

Table 3-8 provides the determination of impacts to agricultural and forest resources. When determining significant environmental effects to agricultural resources, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project, and forest carbon measurement methodology provided in Forest Protocols adopted by CARB.

Table 3-8 Agriculture and Forest Resources Environmental Checklist

Agriculture and Forest Resources Criteria		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a)	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b)	Conflict with existing zoning for agricultural use, or a Williamson Act Contract?	☐	☐	☐	☒

c)	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒
d)	Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e)	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

3.4.2 Affected Environment

There are no grazing allotments that overlap the Project Area and no forest resources are present; therefore, this resource was not analyzed further under the NEPA requirements for the affected environment or environmental impacts for each alternative, per the determination in **Table G-1** of **Appendix G**.

3.4.3 Impact Analysis (CEQA)

a) Would the Project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No Impact: No, the proposed Project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. The Project is located in a remote desert area of the Tumco mining district in the Cargo Muchacho Mountains, and the Project Area has been previously disturbed by historical mining operations. Current surrounding land uses include prospecting and recreation. No Prime Farmland, Unique Farmland, or Farmland of Statewide Importance are mapped within the Project area (California Department of Conservation, 2018). As shown on the "Imperial County Important Farmland 2018" map produced by the State Department of Conservation (DOC) Farmland Mapping and Monitoring Program (https://www.conservation.ca.gov/dlrp/fmmp/Pages/Imperial.aspx), the entire Project site and adjacent areas are designated as "Other Land." As such, no impacts to Prime Farmland, Unique Farmland, or Farmland of Statewide Importance would occur because of the Project.

b) Would the Project conflict with existing zoning for agricultural use, or a Williamson Act Contract?

No Impact: See response to CEQA Criteria a) above. No, the proposed Project would not conflict with existing zoning for agricultural use, or a Williamson Act contract. As discussed above, the Project is located in a remote area of the Tumco mining district in the Cargo Muchacho Mountains. Neither the Project site nor surrounding areas are currently used for agricultural purposes. Per the current Imperial County General Plan (Imperial County, 2015), specifically the Land Use Map (updated March 1, 2007) and Zoning Map (Zone 70), the entire Project site has a General Plan designation of "Recreation/Open Space" and a Zoning designation of "BLM". Neither the Project site nor surrounding areas are zoned for agricultural use or are under a Williamson Act contract, and no zoning changes are proposed. Therefore, no impacts would occur.

c) Would the Project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

No Impact: No, the proposed Project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned as Timberland Production. As discussed under CEQA Criteria a) and b) above, the Project area is located in remote desert area that has been previously disturbed by historical mining activities. The Project area is not zoned for forest land or timberland, and no zoning changes are proposed. Therefore, no impacts pertaining to zoning for forest land or timberland would occur.

d) Would the Project result in the loss of forest land or conversion of forest land to non-forest use?

No Impact: No, the proposed Project would not result in the loss of forest land or conversion of forest land to non-forest use. As discussed under CEQA Criteria b) and c) above, the Project site and surrounding areas are comprised of undeveloped desert lands that have been disturbed by historical mining activities, and areas currently used for prospecting and recreation. No forest land exists within or adjacent to the Project site. Therefore, no impacts related to the loss of forest land or conversion of forest land to non-forest use would occur.

e) Would the Project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

No Impact: No, the proposed Project does not involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use, or conversion of forest land to non-forest use. As discussed under CEQA Criteria a), b), c) and d) above, the Project site and surrounding areas are comprised of undeveloped desert lands, previously disturbed by historical mining activities, and currently used for prospecting and recreation. The Project site and the surrounding areas do not contain farmland or forest land (DOC, 2022); therefore, the proposed Project would not result in the conversion or loss of agriculture or forest land, and no impacts would occur.

3.5 Areas of Critical Environmental Concern

3.5.1 Initial Study Determination (CEQA)

ACECs are not a separate resource category analyzed in the IS under CEQA, therefore, no determinations or environmental impacts are provided for a CEQA impact analysis herein.

3.5.2 Affected Environment

The area of analysis for impacts to ACECs includes the Project Area, as the majority of the Project Area falls within the Picacho ACEC (**Figure 1-1**). The Picacho ACEC consists of approximately 184,500 acres of land to protect cultural and biological resources while providing compatible recreational opportunities in the Colorado Desert and Lake Cahuilla Ecoregions (BLM 2016). ACECs are public lands where special management is required in order to protect the area's values. To be eligible for designation as an ACEC, an area must meet criteria for both relevance and importance. An ACEC possesses significant historic, cultural, or scenic values, fish or wildlife resources, natural processes or systems, or natural hazards. The Picacho area was designated as an ACEC based on critical habitat for desert tortoise populations, preservation of wilderness character, and numerous prehistoric and historic archaeological sites within the area, which include remnants of the Tumco historic gold mining district and the Quechan Area of Traditional Cultural Concern (BLM 2016). Mineral entry within the Picacho ACEC has not been withdrawn; therefore, locatable mineral exploration and development is not prohibited on lands within the ACEC. The DRECP specifies that development in the Picacho ACEC is limited by a ground disturbance cap of below one percent however disturbance caps are not something that can be used to reject a project's Plan of Operations or Notice level activities under the Mining Law of 1872. Disturbance caps would effectively deny access to exploration and mining development from areas that have exceeded the disturbance cap; however, denying

access to areas that are open to mineral development would violate the Mining Law of 1872. The DRECP includes guidance on how BLM will manage discretionary actions, such as mineral material sales, which are subject to BLM mitigation policies under the DRECP. Under the Mining Law of 1872, projects regulated under 43 CFR 3809 are not discretionary in the same sense, and BLM must enforce the performance standards under 43 CFR 3809.420. Many of the LUPA-wide CMAs are relevant to those performance standards and can be applied; however, mitigation, particularly off-site mitigation, is not something BLM is able to require for projects that are regulated under the Mining Law of 1872, but onsite mitigation, which is included in 43 CFR 3809.420(a)(4), is allowed. Mitigation is defined under 43 CFR 3809.5 and would need to be associated with compliance with other federal laws (e.g., ESA, NHPA, etc.).

3.5.3 Environmental Impacts (NEPA) – Proposed Action

As described above, disturbance caps cannot be used to reject a project's Plan of Operations for projects regulated under the Mining Law of 1872 and the requirements of 43 CFR 3809. However, potential mitigation for impacts to ACECs may include one or more of the following per 40 CFR 1508.20: (1) Avoiding the impact altogether by not taking a certain action or parts of an action; (2) Minimizing impacts by limiting the degree or magnitude of the action and its implementation; (3) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment; (4) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and (5) Compensating for the impact by replacing or providing substitute resources or environments. Where project components are proposed to occur on undisturbed land, the DRECP would otherwise require additional compensatory mitigation, but compensatory off-site mitigation is not within BLM's discretion to require for Mining Law actions within the FLPMA framework. Situations where BLM lacks discretion to require compensatory mitigation are recognized in the DRECP as an exception to the disturbance mitigation requirement (BLM 2016, p.35, p.17848). BLM has further elaborated on the topic of mitigation in the Federal Register/Vol. 65, No. 225/Tuesday, November 21, 2000/Rules and Regulations p. 70012. There, BLM acknowledges that Section 302(b) and 303(a) of FLPMA, 43 U.S.C. 1732(b) and 1733(a), and the mining laws, 30 U.S.C. 22, provide BLM the authority for requiring mitigation within certain contexts; however, the final rule does not require compensatory mitigation. BLM thus requires mitigation to prevent unnecessary or undue degradation where such mitigation can be performed onsite; however, operators may voluntarily commit to performing off-site mitigation (including compensatory mitigation). Mitigation requirements would be fulfilled through the measures elaborated in the PDFs (**Appendix F**) and through adherence to the 43 CFR 3809.420 performance standards. Under the Proposed Action, SMP has committed to specifically avoid the resources the Picacho ACEC is designated to protect, including biological and cultural resources (**Appendix F**), which is in line with the first provision of 40 CFR 1508.20 as described above. In accordance with the DRECP, the Project must comply with all relevant CMAs for ACECs as provided in **Appendix B** and **Appendix F**. With the implementation of the PDF to avoid the protected resources of the Picacho ACEC (**Appendix F**) and commitment to the CMAs (**Appendix B** and **Appendix F**), impacts to the Picacho ACEC from the Proposed Action are anticipated to be negligible, short-term, and localized. Furthermore, all surface disturbance would be reclaimed concurrently with exploratory drilling activities, and monitoring for the success of reclamation of those areas would be completed within five years of Project implementation. The only exception is the temporary portal access road for access to Drill Area 1, the staging area, and underground activities at the Oro Cruz Mine Portal within Drill Area 1, which would be reclaimed within five years from Project implementation once monitoring and underground activities are completed. Potential impacts to cultural resources and to Native American religious concerns and traditional values are discussed in further detail in **Section 3.8** and **3.14**, respectively.

3.5.4 Environmental Impacts (NEPA) – No Action Alternative

Under the No Action Alternative, the Project would not be approved; therefore, impacts to the Picacho ACEC are not anticipated.

3.6 Climate Change, including Greenhouse Gas Emissions

3.6.1 Initial Study Determination (CEQA)

Table 3-9 provides the impact determinations for GHG emissions.

Table 3-9 Greenhouse Gas Emissions Environmental Checklist

Greenhouse Gas Emissions Criteria		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a)	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b)	Conflict with an applicable plan or policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

3.6.2 Affected Environment

The area of analysis for climate change, including GHG emissions, is the Project Area and the proposed disturbance footprint, which includes the proposed Drill Areas and access roads (**Figure 3-1**). Climate change is defined by the Intergovernmental Panel on Climate Change (IPCC) as a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean or the variability of its properties and that persist for an extended period, typically decades or longer. It refers to any change in the climate over time, whether due to natural variability or as a result of human activity (IPCC 2013).

Ongoing scientific research has identified anthropogenic GHG emissions as potential impacts to the global climate. GHGs occur naturally as well as through man-made processes. Through complex interactions on a global scale, GHG emissions lead to a net warming of the atmosphere. GHGs have been found to be capable of trapping heat in the atmosphere by decreasing the amount of heat radiated by the Earth out to space. GHG emissions are comprised of many separate chemicals, but the most notable is carbon dioxide (CO_2). Industrialization and the burning of fossil fuels have increased the levels of CO_2 in the atmosphere over the past century. The EPA has formed a correlation of the various gasses with CO_2 so that any particular GHG can be shown as a carbon dioxide equivalent (CO_2e). This methodology allows gaseous emissions to be reduced to the CO_2e and compared with area wide GHG emissions on a local, state-wide, country-wide, or global level.

The EPA estimated the national GHG emissions in 2019 (the most recent year for which national and state of California data has been tabulated) were 6,571.7.4 million metric tons of CO_2e. As provided above in **Section 3.3.2**, the EPA Significant Emission Rate for GHG CO_2e is 75,000 tons per year. The EPA categorized the major economic sectors contributing to US emissions of GHGs in 2020 as follows (EPA 2022):

- Electric power generation (25.1 percent)
- Transportation (28.5 percent)
- Industry (23.1 percent)
- Agriculture (10.1 percent)
- Commercial, residential sources and U.S. Territories (13.2 percent)

CARB estimated California's statewide GHG emissions in 2019 (the most recent year for which data has been tabulated) at 418.2 million metric tons of CO_2e. The major economic sectors contributing to California's emissions of GHGs in 2019 were as follows (CARB 2022b):

- Electric power generation (14 percent)

- Transportation (41 percent)
- Industry (24 percent)
- Agriculture (7 percent)
- Commercial, residential sources (14 percent)

Sources of GHG emissions in the vicinity of the Project Area include vehicles (including OHVs) traveling to, from, and within the area of analysis, and construction and operation for mineral and energy development. GHG emissions are likely to increase as these activities increase. Warmer and more arid conditions coupled with seasonal variability in precipitation events have led to limited water supplies and severe droughts in several parts of California. Models show significant increases in maximum monthly temperatures, with the Sonoran Desert Ecoregion expected to undergo general warming with a greater than 35°F increase by 2060 in some areas, with greater increases in temperature projected to occur during the winter months. Potential effects of these forecasts on the landscape could include increased frequency and duration of droughts, expansion of invasive species that lead to increased risk of wildfire, increased wind erosion, changes in vegetation communities as forage and habitat for wildlife, and changes in wildfire regimes (Strittholt et al. 2012). Current climate conditions in the state of California have increased over the last decade, including rising temperatures and decreasing precipitation leading to more frequent wildfires and increased drought. Eight of the ten warmest years on record for California occurred between 2012 and 2022 (OEHHA 2022). California GHG emissions peaked in 2004 but have been on a downward trend since and have remained below California's GHG emissions reduction goal since 2016 (OEHHA 2022).

3.6.3 Environmental Impacts (NEPA) – Proposed Action

Climate change is a far-reaching and long-term issue that has and would continue to impact the area of analysis, its resources, and management beyond the timeframe of the Proposed Action. Although many effects of climate change are considered known or likely to occur, specific impacts to the area of analysis cannot be determined exactly with the current level of understanding. Climate change is inherently a cumulative effect from numerous contributing factors (i.e., increased in GHG concentrations and various land uses) and can typically be seen by review of reported trends of regional climatology. No single project is large enough to impact climate change; therefore, the discussion herein considers cumulative environmental impacts. Much depends on the rate at which temperatures continue to rise and whether global emissions of GHGs can be mitigated before serious ecological thresholds are reached. California GHG emissions peaked in 2004 but have been on a downward trend since and have remained below California's GHG emissions reduction goal since 2016 (OEHHA 2022). As discussed above in **Section 3.3.3**, GHG emissions from the Proposed Action would occur any time the internal combustion engines on Project vehicles are operating and as a result of vehicular travel to and from the Project Area each day by Project personnel. An emissions inventory was compiled using US EPA-Air Pollution 42 emission factors (**Appendix E**). Based on the anticipated emissions from vehicles, generators, drilling equipment, and helicopters for temporary road and drill site construction, exploratory drilling, and laydown yard activities, the Proposed Action would result in maximum yearly predicted GHG emissions of 3,021 metric tons. The anticipated Project emissions are below the EPA Significant Emission Rate for GHG CO_2e emissions of 75,000 tons per year, as identified above in **Section 3.3.3**. The 3,021 metric tons of predicted GHG emissions from the Proposed Action would be equivalent to GHG emissions from 672 passenger vehicles driven for one year or energy use for 381 homes for a year. The estimated 3.021 metric tons of GHG emissions is also equivalent to the GHG emissions avoided and/or offset by 0.84 wind turbines running for one year (EPA 2023b). Anticipated annual Project and daily operational GHG CO_2e emissions under the Proposed Action would be below both the EPA significant emissions (75,000 tons per year)and the SCAQMD emissions thresholds (10,000 metric tons per year for industrial projects, described further in **Section 3.6.5** below). Due to the low emission rates from the Proposed Action, climate change influences are not likely to be affected. Additionally, climate change would not impact the Proposed Action as equipment availability, timing (one to two years for active drilling plus three years for reclamation and monitoring), drilling locations, temporary access road construction requirements, and exploration capacity

would not be impacted by factors of climate change influences such as increased temperatures and decreased precipitation. Potential impacts resulting from GHG emissions associated with the Proposed Action are expected to be negligible as CO_{2e} emissions would not exceed the regulatory thresholds described above and are not large enough to change the observed course of climate change in any detectible way; overall, impacts would be short term, and localized.

3.6.4 Environmental Impacts (NEPA) – No Action Alternative

Under the No Action Alternative, the Project would not be approved and therefore, related impacts to climate change and GHGs would not occur. Potential impacts within the area would continue to occur under existing conditions.

3.6.5 Impact Analysis (CEQA)

In response to climate change, California implemented Assembly Bill (AB) 32, the "California Global Warming Solutions Act of 2006." AB 32 required the reduction of statewide GHG emissions to 1990 emissions levels (essentially a 15 percent reduction below 2005 emission levels) by 2020 and the adoption of rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emissions reductions. On September 8, 2016, the Governor signed Senate Bill (SB) 32 into law, extending AB 32 by requiring the State to further reduce GHG emissions to 40 percent below 1990 levels by 2030 (the other provisions of AB 32 remain unchanged). On December 14, 2017, the CARB adopted the 2017 Scoping Plan, which provides a framework for achieving the 2030 target. The 2017 Scoping Plan relies on the continuation and expansion of existing policies and regulations, such as the Cap-and-Trade Program and the Low Carbon Fuel Standard, and implementation of recently adopted policies and legislation, such as SB 1383 (aimed at reducing short-lived climate pollutants including methane, hydrofluorocarbon gases, and anthropogenic black carbon) and SB 100 (accelerated the Renewables Portfolio Standard to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045). The 2017 Scoping Plan also puts an increased emphasis on innovation, adoption of existing technology, and strategic investment to support its strategies. As with the 2013 Scoping Plan Update, the 2017 Scoping Plan does not provide project-level thresholds for land use development. Instead, it recommends local governments adopt policies and locally appropriate quantitative thresholds consistent with a statewide per capita goal of 6.0 metric tons (MT) of CO_2e by 2030 and 2.0 MT of CO_2e by 2050 (CARB 2017).

Most recently, CARB adopted an updated to the Scoping Plan in 2022, which evaluated four development scenarios for California, and their potential for reducing GHGs. The summary below provides an overview of the alternatives designed and considered for the energy and industrial sectors in this update. Full details of each scenario considered can be found in the Draft 2022 Scoping Plan Update (CARB 2022)

- Scoping Plan Scenario (modeling scenario Alternative 3 from the Draft): carbon neutrality by 2045, deploy a broad portfolio of existing and emerging fossil fuel alternatives and clean technologies, and align with statutes, Executive Orders, Board direction, and direction from the governor.
- Alternative 1: carbon neutrality by 2035, nearly complete phaseout of all combustion, limited reliance on carbon capture and sequestration and engineered carbon removal, and restricted applications for biomass-derived fuels.
- Alternative 2: carbon neutrality by 2035 and aggressive deployment of a full suite of technology and energy options, including engineered carbon removal.
- Alternative 4: carbon neutrality by 2045, deployment of a broad portfolio of existing and emerging fossil fuel alternatives, slower deployment and adoption rates than the Scoping Plan Scenario, and a higher reliance on CO2 removal.

The Imperial County Regional Climate Action Plan (ICTC 2021), published by the Imperial County Transportation Commission in 2021, is the County's long-range plan that outlines specific strategies for how the region would work towards reducing GHG emissions in accordance with statewide targets set by CARB. The proposed Project's consistency with the Regional Climate Action Plan is discussed below under CEQA Criteria b).

a) Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less Than Significant Impact: No, the proposed Project would not directly or indirectly generate GHG emissions that may have a direct or indirect significant impact on the environment. As discussed in **Section 3.3** and **Section 3.9**, Project GHG emissions would primarily result from fuel consumption. Note the Project would not consume electricity, which is an indirect source of GHG's as a result of power generation.

Based upon the proposed Project activities (vehicles, mobile equipment, drill rig operations, etc.), The Project's annual GHG emissions were quantified as provided in **Section 3.3.3**. Neither the County nor the ICAPCD have published GHG thresholds that can be utilized for Project-specific CEQA significance determination; therefore, the screening thresholds published by the South Coast Air Quality Management District (SCAQMD) were used to evaluate potential significance of the Project's GHG impacts. In December of 2008, the SCAQMD Governing Board adopted an interim GHG significance threshold for projects where the SCAQMD is a CEQA lead agency. This interim established a threshold for 10,000 MT of CO_2e emissions per year for industrial projects. SCAQMD has also proposed a screening-level threshold of 3,000 MT CO_2e per year for commercial and residential projects. As shown in **Table 3-10**, Project GHG emissions are well below the applicable SCAQMD GHG screening threshold for industrial projects.

Table 3-10 Estimated Project Greenhouse Gas Emissions

Parameters	CO_2e (MT per year)
Project Emissions	3,021
SCAQMD Screening Threshold (commercial/residential projects)	3,000
SCAQMD Screening Threshold (industrial projects)	10,000
Exceeds Screening Threshold(s)?	No

Note: see **Appendix E** for summary of predicted air emissions.

Note that GHG emissions were quantified for the Project for disclosure purposes. As discussed above, climate change is a cumulative effect, and no single project is large enough to impact climate change. Further, although the Project is estimated to generate up to approximately 3,021 metric tons of GHGs per year from combustion of gasoline/diesel fuels, these fuels are regulated near the top of the supply chain. As such, each citizen of California (including SMP as the proponent of the Project) has and would continue to necessarily purchase fuels produced in a way that is acceptable to the California market. Therefore, the estimated Project GHG emissions are consistent with the AB 32 Scoping Plan, and the Project would meet its fair share of the cost to mitigate the cumulative impacts of global climate change. This concept is reflected in both the 2017 and subsequent 2022 Scoping Plans, which regulates fuels at a level in the supply chain above the Project, such that the Project has no choice but to use fuel energy in California that is already regulated. The Project therefore does not have its own GHG emissions but is simply a location in which GHG emissions are taking place as a result of fuel that is already regulated.

For the reasons discussed above, the Project would not generate additional GHG emissions, either directly or indirectly, that may have a significant impact on the environment, and there would be less than significant impacts.

b) Would the Project conflict with an applicable plan or policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less Than Significant Impact: As discussed under CEQA Criteria a) above, the Project would not significantly increase GHG emissions, and Project GHG emissions are not expected to be cumulatively considerable. Nonetheless, the Regional Climate Action Plan (ICTC 2021) was reviewed to determine the Project's consistency with specific goals meant to reduce GHG emissions. Specifically, Section 4.1 of the Regional Climate Action Plan describes specific measures that apply to GHG emissions from all sectors which the County should implement to "close the gap" between the Legislatively-Adjusted Business As Usual (BAU) emissions forecast and the 2030 and 2050 emissions reduction targets published by CARB. The County-wide GHG reduction measures were reviewed, and the Project would not conflict with any specific measure, program, or policy published within the Regional Climate Action Plan. For these reasons, the Project is considered consistent with the County's Regional Climate Action Plan and would not prevent the County from achieving their GHG reduction goals.

As stated under CEQA Criteria a) above, it is generally recognized that consumers of electricity and transportation fuels, such as SMP, are, in effect, regulated by requiring providers and importers of electricity and fuel to participate in the GHG Cap-and-Trade Program and other statewide programs (e.g., low carbon fuel standard, renewable portfolio standard, etc.). Each such sector-wide program exists within the framework of AB 32 and its descendant laws, the purposes of which is to achieve GHG emissions reductions consistent with the AB 32 Scoping Plan. Therefore, while the Project would generate short-term (i.e., over 12- to 24-months) GHG emissions due to combustion of transportation fuels, the GHG emissions associated with the Project's fuel consumption would be regulated near the top of the supply-chain as transportation fuel suppliers and importers are required to report emissions under the Cap-and-Trade, which is designed to reduce GHG emissions as needed to achieve emissions reductions, described in related planning documents, primarily the AB 32 Scoping Plan. As such, each citizen of California (including SMP) would have no choice but to purchase fuels produced in a way that is acceptable to the California market. Thus, in addition to the Regional Climate Action Plan, the Project would also be consistent with the relevant state-wide GHG reduction plan (i.e., AB 32 Scoping Plan). The Project would meet its fair share of the cost to mitigate the cumulative impact of global climate change because SHP is purchasing energy from the California market.

For the reasons summarized above, the Project would not conflict with any applicable plans, policies or regulations for the purpose of reducing GHG emissions. Implementation of the Project would not impede the County from meeting its' GHG emissions reduction goals, including those outlined in the Imperial County Regional Climate Action Plan (ICTC 2021). Therefore, there would be less than significant impacts.

3.7 Conservation Lands

3.7.1 Initial Study Determination (CEQA)

Conservation lands is not a resource category analyzed in the IS under CEQA, therefore, no determinations or environmental impacts are provided for a CEQA impact analysis herein.

3.7.2 Affected Environment

The area of analysis for conservation lands is the Project Area. The area of analysis falls within the CDCA, designated as California Desert National Conservation Lands, which encompasses 25 million-acres of land in southern California and makes up 624.2 acres of land (99 percent) within the area of analysis (**Figure 1-1**). The BLM administers about 10 million acres of the CDCA. Within the CDCA, the DRECP was developed as a collaboration between the California Energy Commission, CDFW, BLM, and the USFWS. The DRECP LUPA (BLM 2016), which amended the CDCA Plan, was intended to facilitate the development of utility-scale renewable energy and transmission projects in the Mojave and Colorado deserts in California to reach federal and social resources; however, the DRECP LUPA is applicable across all of the lands under the jurisdiction of the BLM California Desert District Office.

CDCA lands have been identified as having national significant ecological, cultural, and scientific values and are managed to conserve, protect, and restore these values per the Omnibus Public Land Management Act of 2009 (Public Law 111-11). The primary biological resources goals of the DRECP LUPA are landscape and habitat connectivity, ecosystem and ecological function, and species conservation. The area of analysis lies within the Lake Cahuilla ecoregion of the CDCA and makes up less than 0.01 percent of the total 25 million acres of the CDCA (BLM 2016).

3.7.3 Environmental Impacts (NEPA) – Proposed Action

The Proposed Action would result in 20.54 acres of surface disturbance, all anticipated to occur within the CDCA and specifically the Picacho ACEC National Conservation Lands. The Project would not be located within a High Potential Mineral Area. All areas of surface disturbance resulting from Project-related activities would be reclaimed concurrently throughout the life of the surface exploration Project, except for the proposed new 1.8-mile main access road to the underground portal within Drill Area 1 (**Figure 2-1**). The proposed new main access road would be reclaimed following SMP's completion of underground exploration activities, The remaining surface disturbance reclaimed within five years from Project implementation. Per the requirements designated by the DRECP LUPA (BLM 2016), the following CMAs for National Conservation Lands would be required for implementation under the Proposed Action: NLCS-CUL-1, NLCS-MIN-2, and NLCS-NSHT-12. These CMAs are described in full under **Appendix F**. Impacts to National Conservation Lands from the Proposed Action are anticipated to be negligible, short-term, and localized.

3.7.4 Environmental Impacts (NEPA) – No Action Alternative

Under the No Action Alternative, the Project would not be approved and associated impacts to conservation lands are not anticipated; however, potential impacts within the area could occur under existing conditions as the area would still be available for use by the general public.

3.8 Cultural Resources

3.8.1 Initial Study Determination (CEQA)

Table 3-11 provides the impact determinations for cultural resources.

Table 3-11 Cultural Resources Environmental Checklist

	Cultural Resources Criteria	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a)	Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☒	☐	☐
b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c)	Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

3.8.2 Affected Environment

The area of analysis for cultural resources is also referred to as the area of potential effects (APE). For the proposed Project, there is a Physical APE and a Visual, Auditory, and Atmospheric (VAA) APE, which represents the Visual APE and the Auditory APE (**Figure 3-2**).

The Physical APE encompasses the Project Area and includes all areas of potential ground disturbing activity which could result in the potential impacts to cultural resources, and in particular archaeological sites. The APE encompasses an area sufficient to accommodate all of the Project components under consideration (i.e., access roads, fencing, drill pads, helicopter landing pads, and staging areas). The Physical APE encompasses approximately 279 acres, including the seven proposed drill areas and new and improved access roads proposed under the Project.

The VAA APE combines two separate areas for potential visual and auditory impacts. The Visual APE was delineated by conducting a viewshed analysis in the vicinity of the Project Area and the Auditory APE was delineated by conducting noise modeling of the proposed Project activities to determine the extents to which historic properties may be affected by the sounds and sights of the proposed drilling and exploratory activities (Daniels et al. 2022). The purpose of the VAA APE is to assist in the identification of sites or locations potentially deemed sacred or traditionally important by Native American Tribes that may be adversely affected by visual obstructions and loud noise levels such that the integrity of the setting and feeling of the sites is disturbed; even if only temporarily. To address potential impacts and delineate the Visual APE, a viewshed analysis was conducted in ArcGIS using seven points each at the centroid of the Project's seven proposed drill areas and a height of 40 feet, the tallest height of the proposed drilling equipment (Stantec 2022a). The extent of potential auditory effects and delineation of the Indirect Auditory APE was conducted by creating noise contours in a noise modeling software (SoundPlan) to detail the furthest distance in miles where potential Project noise would attenuate to an imperceptible level with a maximum of two drill rigs running at once, per the proposed Project activities. The extent of the Auditory APE incorporates the furthest noise contour where noise would attenuate to a nearly inaudible level to the human ear; approximately 1.7 miles to the west of the Project Area (Stantec 2022b).

Cultural Resource Sites

A Project-specific Class III cultural resource inventory was conducted for the Project Area (Daniels et al. 2022), in accordance with Section 106 of the NHPA. The Class III inventory included a records search at the South Coastal Information Center (SCIC), an intensive pedestrian survey within the Physical APE, and a desktop assessment of effects to cultural resources within the VAA APE. A total of 75 cultural resources were identified within 1 mile of the Physical APE, 12 of which intersect the Physical APE. The Class III survey re-identified the 12 previously recorded sites and documented one newly recorded site (CA-IMP-13336) within or intersecting the Physical APE (**Table 3-12**).

Table 3-12 Cultural Resource Sites in the Physical APE

Site number	Site Type	National Register of Historic Places Evaluation
Previously Recorded Sites		
CA-IMP-1469	Prehistoric Trail	Unevaluated
CA-IMP-3297/3300H/3302	Hedges/Tumco Historic Townsite	Eligible (Criteria A, C, and D)
CA-IMP-3298	Historic cemetery	Unevaluated
CA-IMP-7915	Transmission line	Unevaluated
CA-IMP-11343H	Golden Queen Mine	Not Eligible

Site number	Site Type	National Register of Historic Places Evaluation
CA-IMP-11344H	Crown Mine	Not Eligible
P-13-015600	Mine	Unevaluated
P-13-015601	Mine	Unevaluated
P-13-015602	Mine	Unevaluated
P-13-015656	Mine	Unevaluated
P-13-015841	Mine	Unevaluated
Newly Recorded Sites		
CA-IMP-13336	Prehistoric Ceramic Scatter	Unevaluated
P-13-018460	Mine Related -Tailings	Unevaluated
P-13-018461	Mine Related – Adit 4	Unevaluated
P-13-018462	Mine Related – Adit 7	Unevaluated
P-13-018463	Mine Related – Prospect Pit 1	Unevaluated
P-13-018464	Mine Related – Prospect Pit 2	Unevaluated
P-13-018465	Mine Related – Prospect Pit 13	Unevaluated

Source: Daniels et al. 2022

CA-SDI-3297/3300/3302 are historic archaeological sites recorded in association with the historic mining town of Hedges, later known as Tumco. These sites have been evaluated and found eligible for listing on the National Register of Historic Places (NRHP) under Criteria A, C, and D. These NRHP properties would be avoided through Project design, redesign, or relocation of facilities.

Within the Physical APE, 29 other mining features were identified outside previously defined site boundaries, including seven adits, 16 prospects, one mine shaft, three rock cairns, a tent pad, and a wooden cross. The ages of all but six of these features are unknown. The six features are visible on aerial imagery or topographic quadrangles from the 1960s. The six historic mine features were recorded as archaeological sites and given the numbers P-13-018460, P-13-018461, P-13-018462, P-13-018463, P-13-018464, and P-13-018465. These sites have not been formally evaluated for listing on the NRHP.

Within the VAA APE, 25 cultural prehistoric resources were identified that may be in continued use by Native American individuals, such as trails, geoglyphs, and rock art sites. Some of the trail segments identified have been interpreted as historic trails associated with the previous mining activity in the area, but their use by Native Americans both in prehistoric and historic times cannot be ruled out; therefore, all identified trail sites were included in the VAA APE assessment. A Traditional Cultural Property (TCP) has also been identified to extend beyond the VAA APE; however, the full extent of the TCP has not been physically delineated.

Section 106 of the NHPA consultation with California State Historic Preservation Officer (SHPO) on the project, cultural resource inventory APE, and the inventory work plan was initiated April 16, 2021 and August 10, 2021 respectfully.

3.8.3 Environmental Impacts (NEPA) – Proposed Action

Potential impacts to cultural resources include the following: impacts to historic properties and the TCP from exploration activities; discovery of inadvertent finds during exploration activities; and discovery of human remains during exploration activities.

Of the 279-acre Physical APE, 20.54 acres of BLM-administered land would be disturbed under the Proposed Action. Direct impacts to NRHP-eligible historic properties, including surface or subsurface disturbance incurred during exploration activities could occur within the Project Area. These potential impacts could occur during the construction of access routes, staging areas, helicopter pads, drill pads, and/or exploration operations. Any inadvertent cultural resources discovered within a 100-meter area during construction, operations, and/or reclamation would require SMP to cease all work immediately and notify the BLM Authorized Officer. The BLM Authorized Officer would then evaluate the discovery in coordination with other consulting parties to determine and implement appropriate treatment, if necessary. A Monitoring and Discovery Plan will outline the process for addressing inadvertent discoveries, which will be consulted on before BLM approval.

Direct impacts to known historic properties or unevaluated resources would be avoided through Project design, redesign, or relocation of facilities where feasible.

Neither of the two prehistoric sites nor the larger TCP identified within the Physical APE have been evaluated for listing in the NRHP and would be avoided. Precautionary Environmentally Sensitive Area fencing would be placed along the access road bordering CA-IMP-1469 to prevent inadvertent impacts. Additional Environmentally Sensitive Area fencing may be added in other locations at the request of the contracted archaeological firm in consultation with the BLM. The BLM would also require an additional mitigation measure, to conduct periodic archaeological monitoring (checking fencing, access routes, and drill pad locations) by a contracted archaeological firm. With avoidance measures in place per the PDFs (**Appendix F**), the resources would be avoided and no adverse impacts would occur.

All of the historic period sites except CA-SDI-3297/3300/3302 have yet to be formally evaluated. Based on the results of the Class III inventory, these sites likely lack integrity and research potential (Criterion D), are not associated with important historical events (Criterion A) or individuals (Criterion B), and do not represent distinctive examples of structural types or works of master craftsmen (Criterion C) (Daniels et al. 2022). However, SMP has committed to avoidance of all sites.

Visual or noise effects could occur during the construction and operation of the exploration operations within the VAA APE. Effects would be temporary and may include visual obstructions and loud noise levels which could affect the integrity of setting or feeling of locations deemed sacred or traditionally important by Native Americans, such as the TCP. As noted above, all known archaeological sites that make up a part of the TCP within the VAA APE would be physically avoided and no adverse impacts would occur. Assessment of the Visual APE identified 18 potential sites that may be visually affected; however, views of the Project would not likely create adverse effects to historic properties and any visual impacts at identified sites would be temporary. Assessment of the Auditory APE and review of the noise modeling (described further under **Section 3.15**) identified that noise levels would be similar to those for a suburban residential area at night, a level that would not likely cause adverse effects to significant Native American resources, and any noise level increases at identified sites would be temporary and intermittent throughout the life of the Project. Impacts to cultural resources within the VAA APE under the Proposed Action and with the BLM required mitigation measures would be negligible, short-term, and localized.

BLM-required mitigation measures include the following:

- A cultural monitoring and inadvertent discovery plan will be prepared in consultation with the BLM ECFO archaeologist, Native American Tribes, and CA SHPO and implemented prior to conducting

fieldwork. Any inadvertent cultural resources discovered during construction, operations, and/or reclamation would require SMP to cease all work immediately and notify the BLM Authorized Officer. The BLM Authorized Officer would then evaluate the discovery in coordination with other consulting parties to determine and implement appropriate treatment, if necessary.

- All known culturally sensitive areas within 100 feet of ground disturbing activities and access roads will be safeguarded with periodic archaeological monitoring and barrier fencing, in consultation with the BLM ECFO archaeologist,
- Periodic archaeological monitoring (checking fencing, access routes, and drill pad locations, etc.) will be conducted by SMP's archaeological contractor (at least once every 2 weeks during drilling activities) in consultation with BLM ECFO archaeologist. Participation in the monitoring effort by Tribes will be recommended.

Section 106 consultation with the SHPO was initiated for the BLM's cultural resources findings and determinations on May 19, 2023. The 30-day consultation period with SHPO was completed June 20, 2023. The BLM received a letter response on June 28, 2023 stating there were no objections to the No Adverse Effect to Historic Properties determination.

3.8.4 Environmental Impacts (NEPA) – No Action Alternative

Under the No Action Alternative, the Project would not be authorized and associated surface disturbances and indirect auditory and visual effects would not occur. There would be no impacts to the identified historic properties.

3.8.5 Impact Analysis (CEQA)

a) Would the Project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

Less Than Significant Impact with Mitigation: Potential impacts to cultural resources include the following: direct impacts to historic properties from exploration activities; discovery of unanticipated finds during exploration activities; and discovery of human remains during exploration activities. Of the 279-acre Physical APE evaluated, 20.54 acres would be physically disturbed by the Project. Additionally, the Project site is entirely within an area previously disturbed by historical mining activities, with surrounding land uses that include prospecting and recreation. As such, the potential to impact historic resources is considered low.

Additionally, direct physical impacts to historic properties would be avoided through project design, redesign, or relocation of facilities where feasible. When avoidance is not feasible an appropriate treatment plan would be designed, in consultation with the State Historic Preservation Officer (SHPO) and California Office of Historic Preservation, to lessen or mitigate project-related effects to historic properties.

All of the historic period sites except CA-SDI-3297/3300/3302 (see **Table 3-12** above) have yet to be formally evaluated. Based on the results of the Class III inventory, these sites likely lack integrity and research potential (Criterion D), are not associated with important historical events (Criterion A) or individuals (Criterion B), and do not represent distinctive examples of structural types or works of master craftsmen (Criterion C) (Daniels et al. 2022). Nonetheless, the Project has been designed to avoid of all these sites.

As stated above, the overall proposed Project would be limited in scope (i.e., 20.54 acres of new disturbance) and duration (12- to 24-months of exploration activities). To ensure the Project's potential adverse impacts to cultural resources are avoided, the PDFs, CMAs, and additional mitigation measures as described above under **Section 3.8.3** and included in **Appendix F** would be required by the BLM and

Imperial County. These measures would be implemented throughout exploratory drilling construction and operation and reclamation activities.

Through the implementation of the avoidance and protection measure summarized in **Section 3.8.3** above, the Project would not have an adverse effect on those historic resources not yet formally evaluated. Therefore, Project impacts would be less than significant with mitigation incorporated.

b) Would the Project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

Less Than Significant Impact with Mitigation: See response to CEQA Criteria a) above. As stated above, the overall proposed Project would be limited in scope (i.e., 20.54 acres of new disturbance) and duration (12- to 24-months of exploration activities). Additionally, the Project site is within an area previously disturbed by historical mining activities, with surrounding land uses that include prospecting and recreation. As such, the potential to impact archeological resources is considered low.

Additionally, neither of the two prehistoric sites identified within the Physical APE (see **Table 3-12** above) have been evaluated for listing in the NRHP and would be avoided. Specifically, to ensure the Project's potential adverse impacts to archeological resources are avoided, the following protection measure shall be implemented. The PDFs, CMAs, and additional mitigation measures as described above under **Section 3.8.3** and included in **Appendix F** would be required by the BLM and Imperial County. These measures would be implemented throughout exploratory drilling construction and operation and reclamation activities. With such avoidance measures in place, both of the prehistoric sites would be avoided, and no adverse impacts would occur. Therefore, through the implementation of the avoidance and protection measure summarized above, the Project would not have an adverse effect on archaeological resources, and Project impacts would be less than significant with mitigation incorporated.

c) Would the Project disturb any human remains, including those interred outside of dedicated cemeteries?

Less Than Significant Impact with Mitigation: See response to CEQA Criteria a) and b) above. As stated above, the overall proposed Project would be limited in scope (i.e., 20.54 acres of new disturbance) and duration (12- to 24-months of exploration activities). Additionally, the Project site is within an area previously disturbed by historical mining activities, with surrounding land uses that include prospecting and recreation. As such, the potential to encounter undiscovered human remains is considered low.

Nonetheless, all ground-disturbing activities have the potential to unearth archaeological sites or human remains. Therefore, to ensure the Project would avoid inadvertent impacts to undiscovered human remains, including those interred outside of dedicated cemeteries, the following avoidance and protection measures would be implemented as described within the PDFs, CMAs, and additional mitigation measures under **Section 3.8.3** and included in **Appendix F.**

With the specified avoidance measures in place, there would be less than significant impacts to undiscovered human remains as a result of the Project. Additionally, a Monitoring and Discovery Plan would be developed for approval by BLM and would address concerns on handling of post-review discovery of cultural resources. Therefore, through the implementation of the avoidance and protection measure summarized above, the Project would not have an adverse effect on undiscovered human remains resources, and Project impacts would be less than significant with mitigation incorporated.

3.9 Energy

3.9.1 Initial Study Determination (CEQA)

Table 3-13 provides the determination of Project impacts to energy.

Table 3-13 Energy Environmental Checklist

Energy Criteria		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a)	Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b)	Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

3.9.2 Affected Environment

This resource is not a supplemental authority considered for analysis by the BLM under NEPA; therefore, it is not included for further analysis in this section other than pursuant to the CEQA IS requirements.

3.9.3 Impact Analysis (CEQA)

a) Would the Project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less Than Significant Impact: No, the proposed Project would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources. As discussed in **Section 3.3**, the primary sources of energy consumed as a result of the Project would be fuel (diesel and gasoline) due to onsite equipment activity (off-road equipment, drill rigs, helicopters, etc.) and on-road vehicular traffic (employee/contractor vehicles, delivery trucks) traveling to and from the Project Area.

Fuel energy would be stored onsite within the 1,300-gallon diesel fuel tank, as well as within a 300-gallon jet fuel tank installed at the Oro Cruz Mine Portal staging area. The Project would receive and unload fuel to these onsite storage tanks, and equipment and vehicle (including helicopter) refueling would occur at the designated fueling station within the Oro Cruz Mine Portal. As summarized in **Appendix E**, the total fuel energy consumed was estimated as a result of Project operations based on the proposed equipment and vehicle activity levels. In total, it was estimated that approximately 36,138 gallons of diesel fuel and approximately 1,500 gallons of JetB fuel would be consumed throughout the life of the Project.

The Petroleum Industry Information Reporting Act (PIIRA) requires all retail transportation fueling stations in California to file a Retail Fuel Outlet Annual Report (CEC-A15) with the California Energy Commission (CEC). These stations report retail sales of gasoline, diesel, and other transportation fuels. Compared to the CEC's most recent Retail Fuel Outlet Annual Reporting (CEC-A15) Results, which shows that approximately 24.3 million gallons of fuel was sold in Imperial County during the most recent 2020 reporting year, the Project's estimated increase in fuel consumption would constitute a nominal approximate 0.002 percent increases in total annual fuel energy consumption within the County during the life of the Project (CEC, 2022). It is also important to note that Project fuel consumption would be

temporary (occurring over a 12- to 24-month period) and would cease once reclamation of the Project Area is complete.

There are no unusual characteristics or processes involved during Project construction or operations that would require the use of equipment or vehicles that would be more energy intensive than would be used for comparable activities or require the use of equipment that would not conform to current emissions standards and related fuel efficiencies. Additionally, as with all industrial operations in California, equipment and vehicles used by Project employees and contractors would be subject to stringent federal and state fuel efficiency standards, which would minimize the potential for inefficient fuel usage. Specifically, the Project would be required to comply with the provisions of 13 California Code of Regulations (CCR) Sections 2449 and 2485, which prohibit diesel-fueled commercial motor vehicles and off-road diesel vehicles from idling for more than five minutes. Heavy equipment would also be subject to the EPA Construction Equipment Fuel Efficiency Standard (40 CFR Parts 1039, 1065, and 1068) and CARB's AB 1493 (i.e., Pavley) regulations, which would also minimize inefficient fuel consumption and ensure that the fuel efficiency of equipment and vehicles operating on- and off-site would continue to improve over time. In the interest of cost efficiency and in accordance with federal and state requirements, onsite employees and contractors would not utilize fuel in a manner that is wasteful or unnecessary during Project construction and operation phases.

For the reasons outlined above, the proposed Project would not result in a potential impact due to wasteful, inefficient, or unnecessary consumption of energy resources, and impacts would be less than significant with no mitigation required.

b) Would the Project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less Than Significant Impact: No, the proposed Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. As discussed in **Section 3.6**, the County's Regional Climate Action Plan (ICTC, 2021) contains various goals and policies meant to promote reductions in GHG emissions within the County, and many of the goals and policies center around reducing electricity and fuel consumption. As discussed in **Section 3.6**, the County-wide GHG reduction measures were reviewed, including those pertaining to energy conservation, and the Project would not conflict with any specific measure, program, or policy published within the Regional Climate Action Plan.

The County has also adopted generalized policies found within the Imperial County General Plan (Imperial County 2015), specifically within the Renewable Energy and Transmission Element, that support energy efficiency and/or sustainability that would apply to the Project. Applicable provisions were reviewed, and the Project would not conflict with any of the goals and policies, or related regulations adopted as part of the Imperial County General Plan – Renewable Energy and Transmission Element (Imperial County 2015).

As discussed under CEQA Criteria a) above, the Project's mobile equipment and vehicles would also comply with federal, state, and regional requirements where applicable. Specifically, the EPA and the National Highway Traffic Safety Administration (NHTSA) have adopted fuel efficiency standards for medium- and heavy-duty trucks which apply to truck fleet operators, such as the Project proponent. CARB has also adopted cleaner technology and fuel standards pursuant to AB 1493. While Phase 1 and Phase 2 regulation published by both the EPA/NHTSA and CARB primarily apply to manufacturers of on-road vehicles and not the end user, it is assumed the Project operator and any contractors would ensure engines operating onsite are certified in accordance with the appropriate state and federal regulations. This would ensure that efficiency of mobile equipment and vehicles would continue to improve, as applicable, over the life of the Project, through compliance with increasingly stringent standards adopted by applicable regulatory agencies. The energy modeling for trucks does not take into account specific fuel reductions from these regulations, as they would apply to fleets as they incorporate newer trucks meeting the regulatory

standards; however, these regulations would have an overall beneficial effect on reducing fuel consumption from trucks over time if/when older trucks are replaced with newer models that meet the standards.

The State of California's Energy Efficiency Strategic Plan (CPUC 2011) outlines specific goals and strategies to help promote energy efficiency in California's industrial sector in three (3) areas: 1) Support industry adoption of energy efficiency by integrating energy efficiency savings with achievement of GHG goals; 2) Build market value of and demand for energy efficiency; and 3) Provide technical and public policy guidance for resource efficiency. The Energy Efficiency Strategic Plan promotes reductions in energy consumption through compliance with GHG emission reductions, water conservation, and proper waste disposal. As applicable, the Project would utilize the best available equipment to improve diesel fuel efficiency, and equipment that uses energy would implement modern design and technology to maximize efficiency improvements.

Lastly, as discussed in **Section 3.16,** the Project is expected to have a de minimis effect on local population growth (i.e., exploratory operations over the 12- to 24-month Project life would not require a large number of new onsite employees), and the 2020 Strategic Plan contains no additional control measures with which the Project may conflict. As discussed above, the Project would continue implementing existing rules and conform with fleet turnover as applicable, further reducing the Project's fuel energy consumption over time.

For the reasons outlined above, the Project would not conflict with or obstruct any statewide, regional or local energy efficiency plans. As discussed under CEQA Criteria a) above, the Project would not significantly increase fuel energy consumption, and Project fuel consumption would be temporary and short-term in nature. Therefore, the Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, and impacts would be less than significant.

3.10 Environmental Justice

3.10.1 Initial Study Determination (CEQA)

Environmental justice is not a resource category analyzed in the IS under CEQA, therefore, no determinations or environmental impacts are provided for a CEQA impact analysis herein.

3.10.2 Affected Environment

In 1994, EO 12898 – Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations was issued by President William J. Clinton. The purpose of EO 12898 is to focus on the environmental and human health effects of federal actions on minority and low-income populations with the goal of achieving environmental protection for all communities. The EO directs federal agencies to identify and address the disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations, to the greatest extent practicable and permitted by law. The EO also directs each agency to develop a strategy for implementing environmental justice and is intended to promote nondiscrimination in federal programs that affect human health and the environment, as well as provide minority and low-income communities access to public information and public participation (EPA 2018). In 2021, the EO was amended under EO 14008 to secure environmental justice under consideration for tackling impacts from climate change, and spur economic opportunity for disadvantaged communities that have historically been marginalized or overburdened by pollution and underinvestment in infrastructure, housing, and healthcare (Federal Register 2021). Further, in 2022, BLM Instruction Memorandum IM 2022-059 was released to provide additional guidance on environmental justice implementation for NEPA analysis in compliance with these regulations and guidelines.

Evaluating the potential environmental justice effects of projects requires specific identification of minority populations when either: (1) a minority population exceeds 50 percent of the population of the affected

area; or (2) a minority population represents a meaningfully greater increment of the affected population than of the population of some other appropriate geographic unit as a whole. For the purposes of this analysis, ten or more percentage points above the reference population is considered to be a meaningfully greater increment (Federal Register 1994). A Tribal environmental justice population is considered as being present if there are one or more concentrated populations of American Indians living within one or more of the geographic polygons included in the analysis.

The EPA's Environmental Justice Screening and Mapping Tool and US Census Bureau data were used to characterize the minority and ethnic composition of the population within the area of analysis (**Table 3-14**). In order to establish a baseline in which to compare the minority and low-income population in the area of analysis, Imperial County, California was used as a reference population for comparison. The area of analysis for environmental justice includes four Census block groups, which includes the Project boundary (**Figure 3-4**), shown in **Table 3-14** below.

Table 3-14 Environmental Justice Indicators Within the Area of Analysis

Area of Analysis	Low-Income	Minority	Tribal
Census Block Group 060250124002[1]	37%	21%	2.97%
Census Block Group 060259400001[2]	62%	90%	50.37%
Census Block Group 060259400002[2]	54%	94%	60.81%
Census Block Group 060259400003[2]	86%	64%	21.88%
Imperial County, California	24%	89%	1%

Sources: EPA 2021b; Headwaters Economics 2021

[1] This Census Block Group is contained within the larger Census Block Group 0602512400, shown on **Figure 3-4**.

[2] This Census Block Group is contained within the larger Census Block Group 06025012400, shown on **Figure 3-4**.

The percentage of the population classified as low-income in all four block groups analyzed is either greater than 50 percent or more than 10 percentage points higher than that of Imperial County, California, which serves as the reference population for this analysis; therefore, a low-income environmental justice population is present within the area of analysis.

The percentage of the population identified as belonging to a minority group in Census Block Groups 060259400001, 060259400002, and 060259400003 is greater than 50 percent; therefore, a minority environmental justice population is present within the area of analysis.

There are concentrated populations of Indigenous communities living within Census Block Groups 060259400001, 060259400002, and 060259400003; therefore, an American Indian environmental justice population is present within the area of analysis.

3.10.3 Environmental Impacts (NEPA) – Proposed Action

Low-income, minority, and American Indian environmental justice populations are present within the area of analysis. Each environmental justice population type was found to be present in multiple Census block groups analyzed, based on the criteria outlined above. Implementation of any of the alternatives under consideration is not expected to cause temporary construction impacts to nearby residences and businesses, including increased noise and dust or changes to travel patterns, due to the remote nature of the Project Area. The nearest population to be potentially affected by the Proposed Action is Winterhaven, approximately 20 miles south of the Project Area (**Figure 1-1**). If impacts were to be realized, communities as a whole would be impacted, and it is not anticipated that there would be any disproportionate adverse impacts to environmental justice populations. Therefore, impacts to environmental justice populations would be negligible, short-term, and localized.

An additional provision of the CEQ guidance requires consideration of "impacts that may affect a cultural, historical, or protected resource of value to a Tribe or a minority population, even when the population is not concentrated in the vicinity." Impacts to Cultural Resources and Native American Religious Concerns and Traditional Values are analyzed in **Sections 3.7** and **3.9**, respectively, and discuss impacts to potential traditional use or historic sites. Ongoing consultation will continue for this Project with all Tribes that have been contacted and/or expressed interest in the Project, including the Fort Yuma Quechan Indian Tribe, which has been the primary Tribe involved in Government-to-Government consultation for the Project to date and coordinated with the BLM to identify the TCP. Overall, impacts from the Proposed Action on environmental justice populations would be negligible as the Proposed Action would not result in a disproportionate effect on a minority population, low-income population, or Tribal population.

3.10.4 Environmental Impacts (NEPA) – No Action Alternative

Under the No Action Alternative, the Proposed Action would not be developed, and the associated impacts to environmental justice would not occur. Impacts to environmental justice populations are not expected under the No Action Alternative except for those potentially occurring under existing conditions.

3.11 Hazards and Hazardous Materials

3.11.1 Initial Study Determination (CEQA)

Table 3-15 provides the determination of Project impacts to hazards and hazardous materials.

Table 3-15 Hazards and Hazardous Materials Environmental Checklist

Hazards and Hazardous Materials Criteria		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b)	Create a significant hazard to the public or the environment through reasonable foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c)	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d)	Be located on a site, which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒

Hazards and Hazardous Materials Criteria		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
f)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g)	Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

3.11.2 Affected Environment

No hazardous substances would be used under the Proposed Action; therefore, no hazardous waste would be generated by the Project. With the implementation of PDFs described in **Appendix F** for solid wastes and the commitment to develop a Spill Contingency Plan, impacts would be minimized; therefore, this resource was not analyzed further under the NEPA requirements for the affected environment or environmental impacts for each alternative, per the determination in **Table G-1** of **Appendix G.**

3.11.3 Impact Analysis (CEQA)

a) Would the Project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less Than Significant Impact: No, the Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. No hazardous substances would be used in the drilling program, and no hazardous wastes would be generated by the Project. There would also be no onsite disposal of hazardous materials. Any non-hazardous trash generated by the contractors would be collected in appropriate containers and removed as required for accordance with applicable laws and regulations. No refuse would be disposed of onsite.

Hazardous substances used during the Project would primarily include fuels and lubricants, which would be stored at the drill sites in accordance with the manufacturers prescribed instructions and applicable regulations. SMP would also have a fuel tank onsite that would contain no more than 1,300 gallons of diesel fuel within the 2.8-acre staging area.

To prevent the spread of any accidental leakage, fuel and lubricants would be stored in shallow lined reservoirs at each drill site, or at the designated/secured fueling station located at the Portal Staging area. Additionally, during drilling operations, the drill rig would be parked on top of plastic sheeting overlain by absorbent clay or shale (i.e., Oil-Dri, or "kitty litter") to prevent incidental releases to the ground surface. A spill prevention kit would also be stored onsite consisting of an oil-only absorbent mat material (i.e., PIG ® adsorbent mat pad) and absorbent clay or shale (i.e., Oil-Dri, or "kitty litter").

Prior to commencement of operations, a Spill Contingency Plan would be prepared to describe the procedures followed by SMP and their contractors to prevent, control, and mitigate releases of oil and petroleum products to the environment within the Project area. At a minimum, the spill prevention, control and countermeasures included in **Appendix F** would be implemented.

If a spill were to occur, the spill prevention and cleanup measures outlined in the Spill Contingency Plan would be implemented to contain the spill and prevent contamination. Handling and transfer of potentially hazardous materials would also follow BMPs, as well as applicable health and safety regulations and/or local ordinances. SMP would adhere to applicable policies, requirements, and responsibilities for

evaluation, handling, storage, disposal, transport, and source reduction of hazardous materials/wastes, including procedures for containment and cleanup of hazardous materials/waste spills, and updating the appropriate contingency plans. Emergency spill response materials would be readily available to employees. Employees would be appropriately trained in hazardous materials/waste management. Potentially hazardous waste would be properly removed and transported to an approved offsite facility.

For the reasons outlined above, the Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, and there would be less than significant impacts with no mitigation required.

b) Would the Project create a significant hazard to the public or the environment through reasonable foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less Than Significant Impact: No, the Project would not create a significant hazard to the public through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. As detailed under CEQA Criteria a) above, minimal amounts of hazardous materials, primarily fuels, oils and lubricating fluids, would be used and stored onsite; however, these would be stored at the drill sites in accordance with manufacture prescribed instructions and applicable regulations, and with designated/protected storage areas. During drilling operations, the drill rig would be parked on top of plastic sheeting overlain by absorbent clay or shale (i.e., Oil-Dri, or "kitty litter") to prevent incidental releases to the ground surface. Additionally, a Spill Contingency Plan would be prepared to describe the procedures followed by SMP and their contractors to prevent, control, and mitigate releases of oil and petroleum products to the environment within the Project area. Through the implementation site-specific containment and control measures described in **Appendix F**, the potential for an accidental release of significant quantities of hazardous materials that could affect the surrounding environment is low.

Furthermore, although certain hazardous materials (i.e., oils, lubricants, cleaning products) would be managed/stored at the Project site, employees would be trained to properly recognize, contain, and cleanup such releases in accordance with SMP's cleanup procedures outlined in the Spill Contingency Plan in the unlikely event of an accidental release. For these reasons, accident conditions leading to the release of hazardous materials that could cause a significant hazard to the public or surrounding environment is unlikely, and the Project would have less than significant impacts, with no mitigation required.

c) Would the Project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No Impact: No, the Project would not emit hazardous emissions, materials, substances, or waste within one-quarter mile of an existing or proposed school. The Project site is located in a remote area of the Tumco mining district in the Cargo Muchacho Mountains and is surrounded by undeveloped open space used for prospecting and recreation. The nearest school is the Rancho Viejo Elementary School, located over 14 miles away from the Project site to the southeast in Yuma, Arizona. Therefore, no Project impacts would occur related to emitting or handling hazardous materials within 0.25 mile of an existing or proposed school.

d) Would the Project be located on a site, which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No Impact: No, the Project would not be located on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. The proposed Project Area is not located within or near a site identified by the Department of Toxic Substances Control (DTSC) or the Secretary of Environmental Protection as being affected by hazardous wastes or clean-up problems. Specifically, the State Water Resources Control Board (2022) GeoTracker and the Department of Toxic Substances Control (2022)

EnviroStor databases were reviewed to determine whether the Project site or surrounding area(s) are listed hazardous material/waste sites or are located near a known contaminated site. Neither the Project site, nor any sites within the nearby vicinity, are on or near hazardous materials sites identified on a list compiled pursuant to Government Code Section 65962.5. Further, as discussed under CEQA Criteria a) and b) above, the proposed Project would not use significant quantities of hazardous material, nor generate hazardous wastes. Therefore, the Project would not create a significant hazard to the public or the environment related to hazardous materials sites, and no impacts would occur.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

No Impact: No, the Project is not located within an airport land use plan area or within 2 miles of a public airport or a public use airport, which could result in a safety hazard or excessive noise for people residing or working in the Project Area. The Project would not result in a safety hazard or excessive noise for people residing or working in the Project Area due to proximity to a public airport or public use airport. The Project site is not located within two miles of a public airport or public use airport. The public use airport nearest to the Project Area is the Holtville Airport, a relatively small county-owned airport located over 25 miles away from the Project Area to the west. Therefore, no impacts would occur.

f) Would the Project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

No Impact: No, the Project would not impair implementation of or physically interfere with an adopted emergency plan or evacuation plan. As discussed above, the Project Area is located approximately 35 minutes northwest of Yuma, Arizona, and is accessed via various paved highways graded roads. Drilling equipment would be trucked to one of two truck unloading points, and then would be mobilized to the drill sites within the Project Area. Equipment would be unloaded from lowboys onto the existing road at the unloading points and no improvements are needed to accommodate the unloading of equipment.

As discussed above, the Project would repurpose existing access roads to the extent possible, however some new access roads would be required across BLM land (**Figure 2-1**). The access routes that would be used are pre-existing BLM-authorized routes. The proposed drill sites and new access roads would be mostly located within previously mined and disturbed areas. Interstate 8 (I-8), Blythe Ogilby Road (State Route 34), and Gold Rock Ranch Road are the primary roads that would be used for access. These access/roadway improvements would help facilitate safe and orderly evacuation of the Project site/surrounding area.

As discussed in **Section 3.16**, SMP's exploration activities would also not significantly increase the number of vehicles on local public roadways. Specifically, the number of onsite workers/contractors at any given operating day during the course of the Project would be minimal (estimated up to 13 onsite employees). Additionally, there are no public facilities or structures in the Project area that would be altered or impacted by the Project. In the unlikely event of an emergency that would require onsite evacuation, existing ingress/egress points and public access roads have sufficient capacity to safely evacuate the onsite employees.

Planning and prevention of fires would also be managed throughout the life of the Project through the appropriate handling and storage of fuels, inspections and recordkeeping, spill prevention and response procedures, proper use of safety equipment, resource management training, and fire prevention training.

Prior to commencement of exploratory operations, SMP would also coordinate with local law enforcement and fire departments to provide 24-hour access as needed for emergency response. Cellular telephone service is generally available within the Project area site for emergency and other communications. A satellite phone would also be made available in case of emergencies. Contractors would be trained in proper

emergency response, incident reporting, and general health and safety issues. All onsite equipment and vehicles would be maintained in a safe and orderly manner.

Lastly, Imperial County's Emergency Operations Plan (EOP) (Imperial County 2016) and Multi-Jurisdictional Hazards Mitigation Plan Update (Imperial County, 2015) were also reviewed. The Project would not conflict with any applicable provisions found in the County's emergency response or hazard mitigation plan(s). See **Section 3.24** for additional detail.

For the reasons outlined above, the Project would not impair implementation of or physically interfere with an adopted emergency response or evacuation plan, and no impacts would occur.

g) Would the Project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

Less Than Significant Impact: No, the Project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires. The Project site is located within an undeveloped area, previously disturbed by historical mining activities. Based upon the lack of natural vegetation and rocky, hard-packed soils, the Project Area would not be especially prone to wildfires. According to the current Fire Hazard Severity Zone Maps published by the California Department of Forestry and Fire Protection, the Project site is located within a designated "Moderate" Fire Hazard Severity Zone (within a Federal Responsibility Area [FRA]). None of the Project site or adjacent areas are designated as "Very High", "High" Fire Hazard Severity Zone. **Section 3.24** further discusses potential impacts associated with wildfire.

SMP would also implement site-specific fire prevention/protection actions. At a minimum these actions would include designating Project fire coordinators, providing adequate fire suppression equipment (including in vehicles), and establishing emergency response information relevant to the Project Area. As discussed above, SMP would maintain a 2,000-gallon portable water storage tank onsite for dust suppression; however, in the unlikely event of an onsite fire, this water would also be available to assist in firefighting operations. SMP would ensure that all mobile equipment be equipped with fire extinguishers, hand tools, and first aid kits.

In the event of an initial, small fire that does not create enough smoke, flame, and heat to prevent fighting the fire using a hand-held fire extinguisher or a small water hose, and providing no one would be endangered, SMP personnel and/or contractors would use make a reasonable effort to extinguish the fire. If two or more people are present, one would fight the fire while one reports to 911 the size, type, and location in the event the fire grows out of control. Personnel would not directly engage any fire which is beyond the incipient stage (i.e., a fire which has progressed to the point it has substantially involved any structure/equipment).

The Project would not require the use or storage of significant quantities of flammable materials onsite. Management of flammable materials stored onsite would be conducted in accordance with applicable regulations. As stated above, onsite vehicles would contain fire extinguishers, and onsite staff would be trained in fire suppression in accordance with SMP's standard protocols. Additionally, none of the proposed structures would be prone to fires and would not be directly associated with any heat generating devices. SMP would also generally maintain the Project area and kept devoid of vegetation and brush.

For these reasons, the Project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires, and impacts would be less than significant.

3.12 Land Use and Planning

3.12.1 Initial Study Determination (CEQA)

Table 3-16 provides the determination of Project impacts to land use and planning.

Table 3-16 Land Use and Planning Environmental Checklist

Land Use and Planning Criteria		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a)	Physically divide an established community?	☐	☐	☐	☒
b)	Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

3.12.2 Affected Environment

No existing Right-of-Ways or land use authorizations occur within the Project Area; therefore, this resource was not analyzed further under the NEPA requirements for the affected environment or environmental impacts for each alternative, per the determination in **Table G-1** of **Appendix G.**

3.12.3 Impact Analysis (CEQA)

a) Would the Project physically divide an established community?

No Impact: No, the proposed Project would not physically divide an established community. As stated above, the Project is located in a remote area of the Tumco mining district in the Cargo Muchacho Mountains, 14 miles southeast of the operating Mesquite gold mine in Imperial County, California. The Tumco Historic Mine is a historic and recreational area managed by the BLM for uses such as hiking, prospecting, wildlife viewing, and photography within western portions of the Project Area. The Project site is entirely within an area previously disturbed by historical mining activities, with surrounding land uses that include prospecting and recreation. The Project Area is undeveloped, not located within an established community, and does not serve as a means of moving through or connecting to a community or neighborhood.

There are no established communities within or immediately adjacent to the Project. For these reasons, the proposed Project would not physically divide an existing community, and no impacts would occur.

b) Would the Project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact: No, the Project would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. The Project site is located within a historical mining area. Per the current Imperial County General Plan and Zoning Ordinance, the Project site has a designation of "Recreation/Open Space" and a current Zoning designation of "BLM". SMP's proposed

Project operations (i.e., exploratory drilling) are allowable within these County land use designations. Additionally, the Project does not require changes to the Imperial County General Plan or Zoning designations, nor would the Project conflict with any land use designations/land use plans in order to mitigate an environmental effect.

Project activities would also be consistent with applicable zoning designations and land use requirements published by Imperial County. Therefore, the proposed Project would not cause a significant environmental impact due to a conflict with a land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect, and no impacts would occur.

3.13 Mineral Resources

3.13.1 Initial Study Determination (CEQA)

Table 3-17 provides the determination of Project impacts to mineral resources.

Table 3-17 Mineral Resources Environmental Checklist

Mineral Resources Criteria		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a)	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☒	☐
b)	Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☒	☐

3.13.2 Affected Environment

The Proposed Action would not involve the removal of large quantities of earth that may potentially lead to structural instability. A small amount of material would be removed from boreholes and would not affect potential mineral resources in the ground; therefore, this resource was not analyzed further under the NEPA requirements for the affected environment or environmental impacts for each alternative, per the determination in **Table G-1** of **Appendix G.**

3.13.3 Impact Analysis (CEQA)

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

Less Than Significant Impact: No, there would be no loss of availability of a known mineral resource that would be of value to the region and the residents of the State. Conversely, the Project proposes to conduct exploratory drilling to determine if future development of valuable mineral resources, specifically gold and silver, would be economically feasible. The SMARA requires the State Geologist to classify mineral lands to help identify and protect mineral resources in California; however, the Project area has not been mapped through a Mineral Land Classification (MLC) study or assigned a specific Mineral Resource Zone (MRZ) using the State's mineral land classification system. Accordingly, the Project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State, and less than significant impacts would occur.

b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

Less Than Significant Impact: No, the Project would not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. As discussed under CEQA Criteria a) above, the Project site is not located within a State-designated MRZ mineral resource recovery area. However, according to Figure 8 (Existing Mineral Resources) within the Conservation of Open Space Element of the Imperial County General Plan (Imperial County 2015), the Project is mapped within an area noted for having active "gold" mines and commodities. As discussed above, the Project proposes to conduct exploratory drilling to determine if future development of valuable mineral resources, specifically gold and silver, would be economically feasible. Accordingly, the Project would not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan, and no new impacts would occur. Conversely, the Project proposes to conduct exploratory drilling to determine if future development of valuable mineral resources would be viable, which represents a less than significant impact.

3.14 Native American Religious Concerns and Traditional Values

3.14.1 Initial Study Determination (CEQA)

Table 3-18 provides the determination of Project impacts to Tribal cultural resources (nomenclature based on Imperial County IS form).

Table 3-18 Tribal Cultural Resources Environmental Checklist

Tribal Cultural Resources Criteria		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a)	Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place or object with cultural value to a California Native American tribe, and that is:	☐	☐	☒	☐
	(i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as define in Public Resources Code Section 5020.1(k), or	☐	☐	☒	☐
	(ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth is subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American Tribe.	☐	☐	☒	☐

3.14.2 Affected Environment

The BLM considers the views of Native Americans prior to BLM decisions or approvals that could result in changes in land use, physical changes to lands or resources, changes in access, or alienation of lands (BLM 2016). In accordance with the NHPA (P.L 89-665), NEPA, FLPMA (P.L. 94-579), the American Indian Religious Freedom Act of 1978 (P.L. 95-341), the Native American Graves Protection and Repatriation Act (NAGPRA) (P.L. 101-601) and EO 13007, the BLM must provide affected Tribes an opportunity to comment and consult on the proposed Project. The BLM must attempt to limit, reduce, or possibly eliminate any negative impacts to Native American traditional/cultural/spiritual sites, activities, and resources.

The area of analysis for Native American Religious Concerns and Traditional Values is the same as the VAA APE (see **Section 3.8**; **Figure 3-2**). The area of analysis is located within the traditional territory of the Quechan Indian Tribe of the Fort Yuma Indian Reservation, California and Arizona (Daniels et al. 2022; NCIDC 2022). The BLM invited the following additional Tribes into consultation whom may have an interest in the Project Area and activities within Imperial County, including the Barona Band of Missions Indians, Campo Band of Mission Indians, Cocopah Indian Tribe, Colorado River Indian Tribes, Ewiiaapaayp Band of Kumeyaay Indians, Iipay Nation of Santa Ysabel, Jamul Indian Village, Kwaaymii Laguna Band of Indians, La Posta Band of Kumeyaay Indians, Manzanita Band of Kumeyaay Indians, Mesa Grande Band of Mission Indians, San Pasqual Band of Diegueño Indians, Sycuan Band of Kumeyaay Nation, Torres-Martinez Desert Cahuilla Indians, and Viejas Band of Kumeyaay Indians. Traditionally, the Quechan Indian Tribe utilized lands or resources within the general Project Area and during the 30-day review period of this EA they identified a TCP that encompasses the Project Area and extends beyond the boundaries of the Physical and VAA APEs. The full extent of the TCP has not been delineated. Consultation

with Native American tribes is ongoing to understand what if any potential adverse effects the proposed project may have to sensitive areas having religious or cultural importance.

Quechan territory extended from just south of the Gila River-Colorado River confluence north to at least Palo Verde and Cibola valleys and probably as far north as the Big Maria and Riverside mountains where they abutted Mohave territory (Daniels et al. 2022). Currently, the Quechan reside near El Centro, California and Yuma, Arizona on the Fort Yuma Indian Reservation, California and Arizona. The reservation encompasses approximately 45,000 acres bordering Arizona, California, and Baja California, Mexico. The Tribe currently has over 3,200 members and is largely an agricultural community. Fort Calhoun, the predecessor to Fort Yuma, was constructed in 1849 as a US military outpost. The original buildings burned and were rebuilt as Fort Yuma in 1855. The Fort was abandoned and transferred to the US Department of the Interior and the Quechan Indian Tribe in 1884 (Quechan Tribe 2022). The Quechan relied on riverine resources as well as agriculture. The Quechan and other Tribes practiced small scale agriculture, collected and stored wild plant foods with the most important being screwbean mesquite, and hunted and fished (Daniels et al. 2022).

On March 31, 2021, the BLM sent letters to 16 tribes initiating formal government-to-government consultation on the Plan, in accordance with the NHPA and other legal authorities. Communication and consultation with Tribes continued over the course of the next two years and on April 13, 2023, the BLM sent letters to 16 Tribes initiating formal consultation on the Section 106 findings and effects determination for the Project. The list of Tribes contacted and a summary of the consultation letters sent by the BLM for this project is provided in **Section 4.1.1**. Government-to-government and Section 106 of the NHPA tribal consultation is ongoing, and as part of the consultation process, notification of publication of this EA was provided to the tribes.

Table 3-19 includes a list of coordination meetings between the BLM and Tribes that followed Project initiation.

Table 3-19 BLM and Tribal Meetings on the Proposed Action To Date

Date	Coordination Description
July 12, 2021	Government-to-Government consultation meeting between the BLM and representatives of the Fort Yuma Quechan Indian Tribe.
April 15, 2021; May 19, 2021; June 23, 2021; July 22, 2021; August 25, 2021; October 19, 2021; November 30, 2021; January 12, 2022; February 15, 2022; March 15, 2022; June 9, 2022	Monthly BLM Project coordination meetings with the Fort Yuma Quechan Indian Tribe Historic Preservation Officer.
September 20,2022	Site visit conducted at the Project Area hosted by the BLM and attended by representatives of the Fort Yuma Quechan Indian Tribe and the Campo Band of Mission Indians.
September 21, 2022	Virtual Section 106 of the NHPA consultation meeting following the September 20, 2022 site visit hosted by the BLM and attended by representatives of the Fort Yuma Quechan Indian Tribe and the Campo Band of Mission Indians and the San Pasqual Band of Diegueño Indians.
September 27, 2022	Site visit conducted in the Project Area hosted by the BLM and attended by representatives of the Fort Yuma Quechan Indian Tribe.
November 9, 2022	Government-to-Government consultation meeting between the BLM and representatives of the Fort Yuma Quechan Indian Tribe at Tribal Council Chambers.
January 10, 2023	Virtual consultation meeting between the BLM (State, District, & El Centro) and the Fort Yuma Quechan Indian Tribe Historic Preservation Officer and members of the Fort Yuma Quechan Indian Tribe Cultural Committee.

Date	Coordination Description
January 30, 2023	Virtual consultation meeting between the BLM (State, District, & El Centro) and the Fort Yuma Quechan Indian Tribe Historic Preservation Officer and members of the Fort Yuma Quechan Indian Tribe Cultural Committee.
February 14, 2023	In person consultation meeting between the BLM and the Fort Yuma Quechan Indian Tribe Historic Preservation Officer and members of the Fort Yuma Quechan Indian Tribe Cultural Committee.
May 12, 2023	Virtual Sec 106 Consultation regarding the findings and effects determinations meeting between the BLM and the Fort Yuma Quechan Indian Tribe Historic Preservation Officer and members of the Fort Yuma Quechan Indian Tribe Cultural Committee.

3.14.3 Environmental Impacts (NEPA) – Proposed Action

Various locations throughout the BLM El Centro Field Office administrative area host certain traditional, spiritual, and cultural use activities today, as they did in the past. A TCP has been identified that encompasses and extends beyond the Project Area; however, the full extent of the TCP has not been physically delineated. The BLM continues to solicit input from local tribal entities and coordinates with the Tribes to identify any other sites or artifacts, or cultural, traditional, and spiritual use resources and activities that might experience an impact.

To date, comments have been received from seven Tribes: the Fort Yuma Quechan Indian Tribe, the Colorado River Indian Tribes, the San Pasqual Band of Diegueño Indians, the Campo Band of Mission Indians, the Cocopah Indian Tribe, the Viejas Band of Kumeyaay Indians, and the La Posta Band of Kumeyaay Indians. Most notably in opposition to the Project have been the Fort Yuma Quechan Indian Tribe, stating "The proposed Project location is sited within a region that is highly significant to the Fort Yuma Quechan Indian Tribe. This is a location that the Tribe attaches great cultural, religious and spiritual significance to. The Fort Yuma Quechan Indian Tribe objects to the proposed mining project and the proximity of the operation to a significant cultural landscape and items of cultural patrimony which are integral to the spiritual and everyday lives of the Quechan people." A number of letters and meetings have resulted in changes to the Cultural Resources Survey Work Plan and efforts to identify historic properties and most notably the development of a VAA APE for the Project. Drilling exploration operations have historically been considered temporary effects and therefore a VAA APE was not originally determined to be required. In a letter dated October 14, 2022, the Fort Yuma Quechan Indian Tribe requested Government-to-Government consultation and identified that the proposed project is located within a larger landscape they consider a TCP. They also voiced several other concerns including continued opposition to the Project. The BLM has requested additional information about the nature and extent of the TCP as part of its Government-to-Government consultation, as well as for Section 106 of the NHPA consultation and relevant to other EOs and regulations. Currently, not enough information has been provided to understand the nature, use of the resource, and physical extent of the TCP; therefore, additional details on the potential physical delineation of the extent of the TCP and the known physical and intangible resources that exist within the TCP would have to be provided to the BLM to further assess impacts or determine if there are additional minimization or avoidance measures that would apply. Ongoing consultation will continue for this Project with all Tribes that have been contacted and/or expressed interest in the Project; however, the Fort Yuma Quechan Indian Tribe has been the primary Tribe involved in Government-to-Government consultation for the Project to date.

Further, as noted in **Section 3.8**, the Project would avoid both known prehistoric sites that have been identified within the Physical APE, and which have been determined to potentially contribute to the eligibility of the TCP within the larger VAA APE (defined above in **Section 3.8.2**). . Precautionary Environmentally Sensitive Area fencing would be placed in applicable activity areas near known sites to prevent inadvertent impacts. Therefore, at the time of this EA, no physical impacts to known cultural sites have been identified and are not anticipated from the Proposed Action. Impacts including visual or noise effects could occur during the construction and operation phases of the exploration activities within the

VAA APE. Visual and auditory effects would be temporary and may include visual obstructions and loud noise levels which could affect the integrity of setting or feeling of locations possibly deemed sacred or traditionally important by Native Americans. Assessment of the Visual APE identified 18 potential sites that may be visually affected; however, views of the Project would not likely create adverse effects to historic properties and any visual impacts at identified sites would be temporary. Assessment of the Auditory APE and review of the noise modeling (described further under **Section 3.15**) identified that noise levels would be similar to those for a suburban residential area at night, a level that would not likely cause adverse effects to significant Native American resources, and any noise level increases at identified sites would be temporary and intermittent throughout the life of the Project. Although very limited occurrences of desert microphyll woodland vegetation types have been documented within the area of analysis (**Appendix E**), CMAs would be implemented to minimize impacts to these vegetation communities to ensure Native American vegetation collection areas and practices are maintained, including LUPA-CUL-9 and LUPA-CUL-11. An additional BLM-required mitigation measure would also be implemented to minimize impacts from minor incursions to microphyll woodlands (**Appendix F**). With implementation of PDFs and CMAs (**Appendix F**), and due to the short-term nature of the Project, impacts to Native American religious concerns and traditional values would be short-term and localized, and adverse impacts are not anticipated as the known physical sites within the TCP that has been identified would be avoided. By letter dated April 13, 2023, the BLM provided its proposed Section 106 determination of no adverse effects to historic properties to all tribes for a 30-day consultation period. The BLM has also concluded consultation with the SHPO on these findings as well and the Section 106 process is complete. Government-to-Government consultation with the Tribes will continue throughout the life of the Project.

3.14.4 Environmental Impacts (NEPA) – No Action Alternative

Under the No Action Alternative, the Project would not be approved by the BLM and activities described in **Section 2.1** would not be conducted; therefore, there would be no impacts to Native American religious concerns and traditional values under the No Action Alternative outside of those that may occur under existing conditions.

3.14.5 Impact Analysis (CEQA)

On July 1, 2015, California AB 52 of 2014 went into effect, expanding CEQA by defining a new resource category, "tribal cultural resources." AB 52 states, "A project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment" (Public Resources Code [PRC] Section 21084.2). It further states the lead agency shall establish measures to avoid impacts altering the significant characteristics of a tribal cultural resource, when feasible (PRC Section 21084.3).

AB 52 also establishes a formal consultation process for California tribes regarding tribal cultural resources. The consultation process must be completed before a CEQA document can be certified or adopted. Under AB 52, lead agencies (in this instance, Imperial County) are required to "begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project." Native American tribes to be included in the process are those that have requested notice of projects proposed in the jurisdiction of the lead agency.

On September 9, 2021, the County distributed an AB 52 consultation letter for the proposed Project. Specifically, Project information, a map, and contact information was sent to the Fort Yuma Quechan Indian Tribe. Due to the geographic location of the Project, the Fort Yuma Quechan Indian Tribe is the only Native American tribe that has claimed traditional and cultural affiliation with the Project Area and is therefore the only tribal entity required to be notified of the Project by Imperial County pursuant to AB 52.

Under AB 52, Native American tribes have 30 days to respond and request further project information and request formal consultation; however, none of the contacted tribes responded within 30 days of mailing of the letters in response to Imperial County. Accordingly, AB 52 consultation is considered complete for the Project.

> *(i) Would the Project impact a tribal cultural resource listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as define in Public Resources Code Section 5020.1(k)?*

Less Than Significant Impact: The proposed Project would not cause a substantial adverse change in the significance of a tribal cultural resource. No tribal cultural resources have been identified within or near the Project Area. Additionally, no significant ground disturbing activities with the potential to uncovered undiscovered tribal cultural resources would be required as a result of the Project.

As discussed above, in accordance PRC Section 21074 – AB 52, the County contacted the Fort Yuma Quechan Indian Tribe to obtain their input and concern with potential impacts to tribal cultural resources as a result of the Project. The Fort Yuma Quechan Indian Tribe is that only Native American tribe that has claimed traditional and cultural affiliation with the Project Area and is therefore the only tribal entity required to be notified of the Project by Imperial County pursuant to AB 52. As discussed above, to date, the Fort Yuma Quechan Indian Tribe has not responded to Imperial County's AB 52 consultation letter or indicated they would require further tribal consultation; however, in coordination with Imperial County, the BLM has engaged in extensive consultation efforts with the Fort Yuma Quechan Indian Tribe as part of the Section 106 of the NHPA process. To date, no other responses or input has been received from the other tribes consulted through PRC Section 21074 – AB 52.

Furthermore, as discussed above, separate from Imperial County's AB 52 consultation process, the BLM considers the view of Native American prior to BLM decisions or approvals that could result in changes in land use, physical changes to lands or resources, changes in access, or alienation of lands (BLM 2016). As described above under **Section 3.14.2 and 3.14.3**, the BLM has consulted with several tribal entities per the Section 106 of the NHPA process. Extensive outreach and consultation efforts, including in-person and virtual meetings and site visits have been completed by the BLM, including specifically with the Fort Yuma Quechan Indian Tribe. The BLM will continue Government-to-Government consultation with the tribes that have requested such consultation, including the Fort Yuma Quechan Indian Tribe, throughout the life of the Project. **Section 4.1** provides additional detail on the Government-to-Government consultation process conducted by the BLM.

As discussed previously, the overall proposed Project would be limited in scope (i.e., 20.54 acres of new disturbance) and duration (12- to 24-months of exploration activities). Additionally, the Project Area is entirely within an area previously disturbed by historical mining activities, with surrounding land uses that include prospecting and recreation. As such, the potential to impact tribal cultural resources is considered low.

SMP has committed to avoidance of all cultural resources and has engaged with the Native American Heritage Commission and the Fort Yuma Quechan Indian Tribe regarding the Project. SMP would implement the PDFs, CMAs, and additional BLM required mitigation measures described in detail in **Appendix F**, which would be implemented throughout the life of the Project to ensure potential impacts to tribal cultural resources are completely avoided. With the implementation of the PDFs, CMAs, and additional mitigation measures, as discussed above in **Section 3.8.3** and **3.14.3** and **Appendix F**, the Project would not cause a substantial adverse change in the significance of a tribal cultural resource, as defined in PRC Section 2107. Impacts would be less than significant, with no additional mitigation measures required beyond those required by the BLM and Imperial County in **Appendix F**.

(ii) Would the Project impact a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision I to Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision I of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

Less Than Significant Impact: See response to CEQA Criteria a)i. above. As discussed previously, the overall proposed Project would be limited in scope (i.e., 20.54 acres of new disturbance) and duration (12- to 24-months of exploration activities). Additionally, the Project site is within an area previously disturbed by historical mining activities, with surrounding land uses that include prospecting and recreation. As such, the potential to impact tribal cultural resources is considered low. Additionally, through the implementation of the PDFs, CMAs, and additional mitigation measures described in **Section 3.8.3** and **Section 3.14.3** above and within **Appendix F**, as well as through BLM's continued consultation with local tribal entities, as applicable, the Project would not cause a substantial adverse change in the significance of a tribal cultural resource as defined in PRC Section 21074. Impacts would be less than significant, with no additional mitigation measures required beyond those required by the BLM and Imperial County in **Appendix F**.

3.14.6 Cumulative Effects

Based upon comments received in response to Government-to-Government and Section 106 of the NHPA consultation meetings, the BLM recognizes that Native American religious concerns and traditional values may have been impacted by past actions in the vicinity of the Project Area and within the VAA APE. There is concern that the Proposed Action would further impact a larger cultural landscape, such as the identified TCP, but the nature of those impacts has not been specified other than general opposition to the Project. Additionally, as described above in **Sections 3.8.2** and **3.14.2**, the physical extent of the TCP has not been determined. Specifically, the Fort Yuma Quechan Indian Tribe has asserted that past mining activity and vehicle use (including OHVs) in the Project Area and within the larger landscape, including within the Picacho ACEC, have impacted an important TCP. However, these assertions have been general statements regarding a larger cultural landscape for which a boundary has not yet been defined, nor has information been provided about how the Project would specifically impact the ongoing use or cultural practices of Tribes. At this time, not enough information has been provided in order for the BLM to develop a CESA that is representative of the area where cumulative impacts may occur, in combination with the Proposed Action, to the potential TCP that may exist within the vicinity and/or other Native American religious concerns and traditional values. Until such time that additional information is provided to the BLM, a qualitative cumulative impacts assessment is included herein which analyzes the VAA APE. Within the VAA APE, past mineral development and explorations, public purpose projects, roads, and dispersed recreation have occurred. There are no RFFAs within the VAA APE. Present disturbance from the American Girl Mine and the American Girl mineral materials site occurs within the VAA APE; there is also an existing powerline owned by the Imperial Irrigation District that crosses through the VAA APE. The Proposed Action could temporarily alter the spiritual or cultural experience for Native American users; however, the eventual reclamation of projects throughout the VAA APE would reduce visual impacts from unnatural lines and landforms are regraded to better blend with the surrounding topography during closure and final reclamation. Spiritual and religious use locations may be present within the VAA APE, but the exact locations are unknown to the BLM. If specific locations of spiritual and religious use are present near past or present actions, including the Proposed Action, they could be cumulatively impacted but the Proposed Action is temporary and so there would not be an additive effect. If previously undisclosed places of spiritual and religious use become known within the Project Area, consultation with the Tribes would be conducted to determine potential impacts. As previously described, all known cultural resource sites within the VAA APE are being avoided, and consultation with Tribes will continue throughout the life of the Project.

3.15 Noise

3.15.1 Initial Study Determination (CEQA)

Table 3-20 provides the determination of Project impacts to noise.

Table 3-20 Noise Environmental Checklist

Noise Criteria		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a)	Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b)	Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c)	For a project located within the vicinity of a private airstrip or an airport land use plan or where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐

3.15.2 Affected Environment

The area of analysis for noise is the Project Area plus the Indirect Auditory APE (**Figure 3-5**). The Noise Control Act of 1972 required the EPA to establish noise emission criteria as well as noise testing methods to protect public health and welfare against hearing loss, annoyance, and activity interference, which correlates with the human response to noise. The EPA's recommendation for acceptable noise level limits affecting residential land use is 55 decibels on the A-weighted scale (dBA) day/night average sound level (L_{dn}) for outdoor activity (EPA 1972). Additionally, a nighttime noise standard of 45 dBA equivalent or energy-averaged sound level (L_{eq}) is implemented by the Imperial County Code of Ordinances (Section 90702.00). These levels of noise are considered those that would permit spoken conversation and other activities such as sleeping, working, and recreation, which are all considered part of the daily human condition; these levels represent averages of acoustic energy over periods of time.

The area of analysis is in a remote location, within mountainous topography of the Cargo Muchacho Mountains that extends to the east and a lower valley and washes to the west. There are no residences in the vicinity. The historic Tumco Mine is present within the area of analysis (**Figure 3-5**), where recreationalists may partake in walking tours and sightseeing. Blythe Ogilby Road runs north-south through the area of analysis, where traffic conditions (**Section 3.13**) contribute to the existing noise environment. OHV use within the area may contribute to existing noise levels as well but is intermittent, and the regularity of such is dependent on recreational seasonality.

3.15.3 Environmental Impacts (NEPA) – Proposed Action

Acoustic modeling was conducted to determine the furthest distance that noise generated by the Proposed Action would travel, attenuating at 25 dBA, a nearly imperceptible level of noise to the human ear (Saxelby

2022). Based on the topography of the area of analysis, noise would travel furthest to the west. Acoustic modeling was run based on four separate scenarios that were determined to most realistically represent the furthest that noise would travel as generated from the Project: two drill rigs operating in Drill Area 2, Drill Area 3, Drill Area 4, and Drill Area 6 to represent all potential noise levels traveling to the northwest, west, and southwest. Each acoustic modeling scenario also included noise generated from all staging area equipment proposed within Drill Area 1 that would contribute to noise level increases (Saxelby 2022).

Noise generated from helicopter use via the helicopter landing pad proposed in Drill Area 1 would not contribute to continuous noise generated by Project drilling activities. The furthest extent of the noise contours as modeled (Saxelby 2022) would travel approximately 1.7 miles to the southwest from the Project Area as a result of drilling activity in Drill Area 6 (**Figure 3-5**). Noise impacts as a result of exploratory drilling activities would be temporary in nature and would not be stationary throughout the one-to-two-year life of the Project given the nature of the proposed approximately two-week drilling campaign at each drill site. Additionally, the BLM would require a mitigation measure for notices to be posted on the BLM's website and at designated recreational sites in the area (i.e., Tumco) notifying the public of dates and times that drilling would occur with elevated levels of noise and activity in the Project Area (**Appendix F**). CMA LUPA-BIO-12 would also be implemented to minimize noise impacts to BLM special status and sensitive wildlife species, as described in **Appendix F**. Whereas noise level increases would occur under the Proposed Action, no human sensitive noise receptors were identified due to the remote location of the Project, and with these BMPs, CMAs and mitigation measures in place, and due to the short-term and non-stationary nature of the Project, noise impacts would be negligible, short-term, and localized.

3.15.4 Environmental Impacts (NEPA) – No Action Alternative

Under the No Action Alternative, the Project would not be approved by the BLM and activities described in **Section 2.1** would not be conducted; therefore, there would be no noise level increases under the No Action Alternative and noise would continue under current conditions.

3.15.5 Impact Analysis (CEQA)

Refer to the *Noise Modeling for Indirect Auditory Area of Potential Effect* (Stantec 2022b) technical memorandum in **Appendix E** for additional detail supporting the below impact analysis.

a) Would the Project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less Than Significant Impact: No, the Project would not generate a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Both the Imperial County General Plan (Imperial County 2015) and the Imperial County – Code of Ordinances (Imperial County 2022), specifically County noise standards applicable to the Project. As discussed previously, per the current Imperial County General Plan Land Use Map (updated March 1, 2007) and Zoning Map (Zone 70), the entire Project site has a General Plan designation of "Recreation/Open Space" and a Zoning designation of "BLM".

While the County General Plan contains various numerical noise standards, these standards generally "apply to noise generation from one property to an adjacent property", however, "the standards imply the existence of a sensitive receptor on the adjacent, or receiving, property. In the absence of a sensitive receptor, an exception or variance to the standards may be appropriate." (Imperial County 2015). As discussed above, the Project is located in a remote and undeveloped area of the Tumco mining district in the Cargo Muchacho Mountains. As such, the closest potential sensitive receptor would be the Gold Rock Ranch RV Resort located approximately 2.3 miles away from the Project Area, specifically Drill Area 3. As shown within the noise analysis (**Appendix E**), the Gold Rock Ranch RV Resort is located well outside

the modelled 25 dBA noise contour, and therefore worst-case project impacts would be imperceptible at this location.

In addition to the General Plan, the County's Code of Ordinances was also reviewed. Specifically, Title 9 (Land Use Code), Division 7 (Noise Abatement and Control) contains various noise standards applicable to the Project. As with the County General Plan, standards presented within the Code of Ordinances also generally apply to human receptors only, or to noise sources which may be "a detriment to the public health, comfort, convenience, safety, welfare, and prosperity of the residents of the county of Imperial." (Imperial County 2022). As stated above, other than SHP staff and contractors working directly within the Project Area, the closest offsite human receptor would be the Gold Rock Ranch RV Resort located approximately 2.3 miles away from the Project Area. Due to the large distance between the Project operations and the Gold Rock Ranch RV Resort, as well as intervening topography between the Project sources and this receptor, noise generated by Project exploration operations would have no appreciable effect on this human receptor.

Project exploration activities over the proposed 12- to 24-month Project duration would have no appreciable effect on nearby human noise receptors as defined within the County General Plan and Code of Ordinances. Due to the large distance between the closest receptor(s) (i.e., Gold Rock Ranch RV Resort) and the proposed Project operations, as well as intervening topography that would break line-of-sight between Project equipment sources (i.e., drilling rigs) and receptors, noise generated by Project operations is estimated to be imperceptible at these closest receptors. As such, the Project would comply with the applicable County General Plan and Code of Ordinances, and there would be less than significant with no mitigation required.

b) Would the Project result in generation of excessive groundborne vibration or groundborne noise levels?

Less Than Significant Impact: See response to CEQA Criteria a) above. Drill rig and offroad mobile equipment (loaders, dozers, etc.) operations with the potential to generate groundborne vibration would be minimal, and any potential effects would be highly localized and generally below the threshold of human receptors beyond areas immediately adjacent to the operating equipment. Blasting or other industrial operations with the potential to generate significant levels of groundborne vibration are not proposed as part of the Project. Additionally, as discussed above, the closest nearby sensitive human receptors/residential area is the Gold Rock Ranch RV Resort located approximately 2.3 miles to the west of Drill Area 3, across Blythe Ogilby Road. Therefore, the proposed Project would not generate excessive groundborne vibration levels, and there would be less than significant impacts.

c) For a project located within the vicinity of a private airstrip or an airport land use plan or where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Less Than Significant Impact: No, the proposed Project is not within the vicinity of an airport land use plan, nor is the Project within two miles of a public airport or public use airport. As discussed previously, the closest airstrip/airport to the Project site is the Holtville Airport, a relatively small county-owned airport located over 25 miles away from the Project site to the west. Therefore, less than significant impacts would occur.

3.16 Population and Housing, Public Services, and Utilities and Service Systems

3.16.1 Initial Study Determination (CEQA)

Table 3-21 provides the determination of Project impacts to population and housing, public services, and utilities.

Table 3-21 Population and Housing, Public Services, and Utilities and Services Environmental Checklist

Population and Housing, Public Services, and Utilities and Service Systems Criteria		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Population and Housing					
a)	Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and business) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b)	Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
Public Services					
a)	Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	☐	☐	☐	☒
	1) Fire Protection?	☐	☐	☐	☒
	2) Police Protection?	☐	☐	☐	☒
	3) Schools?	☐	☐	☐	☒
	4) Parks?	☐	☐	☐	☒
	5) Other Public Facilities?	☐	☐	☐	☒
Utilities and Service Systems					
a)	Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
b)	Have sufficient water supplies available to serve the project from existing and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
c)	Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the	☐	☐	☒	☐

Population and Housing, Public Services, and Utilities and Service Systems Criteria		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
	project's projected demand in addition to the provider's existing commitments?				
d)	Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e)	Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

3.16.2 Affected Environment

Due to the short-term and small-scale nature of exploration activities and the remote area of the Project, impacts to population and housing would not occur; temporary drilling crews would be on-site at the Project during exploration operations and employees would likely stay off-site in the nearby communities of Winterhaven, California, El Centro, California, or Yuma, Arizona. The Proposed Action is unlikely to increase demand for short-term housing in the area or noticeably increase demand for public or private services; therefore, this resource was not analyzed further under the NEPA requirements for the affected environment or environmental impacts for each alternative, per the determination in **Table G-1** of **Appendix G.**

3.16.3 Impact Analysis (CEQA)

Population and Housing

a) Would the Project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and business) or indirectly (for example, through extension of roads or other infrastructure)?

No Impact: No, the proposed Project would not induce substantial unplanned growth in an area. The proposed Project would not involve construction of new residences, nor would it require a significant number of additional personnel or contractors working on- or off-site (estimate Project exploration would require a maximum of approximately 13 onsite employees at a given time). Additionally, other than using existing access roads and improving other existing access roads (approximately two miles of existing roads would be improved), no new or extended public roadways or public utility facilities or infrastructure are proposed; therefore, the Project would not increase utilities or other infrastructure to the Project area that may otherwise indirectly induce population growth in the County. Accordingly, the proposed Project would not induce substantial unplanned population growth in an area, either directly or indirectly, and no impacts would occur.

b) Would the Project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact: No, the proposed Project would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere. The Project site is an exploratory drilling project, located within a remote area used for historical mining operations. SMP's proposed exploratory drilling operations would occur entirely within the footprint of areas previously disturbed by these historical mining operations. The Project site and surrounding areas are undeveloped and do not contain existing dwelling units, and the proposed Project would not displace any persons or housing. Additionally, as

discussed under CEQA Criteria a) above, the Project would not change the existing land use in the Project area, nor would it substantially increase the number of on- or offsite employees. Therefore, no additional construction of replacement housing elsewhere would be required. As such, the proposed Project would not displace a substantial number of existing people or housing, and no impacts would occur.

Public Services

a) *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:*

    1. *Fire protection?*
    2. *Police protection?*
    3. *Schools?*
    4. *Parks?*
    5. *Other public facilities?*

No Impact: See discussions below.

Fire Protection: No, the proposed Project would not result in substantial adverse physical impacts to any fire protection services. The Project Area is within a remote, undeveloped area of the County that is generally not prone to wildfire (see **Section 3.24**). The proposed Project (i.e., exploratory drilling) would not involve any operations with a high potential to result in an accidental fire.

As discussed in **Section 3.11** and **Appendix F**, SMP would incorporate numerous fire prevention and fire safety measures into their standard operating procedures.

Additionally, the proposed Project does not include the development of new housing or increase utility capacity, water supply, or add new infrastructure to the area that would otherwise directly or indirectly induce population growth in the area that would increase demand for fire protection services. For these reasons, the proposed Project would not have an effect upon or result in a need for new or physically altered fire protection services to maintain acceptable service ratios, response times, or other performance objectives, and no impacts would occur.

Police Production: No, the proposed Project would not result in substantial adverse physical impacts to any police protection services. As discussed under CEQA Criteria a) above, the Project area is located within a remote, undeveloped area of the County and is accessed via existing public roadways. The proposed Project does not include new housing and would not require significant additional on- or off-site employees beyond those who currently reside within the County. In addition, the Project would not directly or indirectly induce population growth in the area that would increase demand for police protection services.

During all operations, SMP would maintain equipment and conduct activities in a safe and orderly manner. Due to the isolated nature and remote locations of the proposed access roads and drill sites, public security and safety are not a concern; however, as needed, certain access roads may be gated and/or locked to prevent public access. For example, the staging area (**Figure 2-1**) where the Oro Cruz Mine Portal is located would be secured with chain link fence and razor wire and locked with warning signs during brief periods of non-operation. All employees and contractors would be required to complete an employee safety training prior to commencement of operations.

For these reasons, the proposed Project would not have an effect upon or result in a need for new or physically altered police protection services to maintain acceptable service ratios, response times, or other performance objectives, and no impacts would occur.

Schools: No, the proposed Project would not result in substantial adverse physical impacts to any schools. As discussed under CEQA Criteria a) and b) above, the Project area is within a remote and undeveloped are of the County and is accessed via existing public roadways. Based on the nature of the Project and the fact that the number of on- and off-site employees would not significantly increase above existing levels, the Project would not require an increased demand for public schools, or other related public facilities. Additionally, the Project would not generate development or changes in land use intensities that would change or increase student enrollment in the County's school system. Therefore, the proposed Project would not have an effect upon or result in a need for new or physically altered schools to maintain acceptable service ratios or other performance objectives, and no impacts would occur.

Parks: No, the proposed Project would not result in substantial adverse physical impacts to any parks. As discussed under CEQA Criteria a), b) and c) above and **Section 3.17**, the Project area is within a remote and undeveloped area and is accessed via existing public roadways. The Project would not generate development or changes in land use intensities that would change or increase demand for public parks and recreational facilities within the County. Therefore, the proposed Project would not have an effect upon or result in a need for new or physically altered parks to maintain acceptable service ratios or other performance objectives, and no impacts would occur.

Other Public Facilities: No, the proposed Project would not result in substantial adverse physical impacts to any other public facilities. The Project area is within a remote and undeveloped area and is accessed via existing public roadways. The proposed Project does not include new housing and the number of on- and off-site employees would not substantially increase above existing levels within the County. In addition, the Project would not otherwise directly or indirectly induce population growth in the area that would increase demand for other public facilities, such as libraries. Therefore, the proposed Project would not have an effect upon or result in a need for other new or physically altered public facilities, such as libraries, to maintain acceptable service ratios, response times, or other performance objectives, and no impacts would occur

Utilities and Service Systems

a) Would the Project require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction of which could cause significant environmental effects?

Less Than Significant Impact: No, the Project would not require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction of which could cause significant environmental effects.

Surface and groundwater within the Project Area would not be used as a source for water for the drilling. Rather, water for drilling and dust suppression would be provided by the drilling company via a mobile water truck. Specifically, the water would be procured from Gold Rock Ranch and/or another local water purveyor. It is anticipated that two 1,000-gallon water trucks would be required onsite each day. Additionally, a 2,000-gallon portable water storage tank would be kept onsite for drilling and dust suppression. A mobile water truck would be utilized onsite for dust suppression, and applied water would either naturally evaporate or infiltrate into the ground.

The site would not be connected to a public water system. Minimal quantities of fresh potable water for onsite employees would be provided by water bottles.

No wastewater would be generated during Project operations, as no onsite processing would occur within the site. All rock products and waste rock generated during Project operations would be naturally occurring rock. Chemicals or other hazardous materials would not be utilized during drilling activities. Water used during the drilling process would come into contact with bentonite drilling mud and ground rock at depth. It would be managed and handled after it is pumped back out of the hole by evaporation and by allowing

solids to settle out in excavated mud pits or sumps at the drill site. The sumps would be backfilled after evaporation. There would be no discharges outside the drill site or in surface tributaries, and no pollutants would be discharged in accordance with the CWA requirements. As discussed above, activities would be conducted in compliance with applicable county, state, and federal laws, including requirements specific to California's CGP for stormwater discharges, if deemed necessary by the BLM and/or Imperial County.

The Project would not be connected to a public sewer system. If needed, temporary portable toilets may be placed within the Project Area. If installed, portable toilet facilities provided for the duration of the Project would be maintained by contractors and accumulated human waste would periodically be collected and transported to an approved disposal site. No waste would be buried onsite. Operations in the Project Area would not produce any industrial or domestic wastewater discharges onsite.

The Project would not require the construction of new electric power, natural gas, or telecommunications facilities or infrastructure. Power would be provided by diesel fuel, as well as two diesel-powered generators (125 kW or equivalent). There would be no onsite natural gas storage or consumption as part of the Project. As discussed previously, telecommunications would be facilitated using personal cellular telephones, or satellite phones in case of emergencies.

For the reasons outlined above, the Project would have less than significant impacts related to the relocation or construction of new or expanded utilities infrastructure/facilities.

b) Would the Project have sufficient water supplies available to serve the project from existing and reasonably foreseeable future development during normal, dry and multiple dry years?

Less Than Significant Impact: The Project would have sufficient water supplies available during normal, dry and multiple dry years. As discussed under CEQA Criteria a) as well as in **Section 3.22**, water for drilling and dust suppression would be provided by the drilling company via a mobile water truck. Specifically, the water would be procured from Gold Rock Ranch and/or a local water purveyor. Minimal quantities of fresh potable water for onsite employees would be provided by water bottles. Groundwater within the Project Area would not be used as a source for water for the drilling. The Project water purveyors (i.e., Gold Rock Ranch and/or other local company) have sufficient water supplies available to serve the Project. Therefore, the Project would have less than significant impacts.

c) Would the Project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Less Than Significant Impact: As discussed above, no wastewater would be generated during Project operations, as no onsite processing would occur within the site. The site would also not be connected to a public sewer system. If needed, temporary portable toilets may be placed within the Project Area. If installed, portable toilet facilities provided for the duration of the Project would be maintained by contractors and accumulated human waste would periodically be collected and transported to an approved disposal site. No waste would be buried onsite. As such, operations in the Project Area would not produce any industrial or domestic wastewater discharges onsite.

Other than the use of temporary portable toilets placed within the Project Area, no other wastewater disposal systems would be installed as part of the Project site. The Project would not discharge wastewater to County public sewer infrastructure, or another wastewater treatment provider. Therefore, no impacts would result.

d) Would the Project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less Than Significant Impact: No, the Project would not generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals. Minimal quantities of solid trash generated by the contractors would be collected in appropriate containers and removed as required for accordance with applicable laws and regulations. No refuse would be disposed of onsite. The Project would be sufficiently served by permitted Class I, II and/or III solid waste landfills that have sufficient capacity to meet the Project's minimal needs in terms of solid waste generation and disposal. Therefore, the Project would have less than significant impacts.

e) Would the Project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Less Than Significant Impact: The Project would comply with federal, state, and local management and reduction statutes and regulations related to solid waste. As discussed above, Project operations would be short-term (i.e., estimated 12- to 24-months total) and conducted in compliance with local, state and federal regulations. The Project operations, including any construction and/or reclamation, would not result in a significant amount of solid waste generation. Any solid waste generate as a result of the Project would be managed according to state and local requirements, and properly disposed of offsite. The Project would comply with federal, state and local solid waste statutes and regulations. Therefore, less than significant impacts would result.

3.17 Recreation

3.17.1 Initial Study Determination (CEQA)

Table 3-22 provides the determination of Project impacts to recreation.

Table 3-22 Recreation Environmental Checklist

Recreation Criteria		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a)	Would the project increase the use of the existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b)	Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse effect on the environment?	☐	☐	☐	☒

3.17.2 Affected Environment

The area of analysis for recreation is the Project Area. Recreational uses of public land within the area of analysis consist primarily of dispersed recreational activities including prospecting, hiking, OHV use, camping, wildlife viewing, photography, and historic site viewing (i.e., the Tumco Historic Mine). The area of analysis does not fall within any BLM LUPA Recreation Designations, including Special Recreation Management Areas, Extensive Recreation Management Areas, or National Scenic Cooperative Management Areas (DRECP Gateway 2021). No wilderness study areas or lands with wilderness characteristics are found in the area of analysis (Wilderness Connect 2021). The Imperial Sand Dunes Recreation Area, popular for camping and OHV use, is located to the west, outside the area of analysis.

The historic mining town of Tumco, formerly known as Hedges, is located in the area of analysis. A self-guided walking tour is available to the public to view the minimal remains of the once-bustling town, including crumbling foundations, a reservoir, and a cemetery. Camping and vehicle travel are prohibited within the townsite, and vehicle access is available to the parking area only, with the public advised to use hiking trails to access the site (BLM 2021).

The area of analysis is also in California Department of Fish and Wildlife (CDFW) hunting Zone D12, which is primarily made up of public lands administered by the BLM (**Figure 3-6**). This hunting zone has the lowest density deer herd in the State of California due to its harsh living environment where vegetation is sparse and water is limited (CDFW 2022a). The subspecies of deer within Zone D12 is the burro or desert mule deer (*Odocoileus hemionus eremicus*) (CDFW 2021a). There are 950 deer tags available for this hunting zone; the archery season in Zone D12 is October 1 through October 23 and general season dates run November 5 to November 27 (CDFW 2022b). In 2017, the estimated population count for Zone D12 was 5,174 deer (CDFW 2022c). In 2021, there were 947 deer tags issued and an estimated 106 bucks harvested from Zone D12 during the hunting season (CDFW 2021b).

3.17.3 Environmental Impacts (NEPA) – Proposed Action

Under the Proposed Action, the temporary new access roads and the main staging area/portal access road would strictly be used by Project vehicles accessing the exploration Drill Areas and would be equipped with signage noting restricted access. The proposed new access road to the proposed staging area and underground portal would be secured from unauthorized access for the duration of the Project, including during post-closure activities to ensure Project-only access. Other existing roads or trails within the area of analysis currently open to OHV use would remain available for public use under the Proposed Action. Road access is discussed in more detail in **Section 3.19**. Recreation activities at the Imperial Sand Dunes Recreation Area would not be impacted by the Proposed Action as it is located outside the area of analysis. Hunting within the area of analysis would be temporarily impacted as this recreational activity would be displaced away from the active drilling sites. Although the current use of the area of analysis and vicinity by mule deer is low, it is possible that mule deer would move away from the Project-related activity, resulting in hunters following them to the surrounding areas; however, the majority of deer harvested from Zone D12 are taken in the Whipple Mountains and Riverside Mountains located approximately 115 miles northeast of the Project Area (CDFW 2021a).

As the area of analysis provides spaces and opportunities for dispersed recreation, recreationalists may be less likely to visit the area during Project operations due to increased levels of noise and drilling equipment being visible within the Project area and with temporary access restrictions in place. Project operations would be temporary within each Drill Area, occurring over up to two weeks at up to two drill sites at a time before moving to a new drill site. The BLM would require notices to be posted at relevant locations and at designated recreational sites in the area notifying the public of dates and times that drilling would occur, bringing awareness to potential elevated levels of noise and activity in the Project Area during which time recreationalists may choose to visit locations outside of the Project Area, included as a mitigation measure in **Appendix F**. Additionally, CMA LUPA-CTTM-7 would be required for implemented management of recreation facilities, as appropriate, described further in **Appendix F**. Impacts to recreation under the Proposed Action would be minor, short-term, and localized.

3.17.4 Environmental Impacts (NEPA) – No Action Alternative

Under the No Action Alternative, the Project would not be approved by the BLM; thus, no impacts to recreation are anticipated under the No Action Alternative except for those occurring under existing conditions. Existing recreational uses would continue to occur in the Project Area and vicinity.

3.17.5 Impact Analysis (CEQA)

a) Would the project increase the use of the existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

Less Than Significant Impact: No, the proposed Project would not increase the use of existing neighborhoods, regional parks or other recreational facilities. The Project site is located in the Tumco mining district in the Cargo Muchacho Mountains (approximately 35 minutes northwest of Yuma, Arizona), and is accessed via existing paved highways and graded roads. The Tumco Historic Mine is a historic and recreational area managed by the BLM for uses such as hiking, prospecting, wildlife viewing, and photography; however, the Project Area itself has been previously disturbed by historical mining activities. The nearest County Park is Osborne Park, located over 18 miles to the northwest of the Project area. The proposed Project does not include new housing and the number of on- and off-site employees would not increase substantially above existing levels. In addition, the Project would not directly or indirectly induce population growth in County areas that would in turn increase the use of existing neighborhood, regional parks or other recreational facilities. Conversely, development of the Project would prevent the public from accessing certain unsafe or unstable areas within the Tumco Historic Mine, and SMP would work with the BLM to properly manage the surrounding areas and maintain access, so public use for recreational purposes can continue throughout the life of the Project. Therefore, the proposed Project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated, and there would be less than significant impacts.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse effect on the environment?

No Impact: No, the proposed Project does not include recreational facilities or require the construction or expansion of recreational facilities. The Project site is located entirely within a remote area previously disturbed by historical mining activities and is accessed via existing paved highways and graded roads. The proposed Project does not include new housing and the number of on- and off-site employees would not increase substantially above existing levels within the County (estimate at most 13 onsite employees would be needed). In addition, the Project would not otherwise directly or indirectly induce population growth in the area that would require the construction or new or expansion of existing recreational facilities. Therefore, the proposed Project would not require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment, and no impacts would occur.

3.17.6 Cumulative Effects

The CESA boundary for recreation includes the Project Area plus a one-mile buffer (**Figure 3-3**). This CESA was chosen as it is the geographic area to which cumulative impacts to recreation opportunities would occur related to access, the viewshed, and/or noise experienced during recreating based on areas of known dispersed recreation and access points. The CESA encompasses 6,260 acres.

Within this CESA, past and present disturbance, as detailed in **Table 3-23**, has resulted from the following activities: mineral development and exploration projects (796 acres); utilities, infrastructure, and public purpose projects (17 acres); roads (30 acres); and dispersed recreation.

Table 3-23 Past, Present, and RFFAs in the Recreation CESA

Past, Present, and RFFAs, Disturbances and Projects	CESA
CESA Acres	**6,260**
Past Actions	

Past, Present, and RFFAs, Disturbances and Projects	CESA
Mineral Development and Exploration	
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits	272
Notices	17
Mining and Exploration Projects	507
Past Actions Total Disturbance Acres	**796**
Present Actions	
Utilities, Infrastructure, and Public Purpose	
Power Lines	17
Roads and Railroads Present Actions	
Roads	30
Present Actions Total Disturbance Acres	**47**
Past and Present Total Disturbance Acres	**843**
Percent of CESA	**13**

Source: BLM 2022a-b

Of the 6,260 acres covered by the CESA, 843 acres of disturbance are associated with past and present disturbances, which is a disturbance of approximately 13 percent of the CESA. There are no RFFAs within the CESA, other than the Proposed Action, which is analyzed for cumulative impacts in the following section.

Past mineral development and exploration operations in the CESA, including the existing American Girl Mine and associated community pit, often limit public access to areas previously used for dispersed recreation. In addition, they may reduce the recreational value and modify the recreational setting when vegetation and/or wildlife are affected and may result in visual and noise impacts for those recreation users seeking experiences of isolation and solitude. These actions may also displace recreationists to surrounding areas. Impacts to recreation resources from mining and exploration operations may be long-term if left unreclaimed (such as open pits); however, impacts are typically short-term until reclamation is completed and access and use of the area is restored to pre-Project conditions. In addition, mining activities may increase the population of an area by bringing in mine employees and workers to the areas which may increase the use of recreation areas within the CESA.

Present disturbance associated with utilities, infrastructure, and public purpose projects in the CESA include powerlines. Lands occupied by utilities and infrastructure are generally still available for dispersed recreation activities, but the recreation setting may have changed due to the presence of man-made features such as powerlines and telephone poles. These facilities often include maintenance roads which may increase OHV use in the area and allow vehicular access to areas that previously had little, if any, OHV traffic.

Road disturbance within the CESA provides access to recreation areas and can also become a form of recreation. For those seeking solitude and a primitive outdoor experience, development of roads can impact the recreation experience by modifying the recreation setting with the visual appearance and noise of road traffic, as well as the increased vehicular traffic.

Urban development may restrict access for recreational use and create visual impacts for those seeking solitude and a primitive outdoor experience; however, there are no urban development areas within the CESA. Dispersed recreation and camping would continue to occur within the CESA and would be considered RFFAs. Impacts from RFFAs would be similar to those stated for past and present actions.

Proposed Action
Approval of the Proposed Action would increase disturbance within the CESA by 20.54 acres in addition to disturbance associated with past, present, and RFFAs (843 acres) for a total disturbance of approximately 864 acres, which is approximately 14 percent of the CESA. Cumulative impacts to recreation from past, present, and RFFAs in combination with the Proposed Action would be short-term, except for mining features that are not reclaimed, such as open pits. Transmission lines and above ground utilities would result in long-term visual impacts to recreation resources. Impacts from past, present, and RFFAs would include restricted access to recreation areas, displacement of recreationists to surrounding areas, potential increase in the population of recreationists, and impacts to the recreation setting. The Proposed Action would restrict access to areas that are fenced for active exploration operations, including all proposed new access roads that would be fenced for restricted access during Project operations. All areas of surface disturbance would be reclaimed concurrently, except for the new road for access to the staging area/underground portal, which would be considered the main entrance road to the Project Area after construction and would remain as a post-closure access road until continued reclamation and monitoring and underground exploration has been completed, which would be completed and remaining surface disturbance reclaimed within five years from Project implementation. Pre-existing roads would be maintained per existing conditions and would not be reclaimed as they represent pre-existing disturbance and would continue to be used in the future as they are currently. These unreclaimed road features would present increased opportunities for access to dispersed recreation in the CESA. Some recreationists may be displaced to surrounding areas during mining operations with temporary access restrictions in place, and the recreation setting may be impacted; however, there is already a significant amount of disturbance affecting recreation, such as the American Girl Mine pit, and after reclamation occurs, dispersed recreation would return to near pre-Project conditions. The Proposed Action in combination with the past, present, and RFFAs does not significantly contribute to the percentage of surface disturbance within the CESA; cumulative impacts would be negligible during Project operations and after reclamation occurs and would be short-term and localized.

No Action Alternative
Under the No Action Alternative, the proposed Oro Cruz exploration activities would not be approved and the associated impacts to recreation would not occur. Overall, cumulative effects to this CESA from the No Action Alternative would be less than the Proposed Action since additional surface disturbance from that alternative would not occur and thus would not additionally impact recreation. There would be no cumulative impacts beyond those currently occurring from past, present, and RFFAs.

3.18 Soils

3.18.1 Initial Study Determination (CEQA)

Table 3-24 provides impact determinations of the Project on geology and soils.

Table 3-24 Geology and Soils Environmental Checklist

Geology and Soils Criteria			Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a)	Directly or indirectly cause potential substantial adverse effects, including risk of loss, injury, or death involving:		☐	☐	☒	☐
	1)	Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on	☐	☐	☒	☐

Geology and Soils Criteria			Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
		other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?				
	2)	Strong Seismic ground shaking?	☐	☐	☒	☐
	3)	Seismic-related ground failure, including liquefaction and seiche/tsunami?	☐	☐	☒	☐
	4)	Landslides?	☐	☐	☒	☐
b)	Result in substantial soil erosion or the loss of topsoil?		☐	☐	☒	☐
c)	Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in on- or off-site landslides, lateral spreading, subsidence, liquefaction or collapse?		☐	☐	☒	☐
d)	Be located on expansive soil, as defined in the latest Uniform Building Code, creating substantial direct or indirect risk to life or property?		☐	☐	☒	☐
e)	Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?		☐	☐	☐	☒
f)	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		☐	☐	☒	☐

3.18.2 Affected Environment

The area of analysis for soils is the Project Area, located in the Lower Colorado Desert Major Land Resource Area (MLRA) within the Cargo Muchacho Mountain Range. Landforms in the MLRA are mountains, alluvial landforms including alluvial fans, fan remnants, and valleys, and internally drained basins including dry lakes and lake terraces. Average winter temperatures (December through February) are approximately 58 °F and the annual average mean precipitation for the area of analysis is 0.32 inches (WRCC 2021). Tumco Wash is an ephemeral stream within the area of analysis (**Figure 3-7**) and is the primary source of water (FWS 2019). The Cargo Muchacho Mountain Range is comprised predominately of Jurassic metavolcaniclastic rocks of the Tumco Formation, now present as well-foliated amphibolite-facies gneiss and schist (Tetra Tech 2011). Mesozoic biotite granite and associated pegmatite dikes cut the Tumco Formation and cut Mesozoic hornblende-biotite quartz monzonite. The granite and monzonite form large intrusive bodies in the range. The principal structural fabric in the range is west-northwest. Low-angle faults are cut by northwest trending faults. The Oro Cruz mineral deposit is believed to be a detachment-fault-related gold deposit consisting of replacement mineralization along a low-angle detachment fault related to regional extensional fault systems. Mineralization is hosted predominantly within or along the boundaries the Tumco Formation. Mesothermal mineralization occurs in multiple brown to brownish gray siliceous zones containing hematite, magnetite, quartz, mica, feldspar, chlorite, and copper oxides. Native gold containing very low silver is associated with iron and copper oxides. Surficial deposits include alluvial fan deposits and alluvial and lacustrine deposits below the valley floors; however, surficial deposits have not been mapped within the area of analysis (Stantec 2021a). Dominant soil orders are Entisols and Aridisols with an extremely aridic soil moisture regime (NRCS 2006). Soils within the area of analysis have not been mapped in detail by the US Department of Agriculture (USDA) Natural Resource

Conservation Service (NRCS) but are covered by the generalized STATSGO2 dataset (Soil Survey Staff 2022), as shown in **Table 3-25** and on **Figure 3-7**.

Table 3-25 STATSGO2 Soil Mapping Units Within the Area of Analysis

Map Unit Symbol	Map Unit Name	Acres in Area of Analysis	Percent of Area of Analysis
s991	Myoma-Carsitas-Carrizo	114.9	18
s1126	Tecopa-Rock outcrop-Lithic Torriorthents	511.4	82
	Total	**626.3**	**100**

Source: Soil Survey Staff 2022

Soils in the area of analysis are primarily developed from weathered granitic rock and schistose rock substrates. The soils consist of gravelly sands with large amounts of cobble, rock, and boulders. Hill slopes are steep and almost entirely covered in large, weathered rock (Stantec 2021b). Soils are a product of the mechanical weathering process in this arid climate and are generally composed of coarse sands, gravel, and cobbles with little profile development. Soils vary from rock outcrops and a thin residual veneer of in-place rock materials on mountain ridges and slopes, to deep, coarse, alluvial material in washes and outwash fans. Old piedmont surfaces, such as desert pavement, have developed a characteristic type of rock surface underlain by vesicular and saline subsoils peculiar to this desert region. Rock outcrops on peaks, ridges, and knobs occur throughout the area. Cobbles and rock fragments are common on the ground surface and form part of the weathered desert pavement on stable bajadas (Dycker & Associates, Inc. 1995).

Myoma-Carsitas-Carrizo (Map Unit s991)

Myoma

The soil series Myoma is a light olive gray, moderately alkaline fine and very fine sands to a depth of approximately 31 inches, below which soils become strongly alkaline very fine sands. These soils are located at elevations of 200 feet below sea level to 1,800 feet AMSL and are nearly level to low rolling hills. Myoma soils are somewhat excessively drained with very slow runoff and rapid permeability (USDA 2015a).

Carsitas

The soil series Carsitas is a light olive gray color consisting of gravelly sands to a depth of 10 inches transitioning to gravelly coarse sands below that. Carsitas soils are somewhat excessively drained soils with negligible to low runoff and high saturated hydraulic conductivity. Soils were formed in alluvium from granitoid and/or gneissic rocks. These soils are on alluvial fans, fan aprons, valley fills and in drainageways. They are located at elevations ranging from 220 feet below sea level to 2,625 feet AMSL (USDA 2015b).

Carrizo

The soil series Carrizo is a pale brown color consisting of extremely gravelly sand to a depth of two inches transitioning to a stratified extremely gravelly and very gravelly coarse sand. Carrizo soils are excessively drained soils with negligible to low runoff and high saturated hydraulic conductivity. They are found on flood plains, fan piedmonts, and bolson floors. They are located at elevations ranging from 270 feet below sea level to 2,600 feet AMSL (USDA 2013).

Tecopa-Rock outcrop-Lithic Torriorthents (Map Unit s1126)

Tecopa

The soil series Tecopa is a pale to very pale brown color consisting of very gravelly sandy loams to a depth of eight inches where a restrictive layer of quartzite is met. These soils are very shallow with depths ranging from two to 10 inches. The Tecopa series is well drained with medium to rapid runoff and moderate permeability. They are found in elevations ranging from 1,500 to 5,000 feet AMSL (USDA 2015c).

Rock outcrop

Rock outcrops are classified as miscellaneous land types with little or no identifiable soils and are unable to support vegetation without major reclamation. Rock outcrops typically occur on mountain slopes and ridgetops at elevations ranging from 4,000 to 9,000 feet AMSL (NRCS 1982).

Lithic Torriorthents

Lithic Torriorthent soils have a lithic contact that is within approximately 20 inches of the surface and commonly is at a depth of less than approximately 10 inches. Their moisture-storage capacity is low, and they are known to occur mostly in association with soils that have more moisture available to plants (NRCS 1999).

3.18.3 Environmental Impacts (NEPA) – Proposed Action

The surface disturbance as a result of the Proposed Action would be created incrementally and could occur in either of the soil types found within the area of analysis. Soils within the area of analysis have a low erosional hazard from wind and water. The Myoma-Carsitas-Carrizo soils consist of thicker units of finer soils, which have excessive drainage causing for greater mineral precipitates and decreasing the quality of soil for vegetation to develop. The Tecopa-Rock outcrop-Lithic Torriorthents soil unit consists of shallow soils and rock outcrops, which reduces the potential for vegetation and increases potential for wind erosion. Although the Myoma-Carsitas-Carrizo soils have an increased potential for mineral precipitates than the other soil associations within the area of analysis, the minimal amount of meteoric and surface water through the area of analysis reduces the amount of mineral precipitates and the potential for soil entrainment. With an average winter temperature above 32°F, the potential for freeze-thaw fractures in rock outcrops and soils is reduced; thus, reducing the potential for soil erosion.

Under the Proposed Action, SMP would implement erosion PDFs, including, but not limited to: specific prohibitions, effluent limitations, potential contaminant source identification, practices to reduce pollutants, assessment of pollutant sources, materials inventory, preventative maintenance program, spill prevention and response procedures, general stormwater BMPs, training, record keeping, and sampling procedures (refer to **Appendix F** for additional discussion of PDFs). SMP would operate under a monitoring program that would be developed for BLM approval under the Proposed Action. Material stockpiling is not anticipated and would be kept as temporary storage during construction, if necessary. The topography within the area of analysis and the proposed design of the access roads and drill pads reduces the potential for stormwater runoff and sediment erosion (SMP 2021).

The Reclamation Plan (Sespe 2022) conforms with Section 2712 of SMARA, assuring that the Proposed Action would prevent or minimize adverse environmental impacts, and mined lands would be reclaimed to a usable condition that is readily adaptable for alternative uses at the end of the Project. Roads not needed for post-closure access would be reclaimed following the completion of exploration activities, and reclaimed areas would be revegetated with a BLM-approved seed mix (SMP 2021). As a result of surface-disturbing activities under the Proposed Action, and with the implementation of the PDFs (**Appendix F**), impacts to soils are anticipated to be minor, short-term, and localized.

3.18.4 Environmental Impacts (NEPA) – No Action Alternative

Under the No Action Alternative, the project would not be approved by the BLM; however, the area would remain available for other multiple use activities as approved by the BLM. No impacts to soils are anticipated under the No Action Alternative except for those occurring under existing conditions.

3.18.5 Impact Analysis (CEQA)

As outlined in the Reclamation Plan (Sespe 2022), California SMARA regulations, specifically Section 3711, require the salvage of topsoil and other suitable growth media (subsoil) prior to mining activities, and redistribution in areas to be revegetated. SMARA Section 3705 also requires soil analysis to determine if the growth media in revegetation areas consists of native topsoil and is otherwise adequate to support successful revegetation. Although the potential to use topsoil/subsoil from the Project Area is constrained by the limited development of the soil profiles (i.e., Project would disturb an estimated 20.54 acres total), topsoil and subsoil that is feasible to salvage would initially be scraped off the drill pads and new access road areas and stored along the edges of the pads/roads in small stockpiles and/or berms in accordance with Section 3711. The topsoil and subsoil would be salvaged and stored through the duration of Project activities, and then used as backfill for reclamation activities once drilling is complete and equipment demobilization occurs. Further detail related to topsoil and subsoil storage is available in the Reclamation Plan (Sespe 2022), which is on file with Imperial County (Reclamation Plan #21-0001).

a) Would the Project directly or indirectly cause potential substantial adverse effects, including risk of loss, injury, or death involving:
   1) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42;
   2) Strong Seismic ground shaking;
   3) Seismic-related ground failure, including liquefaction and seiche/tsunami; and,
   4) Landslides?

Less Than Significant Impact: No, the Project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death due to earthquakes and/or slope instability. See descriptions below.

Fault Rupture: No, the proposed Project would not significantly cause a substantial adverse impact, either directly or indirectly, involving the rupture of an earthquake fault mapped as part of an Alquist-Priolo Earthquake Fault Zone (APZ). Per the California Department of Conservation's (DOC) California Earthquake Hazards Zone Application (EQ Zapp), the Project site does not fall within a currently designated California Geological Survey (CGS) Earthquake Fault Rupture Hazard ("Alquist-Priolo") Zone, nor is it located within a fault-rupture hazard zone. Per the DOC, the closest mapped DOC Alquist-Priolo Zone to the Project area is the "Brawley Seismic Zone" located approximately 30 miles away to the west.

Additionally, per the Imperial County General Plan (Imperial County 2015), specifically Figure 1 (Seismic Activity in Imperial County) within the Seismic and Public Safety Element and Figure 7 (Seismic Hazards) within the Conservation and Open Space Element, the closest shown fault extension is the "Algodones Fault" line located approximately five miles to the southwest. Furthermore, Figure 7 (Seismic Hazards) within the Conservation and Open Space Element notes that the "peak horizontal ground acceleration (the fastest measured change in speed, for a particle at ground level that is moving horizontally due to an earthquake) with a 10 percent probably of exceedance in 50 years" within the Project Area is designated as between 8 percent to 10 percent g (g – acceleration of gravity), which are the lowest seismic risk classifications show on Figure 7 of the Imperial County General Plan – Conservation and Open Space Element (Imperial County 2015).

Because the Project site is not located within or near an APZ or other active fault, there is little potential for the occurrence of surface fault rupture. Because the Project involves exploratory drilling and ancillary operations (e.g., improving/constructing access roads, installing helipads and drill pads, constructing staging areas, etc.), no significant slopes would be created. The Project also does not involve the

construction of any permanent buildings or significant aboveground structures, and therefore the potential risk to onsite employees and contractors during major seismic events is considered low. As a result, the Project would not directly or indirectly cause adverse effects, including the risk of loss, injury, or death, as a result of fault rupture, and Project impacts would be less than significant.

Seismic Ground Shaking: No, the Project would not cause a substantial adverse impact, either directly or indirectly, from strong seismic ground shaking. As described under CEQA Criteria a)1) above, the Project site is not located within a mapped earthquake hazard zone (closest DOC-designated APZ fault zone is located approximately 30 miles away, and the County General Plan "Algodones Fault" line is approximately four miles away). Additionally, the Imperial County General Plan has designated the Project Area as having the lowest "peak horizontal ground acceleration" of approximately 8 percent to 10 percent acceleration of gravity.

Because the Project site is not located within or near an active fault zone, ground shaking during an earthquake would not present a significant risk or create slope instability. Because the Project involves exploratory drilling and ancillary operations (e.g., improving/constructing access roads, installing helipads and drill pads, constructing staging areas, etc.), no significant slopes or buildings/structures would be created, and therefore the potential risk to onsite employees and contractors during major seismic events is considered low. As a result, the Project would have less than significant impacts related to strong seismic ground shaking resulting in a risk of loss, injury, or death.

Ground Failure/Liquefaction: No, the Project would not cause a substantial adverse impact, directly or indirectly, from seismic-related ground failure, including liquefaction. As discussed above, the Project site is not located within a mapped earthquake hazard zone. Additionally, per the EQ Zapp, neither the Project site nor surrounding areas are located within a designated CGS Landslide Zone or CGS Liquefaction Zone.

As discussed above, historical groundwater elevations within the Project Area vary greatly, ranging from as deep as 100-feet AMSL up to approximately 10- to 20-feet AMSL according to previous hydrology and soils analysis in the vicinity (Coes et al. 2015). In portions of the Project Area where groundwater was found close to the native ground surface, there is a potential for liquefaction or ground failure to occur during strong seismic shaking events. However, as discussed above, the Project involves exploratory drilling and ancillary operations (e.g., improving/constructing access roads, installing helipads and drill pads, constructing staging areas, etc.), and no permanent slopes or structures/buildings that would be susceptible to ground failure/liquefaction would be constructed onsite. As such, the potential for ground failure or liquefaction at the Project site with the potential to risk loss, injury, or death during major seismic events is considered low is considered low. Therefore, potential Project impacts related to seismic-related ground failure, including liquefaction, are less than significant, with no mitigation required.

Landslides: See responses to CEQA Criteria a)1), a)2) and a)3) above. Per the EQ Zapp, neither the Project site nor surrounding areas are located within a designated CGS Landslide.

The Project site is a relatively flat area with no major manmade landforms or areas with landslide potential as a result of the historical mining activities. Because the Project involves exploratory drilling and ancillary operations (e.g., improving/constructing access roads, installing helipads and drill pads, constructing staging areas, etc.), no significant slopes would be created, nor would any significant recontouring be required. Similarly, since there would be no mining spoils associated with the drilling campaign, other than nominal quantities of drill cuttings, there would be no waste piles that would need to be knocked down, or re-sloped. Following abandonment of the exploratory boreholes, any remaining drill cuttings would be spread out on the drill pad surfaces and reseeded in accordance with the revegetation plan provided herein, which would further ensure slope post-Project stability.

Where needed, SMP would flatten all slopes and floors using mobile equipment, to ensure no slopes exceed a 2H:1V (horizontal to vertical) angle in accordance with SMARA performance standards. Proposed

revegetation in applicable portions of the Project Area would also help further stabilize any regraded areas/slopes and prevent erosion once roots are established. SMP would maintain onsite slopes as needed in order to limit potential impacts from erosion. For these reasons, the Project would not result in potential impacts from slopes and landslides, and less than significant impacts with no further mitigation would result.

b) Would the Project result in substantial soil erosion or the loss of topsoil?

Less Than Significant Impact: No, the Project would not result in substantial soil erosion or the loss of topsoil. Much of the Project Area has been disturbed due to historical mining operations. As such, it is assumed little topsoil/subsoil remains within the Project Area. Nevertheless, in accordance with SMARA, prior to grading/ground disturbance, topsoil and subsoil would initially be scraped off the drill pads and new access road areas and stored along the edges of the pads/roads in small stockpiles and/or berms. The topsoil and subsoil would be salvaged and stored through the duration of Project exploration activities, and then used as backfill during site reclamation once drilling is complete and equipment demobilization occurs. Salvaged topsoil/subsoil from the Project Area would also be used as a growth medium for revegetation. Once the drilling campaign is complete, the stored topsoil/subsoil would be spread out and reseeded.

Additionally, the drilling campaign would utilize mud sumps to house the drilling fluids. As managed for the topsoil/subsoil, excavated spoils would also be stored along the edges of the pads and then backfilled into the excavated pits once drilling is complete and equipment demobilization occurs. These backfilled materials and any topsoil/subsoil that is salvaged would then be reseeded as part of the overall revegetation efforts.

Due to the existing topography and the proposed design of the access roads and drill pads, stormwater runoff and sediment erosion from the Project Area is considered unlikely. As such, the chances of discharge, erosion, and/or sedimentation from the Project Area that could adversely impact adjacent properties is considered very low. As outlined in Reclamation Plan (Sespe 2022) and the Plan (**Appendix A**), SMP would implement BMPs (e.g., berms, sandbags, fiber rolls, or silt fencing, etc.) for erosion and sediment control measures to ensure sediment does not inadvertently erode into adjacent areas during a large storm or high wind events. The effectiveness of erosion control measures would be monitored throughout the duration of the Project. SMP would ensure erosion, sediment transport and windblown dust are controlled by implementation of the storm water BMPs, compliance with ICAPCD applicable rules and regulations, and site-specific inspections (as needed) conducted by the operator.

As a result, through the salvage and proper storage of any remaining onsite topsoil/subsoil, and with the implementation of site-specific BMPs and ongoing stabilization of the site slopes, there would be less than significant Project impacts related to soil erosion and loss of topsoil.

c) Would the Project be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in on- or off-site landslides, lateral spreading, subsidence, liquefaction or collapse?

Less Than Significant Impact: No, the Project would not be located on or result in unstable geologic deposits or soils such that on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse would potentially occur. As discussed under CEQA Criteria a) above, per the EQ Zapp, neither the Project site nor surrounding areas are located within a designated CGS Landslide Zone. Additionally, the DOC's (2022) landslide inventory database does not list active or dormant landslides within the Project Area. The Imperial County General Plan (Imperial County 2015), specifically Figure 2 (Landslide Activity) within the Seismic and Public Safety Element, also shows that the Project is not within a designated landslide potential area. Because the Project would be located outside of a landslide zone, and through continued adherence to the required 2H:1V slope design per County and SMARA standards, impacts related to seismic-related ground failure, including liquefaction, would be less than significant. Therefore, given that

the proposed Project and related exploration structures would not be situated in areas known to have unstable ground conditions, and would not otherwise create such conditions, there would be less than significant impacts related to unstable geologic units and soil.

d) Would the Project be located on expansive soil, as defined in the latest Uniform Building Code, creating substantial direct or indirect risk to life or property?

No Impact: No, the Project would not be located on expansive soil as defined in as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property. As discussed above, soils in the Project Area are generally developed from weathered granitic rock and schistose rock substrates. The soils consist of extremely gravelly sands or gravelly loams with up to 90% coarse fragments. Soils within the Project Area are of two general types based on substrate and topographic position: residual soil material weathered in place on slopes and ridges; and deeper alluvial soils transported by water and gravity to toe slopes, washes and outwash fans. The soils within the Project Area also contain large areas of disturbance from previous mining and reclamation activities. None of the soils found within the Project Area are subject to expansion when wetted. Additionally, no permanent or substantial above ground buildings or structures, or slopes, that could be susceptible to expansive soils would be constructed as part of the Project. As such, the Project presents no risk to life or property from expansive soils, resulting in no impacts.

e) Would the Project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No Impact: No, the Project does not have soils incapable of supporting the use or installation of septic tanks or alternative wastewater disposal systems. The Project would not involve the installation or use of septic tanks or alternative wastewater treatment systems. Portable toilets would be provided onsite as needed. Therefore, the Project would have no new impacts related to septic tanks or alternative wastewater disposal systems.

f) Would the Project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less Than Significant Impact: No, the Project would not directly or indirectly destroy a unique paleontological resource or unique geologic features. As discussed in **Section 3.8** above, Project construction and operations activities would not involve significant excavation or ground disturbance into previously undisturbed soils. The Project involves exploratory drilling and ancillary operations (e.g., improving/constructing access roads, installing helipads and drill pads, constructing staging areas, etc.), and most Project structures would be constructed at-grade in areas previous disturbed by historical mining activities. Because these activities would occur in areas that are not considered conducive to fossil preservation, the potential to encounter paleontological resources is unlikely. Moreover, construction of the drill site sumps is expected to be the Project aspect that requires the most below ground disturbance, and these sumps would be approximately 12-feet by 12-feet and 6 feet deep; within Holocene-age (recent) alluvium, which would not contain any fossil material. Other than minimal regrading to prepare the Oro Cruz Mine Portal, access roads, drill pads/sumps, and ancillary facilities, the Project activities do not involve ground disturbance in geologic materials that have any potential to contain fossils. Therefore, the Project does not have the potential to have a significant impact on these resources.

In accordance with the avoidance and control measures described in **Appendix F**, all Project surface-disturbing activity would be limited to the land area essential for the Project. In determining these limits, consideration would be given to topography, public health and safety, placement of facilities, and other limiting factors. Work area boundaries would be appropriately marked to minimize disturbance. All

workers would strictly limit their activities and vehicles to the areas marked. All workers would be trained to recognize work area markers and to understand equipment movement restrictions.

Additionally, although no adverse impacts to unique paleontological resources or unique geologic features are anticipated, nonetheless there is always to potential for undiscovered cultural resources to be inadvertently discovered. Therefore, SMP would comply with applicable County requirements that grading work cease in the event that any cultural resources are identified during grading. As discussed in the Plan (SMP 2021) and the Reclamation Plan (Sespe 2022), all workers, including all construction and drilling contractor personnel, and others who implement Project activities would be given special instruction, which would include training on distribution, general behavior and ecology, protection afforded by State and Federal endangered species acts (including prohibitions and penalties), and procedures for reporting encounters, and the importance of following the protection measures. If onsite employees or contractors encounter a potential cultural or paleontological resource, ground disturbing work would halt immediately within a 100-foot buffer of the resource encountered as a BLM-required mitigation measure (**Appendix F**), and an archaeologist would be called in to evaluate the find in accordance with the monitoring and inadvertent discovery plan in consultation with the BLM archaeologist.

Therefore, through compliance with applicable Imperial County requirements related to undiscovered paleontological resources, and implementation of the avoidance measures outlined in the Plan (SMP 2021) and Reclamation Plan (Sespe 2022), the Project would not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature, and impacts would be less than significant.

3.18.6 Cumulative Effects

The CESA boundary for soils includes the Project Area plus a one-mile buffer (**Figure 3-3**). This CESA was chosen as it is the geographic area to which cumulative impacts to soils would occur based on surface disturbance proposed under the Project. The CESA encompasses 6,260 acres.

Within this CESA, past and present disturbance, as detailed in **Table 3-26**, has resulted from the following activities: mineral development and exploration projects (796 acres); utilities, infrastructure, and public purpose projects (17 acres); roads (30 acres); and dispersed recreation.

Table 3-26 Past, Present, and RFFAs in the Soils CESA

Past, Present, and RFFAs, Disturbances and Projects	CESA
CESA Acres	**6,260**
Past Actions	
Mineral Development and Exploration	
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits	272
Notices	17
Mining and Exploration Projects	507
Past Actions Total Disturbance Acres	**796**
Present Actions	
Utilities, Infrastructure, and Public Purpose	
Power Lines	17
Roads and Railroads Present Actions	
Roads	30
Present Actions Total Disturbance Acres	**47**
Past and Present Total Disturbance Acres	**843**

Past, Present, and RFFAs, Disturbances and Projects	CESA
Percent of CESA	13

Source: BLM 2022a-b

Of the 6,260 acres covered by the CESA, 843 acres of disturbance are associated with past and present which is a disturbance of approximately 13 percent of the CESA. There are no RFFAs within the CESA, other than the Proposed Action, which is analyzed for cumulative impacts in the following section.

Past mineral development and exploration activities within the Soils CESA have not all been actively reclaimed; however, natural reclamation of vegetation species has likely occurred at the site of past activities over time, which has resulted in various levels of revegetation, which is important for soil stability and erosion prevention. Impacts of past and present mineral development and exploration may be long-term since soil is physically removed and then replaced during reclamation. If an area is not reclaimed, or soils are not salvaged, existing soils may be buried. The primary effect of mining on soil resources is a temporary decrease in overall soil quality, reduction in soil production capabilities for vegetation and wildlife, potentially increased soil erosion, and subsequently, an increase in sediment in downstream surface waters.

Disturbance to soil resources associated with utility, infrastructure, and public purpose projects (such as powerlines) involves construction of access roads, as well as temporary staging areas, which leads to soil compaction and removal of vegetation.

Road construction has a long-term effect on soil resources. Effects from unimproved roads include compaction of the ground, burial of soils and altering water flow on the soil surface. State Routes are paved with asphalt or concrete, which permanently affects the soil in the area and increases runoff from the impermeable surface, which further has the potential to increase erosion of adjacent soils.

Dispersed recreation may occur within the CESA in the future, which would be considered an RFFA. Dispersed recreation may lead to potential increases in the risk of soil erosion due to surface use, depending on recreation location. Impacts from RFFAs would be similar to those stated for past and present actions.

Proposed Action
Approval of the Proposed Action would increase disturbance within the CESA by 20.54 acres in addition to disturbance associated with past, present, and RFFAs (843 acres) for a total disturbance of approximately 864 acres, which is approximately 14 percent of the CESA. The Proposed Action in combination with the past, present, and RFFAs does not significantly contribute to the percentage of surface disturbance within the CESA; cumulative impacts would be negligible during Project operations and after reclamation occurs and would be short-term and localized.

No Action Alternative
Under the No Action Alternative, the proposed Oro Cruz exploration activities would not be approved and the associated impacts to soils would not occur. Overall, cumulative effects to this CESA from the No Action Alternative would be less than the Proposed Action since additional surface disturbance from that alternative would not occur and thus would not additionally impact soils. There would be no cumulative impacts beyond those currently occurring from past, present, and RFFAs.

3.19 Travel and Transportation

3.19.1 Initial Study Determination (CEQA)

Table 3-27 provides the determination of Project impacts to transportation.

Table 3-27 Transportation Environmental Checklist

Transportation Criteria		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a)	Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☐	☒
b)	Would the project conflict or be inconsistent with the CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☒	☐
c)	Substantially increases hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
d)	Result in inadequate emergency access?	☐	☐	☐	☒

3.19.2 Affected Environment

The area of analysis for travel and transportation is the Project Area. The road network in the area consists primarily of BLM-managed public access roads designated as part of the Northern and Eastern Colorado Desert Coordinated Management Plan. The majority of roads in the vicinity are unimproved two-track roadways with native surfaces (i.e., dirt and gravel roads and public access trails) within or adjacent to the area of analysis that are used by the public. The primary route of travel to access the area of analysis is Interstate 8 to Ogilby Road, then east on Gold Rock Ranch Road continuing on to BLM-designated access roads (**Figure 1-1**). Gold Rock Ranch Road allows primary access to the area of analysis and would not require improvement. Segments of existing BLM Route 670 that diverges from Gold Rock Ranch Road (which diverges east into BLM Route 669) would require improvement. There is existing access south of Gold Rock Ranch Road along Blythe Ogilby Road (via BLM Route 707), not requiring improvement, from which a new access road would need to be constructed heading north from BLM Route 707 to reach the southern portion of area of analysis, including the staging area and underground portal (BLM 2017; SMP 2021). In 2020, Annual Average Daily Traffic (AADT) on Blythe Ogilby Road from Interstate 8 was approximately 17,000 vehicles per day with the peak monthly ADT approaching 20,000 vehicles per day (Caltrans 2020).

3.19.3 Environmental Impacts (NEPA) – Proposed Action

Under the Proposed Action, access to the drill pad sites would be via existing roads (Blythe Ogilby Road and Gold Rock Ranch Road), new, and improved roadways and via helicopter from the Yuma Airport. Drilling equipment would be trucked to one of two truck unloading points at existing roads and then would be mobilized to the Drill Areas within the Project Area. Equipment would be unloaded from low boys onto the existing road at the unload points and no improvements would be needed to accommodate the unloading of equipment. The helicopter would be used to transport drilling equipment, water, fuel, and supplies to drill sites and conduct crew changes where necessary. Some drill sites may require access by helicopter where access by support trucks is not possible.

There are several existing access roads within the Project Area that would require improvement and some new access roads would need to be constructed. Approximately two miles of existing road would need to be improved and 6.2 miles of new temporary access roads would need to be constructed, dependent on the location and associated accessibility of the to-be-determined drill sites within each Drill Area. Most of the existing access roads requiring improvement are currently about six feet wide and would require an additional six feet of surface disturbance to widen. The new temporary access roads (locations to be determined

depending on exact locations of the proposed drill sites) would require a 12-foot width of disturbance. A 2.8-acre portal staging area would need to be constructed, and access to the Oro Cruz Mine Portal would require construction of 1.8 miles of a new 15-foot-wide road.

Access roads would be used strictly for Project support vehicles to access the exploration Drill Areas, and they would be signed as having limited access. Gold Rock Ranch Road is gated at its intersection with Tumco Wash, which would serve as the safety barrier to Drill Areas 2, 3, 4, 5, and 7. To restrict access to Drill Areas 1 and 6, barriers would be constructed from onsite material from areas disturbed to prevent unauthorized access. The proposed new access road would be secured from unauthorized access for the duration of activity at the portal staging area while assuring access by BLM staff. A gate would be placed across the road accompanied by proper deterrence on either side of the gate (i.e., fence, berm, or large boulder). Safety barriers would be constructed at designated points along new access routes to prevent public access but would be removed during reclamation. Advanced notice of access restrictions would be posted by the BLM.

No maintenance is planned for improved existing roads during the active drilling period and reclamation would occur after the roads are no longer needed for operations.

Access roads would be used by up to two track-mounted drill rigs, a CAT D8 bulldozer, excavator, track hoe, and support vehicles. Two water trucks and five support vehicles per shift would be required to visit the drill sites each day. The helicopter would make up to 10 trips per day to required drill sites. AADT on Blythe Ogilby Road and access roads within the Project Area would temporarily increase as a result of the Proposed Action. Project personnel accessing the site would result in approximately 45 trips per day on BLM access roads within the area of analysis for drill crew members, Project employees, and water truck deliveries (Tupper 2022). Fuel deliveries would happen once every approximately five days. A maximum of 10 workers would be required on-site at the Project during operations, including for both above ground and underground proposed exploration operations. The drilling rig and other equipment proposed for operations would typically remain on-site during exploration. Water would be sourced offsite to the Project Area and to the underground exploration operations through Drill Area 1, resulting in up to an additional 14 round trips per day to account for water trucks. The additional traffic generated from the temporary operations of the Proposed Action would be negligible in terms of AADT increases on these roads. Monthly ADT would temporarily increase during each approximately two-week drilling campaign, but traffic levels would return to existing conditions following Project completion.

Under the Proposed Action, impacts to travel and transportation, including access and traffic, are anticipated to be negligible, short-term, and localized.

3.19.4 Environmental Impacts (NEPA) – No Action Alternative

Under the No Action Alternative, the Project would not be approved by the BLM; however, the area would remain available for other multiple use activities as approved by the BLM. No impacts to travel and transportation are anticipated under the No Action Alternative except for those occurring under existing conditions.

3.19.5 Impact Analysis (CEQA)

The Project would require use of existing and construction of new access roads to facilitate exploration operations. Reclamation and BMPs for such are further discussed in the Reclamation Plan (Sespe 2022) in addition to the analysis provided below.

Vehicle Trips/Miles Travelled: In 2013, the California legislature enacted SB 743, which required, among other things, that the State of California Governor's Office of Planning and Research (OPR) adopt new guidelines for assessing transportation impacts, specifically that traffic congestion would no longer be considered in assessing a significant impact under CEQA. Specifically, CEQA lead agencies must now analyze a project's CEQA transportation impacts using vehicle miles travelled (VMT) metric. The OPR's

Technical Advisory (OPR 2018) document provides guidance for evaluating this new transportation impact method. Therefore, the Project's potential transportation and VMT impacts are presented and quantified utilizing the OPR's Technical Advisory methods under CEQA Criteria b) below.

The Project's total daily heavy-duty and light-duty vehicle trips and associated vehicle miles travelled (VMT) was estimated as part of the air emissions and air quality analysis. Vehicle trips and VMT were quantified for both the Project construction and operational phases, based upon the proposed activities that would require vehicle operations. Based upon the air emissions inventory conducted for the Project, **Table 3-28** below summarizes the estimated daily vehicle one-way trips and associate VMT's. Note these estimates conservatively assume that all Project activities (i.e., road construction, drill site construction, exploratory drilling, and laydown yard operations) would be occurring simultaneously on a given operational day.

Table 3-28 Estimated Project Vehicle Trips & Vehicle Miles Travelled

Project Operations	One-Way Trips per Day	VMTs per Day
Road Construction	12	30
Drill Site Construction	2	15
Exploratory Drilling	38	270
Laydown Yard Emissions	12	180
Totals:	64	495

OPR's guidance and Section 15064.3 of the CEQA Guidelines states that "…'vehicle miles traveled' refers to the amount and distance of automobile travel attributable to a project. Here, the term 'automobile' refers to on-road passenger vehicles, specifically cars and light trucks." (OPR 2018). For this reason, generally heavy-duty trucks should be excluded from a project's VMT evaluation; however, conservatively the Project's heavy-duty truck activity are included within the daily VMTs shown in **Table 3-28** above. Specifically, the Federal Highway Administration's (FHWA's) largest passenger car equivalence (PCE) factor of 4 automobile trips per 1 truck trip was utilized to quantified VMT's from heavy-duty truck activity.

a) Would the Project conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

No Impact: No, the Project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. As discussed above, existing access roads would be used to the extent possible but some new access roads would be required across BLM land (**Figure 2-1**). However, the access routes that would be used are pre-existing BLM-authorized routes, and the proposed drill sites and new access roads would be mostly located within previously mined and disturbed areas. I-8, Blythe Ogilby Road, and Gold Rock Ranch Road are the primary regional County roadways that would be used for access; however, no improvements would be required along these roads as they have sufficient capacity and design to safely accommodate Project vehicles and equipment. Additionally, prior to initiating onsite construction activities, SMP would be required to obtain a temporary access encroachment permit through the Imperial County Public Works Department. As part of the encroachment permit, SMP would prepare and implement a temporary traffic control plan to ensure that vehicles and equipment would safely ingress/egress from the Project Area onto public roadways.

The exploration drilling aspects of the Project would require approximately 13,820-linear-feet (2.6 miles) of existing road improvements, and approximately 32,740-linear-feet (6.2 miles) of new temporary access road construction; however, these new access roads would be used strictly for Project support vehicles to access the exploration Drill Areas (i.e., public access would be prohibited). Signage would be installed at appropriate ingress/egress points clearly describing the roads as having limited access.

Access to the Oro Cruz Mine Portal would also require the construction of 9,640-linear-feet (1.8 miles) of a new 15-foot-wide road. While this road would remain as an access road to support the site post-closure during reclamation, monitoring, and underground exploration activities, the road would be secured from unauthorized access for the duration of activity at the portal staging area while assuring access by BLM staff. To ensure the public does not inadvertently access this roadway, a gate would be placed across the road accompanied by proper deterrence on either side of the gate (i.e., fence, berm, or large boulder).

As summarized above, any new access roads constructed as part of the Project would be used strictly for Project support vehicles to access the exploration Drill Areas. Signage would be installed at appropriate ingress/egress points clearly describing the roads as having limited access. The number of vehicles required to travel to and from the Project site during the 12- to 24-month exploratory period would be minimal (which would include light-duty employee and contractor vehicles). Additionally, transport of the larger drilling rigs and ancillary equipment to the Project site via public roadways using a lowboy would occur infrequently (i.e., estimate prior to drilling of the initial exploratory hole, and demobilization once exploration operations are complete). This minimal number of vehicles and trucks entering or leaving the Project area would not adversely impact the County's circulation systems, nor would it conflict with applicable County transit programs or policies. Additionally, a temporary traffic control plan would be implemented to ensure that vehicles and equipment would safely ingress/egress from the Project Area.

As a result, the Project would not impact any County program, plan, ordinance, or policy related to transit, roadway, bicycle, or pedestrian facilities in the vicinity of the Project, and no impacts would occur.

b) Would the project conflict or be inconsistent with the CEQA Guidelines section 15064.3, subdivision (b)?

Less Than Significant Impacts: The proposed Project would not conflict with or be inconsistent with CEQA Guidelines Section 15064.3(b). CEQA Guidelines Section 15064.3(b) requires that a project's potential transportation impacts be evaluated using the "vehicle miles traveled (VMT)" metric, which refers to the amount and distance of automobile travel attributable to a project on a daily basis. To address the requirements of CEQA Guidelines Section 15064.3(b), in 2018 the Governor's Office of Planning and Research (OPR) published the *Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR, 2018), which states that "Projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant vehicle miles travelled (VMT) impact." As discussed above, the maximum number of onsite employees and contractors travelling to and from the Project Area in a given day is estimated to be up to 13 total (which would result in a maximum of approximately 64 trips per day). In addition to light-duty employee and contractor vehicles, larger heavy-duty trucks would also be utilized intermittently to deliver materials and equipment to the Project Area; however, OPR's guidance and Section 15064.3 of the CEQA Guidelines states that "… 'vehicle miles traveled' refers to the amount and distance of automobile travel attributable to a project. Here, the term 'automobile' refers to on-road passenger vehicles, specifically cars and light trucks." (OPR 2018). As such, Project trips involving heavy-duty trucks have been excluded from this VMT evaluation.

As stated above, the Project is estimated to generate a maximum of 64 new vehicle trips per day as a result of employees and contractors traveling to and from the Project Area to conduct exploration activities. The Project's maximum daily vehicle trip could is well below OPR's screening threshold of 110 trips per day. Therefore, the proposed Project would result in no impact related to VMT and would not conflict or be inconsistent with CEQA Guidelines Section 15064.3(b)(3), and no impacts would occur.

c) Would the Project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No Impact: No, the proposed Project would not substantially increase hazards due to a geometric design feature or incompatible uses. Conversely, by improving many of the existing BLM access roads within the

Project Area, the Project would improve vehicle safety within the area. Additionally, installation of other safety features (e.g., berms, fences, signs, etc.) throughout the site would further ensure the public or other recreational vehicles to not inadvertently access incompatible or unsafe areas. See response to CEQA Criteria a) above for additional detail.

As discussed above, road improvements would occur within the Project Area, and there are no proposed changes to the design or layout of the public ingress/egress points connecting to public roadways, specifically Gold Ranch Road and Ogilby Road/SR-34. As shown on **Figure 2-1**, SMP's proposed access road improvements are not located adjacent to a public roadway, rail crossing, or pedestrian/vehicle area, and none of the proposed Project activities would impact driver safety or visibility. For these reasons, the Project would not result in alterations to nearby roadways, installation or expansion of new driveways or geometric design features, or creation of incompatible uses along these roadways, and no impacts would occur.

d) Would the Project result in inadequate emergency access?

No Impact: No, the proposed Project would not result in inadequate emergency access. As discussed above, other than construction of new and improved internal access roads on BLM lands within the Project Area, there are no proposed design changes to the existing ingress/egress points connecting to Gold Ranch Road and Ogilby Road/SR-34. The Project would not result in alterations to existing adjacent roadways, parking areas, etc. Project equipment and vehicles would be parked off public roads within designated onsite parking areas and would not block emergency access routes. Additionally, no road closures are proposed during Project exploration or reclamation activities. Furthermore, SMP would coordinate with local law enforcement and fire departments to provide 24-hour access as needed for emergency response. As a result, the proposed Project would not impede existing emergency access in the Project vicinity, and no impacts would occur.

3.20 Vegetation, including Noxious and Non-Native Invasive Species

3.20.1 Initial Study Determination (CEQA)

The IS determination pursuant to CEQA for vegetation is included under **Section 3.18.1** as the IS analyzes all biological resources within one category.

3.20.2 Affected Environment

The area of analysis for vegetation, including noxious and non-native invasive species, is the Project Area, including the temporary portal access road, plus a 500-foot buffer (**Figure 3-8**). Vegetation habitat mapping was conducted prior to conducting field surveys using spatial analysis software to estimate the type and extent of vegetation habitat within the area of analysis. Biological surveys were conducted in March 2021, including vegetation surveys, and additional detail on the methods used to determine vegetation habitat and the survey results is further discussed in Biological Resource Technical Report and Assessment Oro Cruz Exploration Project (WestLand 2021).

Vegetation in the area of analysis consists of low desert scrub, typical of the region in southeastern California, and is sparse in the upland and xeroriparian habitats. The uplands are dominated by very low-density shrub communities of creosote (*Larrea tridentata*) and brittlebush (*Encelia farinose*). There are also large portions of the area of analysis with disturbed habitats that are dominated by non-native species, including tamarisk and yellowdome (*Trichoptilium incisum*). The xeroriparian habitat is generally the same as the uplands habitat but also includes widely spaced upland trees and ocotillo (*Fouquieria splendens*). During pedestrian surveys in March 2021, three California Native Plant Society vegetation categories were identified within the area of analysis (**Figure 3-8**), including black mustard (*Brassica nigra*) and other

mustards semi-natural stands, blue palo verde (*Parkinsonia florida*)-ironwood (*Olneya tesota*) alliance, and creosote-brittlebush alliance (WestLand 2021). These vegetation categories were mapped using GIS software to estimate the approximate horizontal space occupied by the three categories and provide nomenclatural frameworks for characterizing these complex vegetative realities. Additional detail on each vegetation category is provided below:

Black mustard and other mustards semi-natural stands

This vegetation category represents approximately 18 percent of the area of analysis and 24 percent of the Project Area and is associated with disturbed and barren areas. Black mustard was not observed in the area of analysis, but a closely related non-native mustard, Saharan mustard (*Brassica tourneforti*) was present in both naturally disturbed areas (i.e., wash scour) and human-disturbed areas (roads, camp sites, waste rock piles). This community is not classified as sensitive by the CDFW (CDFW 2020a).

Blue palo verde-ironwood alliance

This vegetation category represents approximately two percent of both the area of analysis and Project Area and is primarily restricted to xeroriparian areas (i.e., washes, drainages, and narrow canyons). Commonly occurring species include blue palo verde, ironwood, sweetbush (*Bebbia juncea*), lance leaved ditaxis (*Ditaxis lanceolata*), desert lavender (*Hyptis emoryi*), ocotillo, and Anderson's desert thorn (*Lycium andersonii*). This natural community is classified as sensitive by the CDFW (CDFW 2020a).

Creosote-brittlebush alliance

This vegetation category represents approximately 79 percent of the area of analysis and 74 percent of the Project Area and occurs in a variety of topographic settings. Commonly occurring species include creosote, brittlebush, ocotillo, beavertail prickly pear (*Opuntia basilarus*), and burrobush (*Ambrosia dumosa*). This natural community is also classified as sensitive by the CDFW (CDFW 2020a).

Noxious and Invasive, Non-Native Species

No noxious and invasive non-native weed species, as identified and managed under Section 52332 of the California Food and Agriculture Code and the California Noxious Weeds list maintained by the California Department of Food and Agriculture (CDFA 2021), were observed within the area of analysis. Saharan mustard (*Brassica tourneforti*), a Class "C" Rated Weed under CCR 4500 Noxious Weeds List (CDFA 2021), was observed within the area of analysis.

Special Status Plant Species

No BLM special status species were found within the Project Area. A CEQA special status species, Pink fairyduster (*Calliandra eriophylla*), was identified as historically and presently occurring in low densities within the Project Area within the desktop delineated potential microphyll woodland area of the *Parkinsonia Florida—Olneya Tesota* vegetation category (**Figure 3-8**) (WestLand 2021).

Two BLM sensitive plant species were identified as having potential habitat within the area of analysis, with a low potential of occurrence. Wiggin's croton (*Croton wigginsii*) is commonly found in sandy areas in desert dunes and Sonoran desert scrub. A small area of suitable sandy habitat was identified during the March 2021 baseline surveys in Sonoran desert scrub on the western edge of the area of analysis, but outside the Project Area. Sandfood (*Pholisma sonorae*) is commonly found in sandy soils, sand dunes, and other sandy areas and is considered a root parasite of desert shrubs. Small pockets of suitable sandy soils were identified during the March 2021 baseline surveys in the western side of the area of analysis, and burrobush (*Ambrosia dumosa*), a suitable host plant, was identified as occurring within the area of analysis, both outside of the Project Area (WestLand 2021). Neither Wiggin's croton nor Ssandfood were observed during the March 2021 baseline surveys within the area of analysis. Both plant species are designated as special status species that are known to occur on BLM lands managed by the El Centro Field Office (BLM 2015).

3.20.3 Environmental Impacts (NEPA) – Proposed Action

Under the Proposed Action, surface disturbance would occur from the construction of a staging area, exploration roads (including improvements to existing roads), sumps, and drill pads. Surface disturbance would directly impact vegetation communities within the Project Area from the removal of vegetation, which could increase soil erosion and the possibility of spreading noxious and invasive non-native species. Per the PDFs outlined in **Appendix F**, SMP would revegetate disturbed areas with native seed mixtures approved by the BLM. A diverse, native plant community would be targeted, and the seed mix list would be reviewed prior to revegetation activities initiating. With implementation of these PDFs and CMAs, impacts to vegetation communities as a result of 20.54 acres of surface disturbance are anticipated to be minor, short-term, and localized.

Impacts on vegetation resources from noxious and invasive, non-native species may include the establishment and spread of these species during exploration activities or reclamation. The Proposed Action would create 20.54 acres of surface disturbance, which could allow for weeds to invade new areas within the Project Area. All seed mixes and natural erosion products used for reclamation would be certified weed-free. Weed control practices would be implemented as necessary in coordination with the BLM, and non-native invasive plants would be removed manually, as specified in the Reclamation Plan (Sespe 2022). Additionally, CMA LUPA-BIO-10 would require implementation to be consistent with BLM state and national policies and guidance for integrated weed actions, which would include thoroughly washing vehicles prior to entering the Project site among other weed management measures described further for CMAs in **Appendix F**. Impacts from the Proposed Action on the spread and encroachment of noxious and invasive non-native species are expected to be negligible, short-term, and localized.

Impacts to special status plant species would include the disturbance of up to 20.54 acres of vegetation communities that may provide potential habitat for Wiggin's croton and Sandfood. No BLM special status plant species have been identified within the Project Area, thus no direct impact to BLM sensitive plant species would occur from direct removal of individuals or populations. Direct impacts to the potentially occurring CEQA sensitive plant species could occur from the removal of up to 20.54 acres of potential habitat, as surface disturbance could occur at any location throughout the Project Area as exploration activities progress through the life of the Project. However, as outlined in the PDFs that would be implemented throughout the life of the Project (**Appendix F**), pre-construction vegetation surveys would be conducted to identify any occurrences of all special status and/or sensitive plant species prior to surface disturbance activities commencing in order to implement the appropriate fencing and avoidance measures. Reclamation would occur on proposed disturbances within special status plant species habitat, reducing long-term impacts from habitat removal. Should special status plant species be identified during Project activities, the BLM would require SMP to implement temporary barrier fencing around the individual plants for avoidance and to minimize impacts throughout the life of the Project. Additional CMAs would also be required to minimize impacts to special status species, including LUPA-BIO-7, LUPA-BIO-13, LUPA-BIO-PLANT-2, LUPA-BIO-SVF-6, LUPA-BIO-VEG-1, and LUPA-BIO-VEG-2, as included and described in **Appendix F**. Impacts to special status plants under the Proposed Action would be negligible, short-term, and localized.

3.20.4 Environmental Impacts (NEPA) – No Action Alternative

Under the No Action Alternative, the Project would not be approved by the BLM; however, the area would remain available for other multiple use activities as approved by the BLM. As such, no impacts to vegetation, including spread of noxious and invasive non-native species, would occur under the No Action Alternative.

3.20.5 Impact Analysis (CEQA)

The impact analysis determination pursuant to CEQA for vegetation is included under **Section 3.18.5** as the IS analyzes all biological resources within one category.

3.20.6 Cumulative Effects

The CESA boundary for vegetation includes the Project Area plus a one-mile buffer (**Figure 3-3**). This CESA was chosen as it is the geographic area to which cumulative impacts to vegetation would occur based on surface disturbance and vegetation removal proposed under the Project. The CESA encompasses 6,260 acres.

Within this CESA, past and present disturbance, as detailed in **Table 3-29**, has resulted from the following activities: mineral development and exploration projects (796 acres); utilities, infrastructure, and public purpose projects (17 acres); roads (30 acres); and dispersed recreation.

Table 3-29 Past, Present, and RFFAs in the Vegetation CESA

Past, Present, and RFFAs, Disturbances and Projects	CESA
CESA Acres	**6,260**
Past Actions	
Mineral Development and Exploration	
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits	272
Notices	17
Mining and Exploration Projects	507
Past Actions Total Disturbance Acres	**796**
Present Actions	
Utilities, Infrastructure, and Public Purpose	
Power Lines	17
Roads and Railroads Present Actions	
Roads	30
Present Actions Total Disturbance Acres	**47**
Past and Present Total Disturbance Acres	**843**
Percent of CESA	**13**

Source: BLM 2022a-b

Of the 6,260 acres covered by the CESA, 843 acres of disturbance are associated with past and present actions which is a disturbance of approximately 13 percent of the CESA. There are no RFFAs within the CESA, other than the Proposed Action, which is analyzed for cumulative impacts in the following section.

Impacts to vegetation species from mineral development and exploration activities in the CESA include vegetation removal. While some of these past projects have not been actively reclaimed, natural re-establishment of vegetation has occurred over time resulting in various levels of revegetation. Impacts from mineral development and exploration can be long-term. Re-establishment of vegetation would eventually occur on mining disturbances, whether through the revegetation measures required for specific projects or through natural revegetation.

Within the vegetation CESA, disturbance associated with utilities, infrastructure, public purpose projects included native vegetation removal during construction. After construction of utility and infrastructure

projects, access roads remain for maintenance, which creates a long-term impact to vegetation in the CESA. Disturbance associated with roads in the CESA has affected vegetation since the road area includes vegetation removal, and areas disturbed by vehicles are often slower to re-establish because the soils have been compacted.

Dispersed recreation may occur within this CESA in the future, which would be considered an RFFA. Impacts from RFFAs would be similar to those stated for past and present actions.

Proposed Action
Approval of the Proposed Action would increase disturbance within the CESA by 20.54 acres in addition to disturbance associated with past, present, and RFFAs (843 acres) for a total disturbance of approximately 864 acres, which is approximately 14 percent of the CESA. The Proposed Action in combination with the past, present, and RFFAs does not significantly contribute to the percentage of surface disturbance within the CESA. Considering past and present disturbance to vegetation within the CESA, combined with potential RFFAs of wildfires and continued dispersed recreation and combined with the Proposed Action, cumulative impacts to vegetation would be negligible to minor, short-term, and localized.

No Action Alternative
Under the No Action Alternative, the proposed Oro Cruz exploration activities would not be approved and the associated impacts to vegetation, including noxious and non-native invasive species, would not occur. Overall, cumulative effects to this CESA from the No Action Alternative would be less than the Proposed Action since additional surface disturbance from that alternative would not occur and thus would not additionally impact vegetation. There would be no cumulative impacts beyond those currently occurring from past, present, and RFFAs.

3.21 Visual Resources

3.21.1 Initial Study Determination (CEQA)

Table 3-30 provides impact determinations of the Project on aesthetics for criteria other than as provided in Public Resources Code Section 21099.

Table 3-30 Aesthetics Environmental Checklist

Aesthetics Criteria		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a)	Have a substantial adverse effect on a scenic vista or scenic highway?	☐	☐	☒	☐
b)	Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒

	Aesthetics Criteria	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
c)	In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surrounding? (Public views are those that are experienced from publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

3.21.2 Affected Environment

The area of analysis for visual resources is the Project Area and the viewshed of three Key Observation Points (KOPs) selected for analysis as areas representing the geographic region where the Project could potentially be visible by casual observers (**Figure 3-9**). Scenic quality is a measure of the visual appeal of a parcel of land, and Section 102(a)(8) of FLPMA placed an emphasis on the protection of the quality of scenic resources on public lands. Section 101(b) of the NEPA requires that measures be taken to ensure that aesthetically pleasing surroundings be retained for all Americans. Per BLM H-1601-1 Land Use Planning Handbook, the BLM manages resource uses and management activities consistent with Visual Resource Management (VRM) objectives established in the land use plan (BLM 2005). The VRM objectives designate classes for BLM-administered lands in order to identify and evaluate scenic values to determine the appropriate levels of management during land use planning. The BLM identifies four VRM Classes (I through IV) with specific management descriptions for each class, which represent the relative value of the visual resources. Classes I and II are the most valued, Class III represents a moderate value, and Class IV represents the least value. In addition, Class I is generally assigned to those areas where a management decision has been made previously to maintain a natural landscape. The DRECP LUPA (BLM 2016) assigned VRM classes ranging from Class I to Class IV to all BLM lands within the CDCA in accordance with BLM H-1601-1. The majority of the Project Area falls within VRM Class III, with a small southern portion of Drill Area 6 being VRM Class IV (**Figure 3-10**). VRM Class III allows for moderate changes to the characteristic landscape to partially retain the existing character of the landscape, while VRM Class IV allows for major changes to the characteristic landscape to provide for management activities that require such. The viewshed of each of the three KOPs is summarized below in terms of the foreground, middleground, and background distance zones per the BLM Visual Resources Inventory Manual H-8410-1 (BLM 1986).

KOP 1

KOP 1 is located at the Tumco parking lot/kiosk area facing southeast toward the proposed Project. KOP 1 was selected due to the significance and recreational nature of the Tumco Historic Mine off Blythe Ogilby Road and would be most readily viewed by recreational users of the Tumco Historic Minesite walking tour.

The foreground to middleground zone of the landscape consists of rugged, defined, circular rough rocks and sparse to clustered, irregular vegetation. In the foreground, the landscape appears as an irregular, horizontal form and a designated, unpaved walking trail has a bold, curving effect. Vegetation appears diffuse, broken, and jagged and clumped in some areas with varying color from green to brown. As the foreground transitions to the middleground zone, vegetation becomes more indistinct and irregularly sparse

and clustered. Land features in the middleground appear rugged to smooth with a diverging effect. BLM signage, posts, and a gate identifying the Tumco Historic Mine boundary are present in the middleground taking on linear vertical and horizonal form. The structures are bold and dark brown and contrast with the natural landscape.

The background zone is comprised of the west slopes of the Cargo Muchacho Mountains. Undulating, angular peaks along the crest of the mountains create pyramidal forms with irregular, angular lines along the backdrop of the blue sky. The mountain peaks range from low to tall and create a jagged line effect against the sky backdrop. Lower slopes of the mountains framing either side of the middleground zone have bolder lines creating variability in depth, insinuating the presence of canyon-like corridors. Vegetation is indistinguishable along the background mountain features. The mountains have a gray appearance while the sun creates a luminous effect in the blue sky above the mountains.

KOP 2
KOP 2 is located traveling north at a pullout off Blythe Ogilby Road and faces northeast toward the Cargo Muchacho Mountains. KOP 2 was selected due to its proximity to the Project Area and the potential for drilling to be visible by people traveling north on Blythe Ogilby Road in their periphery.

In the immediate foreground from KOP 2, the ground appears flat and wide with weak curving lines in the gravel. The ground is dotted with varying small to large, rounded rocks. Coarse, clustered vegetation is prominent in the foreground. The middleground consists of a soft dirt road and takes on a linear to curving form. The landscape of the middleground is primarily flat with indistinct vegetation clusters creating textures varying from coarse to smooth, with the ground appearing as tan and gray-brown. In the foreground to middleground, vegetation contrasts with the landscape as green, tan, and brown.

A weak, horizontal line is formed where the middleground meets the background zone at the base of the mountains. Jagged, angular peaks line the sky along the top of the Cargo Muchacho Mountains in the background. Mountain formations are bolder and more complex in the left most view of KOP 2 and as the user pans to the right, mountain features become less striated and fainter. This contrast creates variability in depth of the mountain range from the middleground to background.

There are no buildings, fences, or other structures visible in the foreground, middleground, or background zones of KOP 2.

KOP 3
KOP 3 is located traveling south at a pullout off Blythe Ogilby Road and faces southeast toward the Cargo Muchacho Mountains. KOP 3 was chosen due to its proximity to the Project Area and the potential for drilling to be visible by people traveling south on Blythe Ogilby Road in their periphery.

In the immediate foreground of KOP 3, a flat, linear, developed road runs parallel to the soil edge of the landscape. Bold lines separate the road from the natural soil landscape featuring sparse to clustered vegetation. A bold yellow line runs down the center of the cracked, grey asphalt road which highly contrasts with the natural landscape. Southward along the road, vegetation and soil lines begin to converge and become softer and more indistinguishable in the middleground zone. To the right of the middleground zone, tall, vertical power poles contrast with the blue sky. Textures of the landscape in the middleground zone are gradational, transitioning from coarse to smooth. As vegetation meets the base of the mountains, it appears grainy and greenish brown to indistinct.

The background zone of KOP 3 is comprised of mountain crests and blue sky. Mountain features are more prominent in the left side views from KOP 3. As the user pans to the right, the jagged, rough mountains begin to converge with the smooth, blue sky and become hidden behind the vegetation located in the middleground zone.

3.21.3 Environmental Impacts (NEPA) – Proposed Action

Visual contrast rating worksheets were completed for each of the KOPs analyzed to determine environmental impacts under the Proposed Action and are included as **Appendix H**.

KOP 1
. The distance between KOP 1 and the proposed Project facing the drill areas is less than one mile away. Disturbance activity is unlikely to be visible so long as disturbance occurs at lower elevations (hidden by vegetation) or higher elevations (hidden in a valley/canyon). Assuming disturbance occurs vertically up the mountains in the background or lower within the valleys/canyons, the contrast of operations and drilling equipment would be weak against the natural landscape.

Soils in the area would appear lighter in color upon exposure during drilling. These exposed soils would contrast with dark colored drill pads and equipment. While there is a possibility the Project would attract the attention of recreationalists and travelers visiting the historic Tumco walking area, the degree of contrast of the Project construction and operation at Drill Areas 1, 3 and 5 would be weak, creating indistinguishable linear features. Impacts to the viewshed from KOP 1 would be negligible, short-term, and localized.

KOP 2
KOP 2 is located approximately two miles away from Drill Area 6. It is anticipated that much of the Project would not be visible due to the mountainous topography of the proposed Project Area. Drilling equipment might be visible in the far background against the mountains and a helicopter may be temporarily visible during occasional travel to Drill Area 6. Assuming disturbance occurs vertically up the mountains in the background or lower within the valleys/canyons, contrast of operation equipment would be weak against the natural landscape. It is possible that the degree of contrast would be none if disturbance were to occur lower in the valleys behind the face of the mountain directly in front of KOP 2.

Soils in the area would appear lighter in color upon exposure during drilling, which would contrast with dark colored drill pads and equipment. While there is a possibility the Project would attract the attention of recreationalists and travelers due to its proximity to KOP 1, the degree of contrast of the Project construction and operation at Drill Area 6 would be weak and linear features of drilling equipment would be indistinguishable. Any visual contrast created as a result of the Project would be temporary during exploration activities and would not be constant within Drill Area 6 or along the access roads during the life of the Project. Impacts to the viewshed from KOP 2 would be negligible, short-term, and localized.

KOP 3
KOP 3 is located approximately one mile away from the Project Area and faces Drill Area 3. It is anticipated that the Project Area would not be visible due to the surrounding mountainous topography and tall vegetation in the foreground and middleground zones. Assuming disturbance would occur at higher elevations along the mountains in the background or lower within the valleys/canyons of the drill areas, contrast of operations and drilling equipment would be weak against the natural landscape. Project operations would likely occur behind the face of the mountains and would not be visible from KOP 3.

While there is a possibility the Project would attract the view of travelers driving along Blythe Ogilby Road from KOP 3, the degree of contrast of drilling equipment, construction of drill pads, and vehicles utilizing Project access roads would be temporary and inconsistent. A helicopter traveling from Drill Area 1 to Drill Area 3 may be visible occasionally and for short periods of time. Any visual contrast created as a result of the Project would be temporary during exploration activities and would not be constant within all drill areas, including Drill Area 3 or along the access roads during the life of the Project.

Under the Proposed Action, a 40-foot drill rig line against the existing landscape would have weak degree of contrast to form, color, line and texture elements of the existing background and would not be noticeable

to the casual viewer. Based on BLM Manual 8400-Visual Resource Management (BLM 1984), the drill pad area would be in the background distance zone where the texture and form of individual elements are no longer readily apparent in the landscape, appearing in patterns or outlines. The proposed drill rigs may add additional form and lines in the background zone as tall, vertical forms adding opposing colors not currently present in the existing landscape (including reflective surfaces), but they would not result in a strong degree of contrast and would likely be a weak, indistinct line element in the viewshed. The Project would be implemented over a period of up to two years, with drilling occurring up to two weeks at each of the 65 proposed drill sites prior to moving to a new drill site location. There would be up to two drill rigs in operations at a time within the Project Area, operating on a 12- or 24-hour-per-day schedule, with the potential for both drill rigs to be operating within one Drill Area. Weak, indistinct line elements would appear in the viewshed (**Figure 3-9**) under the Proposed Action from equipment, drill pads, and road improvements and construction; however, the contrast of the drilling equipment at each drill site against the existing characteristic landscape would be temporary and not sedentary to one location as Project activities would move between each Drill Area. Additionally, the Project Area has been designated as a BLM VRM Class III (BLM 2005, 2016), with a small portion designated as BLM VRM Class IV in the southernmost area (**Figure 3-10**). Overall, impacts to visual resources would be negligible, short-term, and localized.

3.21.4 Environmental Impacts (NEPA) – No Action Alternative

Under the No Action Alternative, impacts to visual resources are not anticipated as the Project would not be approved and the associated form, line, and texture from temporary structures, equipment, and access road improvements and construction would not be present against the characteristic landscape of KOPs 1, 2, or 3. Impacts to visual resources would continue to occur under existing conditions.

3.21.5 Impact Analysis (CEQA)

Refer to the *Viewshed Analysis for Indirect Visual Area of Potential Effect* technical memorandum in **Appendix E** for additional detail supporting the below impact analysis.

a) Would the Project have a substantial adverse effect on a scenic vista or scenic highway?

Less Than Significant Impact: No, the Project would not have a substantial adverse effect on a scenic vista or scenic highway. A scenic vista is generally defined as a viewpoint that provides panoramic or focused views of a highly valued landscape or scenic resource for the benefit of the general public. Scenic vistas may also generally consist of views of mountain ranges and ridgelines.

Per the Imperial County General Plan (Imperial County 2015) the Project is located within the broader "Pilot Knob Mesa" area, which the County has designated as having "Moderate Value" in terms of visual quality. More specifically, the Project is located within the foothills of the Cargo Muchacho Mountains. As discussed in the *Viewshed Analysis for Indirect Visual Area of Potential Effect* memorandum (see **Appendix E**), only the top portions of the 40-foot-high drill rig would be partially visible from certain public viewpoints, primarily those areas immediately adjacent to the proposed access roads/drill pads; however, as presented in the *Viewshed Analysis for Indirect Visual Area of Potential Effect*, it was determined the visible Project structures would have weak degree of contrast in terms of form, color, line and texture elements of the existing background and would not be noticeable to the casual viewer. Due to intervening topography, development of the exploratory drill facilities would not be visible from most distant public areas (e.g., along Ogilby Road), nor would the Project significantly impact or reduce the scenic quality of the Cargo Muchacho Mountains. Additionally, because the Project Area has previously been disturbed by historical mining activities, and development of exploratory drilling and ancillary operations (e.g., improving/constructing access roads, installing helipads and drill pads, constructing staging areas, etc.) would not be incompatible with the existing visual character. Furthermore, any potential

impacts to the existing landscape and scenic quality as a result of exploratory drilling activities would be temporary in nature and would not be stationary throughout the one- to two-year life of the Project or following reclamation given the nature of the proposed approximately two-week drilling campaign at each drill site.

In accordance with the California Scenic Highway Program, the California Department of Transportation (Caltrans) Scenic Highway Coordinators maintain a list of highways that have either already been designated or are eligible for designation as State scenic highways. This list is available on the California Scenic Highway Program website (https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways). The Caltrans list was reviewed in May 2022, and there are no designated or eligible State scenic highways located within the Project viewshed. The closest State scenic highway is a portion of State Route 78 (SR-78) located over 60 miles away to the west, which is an "Officially Designated State Scenic Highway." Due to the large distance between SR-78 and the Project Area, proposed Project operations would not be visible from SR-78. Neither Ogilby Road/State Route 34 (SR-34) located to the west, or Interstate 8 (I-8) located south of the Project site, are designated or eligible State scenic highways.

For the reasons outlined above, the proposed Project would not result in substantial adverse effects on a scenic vista or scenic highway, and therefore impacts would be less than significant, with no mitigation required.

b) Would the Project substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact: See response to CEQA Criteria a) above. No, the Project would not substantially damage scenic resources within a State scenic highway. As discussed above, the closest State scenic highway is a portion of SR-78, which is an "Officially Designated State Scenic Highway, located over 60 miles away to the west. Due to the large distance between SR-78 and the Project Area, Project operations would not be visible from SR-78. None of the roadways within the vicinity of the Project Area (i.e., Blythe Ogilby Road/SR-34, Gold Rock Ranch Road, I-8) are designated or eligible State scenic highways. Therefore, the Project would not damage scenic resources within view of a State scenic highway, and there would be no impacts.

c) Would the Project, in non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surrounding? (Public views are those that are experienced from publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Less Than Significant Impact: No, the Project would not substantially degrade the existing visual character or quality of public views of the Project area and its surroundings. The Project is located in a remote (i.e., non-urbanized) area of the Cargo Muchacho Mountains. As described under CEQA Criteria a) above, based on the *Viewshed Analysis for Indirect Visual Area of Potential Effect* (**Appendix E**) analysis, the primarily Project structures that would potentially be visible from certain public viewpoints would be the top portion of the 40-foot-high drill rig. However, the visual analysis determined that any visible Project structures would have weak degree of contrast in terms of form, color, line and texture elements of the existing background and would not be noticeable to the casual viewer compared to existing (i.e., baseline) conditions. The *Viewshed Analysis for Indirect Visual Area of Potential Effect* also found that although the proposed drill rigs may add additional form and lines in the background zone, it would not result in a strong degree of contrast and would likely be a weak, indistinct line element in the viewshed. Furthermore, impacts to the existing landscape and scenic quality as a result of exploratory drilling activities would be temporary in nature and would not be stationary throughout the one- to two-year life of the Project or following reclamation given the nature of the proposed approximately two-week drilling campaign at each drill site.

Additionally, the existing Project site is currently disturbed due to historical mining operations, and therefore has few existing aesthetical features or vegetation of note. As such, development of the drill sites and ancillary facilities (e.g., access roads, helipads and drill pads, staging areas, etc.) would not significantly change or negatively impact the overall visual character or quality from surrounding public viewpoints. Overall, for the reasons outlined above, the Project would not substantially degrade the existing visual character or quality of the Project site and its surroundings, and impacts would be less than significant, with no mitigation required.

d) Would the Project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less Than Significant Impact: No, the proposed Project would not create new sources of substantial light or glare which would adversely affect daytime or nighttime views in the area. The issue of light and glare is typically associated with excessively bright nighttime lighting that crosses over property lines (i.e., "light trespass") and illuminates off-site yards or bedroom windows. It is also associated with the condition that occurs when excessive nighttime lighting creates a "skyglow" effect.

Operations during the time of year when daylight hours are shorter, or for any required outdoor nighttime operations, minimal nighttime lighting may be employed to provide a safe working environment. For nighttime lighting, high-pressure sodium and/or cut-off fixtures (or equivalent International Dark-Sky Association-approved fixtures) would be used instead of mercury-vapor fixtures for any required nighttime lighting. The lighting fixtures would be used in manner intended to illuminate work areas within the Project site, and/or to areas that do not include light-sensitive uses.

The potential for daytime glare is low. The structures with the potential to result in a new source of glare would be the drill rigs or ancillary structures (e.g., tanks, compressors, shop, etc.); however, these structures would be installed in remote desert locations and would have a relatively small aboveground profile compared to the natural background. The structures would also be painted using non-reflective, muted tones, which would minimize potential offsite impacts associated with glare. For new lighting installed onsite, the surrounding topography would help further attenuate light and confine it to the area immediately surrounding the activities.

Because there would be no new permanent sources of light or glare proposed to be installed onsite, and because there are few areas of human habitation near the Project Area which could be potentially affected, the Project would have less than significant impacts associated with light or glare.

3.22 Water Resources

3.22.1 Initial Study Determination (CEQA)

Table 3-31 provides impact determinations of the Project on hydrology and water quality.

Table 3-31 Hydrology and Water Quality Environmental Checklist

Hydrology and Water Quality Criteria		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a)	Violate any water quality standards or waste discharge requirements or otherwise	☐	☐	☒	☐

Hydrology and Water Quality Criteria		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
	substantially degrade surface or ground water quality?				
b)	Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒
c)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	☐	☐	☒	☐
	(i) result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
	(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐
	(iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or;	☐	☐	☒	☐
	(iv) impede or redirect flood flows?	☐	☐	☒	☐
d)	In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e)	Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

3.22.2 Affected Environment

The area of analysis for water resources is the Project Area plus the previous intermediate study area of mineral claim boundaries held by SMP (**Figure 3-11**), which is the same area of analysis as was surveyed for the 2021 aquatic resources delineation (Stantec 2021a). The area of analysis is located within Hydrographic Region 18 (California Region) in the Salton Sea Basin within the Tumco Wash subwatershed (USGS 2021a) and is geographically located in the southwestern edge of the Lower Colorado River Valley in the western flank of the Cargo Muchacho Mountains (**Figure 3-11**). Tumco Wash and the Oro Cruz Mine are located within the Project Area, American Girl Wash and the American Girl Mine are located just south of the Project Area, and the Padre and Madre claims in the Madre Valley are located further south (Western Mining History 2021). Overall topography within the area of analysis includes steep and rugged terrain in the mountains and low-lying flats to the immediate southwest. Elevations range from 400 to 1,640 feet AMSL. The Tumco Wash area includes an existing open pit, waste rock and tailings piles, and some abandoned facility/town remains as a result of the area's long history of mining dating back to 1780 (Western Mining History 2021).

Regionally, the average annual precipitation varies, but it generally increases with elevation. The estimated average annual precipitation and evaporations rates for the area of analysis are based on historic precipitation data last recorded in 1996 from the nearest Cooperative Observer Program Station at the Gold Rock Ranch. The annual average mean precipitation for the area of analysis is 0.32 inches (WRCC 2021).

The Tumco Wash is an ephemeral stream and generally carries surface water flows from the northeast to the southwest during rainstorm events. Flows originate from within and just outside the Project Area in the higher elevations of the Cargo Muchacho Mountains, where runoff from precipitation is concentrated and flows downslope to the southwest into a network of tributaries and washes, including the Tumco Wash, which flows southwest and terminates at the Algodones Sand Dunes (USGS 2021a) from infiltration and evaporation. Flows between the Project Area and the Algodones Sand Dunes are interrupted and redirected to culverts along Blythe Ogilby Road (**Figure 3-11**) and by a series of dikes along nearby railroad tracks.

No seeps and springs, wetlands, or playas were identified or located in the area of analysis. Surface water within the area of analysis is mainly dependent upon seasonal precipitation, as all drainages located within the area of analysis are ephemeral. Most drainage crossings are low flow crossings, with the operational culverts located outside of the Project Area along an access road to the previously disturbed sand and gravel operation just northwest of the Padre y Madre pit. Additional information on existing surface water resources in the area of analysis can be found in the Oro Cruz Exploration Project Aquatic Resources Delineation (Stantec 2021a). No mapped floodplains are within the Project Area (FEMA 2021).

The area of analysis lies within the Salton Trough basin and more specifically, overlies the Basin and Range basin-fill aquifer. The most permeable basin-fill deposits are present in the depressions created by the late Tertiary to Quaternary bloc faulting and can be classified by origin as alluvial-fan, lakebed, or fluvial deposits. The most important hydrologic features of the basins are alluvial fans. The basin fill received most of its recharge through the coarse sediments deposited in the fans. These highly permeable deposits allow rapid infiltration of water as streams exit the valleys that are cut into the almost impermeable rock of the surrounding mountains and flow out onto the surface of the fans (Planert and Williams 1995). Moderate to high groundwater yields have been obtained in the eastern part of Imperial Valley by deep wells tapping into marginal alluvial deposits of the Colorado River. Regional groundwater recharge in the Imperial Valley is controlled by the Colorado River, with minor contributors to recharge being underflow from tributaries, precipitation, and local runoff (BLM 2011).

The Project Area lies within the Ogilby Valley Basin (7-035) (California Department of Water Resources 2020), a Very Low priority groundwater basin designated under California's Sustainable Groundwater Management Act of 2014 (SGMA). The Imperial Valley Groundwater Basin is adjacent to the Project Area and lies within the southern part of the Colorado Desert Hydrologic Region, south of the Salton Sea and extends across the US border into Baja California, Mexico (CA Department of Public Works 1954). The Ogilby Valley Basin is home to approximately 36 people with approximately 20 wells, of which about seven are water supply wells. Groundwater accounts for 1.26 percent of the basin's water supply (Groundwater Exchange 2021). Based on a desktop review of the National Water Information System Mapper and the SGMA Data Viewer, there are 33 wells within a five-mile radius of the Project Area (USGS 2021b; CDWR 2021), but the databases showed no wells within the Cargo Muchacho Mountains or the Project Area itself. Groundwater in the area of analysis is recharged naturally near the mountain fronts along the washes from precipitation runoff and by underflow from the east between the Cargo Muchacho Mountains and Pilot Knob (Coes et al. 2015). Since 1940, groundwater has been recharged along the All-American Canal and Coachella Canal, which occur within the Imperial Valley Groundwater Basin, from seepage of Colorado River water. Irrigation-return flow could also serve as a recharge source to the aquifer system in Imperial Valley (Thompson et al. 2008). Prior to 1940, the All-American Canal was not carrying water, and groundwater pumping was minimal in the area of analysis; the groundwater system is considered to have been in steady-state conditions (Coes et al. 2015). Well elevation data collected before 1940 indicate groundwater elevations at that time ranged from more than 100 feet AMSL to the east near the Cargo

Muchacho Mountains and Pilot Knob to 10 to 20 feet AMSL to the west near Imperial Valley. Groundwater movement generally was from east to west, and groundwater was recharged primarily by underflow through alluvial deposits between the Cargo Muchacho Mountains and Pilot Knob (Loeltz et al. 1975; Harshbarger 1977). The USGS estimates the Ogilby Valley Basin, within which the Project Area is located, to have a natural recharge rate of 250 acre-feet per year (California Department of Water Resources 2020).

Under surveys conducted in 2021 for presence of Waters of the US, a total of 432 aquatic resource features (i.e., drainages, tributaries, stream channels), including one pond, have been mapped within and in the vicinity of the Project Area and assessed for potential jurisdiction under the US Army Corps of Engineers (USACE), the Regional Water Quality Control Board (RWQCB) and the CDFW (Stantec 2021a). No wetlands, seeps, springs, or playas were found, and flows within the area are ephemeral and are mostly sourced from direct precipitation as well as flows from the Cargo Muchacho Mountains in the east. Based on the definitions, regulations, and guidance for jurisdictional waters under the CWA, none of the features are expected to fall under the jurisdiction of the USACE because they were determined to be isolated with no connection to a traditional navigable water. All drainages sampled entering, exiting, and beginning in the area were determined to be ephemeral. All features potentially fall under the jurisdiction of the RWQCB and the CDFW, the permitting for such is described further in the following section. On November 28, 2022, the USACE provided an approved jurisdictional determination in accordance with the CWA based on the 2021 aquatic resources inventory, which provided that no jurisdictional waters are present within the Project Area or vicinity (USACE 2022; Stantec 2021a).

No surface water right permits occur within the area of analysis. The State of California does not permit groundwater rights and does not require groundwater use monitoring for most basins in the state, including those within the area of analysis.

3.22.3 Environmental Impacts (NEPA) – Proposed Action

Surface water features within the area of analysis consist of natural ephemeral drainages that convey water only during storm events. There are no seeps, springs, or perennial drainages within the Project Area, thus the Project would have no impact to these surface water features. Improvement and construction of drill roads and drill pads may affect the pathways of stormwater runoff and increase the potential for erosion within the area of analysis resulting in surface water quality impacts. The Project would require a Construction Stormwater General Permit (CGP) pursuant to the California State Water Resources Control Board National Pollutant Discharge Elimination System No. CAS000002, Order No. 2009-0009-DWQ, amended by 2010-0014-DWQ and 2012-0006-DWQ. A SWPPP would be developed for review and approval by the BLM and the approved measures would be implemented to control sedimentation from disturbance associated with Project activities. BMPs would be implemented to manage disturbed surfaces. Sediment control structures would include fabric and/or hay bale filter fences, siltation or filter berms, downgradient drainage channels, or other similarly effective features to prevent unnecessary or undue degradation. The Project would also require a Lake and Streambed Alteration Agreement with the CDFW pursuant to California Fish and Game Code Section 1602, further discussed above under **Section 3.22.2**. Potential impacts to surface water quality would be minimized by the implementation of the PDFs outlined in **Appendix F**, as well as incremental reclamation. Additional CMAs would also be implemented to minimize resource conflicts and water quality impacts, including LUPA-SW-3 and LUPA-SW-11, further described in **Appendix F**. The Proposed Action would have a negligible, short-term, and localized impact on surface water resources.

The Project anticipates using up to approximately 2,000 gallons of water daily for active drilling periods, which equates to approximately 240,000 gallons of water over the life of the Project (approximately 0.736 acre-feet per year). In relation to the Colorado River, the estimated 0.736 acre-feet of water needed for the life of the Project equates to approximately 0.00013 percent of the total current level of Lake Powell (5,462,412 acre-feet) and 0.0000098 percent of the total current level of Lake Mead amount (7,449,000

acre-feet). Additionally, the Project estimated water requirement of 0.736 acre-feet is approximately 0.30 percent of the natural groundwater recharge rate of the Ogilby Valley Basin. A 2,000-gallon portable water storage tank would also be kept onsite for drilling and dust suppression. Water used for dust control would be kept to a practicable minimum to minimize the risk of water runoff, and any water runoff would be managed to prevent downstream erosion or flooding or cause an exceedance of applicable water quality standards. The Project does not propose groundwater pumping or drilling of groundwater wells to be used for Project activities. Water for the Project would be trucked in and would be procured from the nearby Gold Rock Ranch RV Resort, a local water purveyor, and/or the City of Yuma, which may be sourced from groundwater or from the Colorado River, using water that is already permitted for pumping/use (the total amount permitted has already been considered within the total water budget available for pumping and the Project would be purchasing via an agreement with the seller for an amount within the seller's allowable acre-feet) and available for sale. Impacts to the Ogilby Valley Basin groundwater resources would be negligible, short-term, and localized. Based on the most recently available USGS Groundwater Watch data in the vicinity of the Project, the depth to groundwater within and in the vicinity of the area of analysis is approximately 250 feet below ground surface (USGS 2022). If groundwater is encountered during drilling activities, it would be fully contained within the drill sumps, and the sumps would be backfilled once all water has evaporated. All drilling mud used would be non-toxic and would be fully contained in the sumps. Upon completion of exploration activities, all exploratory drill holes would be sealed and abandoned in compliance with the most current edition of the State Water Resources Control Board Bulletins #74-81 and #74-90 Water Well Standards. SMP would coordinate with the Imperial County to obtain the appropriate permitting. With the implementation of these PDFs, the Proposed Action would have a negligible, short-term, and localized impact on groundwater resources overall.

3.22.4 Environmental Impacts (NEPA) – No Action Alternative

Under the No Action Alternative, the Project would not be approved by the BLM; however, the area would remain available for other multiple use activities as approved by the BLM. As such, no impacts to water resources would occur under the No Action Alternative beyond existing conditions.

3.22.5 Impact Analysis (CEQA)

a) Would the Project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less Than Significant Impact: No, the proposed Project, located within the Colorado River Basin region (Region 7), would not violate applicable Regional Water Quality Control Board (RWQCB) water quality standards, waste discharge requirements (WDRs), or otherwise substantially degrade surface or groundwater quality. As discussed above, because the Project involves exploratory drilling and ancillary operations (e.g., improving/constructing access roads, installing helipads and drill pads, constructing staging areas, etc.), no significant slopes would be created significant excavation or earth moving activities. Additionally, as discussed in **Section 3.18** above, topsoil and subsoil would be salvaged from the Project Area where feasible by pushing the material along the edge of the drill pads and along the sides of the new access roads

As discussed above, there are no existing or proposed drainage or stream features within the Project Area, and exploration operations and reclamation activities in the Project Area would not impact nearby waterways. The Project would not involve work within waterbodies nor create a waste that would be subject to regulation under a WDR. A site-specific BLM approved SWPPP would be developed and implemented to control sedimentation from disturbance associated with Project activities. Best Management Practices (BMPs) would be installed to manage disturbed surfaces. Sediment control structures could include, but not be limited to fabric and/or hay bale filter fences, siltation or filter berms, and downgradient drainage channels in order to prevent unnecessary or undue degradation.

Additionally, as included in **Appendix F**, a BLM-approved Spill Contingency Plan would be prepared to describe the procedures followed by SMP and their contractors to prevent, control, and mitigate releases of oil and petroleum products to the environment within the Project Area. Minor servicing of mobile equipment (greasing and periodic fueling) would be conducted on BLM lands, limiting the potential for diesel fuel spills. Spill response kits would be maintained to ensure that pollutants are prevented from entering into washes. Any pollutants generated by Project activities would be properly disposed of in accordance with applicable regulations.

Upon completion of the exploration, the exploratory drill holes would also be sealed and abandoned in compliance with the most current edition of SWRCB Bulletin #74-81 and #74-90. Following abandonment of the exploratory boreholes, any remaining drill cuttings would be spread out on the drill pad surfaces, and reseeded/revegetated.

Temporary portable toilets would be placed within the Project Area and would be provided for the duration of the Project. Temporary portable toilets would be maintained by contractors and accumulated human waste would periodically be collected and transported to an approved disposal site. No waste would be buried on-site. Operations in the Project Area would not produce any industrial or domestic wastewater discharges onsite.

Through the implementation of BMP's and PDFs (**Appendix F**), which would be included in the site-specific BLM approved SWPPP and Spill Contingency Plan, there would be no operational impacts related to RWQCB water quality standards or WDRs, and less than significant impacts would occur.

b) Would the Project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

No Impact: No, the Project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge that may impede sustainable groundwater management of the basin. As discussed above, the Project is located within the Ogilby Valley Basin, which is not an adjudicated groundwater basin as of 2022.

As discussed above in **Section 3.22.3**, the estimated water requirement for the Project is 0.736 acre-feet, which is approximately 0.30 percent of the natural groundwater recharge rate of the Ogilby Valley basin. The Project does not propose groundwater pumping or drilling of groundwater wells to be used for Project activities. Water for the Project would be trucked in and would be procured from the nearby Gold Rock Ranch RV Resort, a local water purveyor, and/or the City of Yuma, which may be sourced from groundwater or from the Colorado River, using water that is already permitted for pumping/use (the total amount permitted has already been considered within the total water budget available for pumping and the Project would be purchasing via an agreement with the seller for an amount within the seller's allowable acre-feet) and available for sale. The water purchased for the Project would be trucked in on a mobile water truck and would be utilized onsite for dust suppression, and applied water would either naturally evaporate or infiltrate into the ground.

Groundwater may be encountered during the course of exploratory drilling within the Drill Pads. Any water encountered or generated by drilling would be fully contained within the drill sumps constructed adjacent to each drill rig. The sumps would be approximately 12-feet by 12-feet and 6 feet deep. Other than cuttings and water used to advance the drilling, no other solid or liquid investigative derived wastes (IDW) are anticipated. The IDW would be fully contained within sumps the sumps constructed at each drill site. Specifically, drilling mud encountered would be pumped back out of the drill hole and into the sump, where solids would be allowed to settle out and water allowed to naturally evaporate. The sumps would then be backfilled using the excavated soils once the water is evaporated.

Because the estimated water requirements for the Project equate to 0.30 percent of the total natural recharge rate for the Ogilby Valley Basin, the Project would not substantially interfere with natural groundwater recharge. Based on the estimated water requirements and natural recharge rate of the Ogilby Valley Basin, the Project would not substantially decrease groundwater supplies. As such, the Project would not conflict with sustainable management of groundwater.

c) *Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:*
    1. *result in substantial erosion or siltation on- or off-site;*
    2. *substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;*
    3. *create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or*
    4. *impede or redirect flood flows?*

Less Than Significant Impact: See discussions below.

Erosion/Siltation: The proposed Project would not substantially alter the existing drainage pattern of the site or area in a manner that would result in substantial erosion on- or offsite. As discussed above, there are no existing or proposed drainage or stream features within the Project Area, and exploration operations and reclamation activities in the Project Area would not impact nearby waterways.

Drilling exploration and related development of the Project Area is not expected to create an increased potential for stormwater runoff that could adversely impact adjacent areas. Additionally, due to the existing topography and land uses, the Project Area is not expected to receive significant local runoff from neighboring properties. Generally, stormwater that falls on the Project Area would be contained and would either naturally evaporate or infiltrate into the ground. Because runoff would ultimately not change as a result of the Project, post-reclamation runoff and erosion sedimentation would also not change. Development of the Project would not add any paving or impervious surface areas. Due to site topography and design, and through the implementation of applicable BMPs, the chances of discharge, erosion, and/or sedimentation from the Project Area that could adversely impact adjacent properties is considered very low, and potential impacts related to substantial erosion or siltation on- or off-site would be less than significant.

Flooding: As discussed above, the proposed Project would not substantially alter the existing drainage pattern of the Project site or adjacent areas in a manner that would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site. Generally, stormwater that falls on the Project Area would be contained and would either naturally evaporate or infiltrate into the ground. Development of the Project would also not add any paving or impervious surface areas. Through implementation of BMPs that would be outlined in the site-specific BLM approved SWPPP, any stormwater that falls on the Project site would be captured or controlled. For these reasons, the proposed Project would not result in flooding on- or off-site, and the Project would have less than significant impacts.

Stormwater Drainage Systems/Sources of Polluted Runoff: No, the proposed Project would not substantially alter the existing drainage pattern of the site or area in a manner that would create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff water. As discussed above, the Project would not increase and/or pollute stormwater runoff, and SMP would implement appropriate stormwater BMPs as needed. Additionally, the Project Area is in a remote location, and there are no existing or planned stormwater drainage systems within the Project vicinity.

Other than minimal quantities of fuels and lubricating oils, the Project would not use hazardous materials or generate hazardous wastes onsite. Any fuels or oils used onsite would be stored in covered, leak-proof containers when not in use, away from potential storm runoff areas or areas where vehicles may travel. A BLM-approved Spill Contingency Plan would also be implemented. To prevent the spread of any accidental leakage in storage, fuel and lubricants would be stored in a shallow (4-inch depth), 10-foot by 10-foot lined reservoir at each drill site and in an approximately 6 inch deep, 20 foot by 40-foot lined reservoir at the fueling station.

For the reasons outlined above, the proposed Project would not create or contribute substantial amounts of runoff or provide substantial additional sources of polluted runoff, and there would be no new impacts.

Impede/Redirect Flood Flows: The proposed Project would not substantially alter the existing drainage pattern of the site or area in a manner that would impede or redirect flood flows. Project activities would be performed within previously disturbed areas and would not involve significant excavation or changes to natural landform topography associated with existing drainages. Development of the Project would also not add any paving or impervious surface areas.

All present surface water features within the Project Area are ephemeral drainages; no permanent waterways, perennial or intermittent streams, or diversion channels exist within or adjacent to the Project Area, and none are proposed as a result of site development. Additionally, the FEMA Flood Insurance Rate Map (FIRM) was reviewed (https://www.icpds.com/assets/planning/flood-zone-maps/38-fema-900.pdf), and the entirety of the Project site and surrounding areas are designated as Flood Zone C, which represents "areas of minimal flooding".

Due to the low flooding potential of the Project Area, and because the Project involves exploratory drilling and ancillary operations (e.g., improving/constructing access roads, installing helipads and drill pads, constructing staging areas, etc.), development of the proposed onsite features (e.g., slopes, structures, roads, etc.) do not have the potential for a significant drainage or flood hazard impact on the environment, and would not create a new impediment to surface flow or change flood flow patterns. Thus, the Project would have no impacts related to flood flows.

d) Would the Project be located in flood hazard, tsunami, or seiche zones, or risk release of pollutants due to project inundation?

No Impact: The proposed Project would not be located in designated flood hazard, tsunami, or seiche zones and would not result in the potential for pollutants to be released to the environment by inundation. The Project site is located within a remote area of the Cargo Muchacho Mountains, far away from the Pacific Ocean or other larger inland body of water. The Project site is not located within a mapped tsunami or seiche hazard area as defined under the Department of Conservation's Seismic Hazards Mapping Act and related seismic hazard maps (DOC 2022).

As discussed above, only ephemeral drainages are present within the Project Area; no permanent waterways, perennial or intermittent streams, or diversion channels exist within or adjacent to the Project Area, and none are proposed as a result of site development. FEMA'S applicable FIRM map shows the Project Area and surrounding areas are designated as Flood Zone C. As such, given the location and design of the Project, the fact that no surface or stormwater would run-on or -off the Project site, the depths/lack of impacts to groundwater, and the lack of potential pollutant sources onsite, the Project would not risk release of pollutants due to project inundation. Therefore, there would be no impacts.

e) Would the Project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

No Impact: See responses to CEQA Criteria a) through d) above. The proposed Project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. The Project entails exploratory drilling and ancillary operations (e.g., improving/constructing access roads, installing helipads and drill pads, constructing staging areas, etc.). Additionally, Project operations are temporary (i.e., 12- to 24-months), and the majority of the Project Area would be reclaimed once exploratory operations are complete. The Project activities would not result in waste streams or discharges that would be subject to regulation under an applicable water quality control plan. SMP would also implement BMPs to protect surface and ground water quality to ensure operations do not adversely impact water resources. Moreover, as discussed under CEQA Criteria b) above, the Project would not require the consumption of groundwater, and minimal quantities of groundwater encountered during drilling would be properly managed (contained in sump, allowed to naturally evaporate/infiltrate, etc.); consequently, the Project would not conflict with or obstruct a sustainable groundwater management plan. Therefore, no impacts would occur.

3.23 Wildlife, including Migratory Birds, Special Status Species, and Threatened and Endangered Species

3.23.1 Initial Study Determination (CEQA)

Table 3-32 provides impact determinations of the Project on biological resources (including wildlife and plant species).

Table 3-32 Biological Resources Environmental Checklist

	Biological Resources Criteria	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a)	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies or regulations, or by the CDFW or USFWS?	☐	☒	☐	☐
b)	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS?	☐	☒	☐	☐
c)	Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d)	Interfere substantially with the movement of any resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e)	Conflict with any local policies or ordinance protecting biological resource, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
f)	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community	☐	☒	☐	☐

Biological Resources Criteria		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
	Conservation Plan, or other approved local, regional, or state habitat conservation plan?				

3.23.2 Affected Environment

The area of analysis for wildlife is the Project Area, including the temporary portal access road, plus a 500-foot buffer (**Figure 3-12**), with the exception of raptor species, which were analyzed within the Project Area plus a two-mile buffer (**Figure 3-13**) and threatened and endangered species, which were analyzed within the Project Area and proposed disturbance footprint (**Figure 3-14**). Wildlife in the area of analysis rely on limited water sources, with primarily ephemeral drainages, in addition to the ephemeral Tumco Wash, that only convey water during storm events as the dominant surface water features. There are no known wildlife guzzlers present within the area of analysis.

General Wildlife

Avian Species, including Migratory Birds and Raptors

Twenty avian species have the potential to occur within or near the area of analysis based on a habitat evaluation desktop review (WestLand 2021; CDFW 2020b). Of the 20 avian species with potential to occur within the area of analysis, all are protected under the Migratory Bird Treaty Act of 1918, as amended (MBTA) (16 USC 703-711). The MBTA implements a series of international treaties that provide for migratory bird protection, providing that it would be unlawful, expect as permitted by regulations, "to pursue, take, or kill any migratory bird, or any part, nest or egg of any such bird" (16 USC 703). The MBTA does not regulate habitat, and the list of species protected by it (revised in March 2020), includes almost all bird species (1,093) that are native to the U.S. Additionally, CDFW protects migratory birds via the California Fish and Game Code, holding that it is unlawful to take or possess any migratory non-game bird as designated under the MBTA or any part of such except as provided by rules and regulations under the provisions of the MBTA (Section 3513).

A total of 17 avian species were documented during the 2021 biological baseline surveys (WestLand 2021). As part of the 2021 baseline surveys, golden eagle nest ground surveys were conducted. No golden eagle individuals or nests were identified during the ground surveys within the raptor survey area. Two species of raptors potentially occur as residents or migrants within or near the area of analysis; during March 2021 biological baseline surveys, two occupied prairie falcon (*Falco mexicanus*) nests, one suspected red-tailed hawk nest (*Buteo jamaicensis*), and one unoccupied stick nest of an unknown species were documented. A complete list of avian species observed during the biological baseline surveys within or near the area of analysis is provided in **Table 3-33**.

Table 3-33 Avian Species Observed Within the Area of Analysis

Scientific Name	Common Name
Amphispiza bilineata	Black-throated sparrow
Auriparus flaviceps	Verdin
Bubo virginianus	Great horned owl
Buteo jamaicensis	Red-tailed hawk
Calypte costae	Costa's hummingbird
Cathartes aura	Turkey vulture
Corvus corax	Common raven

Dryobates scalaris	Ladder-backed woodpecker
Falco mexicanus	Prairie falcon
Haemorhous mexicancus	House finch
Lainus ludovicianus	Loggerhead shrike
Meloxone fusca	Canyon towhee
Mimus polyglottos	Northern mockingbird
Poliptila melanura	Black-tailed gnatcatcher
Salpinctes obsuoletus	Rock wren
Sayornis saya	Say's phoebe
Stelgipdopteryx serripennis	Northern rough-winged swallow

Source: WestLand 2021

Mammal Species

Nine mammal species were observed within or near the area of analysis during the 2021 biological baseline surveys (WestLand 2021), and no BLM Sensitive or Special Status Species were observed (BLM 2014; WestLand 2021). A complete list of mammal species observed in or near the area of analysis is provided in **Table 3-34** below, and additional details can be found in the *Biological Resource Technical Report and Assessment Oro Cruz Exploration Project* (WestLand 2021).

The area of analysis occurs within Hunt Zone D12, designated by the CDFW but managed by the BLM. Game species that have previously been observed or have the potential to occur within or near the area of analysis include mule deer and desert bighorn sheep (*Ovis canadensis nelson*) (Stantec 2021b; BLM 2014). Mule deer were observed during the 2021 Desert Tortoise Surveys (Stantec 2021b) but were not detected during the biological baseline surveys conducted in March 2021 (WestLand 2021). While potential habitat exists, desert bighorn sheep have not historically occurred within the area of analysis and no evidence of occurrence was observed during the biological baseline surveys (WestLand 2021). Population numbers of big game species fluctuate from year-to-year based on habitat conditions. Limiting factors include water availability and the extent of suitable habitat, which influence the movement patterns of big game species.

Table 3-34 Mammal Species Observed Within the Area of Analysis

Scientific Name	Common Name
Equus asinus	Burro
Neotoma spp.	Unknown Packrat
Odocoileus hemionus	Mule deer
Osteospermophilus spp.	Unknown Ground squirrel
Macrotus californicus	California leaf-nosed bat
Myotis spp.	Unknown myotis
Sciuridae spp.	Unknown Squirrel
Sylvilagus spp.	Unknown Cottontail
Vulpes spp.	Unknown Fox

Source: WestLand 2021

Reptiles

One reptile species, the side-blotched lizard (*Uta* spp.), was observed within the area of analysis during the biological baseline surveys (WestLand 2021). The area of analysis was evaluated for suitable habitat for the Colorado Desert Fringe-toed lizard (*Uma notata*) and flat-tailed horned lizard (*Phrynosoma mcallii*); however, these species were not observed in the field during baseline surveys.

Special Status Species

The USFWS and the CDFW were contacted to obtain a list of threatened and endangered and sensitive species that have the potential to occur within the Project Area. In addition, the most recent BLM Sensitive Species List, which includes threatened and endangered species, was evaluated to determine if any species had the potential to occur within the area of analysis. Information from the USFWS, the CDFW, and the BLM indicated that the federally threatened Mojave Desert tortoise had the potential to occur within the area of analysis.

Avian Species

Western burrowing owl (*Athene cunicularia*) is a BLM Special Status Species and potential suitable habitat was identified as existing within the area of analysis. During the biological baseline surveys, suitable habitat was documented in the western and southern portions of the area of analysis, but no individuals or sign were physically observed (WestLand 2021).

Bats

An external evaluation of existing high-value bat roost locations was conducted prior to field surveys as well as a review of previous bat surveys conducted within nearby mines for previous permitting efforts within the area of analysis. These evaluations indicated that present bat species may include California leaf-nosed bat (*Macrotus californicus*), Townsend's big-eared bat (*Corynohinus townsendii*), pallid bat (*Antrozous pallidus*), and an unknown species, likely cave myotis (*Myotis velifer*) (WestLand 2021). Sign of an unknown bat species (*Myotis* spp.) was also observed and documented (WestLand 2021). Based on bat signs observed during the biological baseline surveys, California leaf-nosed bat was documented within the area of analysis, which is a BLM Special Status bat species associated with desert wash vegetation for foraging (WestLand 2021; Bolster et al. 1998).

Insects

Several statewide special status insect species, designated under CEQA, were evaluated to determine potentially suitable habitat within the area of analysis per historical documentation of occurrence (WestLand 2021; CDFW 2020b). No special status insect species were observed or detected during the biological baseline surveys.

Threatened and Endangered Species

The area of analysis for Threatened and Endangered Species is the Project Area plus the proposed surface disturbance footprint, specifically, the proposed Drill Areas and access roads (**Figure 3-14**). Four types of habitat exist in the area of analysis, including steep slopes, bajadas, desert pavement areas, and washes. Species listed under the ESA that have the potential to occur or could be potentially impacted by the Project include the threatened Mojave Desert tortoise. The Mojave Desert tortoise is a threatened species designated by the ESA with populations occurring north and west of the Colorado River in the Mojave Desert of Arizona, California, Nevada and Utah (Edwards et al. 2015; Murphy et al. 2011). The species is known to inhabit valleys, bajadas and hills with sandy loam or rocky soils in Mojave Desert scrub and the Lower Colorado River Valley subdivision of the Sonoran Desert; they are typically found on alluvial fans and valley bottoms (Edwards et al. 2015).

The area of analysis contains potentially appropriate Mojave Desert tortoise habitat and is located within 2,750 feet of the Colorado Desert Recovery Unit for desert tortoise. Biological surveys were conducted by Stantec in January 2021 and evidence of tortoise use of the area was detected in some of the proposed Drill Areas (Stantec 2021b). No Mojave Desert tortoise designated or proposed critical habitat was identified within the area of analysis during biological baseline surveys (WestLand 2021). Vegetation cover is low in the area of analysis but varies from almost zero on the steep rocky slops and desert pavement to fairly dense in some of the washes and bajadas. Vegetation on the slopes and uplands consists of scattered creosote bush, ocotillo, brittlebush, and scattered native grasses. Areas at the beginning of the bajadas and base of steep slopes offer foraging, shade, and burrowing areas for desert tortoises.

The deep cut washes concentrate rain fall and allow a greater variety of larger shrubs, trees, and ground cover. Dominant vegetation in these washes consists of ironwood (*Olneya tesota*), mesquite (*Posopis glandulosa*), palo verde (*Parkinsonia florida*), and tamarisk (*Tamarix ramosissima)*. The washes in the area have the potential to provide needed forage and shade for desert tortoise species. Forage habitat includes grasses, forbs, and succulents (AGFD 2010). The wash banks supply areas for caliche caves and burrows. To escape extreme temperatures, Mojave Desert tortoise often excavate burrows under vegetation or rocks and would also use natural or manmade caves, which are typically associated with areas of creosote bush and other sclerophyll shrubs and areas with small cacti or Joshua trees (*Yucca brevifolia*).

Soils within the area of analysis developed form weathered granitic rock and schistose rock substrates. The soils consist of gravelly sands with large amounts of cobble, rock, and boulders. Hill slops within the area of analysis are steep and almost entirely covered in large, weathered rock. Alluvial fans and washes in the area contain deeper soils that would be considered suitable for desert tortoise burrowing.

During the January 2021 desert tortoise surveys (Stantec 2021b), no tortoise or tortoise sign was found in Drill Areas 1, 4, and 7 or the areas' associated accesses. A total of eight burrows were detected in the remaining Drill Areas within the area of analysis, with three showing signs of active use, the details of which are shown in **Table 3-35**.

Table 3-35 Mojave Desert Tortoise Presence Within the Area of Analysis

Location[1]	Burrows Found	Condition	Signs of Active Use
Drill Area 2	2	Good	Yes
Drill Area 3	4	Good	Yes, at 2 of the burrows
Drill Area 5	-	-	Yes
Drill Area 6	2	One good; one deteriorated	No

Source: Stantec 2021b

[1]Survey locations include Drill Areas and associated access roads.

3.23.3 Environmental Impacts (NEPA) – Proposed Action

General Wildlife

The Proposed Action would result in new surface disturbance of up to 20.54 acres, which would remove habitat for some wildlife species. This habitat would be unavailable for wildlife use and would result in an incremental increase in habitat fragmentation until the successful completion of reclamation. The proposed surface disturbance would be reclaimed and revegetated, which would minimize long-term impacts to vegetation and wildlife communities. Interim and concurrent reclamation would be maximized to the extent possible to accelerate revegetation of disturbed areas and would help re-establish wildlife habitat in the short-term. SMP would continue to monitor and control for noxious and invasive non-native species that may be introduced as a result of vegetation removal that could degrade the quality of wildlife habitat. Overall, impacts to general wildlife habitat and individual species from Project disturbance may occur; however, species populations are not expected to be impacted and impacts under the Proposed Action would be minor, short-term, and localized.

The Proposed Action would remove potential avian nesting and foraging habitat; some of this habitat may become available through interim reclamation, but a majority would be unavailable for avian use until successful completion of reclamation. Impacts to individual migratory bird and raptor species may be realized as a result of surface disturbance and potential vehicular mortality from overland travel and access road construction and improvements; however, impacts would not affect species populations. To minimize potential impacts from vehicular collisions and/or mortality, SMP would implement 20 mile per hour speed

limits along all routes within the Project Area (**Appendix F**). Furthermore, SMP has committed to conducting pre-construction surveys within 48 hours of surface disturbance within the species-specific buffers outlined in **Appendix F** from the area to be disturbed in order to avoid impacts to migratory birds. Should active nests be identified during the pre-construction surveys, SMP would implement appropriate avoidance buffers around the nest in coordination with the BLM based on the nest species identified. Impacts to migratory birds and raptors would be minor, short-term, and localized.

Some mule deer distributions exist within the Project area, but population statistics are not well known (WestLand 2021). Likely due to low water and forage availability, big game populations fluctuate year-to-year and no known migration corridors exist within the area of analysis. There are no known populations of desert bighorn sheep in the area of analysis, although potential habitat is present. Potential impacts to big game species that may use the Project Area for available forage would be an increase in potential habitat fragmentation and less available forage; however, given the minimal distribution of individual species and populations within the area of analysis, impacts to big game habitat under the Proposed Action would be minor, short-term, and localized. Impacts to individual large and small mammal species may be realized as a result of surface disturbance and potential vehicular mortality may occur from overland travel and access road construction and improvements; however, impacts would not affect species populations. To minimize potential impacts from vehicular collisions and/or mortality, SMP would implement 20 mile per hour speed limits along all routes within the Project Area (PDF-23 of **Appendix F**).

The Proposed Action would temporarily remove potential forage and habitat for reptile species that would be unavailable until successful completion of reclamation. Disturbance of habitat may impact individuals but is not anticipated to impact species populations; therefore, impacts to reptile species would be minor, short-term, and localized.

Special Status Species

Impacts to special status species, other than bats (described below), under the Proposed Action would be the same as those anticipated for general wildlife species. Additionally, CMAs specific to burrowing owls would be implemented should burrowing owls be identified during pre-construction surveys, including LUPA-BIO-IFS-12 through LUPA-BIO-IFS-14, as described in **Appendix F**. No sensitive wildlife noise receptors were identified during baseline data collection or analysis of the Proposed Action. Overall, noise impacts under the Proposed Action would be negligible and short-term given that noise impacts from both exploratory drilling and helicopter use would not be stationary and would be temporary in nature. Special status species may experience indirect impacts from noise generation under the Proposed Action, however, LUPA-BIO-12 (**Appendix F**) would be implemented to minimize noise impacts to BLM special status and sensitive wildlife species. Should golden eagles or golden eagle nests be identified during pre-construction surveys, CMA LUPA-BIO-IFS-24 would be implemented to minimize impacts of surface disturbance within one-mile of active golden eagle nests or territories, as included in **Appendix F**. Impacts would overall be minor, short-term, and localized.

Bats

The Proposed Action would create a source of light that would attract insects and, thus, foraging bats. Impacts to foraging and roosting areas for bats would be minor, short-term, and localized. Bats foraging in close proximity to the Proposed Action may collide with associated infrastructure, causing injuries or fatalities. SMP has committed to implementing a 500-foot surface disturbance buffer around known bat maternity roosts within the Project Area during the bat maternity season (April 1 through August 31). Overland travel could occur within the 500-foot buffer, but no direct surface disturbance or active drilling would occur within this buffer during the bat maternity season. With implementation of the 500-foot buffer, impacts to bat populations as a result of lighting from nighttime drilling would also be minimized as lighting for active drilling equipment would be over 500 feet away from bat maternity roosts. With implementation of the PDFs (**Appendix F**) acts from additional lighting and potential collisions with infrastructure would be negligible to minor, short-term, and localized. Impacts to bat species as a result of noise generated from

Project activities would be the same as described above for special status species. All other impacts to bats would be the same as those described for general wildlife mammal species.

There would not be disproportionate impacts to the California leaf-nosed bat. PDFs (**Appendix F**), such as minimizing disturbance to wash vegetation and the avoidance buffers as described above, would reduce impacts to the California leaf-nosed bat. Impacts would be minor, short-term, and localized.

Threatened and Endangered Species

Potential habitat areas for the Mojave Desert tortoise that could be impacted under the Proposed Action include areas of bajadas, hills with sandy loam, rocky soils in Mojave Desert scrub vegetation communities, alluvial fans, and valley bottoms. Project activities would be monitored throughout the life of the Project to avoid potential impacts to Mojave Desert tortoise habitat. SMP would designate an FCR who would be responsible for overseeing compliance with protective stipulations for desert tortoise habitat, and for compliance coordination with the BLM. Measures for potential translocation of tortoise individuals to nearby areas with suitable habitat is discussed further below..

Potential impacts to Mojave Desert tortoise individuals could include injury, direct mortality, displacement of individuals, and increased stress. A BLM-approved Authorized or Qualified Biologist would be onsite prior to and during Project activities involving heavy machinery or any surface disturbing activities to ensure no desert tortoises are killed or burrows crushed, and Project staff are compliant with desert tortoise best practices. Within 24 hours of commencement of Project activities, pre-construction desert tortoise surveys would be conducted by a BLM-approved Authorized or Qualified Biologist within the area to be disturbed, plus a 500-foot buffer, and the BLM-approved Authorized or Qualified Biologist would be onsite during initial Project activities or mobilization. In addition, the FCR would be required to be onsite during all Project activities and would be responsible for stipulations for desert tortoise populations. During the desert tortoise active season, the FCR would be a BLM Authorized or Qualified Biologist. Outside of the active season, the FCR may be an on-site compliance monitor that would coordinate closely with a BLM Authorized or Qualified Biologist to be on-site immediately as needed. If a desert tortoise is discovered in harm's way, a BLM Authorized Biologist will move the tortoise, no more than 300 meters, into adjacent habitat following the latest USFWS clearance and handling procedures. If the BLM-approved Authorized or Qualified Biologist observes significant clinical signs of ill health, the tortoise would be removed from the wild in coordination with the USFWS. If suitable habitat is not available within 300 meters of the tortoises' capture locations or other land ownership restrictions prevent the release of individuals within 300 meters (e.g., privately owned land lacking permission), the tortoise would be translocated to the Recipient Site adjacent to the Project Area (**Figure 3-14**). Additionally, the BLM would require a mitigation measure for SMP to install exclusionary fencing around the access road to prevent desert tortoise crossings and collisions with individual species within Tumco Wash. The BLM also conducted Section 7 of the ESA consultation with the USFWS to develop the appropriate mitigation measures for the implementation under the Proposed Action in accordance with the 2017 Programmatic Biological Opinion (USFWS 2017) for Mojave Desert tortoise, described in Section **4.1.1**. Further, CMA LUPA-BIO-IFS-9 would be implemented to reduce vehicle speeds to 15 miles per hour within areas not cleared by surveys where desert tortoise may be impacted, as included in **Appendix F** along with several additional PDFs specific to desert tortoise. Through implementation of these BMPs, the detailed PDFs, and CMAs in **Appendix F**, impacts to Mojave Desert tortoise under the Proposed Action are anticipated to be minor, short-term, and localized.

3.23.4 Environmental Impacts (NEPA) – No Action Alternative

Under the No Action Alternative, the Project would not be approved by the BLM; however, the area would remain available for other multiple use activities as approved by the BLM. As such, no impacts to wildlife, including migratory birds, special status species, and threatened and endangered species, would occur under the No Action Alternative beyond existing conditions.

3.23.5 Impact Analysis (CEQA)

Refer to *Biological Resource Technical Report and Assessment* in **Appendix E** for additional detail supporting the below impact analysis.

a) Would the Project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies or regulations, or by the CDFW or USFWS?

Less Than Significant Impact with Mitigation: No, the proposed Project would not have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS. WestLand evaluated the potential for special-status species to occur in the Project Area. Of the 41 potential plant species and 26 potential wildlife species WestLand identified (**Appendix E**), three special status plant species and seven special status wildlife species were determined to have a possible presence or a high potential to occur in the Project Area. Refer to **Section 3.20.2** above for a complete discussion on vegetation, including special status plant species, and **Section 3.23.2** above for a complete discussion on the affected environment for wildlife, including special status and threatened and endangered species.

Recommended Avoidance Measures: As stated above, the overall proposed Project would be limited in scope (i.e., 20.54 acres of new disturbance) and duration (12- to 24-months of exploration activities). Nonetheless, to ensure the Project's potential adverse impacts to sensitive plant and wildlife species and habitats are avoided, a variety of protection measures would be implemented. A complete description of the environmental protection measures that SMP has committed to as PDFs are provided in **Appendix F.** Through the implementation of the avoidance and protection measures (**Appendix F**), the Project would not have an adverse effect, either directly or indirectly, or through habitat modifications, on any species identified as a candidate, sensitive, or special status species. Therefore, Project impacts would be less than significant with mitigation incorporated.

b) Would the Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS?

Less Than Significant Impact with Mitigation: See response to CEQA Criteria a) above. No, the proposed Project would not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS. As discussed above, the Project Area has been previously disturbed by mining activities. In general, vegetation is sparse in both the upland and xeroriparian habitats.

Per *Biological Resource Technical Report and Assessment* (WestLand 2021) in **Appendix E**, WestLand found that vegetation is sparse in both the upland and xeroriparian habitats of the Project area. The uplands consist of a very low-density shrub community dominated by creosote (*Larrea tridentata*) and brittlebush (*Encelia farinose*). In addition, large portions of the area of analysis consist of disturbed habitats dominated by non-native annual plants. The xeroriparian habitat generally consists of the same sparce shrub community and includes widely spaced upland trees and ocotillo (*Fouquieria splendens*). In summation, vegetation in the area of analysis is uniformly sparce and consists of very low density shrublands, upland trees and highly disturbed habitats.

The three native vegetation categories identified during the baseline surveys (Westland 2021) are described in **Section 3.20.2**). No riparian areas have been identified within the Project Area. The only surface water features present within the Project Area are ephemeral drainages; no permanent waterways, perennial or intermittent streams, or diversion channels exist within or adjacent to the Project Area.

Conclusion: As discussed previously, wildlife habitats on and around the Project Area have been significantly influenced by historic mining activities, as well as by recreational and mine exploration activities. Additionally, proposed Project activities with the potential to effect sensitive habitat or other natural communities would be limited in scope (i.e., 20.54 acres of new disturbance) and duration (12- to 24-months of exploration activities). Once exploration operations are complete, the Project Area would be fully reclaimed and revegetated.

For these reasons, and through the implementation of the PDFs described in **Appendix F**, the Project would not result in significant impacts to riparian habitat or other sensitive natural communities or state of federally protected wetlands, and there would be less than significant impacts with mitigation incorporated.

c) Would the Project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Less Than Significant Impact: No, the proposed Project would not have a substantial adverse effect on state or federally protected wetlands through direct removal, filling, hydrological interruption, or other means. There are three key agencies that regulate activities within inland streams, wetlands, and riparian areas in California. The Corps Regulatory Branch regulates discharge of dredge or fill materials into "waters of the United States" pursuant to Section 404 of the CWA and Section 10 of the Rivers and Harbors Act. Of the State agencies, the Regional Board regulates discharges to surface waters pursuant to Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act and the CDFW regulates alterations to streambed and associated plant communities under Fish and Wildlife Code Sections 1600 et seq.

The only surface water features present within the Project Area are ephemeral drainages; no permanent waterways, perennial or intermittent streams, or diversion channels exist within or adjacent to the Project Area, and none are proposed as a result of site development. Under surveys conducted in 2021 for presence of Waters of the US, a total of 432 aquatic resource features (i.e., drainages, tributaries, stream channels), including one pond, have been mapped within and in the vicinity of the Project Area and assessed for potential jurisdiction under the USACE, the Regional Water Quality Control Board (RWQCB) and the CDFW (Stantec 2021). No wetlands, seeps, springs, or playas were found, and flows within the area are ephemeral and are mostly sourced from direct precipitation as well as flows from the Cargo Muchacho Mountains in the east. Based on the definitions, regulations, and guidance for jurisdictional waters under the CWA, none of the features are expected to fall under the jurisdiction of the USACE because they were determined to be both isolated with no connection to a traditional navigable water. All drainages sampled entering, exiting, and beginning in the area were determined to be ephemeral. All features potentially fall under the jurisdiction of the RWQCB and the CDFW. On March 29, 2021, an application was submitted to the USACE for an approved jurisdictional determination with an aquatic resources inventory providing the survey data to support no jurisdictional waters being present within the Project Area or vicinity. The USACE's approved jurisdictional determination is currently pending and is anticipated to be received within the timeline of completion prior to Project approval.

Because there are no jurisdictional drainages within the Project Area, and because SMP would obtain the requisite approvals from the RWQCB, CDFW and the USACE, the Project would not have a substantial adverse effect on federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) as defined by Section 404 of the CWA through direct removal, filling, hydrological interruption, or other means, and there would be less than significant impacts.

d) Would the Project interfere substantially with the movement of any resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less Than Significant Impact: See responses to CEQA Criteria a) and b) above. No, the proposed Project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or disrupt native nursery sites. The Imperial County General Plan (Imperial County 2015), specifically Figure 1 through Figure 3 within the Conservation and Open Space Element, depicts "sensitive habitats", "sensitive species" and "agency-designated habitats" within the County, respectively. According to the Imperial County General Plan, the Project Area is not located within a County-designated wildlife corridor. Additionally, as stated above, there are no permanent waterways, perennial or intermittent streams, or diversion channels exist within or adjacent to the Project Area that could harbor migratory fish species. The only surface water features present within the Project Area are ephemeral drainages and do not support fish species.

As with other undeveloped areas of the Cargo Muchacho Mountains, the Project Area would have the limited potential to provide limited upland wildlife movement opportunities across the Project site from other nearby undeveloped wilderness areas (e.g., Pilot Knob Mesa and Algodones Dunes areas to the southwest). However, since the majority of the Project Area and adjacent lands have been disturbed by historical mining, and the lack of suitable habitat that would be maintained through the life of the Project, wildlife movement opportunities through the Project Area would remain limited.

WestLand also completed a raptor survey and evaluated the potential for species protected under the Bald and Golden Eagle Protection Act (BGEPA) to occur within the Project Area, the results for which are summarized under **Section 3.23.2**. Specific to species protected under the BGEPA, WestLand determined that the bald eagle has "no" potential to occur, and the golden eagle has an "unlikely" potential to occur as the habitat within the Project Area is unsuitable, and the habitat within the raptor area of analysis (see Figure 3 in *Biological Resource Technical Report and Assessment* of **Appendix E**) was marginal. Additionally, as described under CEQA Criteria a) above, SMP would implement the PDFs for biological resources as included under **Appendix F**. This would include pre-construction biologist surveys, minimizing native ground disturbance/installation of barriers, worker training, and other measures which would ensure the Project would not substantially interfere with any migratory species that may happen to move through the Project Area. Through implementation of these avoidance and protection measures, SMP's use of the Project Area for exploratory drilling operations would not impact wildlife movement opportunities or prevent the surrounding habitat from continuing to function as a wildlife corridor. Therefore, implementation of the Project (including construction, operations and reclamation) would not substantially alter existing wildlife movement patterns, and there would be less than significant impacts with mitigation incorporated.

e) Would the Project conflict with any local policies or ordinance protecting biological resource, such as a tree preservation policy or ordinance?

Less Than Significant Impact: No, the proposed Project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. Both the Imperial County General Plan (Imperial County, 2015) and the Imperial County – Code of Ordinances (Imperial County, 2022) were reviewed. Specifically, the Conservation and Open Space Element of the General Plan, as well as Chapters 12.44 (Wildlife Protection) and 12.48 (Wild Flowers and Trees) of the Code of Ordinances outline specific preservation measures and provides regulations and guidelines for the management of plant resources in the unincorporated areas of the County.

Chapter 12.44 of the County Code of Ordinances is specific to the protection of watercourses or wildlife watering holes. As discussed above, no permanent waterways, perennial or intermittent streams, or diversion channels exist within or adjacent to the Project Area, and none are proposed as a result of site development. The only surface water features present within the Project Area are ephemeral drainages. Water that contacts the Project Area, either from application for dust suppression or as a result of a precipitation event, would be contained onsite and either naturally evaporate or infiltrate into the ground.

There would be no discharges outside the drill sites or in surface tributaries, and no pollutants would be discharged, and Project water management would comply with applicable county, state, and federal laws. Additionally, as discussed in **Section 3.22**, the Project operations would be conducted pursuant to the CGP for stormwater discharges. For these reasons, the Project would comply with the provisions of outlined under Chapter 12.44 of the County Code.

Chapter 12.48 of the County Code of Ordinances prohibits the destruction (e.g., dig up, remove, mutilate, or destroy) or disturbance of specific tree and flower species. **Table 3-36** describes the trees and plants species regulated under Chapter 12.48 of the County Code of Ordinances and summarizes applicability to the proposed Project. Also see *Biological Resource Technical Report and Assessment* (WestLand, 2021) in **Appendix E**, which provides a comprehensive list of the potential wildlife and plant species observe on/near the Project Area.

Table 3-36 Imperial County Code Plant Protection and Management

Code Section/Text	Protected Tress & Vegetation	Applicable to Project
12.48.010 – Picking or destroying of certain trees and flowers.		
It is unlawful for any person, firm or corporation to mutilate or destroy or pick blossoms, branches, leaves or berries from any:	Mountain Dogwood (*Cornus Nuttalli*), Snow Plant (*Sarcodes Sanguinea*), Tiger Lily (*Lilium Parryi*), Western Azalea (*Rhododendron Occidentale*), California Holly Toyon Berry (*Heteromeles Arbutifolia*), Maiden-hair Fern (*Adiantum*), Sword Fern Family (*Nephrolepic*), Giant Canyon Fern (*Woodwardia Radicans*),	Not Applicable. None of the plant species protected under Section 12.48.010 were found within the Project Area.
12.48.020 – Digging up, removal or possession of certain trees and flowers.		
It is unlawful:	To dig up or remove the bulbs of the Lemon Lily or the Tiger Lily, To dig up or remove the Snow Plant, Maidenhair Fern, Sword Fern Family, or Giant Canyon Fern, To remove or cut or have in possession any of the branches, leaves, plants or berries of the Mountain Dogwood, Western Azalea, or the California Holly Toyon Berry,	Not Applicable. None of the plant species protected under Section 12.48.020 were found within the Project Area.
12.48.030 – Yucca plant.		
It is unlawful for any person, firm or corporation to dig up, remove, mutilate, or destroy any Yucca plant, or to pick or cut any bloom or blossoms therefrom, growing upon public or private land without a permit issued by the board of supervisors of Imperial County, except by the owner of such land or with the written consent of such owner.		Not Applicable. Per the biological baseline survey (Westland 2021), no Yucca plants were found within the Project Area.
12.48.040 – Yucca trees.		

Code Section/Text	Protected Tress & Vegetation	Applicable to Project
It is unlawful for any person, firm or corporation to dig up, remove, mutilate, or destroy any Yucca Trees of the following varieties:	Quixote Plant (*Yucca Whipplei Torr.*); Joshua Tree (*Yucca brevifolia Engelm.*); Spanish Dagger (*Yucca mohavensis Sarg.*); Spanish Bayonet (*Yucca baccata Torr.*); Desert Lily (*Hesperocallis undulatus Wats.*); Fan Palm (*Washingtonia filifera Wendl.*); Desert Holly, Atripiex hyhenelytra (*Abronia Wats.*); Desert Verbena (*Abronia villosa Wats.*); Desert Evening Primrose (*Enothera trichocalyx Nutt.*); Smoke Tree (*Parosela spinosa [Gray] Heller*); Lupin (*Lupinus spp.*); Coach Whip or Ocotillo (*Fouquieria splendens Engelm.*); Desert Willow (*Chilopsis linearis D. C.*); Sandfood (*Ammobroma soncrae Torr.*); Scarlet Bugler (*Pentstemon centanthrifolius Benth.*); Indigo Bush (*Parosela Schottii*);	Not Applicable. None of the Yucca tree species protected under Section 12.48.040 were found within the Project Area that would have to be removed or disturbed as a result of Project activities.
12.48.050 – Cactus.		
It is unlawful for any person, firm or corporation to dig up, remove, mutilate, destroy, or pick any cactus of the following varieties:	Cholla (*Opuntia echinocorpa Engelm.*); Barrel Cactus (*Echinocactus cylindraceus Enfielm.*); Giant Cactus (*Cereus gigantea Engelm.*); Strawberry or Fish Hook Cactus (*Mamillaria tetrancistra Engelm.*); Bird Nest Cactus (*Mamillaria grahami Engelm.*); Acanthus (*Beloperone californica Benth.*); Hedgehog Cactus (*Echinocactus polysancistrus Engelm. and Bigel.*); Torch Cactus (*Cereus engelmanni Parry*); Beavertail Cactus (*Oprentia basillaris Engelm.*); Clavate Cactus (*Opuntia clavata Engelm.*); Grizzly Bear Cactus (*Opuntia erinacea*); Opuntia Cactus (*Opuntia ramossissima Engelm.*); and Marguey or Agaves (*Agate deserti Engelm.*);	Not Applicable. None of the cactus species protected under Section 12.48.050 were found within the Project Area that would have to be removed or disturbed as a result of Project activities.
12.48.070 – Shrubs.		
It is unlawful for any person, firm or corporation, except the owner of such land or with the written consent of such owner, to dig up, remove, mutilate, or destroy shrubs of the following variety: Crucifixion Thorn (*Holacantha Emoryi*)		Not Applicable. Per the biological baseline survey (WestLand 2021), no Crucifixion Thorn were found within the Project Area.
12.48.080 – Tags, seals and wood receipts.		
Where a permit is required by this chapter, authorizing the harvesting, transporting or possessing of trees or plants, such permits would be accompanied by a tag or seal for each tree or plant to be harvested, possessed or transported. The tag and/or seal would be retained and utilized-pursuant to Sections 80101 and 80102 of the Food and Agricultural Code of the state of California as it now exists, or may hereafter be amended. Each permit authorizing the harvesting, transporting or possessing of plants or trees, for wood, which plants or trees are listed in this chapter would be accompanied by a wood receipt. The wood receipt would be nontransferable and would be retained pursuant to Section 80103 of the Food and Agricultural Code of the state of California as it now exists or may hereafter be amended.		Not Applicable. No trees species were found within the Project Area that would have to be removed or disturbed as a result of the Project activities.

Note: See *Biological Resource Technical Report and Assessment* in **Appendix E** for findings based on the biological baseline surveys for the Project.

As shown in **Table 3-36** above, none of the regulated trees, plants, or protected riparian areas outlined in the County Code of Ordinances pertain to this Project (i.e., none were found on/near the Project Area per the biological baseline surveys [WestLand 2021]). Per the discussions above, the Project is consistent with, and would not interfere substantially with, any local policies or ordinances protecting biological resources. Therefore, impacts are less than significant with no mitigation required.

f) Would the Project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

Less Than Significant Impact with Mitigation: See response to CEQA Criteria e) above. No, the proposed Project would not conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or State HCP. As described under CEQA Criteria e) above, the Project would not conflict with the provisions of any adopted Habitat Conservation Plan, Natural Community Conservation Plan (i.e., Chapter 12.44 – Wildlife Protection, Chapter 12.48 – Wild Flowers and Trees, etc.), or other approved County habitat conservation plan.

While the Project Area is not within a County-designate habitat conservation area, the Project Area does occur within the federal Picacho ACEC as designated under the DRECP (BLM 2016). The BLM's goals for the management of the Picacho ACEC are to enhance, protect and preserve the cultural and biological resources while providing compatible recreational opportunities; and to maintain desert tortoise habitat connectivity between the Chuckwalla Desert Wildlife Management/ACEC/Critical Habitat Units and high value climate refugia for wildlife (BLM 2016). The Project has been designed to be consistent with the requirement outlined in the DRECP (BLM 2016), and PDFs specific to desert tortoise are described in full under **Appendix F**. Through the implementation of the PDFs, the Project would not conflict with the provisions of any adopted Habitat Conservation Plan, Natural Community Conservation Plan (i.e., DRECP), or other approved local, regional, and/or state habitat conservation plan. Therefore, proposed Project activities would not conflict with future HCPs, NCCPs, or other approved local, regional, or state HCPs, and there would be less than significant impacts with mitigation incorporated.

3.23.6 Cumulative Effects

The CESA boundary for wildlife, including migratory birds, special status species, and threatened and endangered species, includes the Project Area plus a five-mile buffer (**Figure 3-3**). This CESA was chosen as it is the geographic area to which cumulative impacts to wildlife species would occur based on surface disturbance proposed under the Project and known wildlife occurrences. The CESA encompasses 68,020 acres.

Within this CESA, past and present disturbance, as detailed in **Table 3-37**, has resulted from the following activities: mineral development and exploration projects (1,856 acres); oil and gas pipelines (1 acre); utilities, infrastructure, and public purpose projects (74 acres); roads and railroads (215 acres); and dispersed recreation. No documented recent and past wildland fires have occurred within the CESA.

Table 3-37 Past, Present, and RFFAs in the Wildlife CESA

Past, Present, and RFFAs, Disturbances and Projects	CESA
CESA Acres	**68,020**
Past Actions	
Mineral Development and Exploration	

Past, Present, and RFFAs, Disturbances and Projects	CESA
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits	360
Notices	64
Mining and Exploration Projects	1,432
Utilities, Infrastructure, and Public Purpose	
Communication Facilities	9
Water Pipelines and Water Infrastructure	4
Other	21
Past Actions Total Disturbance Acres	**1,890**
Present Actions	
Oil and Gas Pipelines	
Pipelines	1
Utilities, Infrastructure, and Public Purpose	
Powerlines	37
Water Pipelines and Water Infrastructure	3
Roads and Railroads Present Actions	
Roads	197
Railroads	18
Present Actions Total Disturbance Acres	**257**
RFFAs	
Mineral Development and Exploration	
Mining and Exploration Projects	73
Utilities, Infrastructure, and Public Purpose	
Power Lines	13,881
RFFAs Total Disturbance Acres	**13,954**
Past, Present, and RFFAs Total Disturbance Acres	**16,101**
Percent of CESA	**24**
Fires	**0**

Source: BLM 2022a-b

Of the 68,020 acres covered by the CESA, 16,101 acres of disturbance are associated with past, present, and RFFA disturbances, which is a disturbance of approximately 24 percent of the CESA.

Past activities from mineral development and exploration activities and infrastructure in the CESA have resulted in removal of vegetation, dispersal or displacement of local populations, and fragmentation of certain wildlife habitats and populations. Removal of the vegetative understory may impact nesting success and predation. Road construction and use disturbs wildlife habitat by removing vegetation, compacting soils, displacing individuals, increasing noise, and by creating long-term impacts resulting from habitat fragmentation and direct mortality from vehicle collisions.

Human presence tends to disturb many species of wildlife throughout their habitats. Past and present recreational uses in the area include hunting, OHV use, hiking, and primitive camping. Human disturbance during periods of the year when wildlife species are otherwise stressed due to a lack of forage and/or harsh weather (as occurs during the winter season), can further stress wildlife and may increase mortality.

RFFAs in the CESA would include mineral development and exploration projects (73 acres) and utilities, infrastructure, and public purpose projects (13,881 acres) (**Table 3-36**). Future mineral development and exploration would include the pending reclamation at the San Pedro Gravel Jackson Gulch Mine. Additionally, a proposed powerline from Yuma, Arizona to the Imperial Valley of California is currently pending that would include 13,881 acres of linear surface disturbance; however, the full extent of the powerline would not be within the Wildlife CESA and the BLM currently has an indefinite hold on the future action. Impacts from RFFAs may include habitat loss, removal of vegetation, fragmentation of migration corridors, displacement from increased human presence and noise, and introduction of invasive weed species. Wildland fires in this CESA may occur in the future, as would dispersed recreation. Impacts from these RFFAs would lead to similar impacts as stated for past and present actions.

Proposed Action

The Proposed Action would increase disturbance to wildlife habitat within the CESA by a maximum of 20.54 acres (less than one percent of the CESA) for a total disturbance in combination with past, present, and RFFAs of 16,122 acres (approximately 24 percent of the CESA). Cumulative impacts on general wildlife from past, present, and RFFAs in combination with the Proposed Action would result in cumulative displacement and habitat fragmentation, as well as short-term disturbance and removal of habitat and forage area. Displacement and habitat fragmentation decreases survival rates of affected individuals to some degree and increases competition. The presence of new and improved roads may increase mortality from vehicle collisions. If disturbance areas are not properly reclaimed, invasive weeds may become established which would have additional long-term impacts on general wildlife habitat. However, proposed operations would be temporary, and reclamation would occur on all proposed disturbances concurrently, including revegetation with a BLM-approved seed mix, which would reduce these long-term impacts to wildlife and their habitat. PDFs for avoidance buffers and pre-construction surveys would be implemented to reduce impacts to avian species, including migratory birds, and bat species during the breeding season (**Appendix F**). The proposed new road for access to the staging area/underground portal would remain as a post-closure feature for access to the Project Area for reclamation and monitoring activities as well as continued underground exploration, which would be completed and remaining surface disturbance reclaimed within five years from Project implementation. It is not anticipated that the Proposed Action would have any cumulative impacts on avian or big game migratory corridors. Additionally, the Project would be completed outside the desert tortoise active season (March 15 through November 1) as feasible and pre-construction surveys would be completed within 24 hours of commencement of Project activities (year-round) within the proposed area for disturbance and a 500-foot buffer to determine potential desert tortoise presence, activity, and burrow sites for avoidance. A complete list of PDFs for minimization of impacts to wildlife species is provided in **Appendix F**. The Proposed Action, in combination with past, present, and RFFAs, would result in minor, short-term, and localized cumulative impacts to wildlife within the CESA, and it is anticipated most wildlife species would be able to relocate to similar habitat around the CESA during temporary exploration operations.

No Action Alternative

Under the No Action Alternative, the proposed Oro Cruz exploration activities would not be approved and the associated impacts to wildlife, including migratory birds, special status species, and threatened and endangered species, would not occur. Overall, cumulative effects to this CESA from the No Action Alternative would be less than the Proposed Action since additional surface disturbance from that alternative would not occur and thus would not additionally impact wildlife. There would be no cumulative impacts beyond those currently occurring from past, present, and RFFAs.

3.24 Wildfire

3.24.1 Initial Study Determination (CEQA)

Table 3-38 provides impact determinations of the Project on wildfire, per CEQA guidelines whether a project a located in or near state responsibility areas or lands classified as very high fire hazard severity zones.

Table 3-38 Wildfire Environmental Checklist

Wildfire Criteria		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a)	Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b)	Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐
c)	Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☒	☐
d)	Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

3.24.2 Affected Environment

This resource is not a supplemental authority considered for analysis by the BLM under NEPA, and there is minimal risk of fire from Project activities with the implementation of the PDFs described in **Appendix F**. Therefore, this resource was not analyzed further under the NEPA requirements for the affected environment or environmental impacts for each alternative, per the determination in **Table G-1** of **Appendix G.**

3.24.3 Impact Analysis (CEQA)

According to the California Department of Forestry and Fire Protection (CAL FIRE) Fire Hazard Severity Zone (FHSZ) maps (CAL FIRE 2022), the Project Area is located within a Federal Responsibility Area (FRA) as well as a Local Responsibility Area (LRA), specifically within a FHZS designated as having an "Other Moderate" or "LRA Moderate" risk of wildfire. There areas designated as having a "High" or "Very High" FHSZ potential within or near the Project Area.

a) Would the Project substantially impair an adopted emergency response plan or emergency evacuation plan?

No Impact: No, the Project would not substantially impair an adopted emergency response plan or emergency evacuation plan. As discussed in **Section 3.11**, Imperial County maintains various emergency plans and emergency preparedness procedures, primarily outlined within the EOP (Imperial County 2016) and *Multi-Jurisdictional Hazards Mitigation Plan Update* (Imperial County 2015). Both documents were reviewed, and the Project would not conflict with any applicable provisions found in the County's emergency response or hazard mitigation plan(s).

The Project would not impair implementation of, or physically interfere with, these adopted emergency plans or emergency evacuation plans because the Project would not add to off-site traffic congestion above existing levels that might delay emergency response activities. As discussed above, existing access roads would be used to the extent possible but some new access roads would be required across BLM land (**Figure 2-1**). New access roads would be used strictly for Project support vehicles to access the exploration Drill Areas. Drilling equipment would be trucked to one of two truck unloading points, and then would be safely mobilized to the Drill Areas within the Project Area (**Figure 2-1**). Equipment would be unloaded from lowboys onto the existing road at the unloading points and no improvements are needed to accommodate the unloading of equipment. Additionally, as discussed in **Section 3.19**, it's estimate that the Project would generate a maximum of 64 one-way vehicle trips per day (resulting from 32 total vehicles traveling to and from the Project Area), to accommodate employees and contractors traveling to and from the site to conduct onsite exploration activities. The addition of up to 32 additional vehicles on County roadways would not impede or impair an adopted emergency response plan or emergency evacuation plan/route.

Because the Project would not significantly increase off-site traffic above existing levels, and therefore not interfere with an adopted emergency response or evacuation plan, there would be no impacts.

b) Would the Project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Less Than Significant Impact: No, the Project would not expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire, due to slope, prevailing winds, or other factors. As discussed previously, the majority of the Project Area has been disturbed due to past mining and processing operations that have occurred historically. As such, both the Project site and adjacent areas are generally devoid of dense vegetation, and therefore pose minimal risk related to potential wildfires. Due to the lack of vegetation in the area, it is unlikely an uncontrolled wildfire would spread through the Project Area.

Additionally, none of existing of the proposed Project site features (slopes, structures, etc.) would exacerbate and/or increase the spread of wildfires in the area. Conversely, the developed Project site, would be maintained in an orderly manner and would continue to be clear of vegetation during exploratory drilling and ancillary operations. Existing slopes would also be maintained to ensure safety and prevent erosion.

As discussed in **Section 3.11**, SMP would implement site-specific fire prevention/protection actions. At a minimum these actions would include designating Project fire coordinators, providing adequate fire suppression equipment (including in vehicles), and establishing emergency response information relevant to the Project Area. SMP would also have a 2,000-gallon portable water storage tank onsite for dust suppression that would also be available to assist in firefighting operations. SMP would ensure that all mobile equipment be equipped with fire extinguishers, hand tools, and first aid kits.

In the event of an initial, small fire that does not create enough smoke, flame, and heat to prevent fighting the fire using a hand-held fire extinguisher or a small water hose, and providing no one would be

endangered, SMP personnel and/or contractors would use make a reasonable effort to extinguish the fire. If two or more people are present, one would fight the fire while one reports to 911 the size, type, and location in the event the fire grows out of control. Personnel would not directly engage any fire which is beyond the incipient stage (i.e., a fire which has progressed to the point it has substantially involved any structure/equipment).

Planning and prevention of fires is also managed through the appropriate handling and storage of fuels, inspections and recordkeeping, spill prevention and response procedures, proper use of safety equipment, resource management training, and fire prevention training.

SMP would coordinate with local law enforcement and fire departments to provide 24-hour access as needed for emergency response. Both Imperial County as well as the nearby City of Yuma have fire departments which could service the Project site if needed. The fire station closest to the Project Area is Imperial County Fire Department Station #8 located at 518 Railroad Avenue in Winterhaven, California, approximately 14 miles away to the southeast. In the unlikely event of a wildfire, the Project site could be reach within a short timeframe.

Cellular telephone service is generally available within the Project Area site for emergency and other communications. A satellite phone would also be made available in case of emergencies. Contractors would be trained in proper emergency response, incident reporting, and general health and safety issues. All equipment would be maintained in a safe and orderly manner.

Lastly, in the unlikely event of a large wildfire within the Imperial County area that adversely impacts ambient air quality, the onsite manager may continue to limit operations if they feel worker safety is at risk. Thick smoke and debris may pose a risk to workers' respiratory health or may present a safety hazard if visibility is extremely poor. Although considered highly unlikely, if conditions presented such risks to onsite workers, field managers would have the authority to restrict outdoor operations.

For the reasons outlined above, the Project would not expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire, due to slope, prevailing winds, or other factors. Therefore, there would be less than significant impacts.

c) Would the Project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

Less Than Significant Impacts: No, the Project would involve the installation or maintenance of infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment. As discussed above, the Project consists of using existing access roads and improving some existing roads, as well as constructing a new temporary exploration drilling access road, helicopter landing pads, and drill pads to support exploration in seven Drill Areas. The Project mobilization, road construction, drilling, and borehole abandonment would be completed within 12 to 24 months of Project initiation. Drilling activities potentially would be completed in up to two drill areas at once. Once operations are complete, Project Areas to be reclaimed would be converted to land uses consistent with mining, recreational uses, and open space.

During all operations, SMP would maintain equipment and conduct activities in a safe and orderly manner. Due to the isolated nature and remote locations of the proposed access roads and drill sites, public security and safety are not a concern. As needed, certain access roads may be gated and/or locked to prevent public access, and the staging area would be secured with chain link fence and razor wire and locked with warning signs during brief periods of non-operation. All employees and contractors would be required to complete an employee safety training prior to commencement of operations.

None of the Project structures or features would exacerbate wildfire risks. As discussed under CEQA Criteria a) and b) above, SMP would implement site-specific fire prevention/protection actions throughout the life of the Project. SMP would ensure that all mobile equipment be equipped with fire extinguishers, hand tools, and first aid kits.

Planning and prevention of fires is also managed through the appropriate handling and storage of fuels, inspections and recordkeeping, spill prevention and response procedures, proper use of safety equipment, resource management training, and fire prevention training. The components of the staging area are discussed in **Section 2.1**.

As discussed in **Section 3.11**, SMP would implement Spill Contingency Plan that complies with federal and state regulations for storage and handling of oil at industrial facilities (40 CFR Part 112 and California Health and Safety Code Chapter 6.67, Section 25270). The Spill Contingency Plan would include a description of the regulated materials stored at the site, discharge prevention measures (e.g., secondary and general containment, fueling transfer procedures, etc.), drainage control to ensure spill containment, and spill response and clean up procedures. It would also include spill reporting procedures, training, and periodic updates to the plan. Adherence to Spill Contingency Plan and other safety measures would mitigate the potential for fires due to hazardous releases during equipment fueling and maintenance. It would also include spill reporting procedures, training, and periodic updates to the plan. Adherence to SMP's Spill Contingency Plan would mitigate the potential for fires due to hazardous releases during equipment fueling and maintenance. The BMPs, operating practices and other environmental protection measures required by the federal, state and local Certified Unified Program Agency (CUPA) regulations would be incorporated into the Project to minimize potential impacts on the environment due to the routine transport, use, or disposal of hazardous materials.

For the reasons outlined above, the Project would not involve the installation or relocation of any significant utility infrastructure that may exacerbate fire risk. Project infrastructure would be maintained, and equipment fueling and maintenance activities would be conducted in accordance with the appropriate safety and spill prevention plans and procedures found therein. For these reasons, the Project would have no impacts in terms of potential to generate onsite fires due to concerns related to infrastructure.

d) Would the Project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

No Impact: No, the Project would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. As discussed previously, the majority of the Project Area is disturbed due to historical mining and processing operations. Soils in the Project Area developed from weathered granitic rock and schistose rock substrates. The soils consist of extremely gravelly sands or gravelly loams with up to 90% coarse fragments. Soils within the Project Area are of two general types based on substrate and topographic position: residual soil material weathered in place on slopes and ridges; and deeper alluvial soils transported by water and gravity to toe slopes, washes and outwash fans. The soils within the Project Area also contain large areas of disturbance from previous mining and reclamation activities.

Other than minimal slopes within the historical excavation pit, the Project site is relatively flat. Additionally, other than minimal clearing, grading, or grubbing to facilitate construction of the Oro Cruz Mine Portal, drill pads, access roads, and ancillary structures, no significant excavation or ground disturbing activities are proposed as part of the Project. As such, the Project would not increase the potential for landslides and erosion onsite. SMP would implement BMPs for erosion and sediment control measures that would be identified in the BLM approved SWPPP, and the effectiveness of erosion control measures would

be monitored throughout the duration of the Project. SMP would also follow all erosion and sediment control measures identified in the Plan (SMP 2021) and Reclamation Plan (Sespe 2022).

Additionally, according to the California DOC's Landslide Map Index and relevant exhibits within the Imperial County General Plan (Imperial County 2015), specifically the Seismic and Public Safety Element, the Project site is not located in an area with known slope instability and/or that is prone to mudslides.

As discussed under CEQA Criteria b) above, implementation of the Project would not increase the risk of downstream flooding or landslides in the event of an upstream wildfire. Conversely, any existing or proposed onsite slopes and topography would be maintained in a safe, secure and stable manner. None of the Project aboveground features or structures would redirect uncontrolled flood or landslide flows due to upstream fire instability.

For the reasons outlined, the Project would have no new impacts related to runoff, post-fire slope instability, or drainage changes, and there would be no impacts.

3.25 Mandatory Findings of Significance (CEQA)

Table 3-39 provides Mandatory Findings of Significance in accordance with Section 15065 of the CEQA Guidelines.

Table 3-39 Mandatory Findings of Significance

Significance Criteria		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a)	Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, eliminate tribal cultural resources or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b)	Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	☒	☐
c)	Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

a) Does the Project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less Than Significant Impact: No, the Project would not have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory. As discussed above, the Project is an exploratory drilling project, that would occur entirely within an area disturbed by historical mining activities. The majority of the Project Area has been disturbed due to these historical mining operations.

Additionally, no areas with significant natural vegetation and/or habitat would be disturbed as a result of the Project. Based on the discussions in **Section 3.23** and with implementation of the PDFs described in **Appendix F**, the Project would have no significant impacts to threatened, endangered, candidate, or special status species. The proposed Project would also not have the potential to substantially reduce the habitat of fish and wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal.

Lastly, as discussed in **Section 3.8**, the Project would not have the potential to substantially adversely affect previously unidentified archaeological resources or eliminate important examples of the major periods of California history or prehistory.

For the reasons outlined above, the Project would not substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory, and therefore the Project would have less than significant impacts.

b) Does the Project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Less Than Significant Impact: The Project does not have potential impacts that are individually limited, but cumulatively considerable. Based on the analysis contained in this CEQA IS, the proposed Project would not result in any significant and unmitigable impacts in any environmental categories. In all cases, effects associated with the Project would be limited to the existing Project Area/disturbance footprint and either result in no new impacts, less than significant impacts, or less than significant impacts with mitigation incorporated. As such, Project impacts are of such a negligible degree that they would not result in a significant contribution to any cumulative impacts. This is largely due to the fact that Project activities would not significantly alter the environment beyond the existing/baseline condition, and that Project activities would be short-term (12 to 24 months maximum), and the site would be fully reclaimed in accordance with SMARA once exploration activities are completed.

Cumulative impacts could occur if the construction of other projects occurs at the same time as the proposed Project and in the same geographic scope, such that the effects of similar impacts of multiple projects combine to create greater levels of impact than would occur at the Project-level. For example, if the construction of other projects in the area occurs at the same time as construction of the proposed Project,

combined noise and transportation impacts may be greater than at the project-level. However, the Project is located in a remote and undeveloped area of the Tumco mining district in the Cargo Muchacho Mountains, with no cumulative County projects are expected to be constructed within the vicinity of the Project Area. Additionally, given that the Project operations would not occur in close proximity to any residences or neighborhood communities, and the fact that Project activities would be short-term (12 to 24 months), the Project's impacts would not combine with the impacts of other projects to create cumulative construction- and/or operation-related impacts in resource areas such as air quality, noise, and transportation.

For these reasons, the incremental effects of the proposed Project would not be considerable when viewed in connection with the effects of past projects, current projects, or probable future projects, and the Project would have less than significant impacts.

c) *Does the Project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?*

Less Than Significant Impact: Based on the analysis contained in this CEQA IS, the proposed Project does not exceed any significance thresholds or result in significant impacts in the environmental categories typically associated with indirect or direct effects to human beings, such as aesthetics, air quality, hazards and hazardous materials, noise, public services, or transportation. As discussed in **Section 3.3**, **Section 3.18**, **Section 3.11**, **Section 3.22**, **Section 3.15**, **Section 3.16**, and **Section 3.19** of this document, the proposed Project would not expose persons to the hazards of toxic air emissions, chemical or explosive materials, ground-shaking, flooding, noise, or transportation hazards. For these reasons, the proposed Project does not have a Mandatory Finding of Significance due to environmental effects that could cause substantial adverse effects on humans, and there would less than significant impacts.

4.0 Consultation, Coordination, and Public Participation

4.1 Consultation and Coordination

This section describes the specific actions taken by the BLM to consult and coordinate with Native American tribes and government agencies. Various federal laws require the BLM to consult with Native American tribes, the State Historic Preservation Office, the USFWS, and the EPA during the NEPA decision-making process.

4.1.1 USFWS Consultation

The BLM consulted with the USFWS pursuant to Section 7 of the ESA regarding presence of and potential impacts that could occur as a result of the Proposed Action to Mojave Desert tortoise, a threatened species designated by the ESA. The BLM prepared and submitted an Activity Request Form for the Project in accordance with the 2017 Programmatic Biological Opinion (Biological Opinion) for Activities in the CDCA (USFWS 2017), which was developed to provide guidance regarding the effects on federally listed desert tortoise and its critical habitat of existing and future actions likely to occur within the boundaries of the CDCA. The BLM further consulted with the USFWS on appropriate mitigation measures to be implemented under the Proposed Action to minimize impacts to Mojave Desert tortoise pursuant to requirements under the Biological Opinion. The USFWS did not request additional measures to be implemented in addition to the PDFs committed to by SMP, the CMAs required under the DRECP LUPA (BLM 2016), or the BLM-required mitigation measures, all included as **Appendix F.**

4.1.2 Government-to-Government and SHPO Consultation

The BLM contacted the following tribal entities during the EA process to participate in identifying potential areas of concern that may be associated with the Project in accordance with Section 106 of the NHPA:

- Barona Band of Missions Indians
- Campo Band of Mission Indians
- Cocopah Indian Tribe
- Colorado River Indian Tribes
- Ewiiaapaayp Band of Kumeyaay Indians
- Fort Yuma Quechan Indian Tribe
- Iipay Nation of Santa Ysabel
- Jamul Indian Village
- Kwaaymii Laguna Band of Indians
- La Posta Band of Kumeyaay Indians
- Manzanita Band of Kumeyaay Indians
- Mesa Grande Band of Mission Indians
- San Pasqual Band of Diegueño Indians
- Sycuan Band of Kumeyaay Nation
- Torres-Martinez Desert Cahuilla Indians
- Viejas Band of Kumeyaay Indians

On March 31, 2021, the BLM sent letters to the Tribes initiating formal consultation on the Amended Plan, in accordance with the NHPA and other legal authorities. Consultation with the SHPO was initiated by letter dated April 16, 2021. The BLM held a formal consultation meeting with the Fort Yuma Quechan Indian Tribe on July 12, 2021. The BLM sent a letter to the Tribes on August 10, 2021 for review of the Class III Cultural Resources Inventory Work Plan and to explain the Physical APE. The BLM sent the

Tribes an email on March 4, 2022 to notify and provide a link to the News Release about the initiation of the scoping period. On August 23, 2022, the BLM sent the Tribes a letter discussing the expansion of the APE to include the VAA APE for indirect effects, presenting the Class III Cultural Resource Inventory Report for review and comment, and inviting the Tribes to the September 20, 2022 Field Visit and the September 21, 2022 virtual meeting. The BLM conducted a site visit on September 20, 2022, attended by the Fort Yuma Quechan Indian Tribe and the Campo Band of Mission Indians. The BLM held a virtual follow-up meeting to discuss cultural resources inventory findings and the site visit on September 21, 2022, at which representatives of the Fort Yuma Quechan Indian Tribe, the Campo Band of Diegueño Mission Indians, and the San Pasqual Band of Diegueño Indians participated. The BLM conducted another site visit on September 27, 2022, with representatives from the Fort Yuma Quechan Indian Tribe to visit potential sites of concern that were identified within the APEs during the first site visit and virtual meeting. On September 28, 2022, the BLM sent an email to the Tribes extending the Comment period on the Class III Cultural Resources Inventory report and the APE to October 17, 2022. A meeting was held on November 9, 2022 with the Fort Yuma Quechan Indian Tribe to further discuss concerns on a potential TCP in the vicinity of the Project Area. On November 11, 2023, the BLM notified all tribes of publication of the EA and the 30-day comment period. Four additional meetings were held with the Fort Yuma Quechan Indian Tribe for the BLM to gain additional information regarding cultural resources and the TCP on January 10, 2023 (virtual), January 30, 2023 (virtual), February 14, 2023 (in-person) and May 12, 2023 (virtual). One virtual meeting was held with the Campo Band of Kumeyaay Indians on May 26, 2023. The BLM provided its proposed Section 106 of the NHPA eligibility determinations and findings of effect to all Tribes for a 30-day consultation period by letter dated April 13, 2023. The BLM subsequently provided these same findings to the SHPO for concurrence and the BLM received a response letter dated June 28, 2023. The Section 106 consultation process is now complete however, consultation with local tribal governments will continue throughout the life of the Project.

4.1.3 Imperial County Consultation

As required by CEQA under Assembly Bill 52, Imperial County also conducted consultation with tribes in the vicinity of the Project. A letter initiating consultation under CEQA was sent to the Fort Yuma Quechan Indian Tribe on September 9, 2021. Because the Fort Yuma Quechan Indian Tribe is the only Native American tribe that has claimed traditional and cultural affiliation with the Project Area, they were the only tribal entity required to be notified of the Project pursuant to AB 52. No response to the AB 52 consultation letter was received by Imperial County.

4.2 Public Participation

4.2.1 Public Scoping

On March 4, 2022, a BLM press release was issued for the Project for a 30-day public scoping period, which ended on April 4, 2022. Six public scoping comment letters were received, one from a federal agency and five from public interest organizations. Issues identified during public scoping and internal scoping were documented in the scoping report (BLM 2022) and included in this document for NEPA analysis across the resources analyzed within Chapter 3. Overall, the majority of issues identified during public scoping requested analysis of air quality and Project emissions; development of a broad range of action alternatives, including alternatives for access and timing of the Project; measures to minimize impacts to cultural resources and Tribal concerns, and conducting Section 106 of the NHPA consultation with Tribes; development of a clear purpose and need and the level of NEPA analysis for compliance with land use plans; development of PDFs within the Plan for monitoring and exclusionary fencing to protect wildlife species; and development of mitigation measures specifically for desert tortoise individuals and habitat.

4.2.2 Public Comment Period

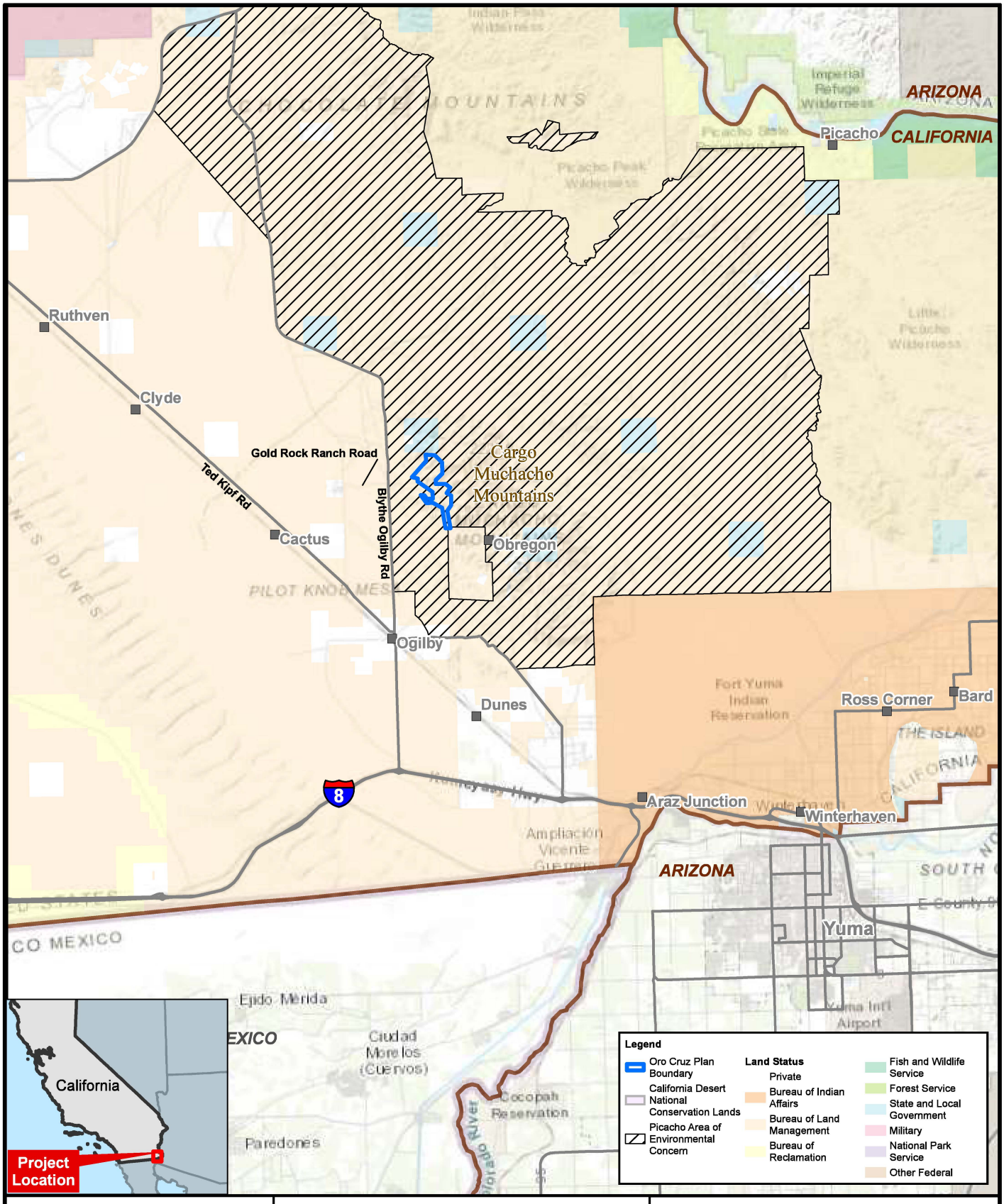
BLM Public Comment Period
The BLM held a 30-day public comment period from November 16, 2022 through December 16, 2022. A virtual public meeting was held via Zoom Webinar on November 30, 2022. During this time, the document was available on the BLM's ePlanning website and public comments could be submitted through the ePlanning website, by email, by mail, or by fax to the BLM ECFO. The BLM received 373 public comment letters during the comment period. Public comments received did not result in substantive revisions to this document. All public comments are included as **Appendix I** within a comment response matrix.

Imperial County Public Circulation Period
Imperial County presented the Project Initial Study results during an Environmental Evaluation Committee (EEC) hearing on November 17, 2022. The results of the EEC hearing led to the determination that an MND was the appropriate determination for the Project. Following the EEC hearing, Imperial County issued a Notice of Intent to adopt an MND and held a public comment period beginning on December 15, 2022 and concluded on January 20, 2023. Imperial County received two comment letters during the public circulation period. Two of the comment letters submitted to the BLM under the public comment period discussed above were submitted as joint NEPA and CEQA public comment letters to both the BLM and Imperial County. A Public Planning Commission hearing is scheduled for September 13, 2023 to present the Project, provide the results of the public comment responses, and certify the findings presented in the MND. All public comments are included as **Appendix I** within a comment response matrix.

4.3 Preparation of This EA/IS

A complete list of preparers including from the BLM, Imperial County, and third-party NEPA and CEQA contractors is provided as **Appendix J**.

FIGURES



Stantec

ENVIRONMENTAL ASSESSMENT
MITIGATED NEGATIVE DECLARATION
ORO CRUZ EXPLORATION PROJECT

3.5 1.8 0 3.5 Miles

1 in = 4 Miles

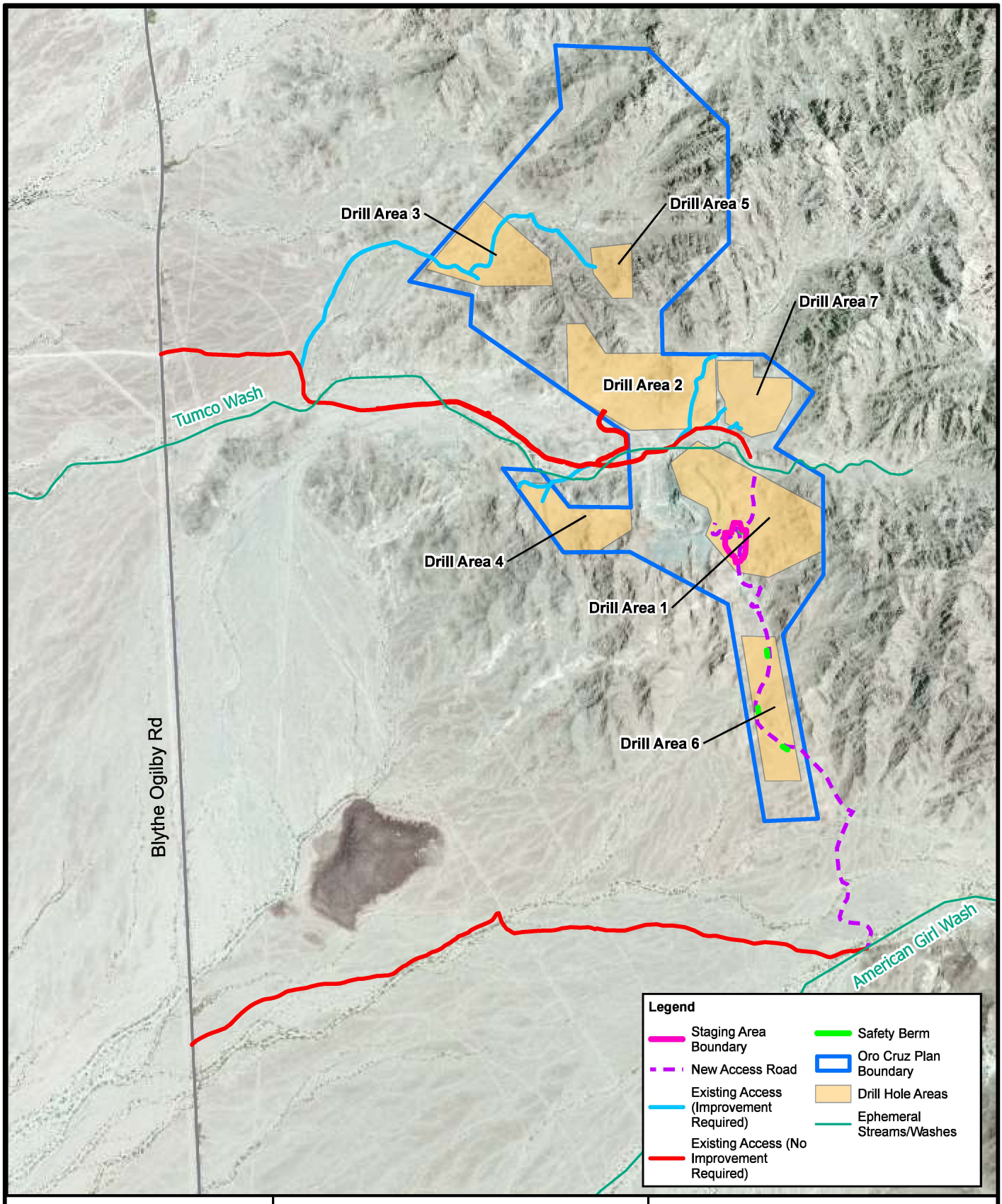
PROJECT LOCATION

FIGURE 1-1

2023-01-04

REVISION **A**

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.



Stantec

ENVIRONMENTAL ASSESSMENT
MITIGATED NEGATIVE DECLARATION
ORO CRUZ EXPLORATION PROJECT

1,000 500 0 1,000 Feet

1 in = 2,000 ft

N

PROPOSED ACTION

FIGURE 2-1

2023-01-04

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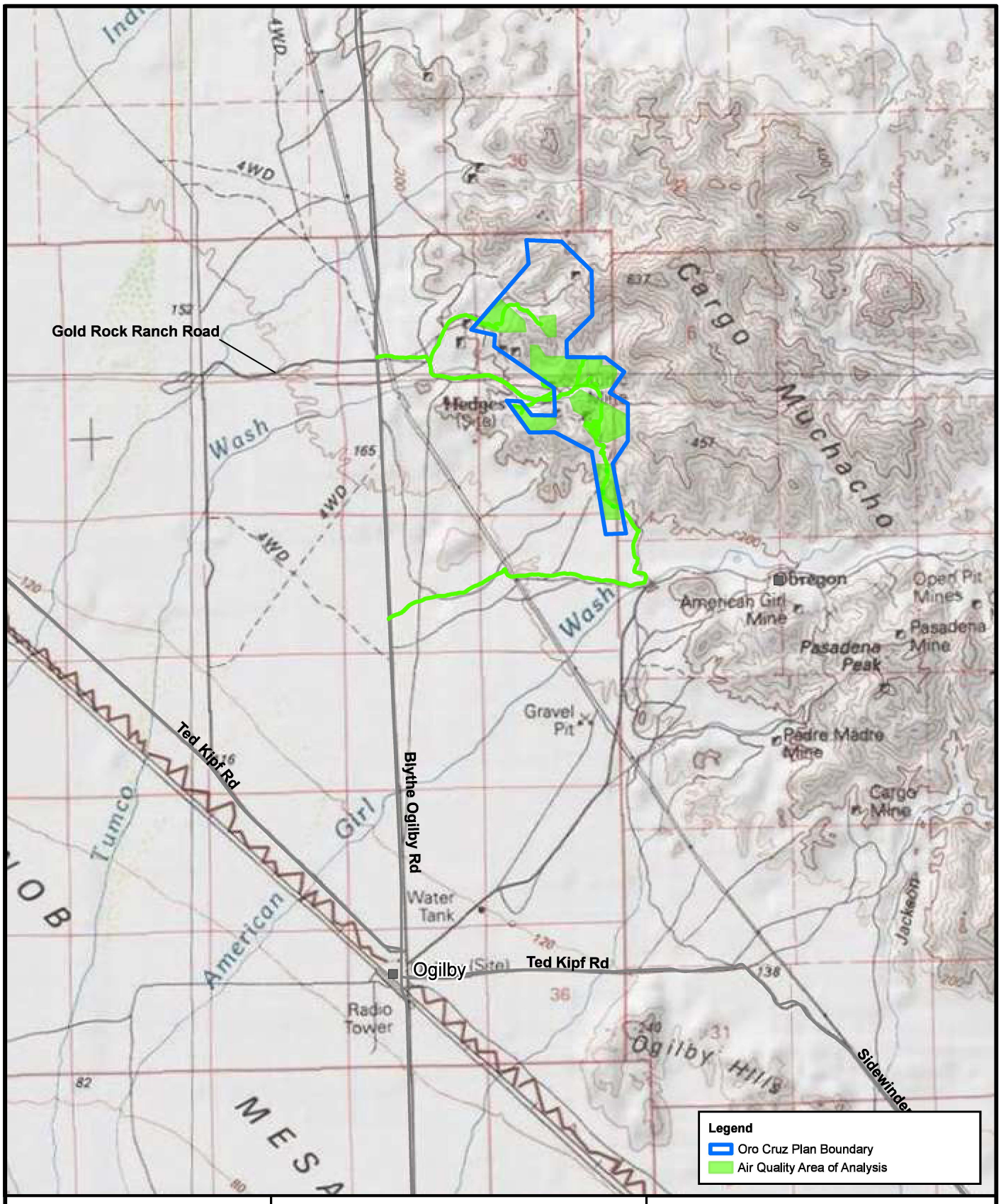

Stantec

ENVIRONMENTAL ASSESSMENT
MITIGATED NEGATIVE DECLARATION
ORO CRUZ EXPLORATION PROJECT

1 0.5 0 1 Miles

1 in = 1 Miles

AIR QUALITY AND CLIMATE CHANGE AREA OF ANALYSIS

FIGURE 3-1	REVISION
2023-01-04	A

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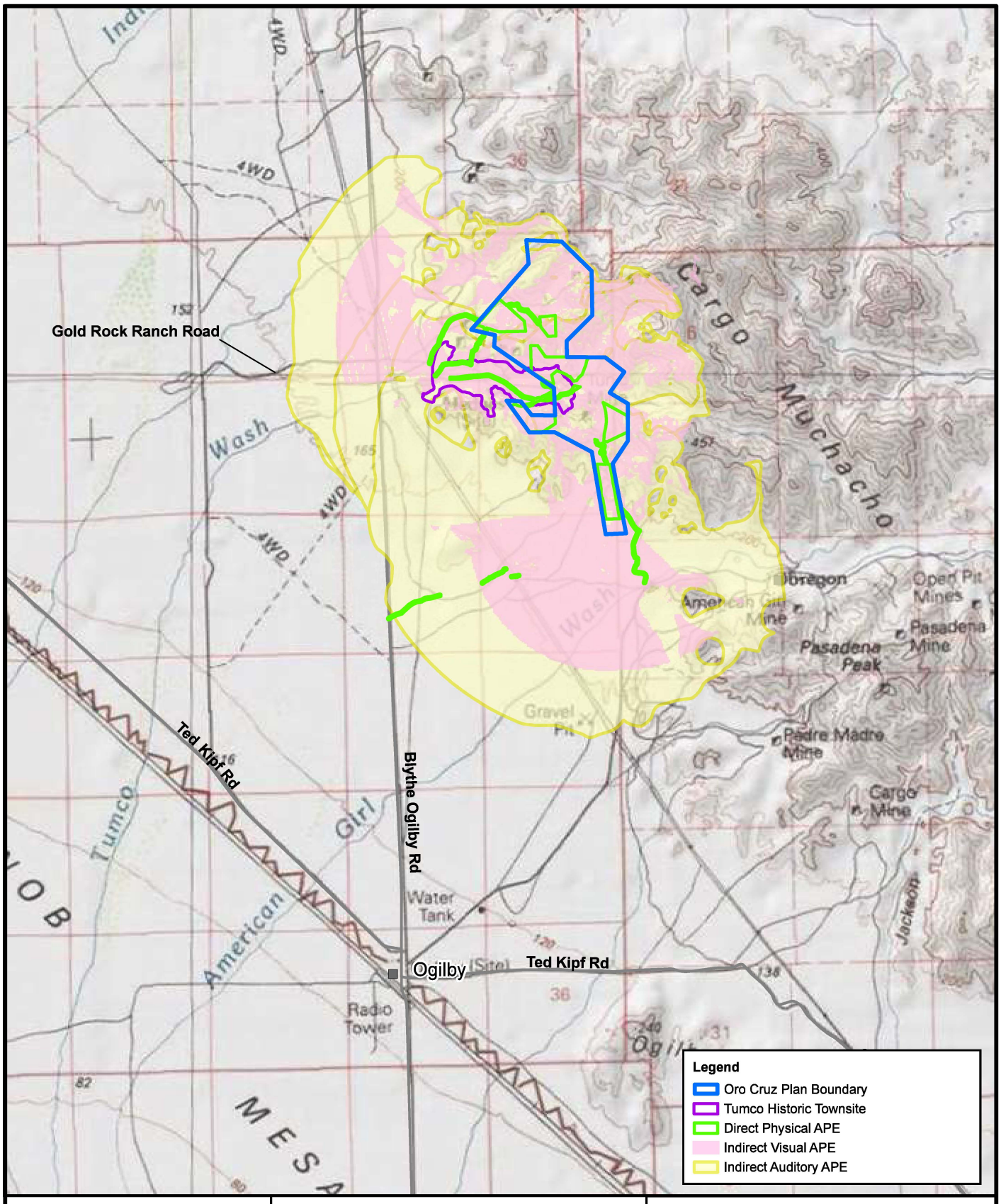

Stantec

ENVIRONMENTAL ASSESSMENT
MITIGATED NEGATIVE DECLARATION
ORO CRUZ EXPLORATION PROJECT

1 0.5 0 1 Miles

1 in = 1 Miles

CULTURAL RESOURCES AND NATIVE AMERICAN RELIGIOUS CONCERNS AND TRADITIONAL VALUES AREA OF ANALYSIS

FIGURE 3-2

REVISION **A**

2023-01-04

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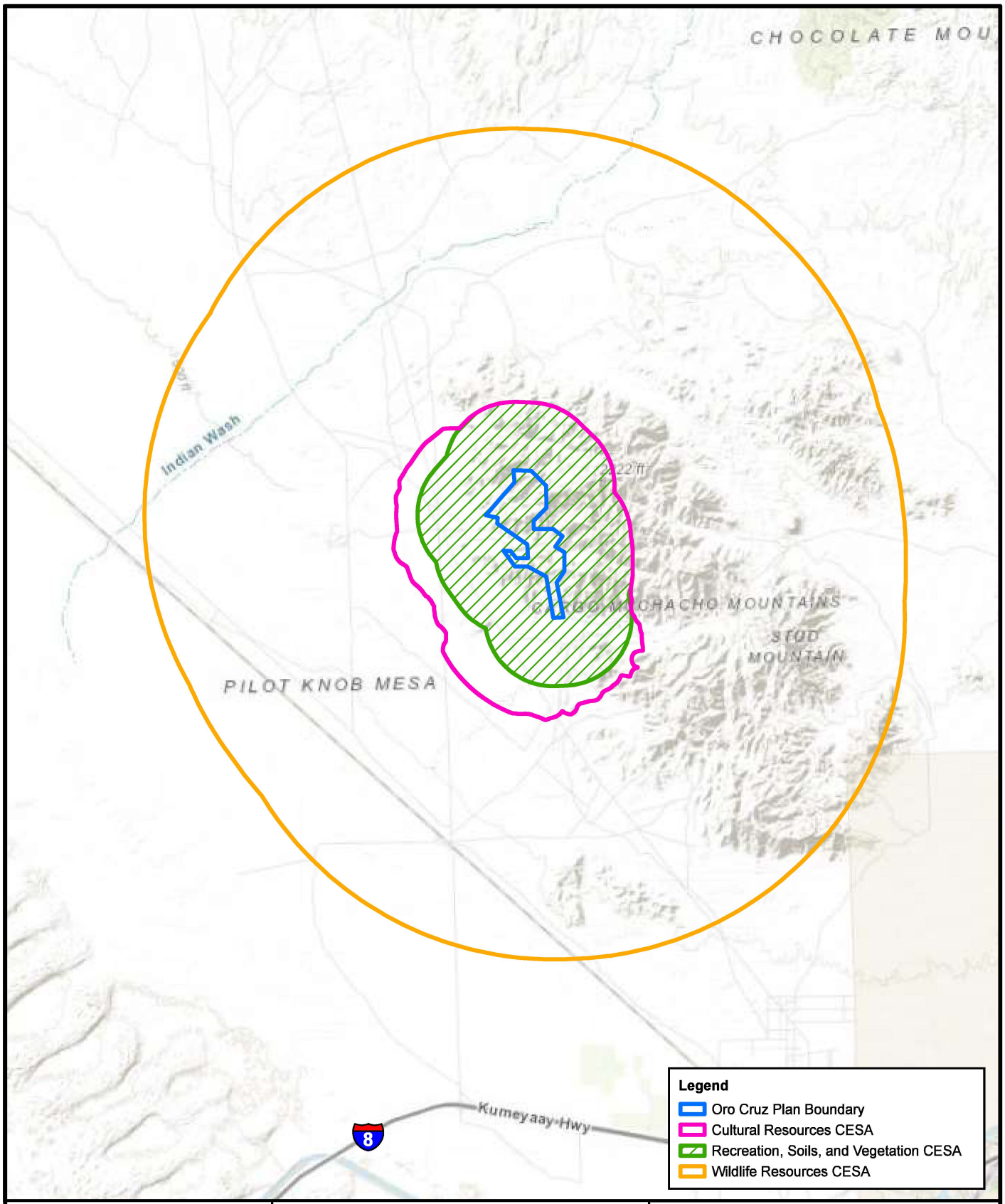

Stantec

ENVIRONMENTAL ASSESSMENT
MITIGATED NEGATIVE DECLARATION
ORO CRUZ EXPLORATION PROJECT

1.5 0.75 0 1.5 Miles

N

1 in = 2 Miles

CUMULATIVE EFFECTS STUDY AREAS

FIGURE 3-3

REVISION **A**

2023-01-04

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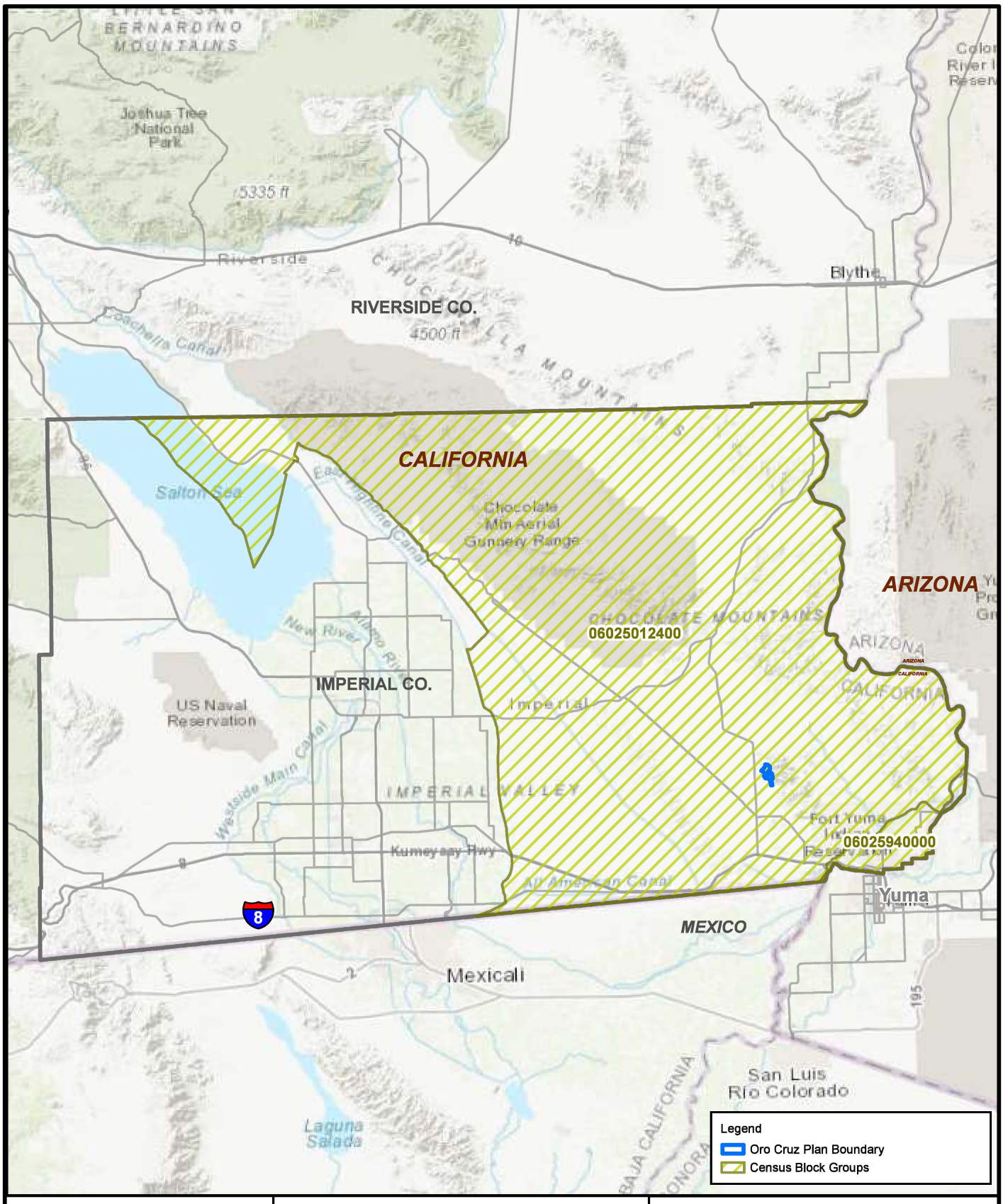

Stantec

ENVIRONMENTAL ASSESSMENT
MITIGATED NEGATIVE DECLARATION
ORO CRUZ EXPLORATION PROJECT

0 3.5 7 14 Miles

1 in = 14 Miles

ENVIRONMENTAL JUSTICE AREA OF ANALYSIS

FIGURE 3-4	REVISION
2023-01-04	A

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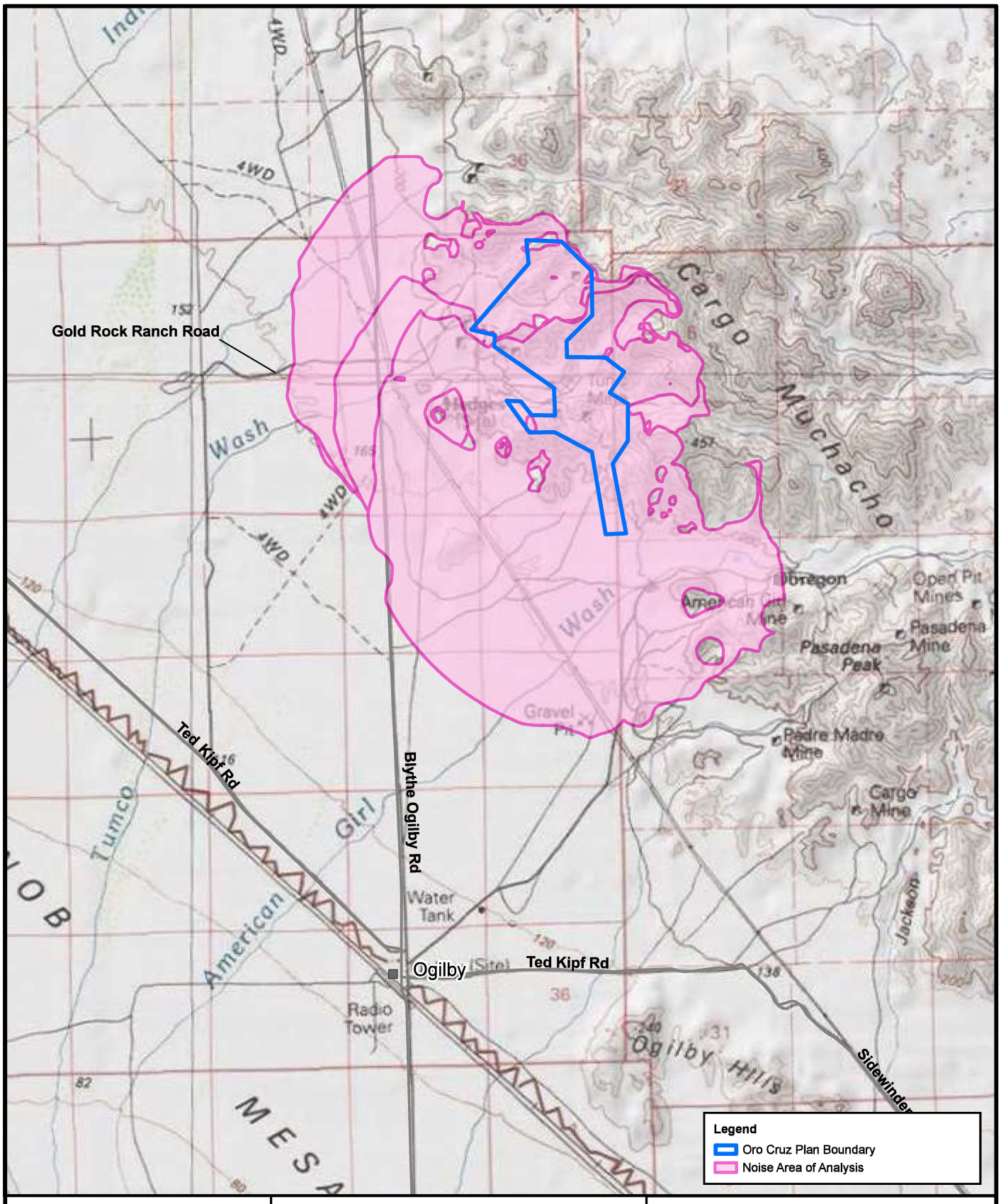

Stantec

ENVIRONMENTAL ASSESSMENT
MITIGATED NEGATIVE DECLARATION
ORO CRUZ EXPLORATION PROJECT

1 0.5 0 1 Miles

1 in = 1 Miles

NOISE
AREA OF ANALYSIS

FIGURE 3-5	REVISION
2023-01-04	A

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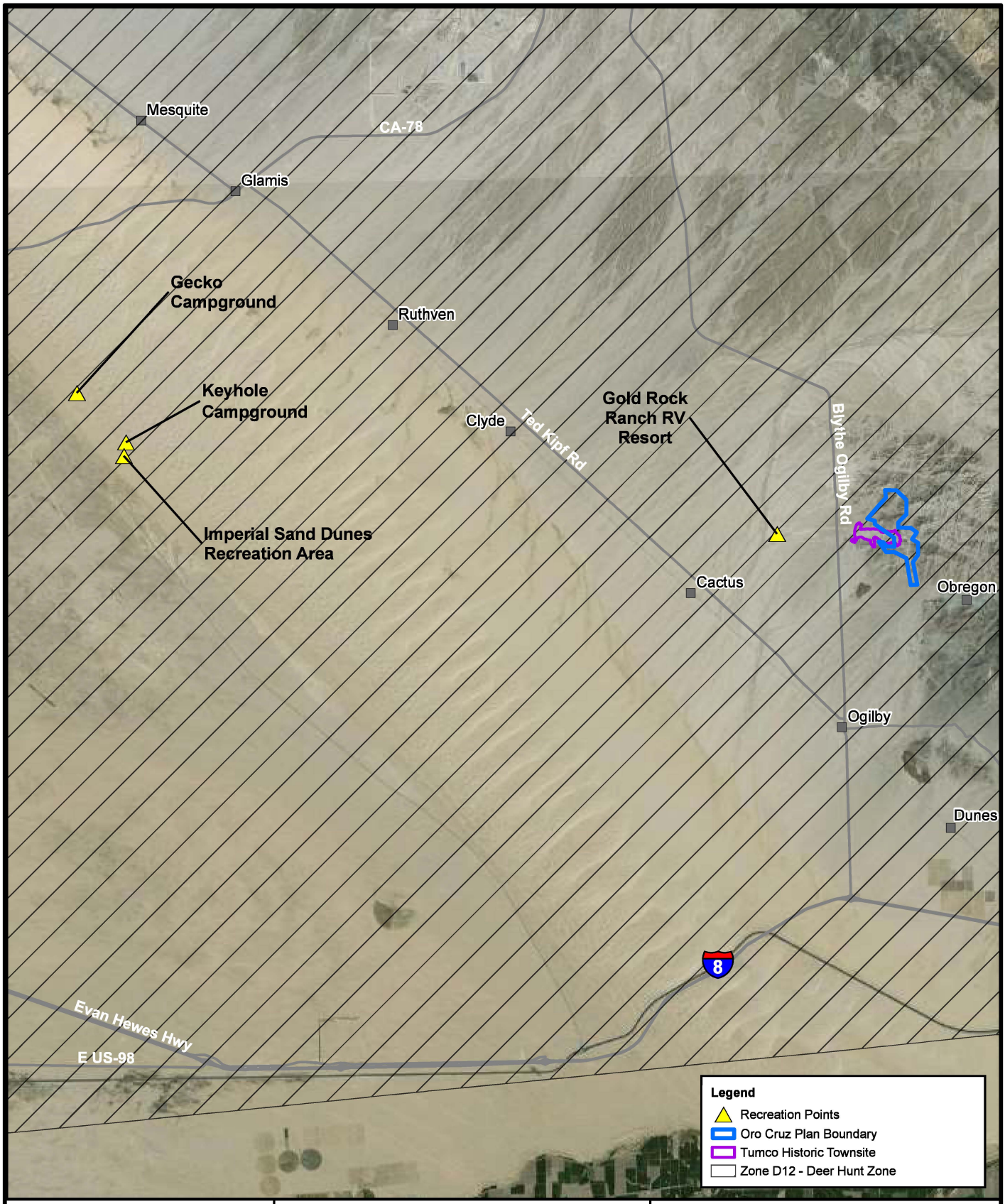

Stantec

ORO CRUZ MINE PROPERTY EXPLORATION PROJECT

3 1.5 0 3 Miles

1 in = 3 Miles

RECREATION AREA OF ANALYSIS

FIGURE 3-6

2023-01-04

REVISION **A**

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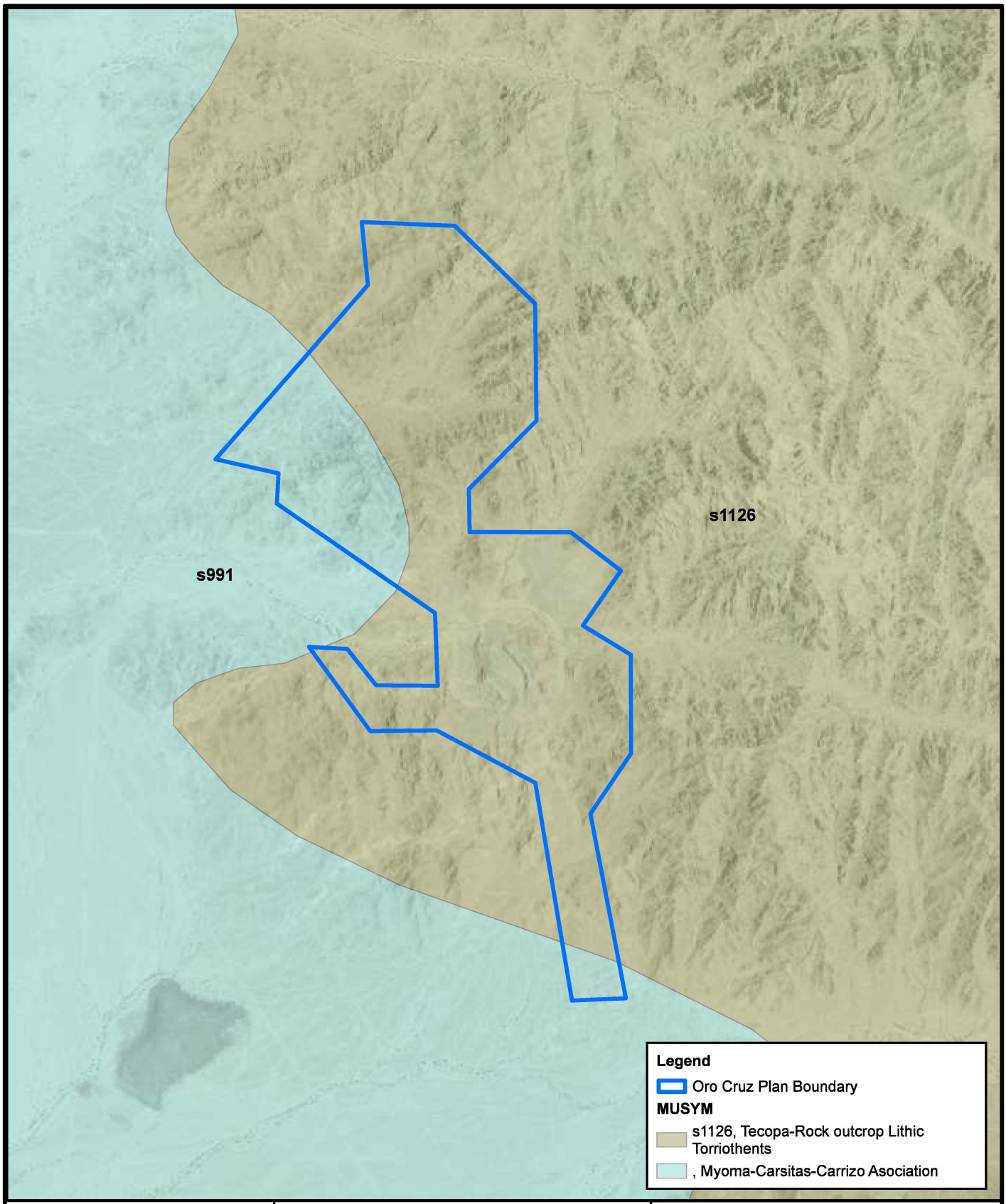

Stantec

ENVIRONMENTAL ASSESSMENT
MITIGATED NEGATIVE DECLARATION
ORO CRUZ EXPLORATION PROJECT

1,000 500 0 1,000 Feet
1 in = 2,000

N

SOILS AREA OF ANALYSIS

FIGURE 3-7

2023-01-04

REVISION
A

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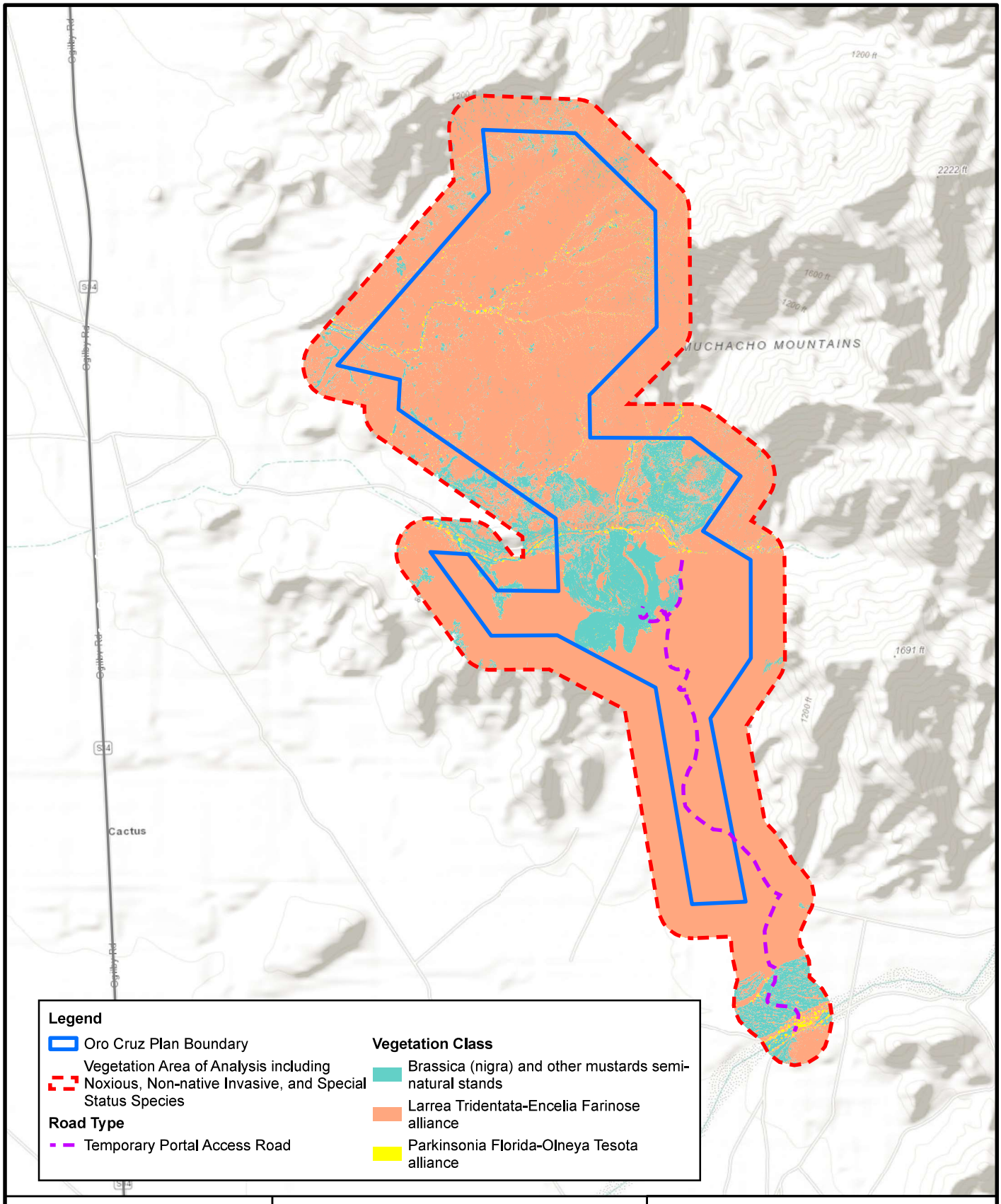

Stantec

ENVIRONMENTAL ASSESSMENT
MITIGATED NEGATIVE DECLARATION
ORO CRUZ EXPLORATION PROJECT

1,000 500 0 1,000 Feet
1:24,000
N

VEGETATION AREA OF ANALYSIS

FIGURE 3-8

REVISION **A**

2023-03-21

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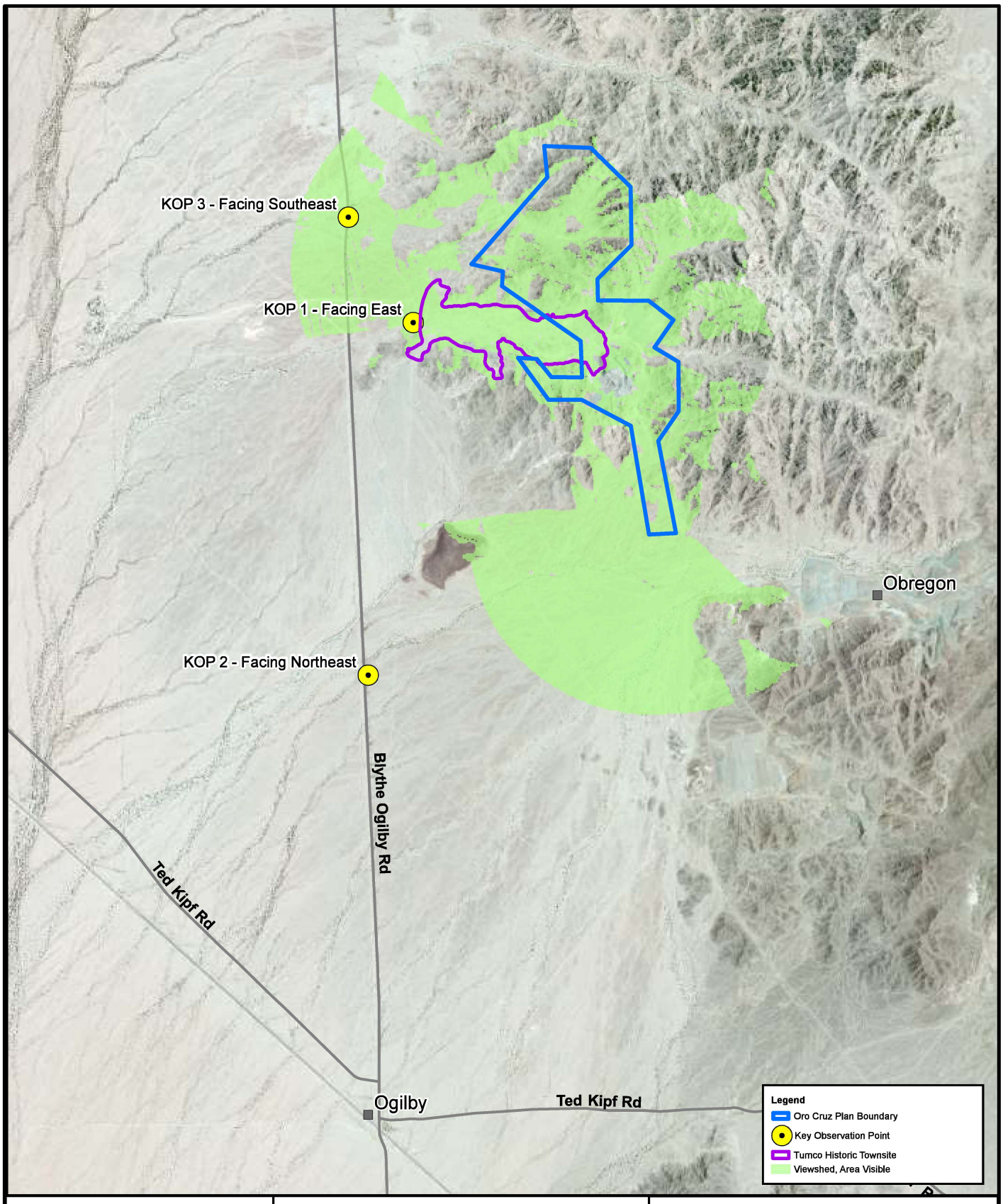

Stantec

ENVIRONMENTAL ASSESSMENT
MITIGATED NEGATIVE DECLARATION
ORO CRUZ EXPLORATION PROJECT

3,000 1,500 0 3,000 Feet

1 in = 4,000 ft

N

VISUAL RESOURCES
AREA OF ANALYSIS

FIGURE 3-9

2023-01-04

REVISION **A**

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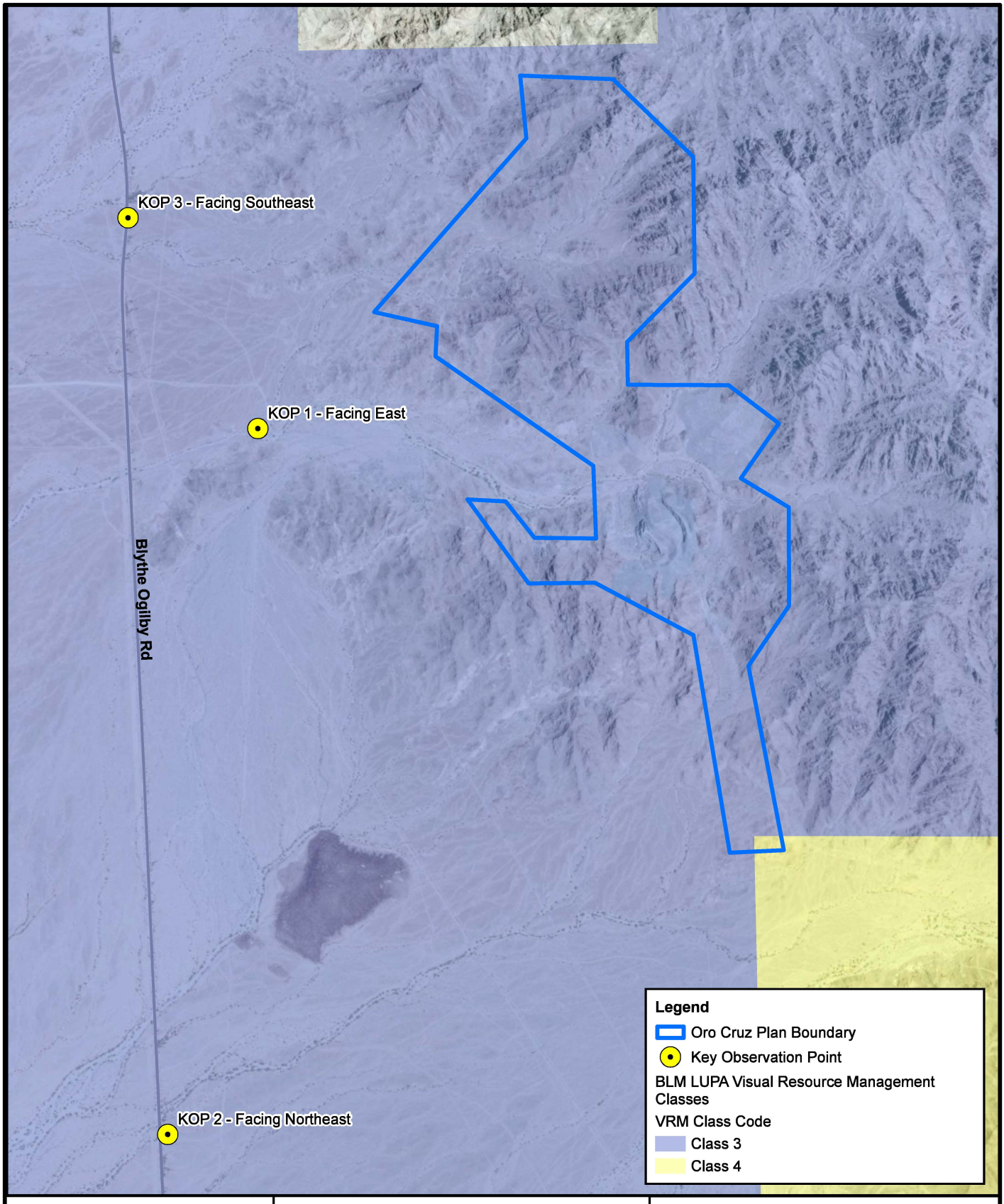

Stantec

ENVIRONMENTAL ASSESSMENT MITIGATED NEGATIVE DECLARATION ORO CRUZ EXPLORATION PROJECT

1,000 500 0 1,000 Feet

1 in = 2,000 ft

VISUAL RESOURCES INVENTORY CLASSES WITHIN THE PROJECT AREA

FIGURE 3-10

2023-01-04

REVISION **A**

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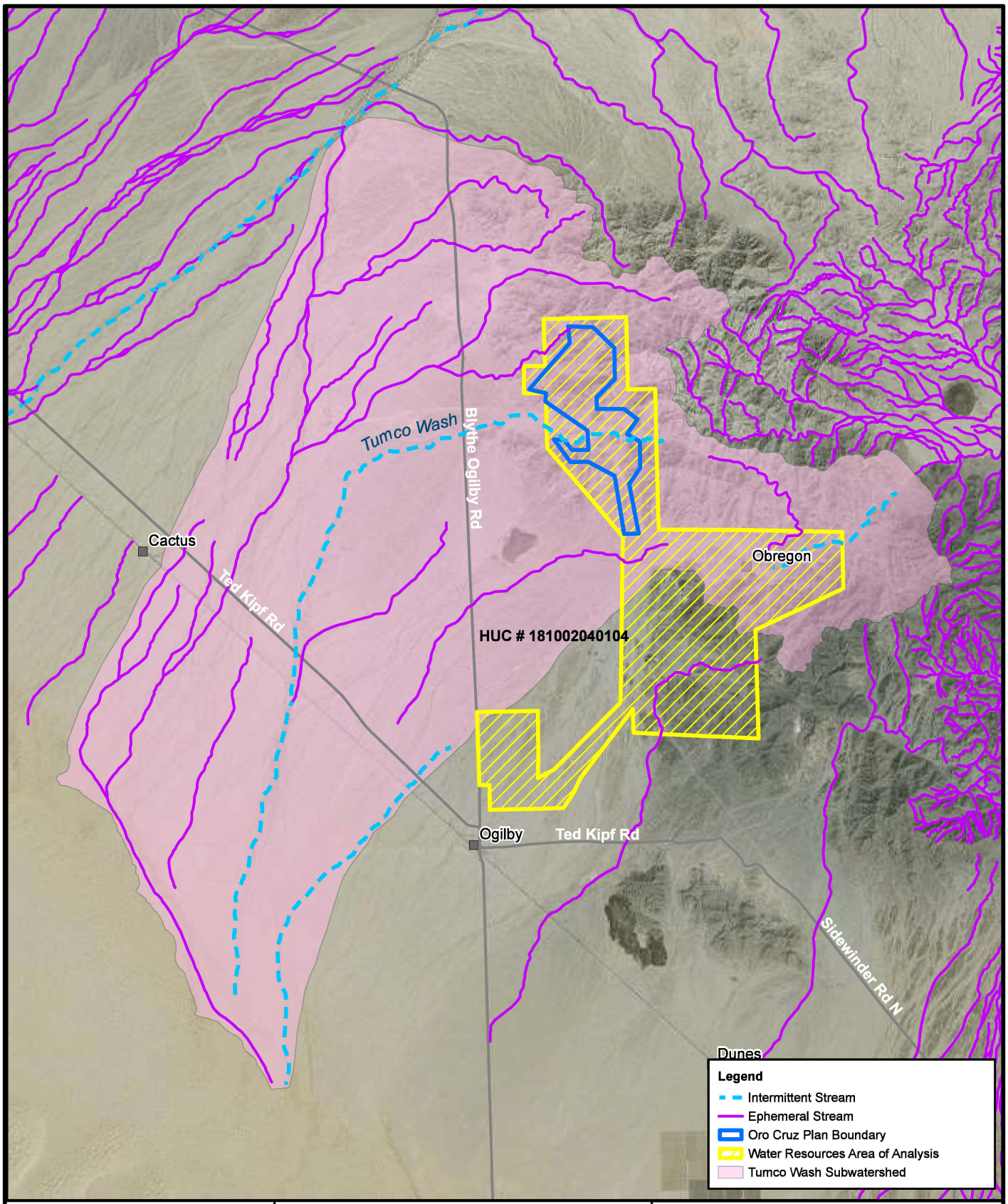

Stantec

ENVIRONMENTAL ASSESSMENT
MITIGATED NEGATIVE DECLARATION
ORO CRUZ EXPLORATION PROJECT

7,000 3,500 0 7,000 Feet

1 in = 7,500 ft

WATER RESOURCES AREA OF ANALYSIS

FIGURE 3-11

REVISION **A**

2023-01-04

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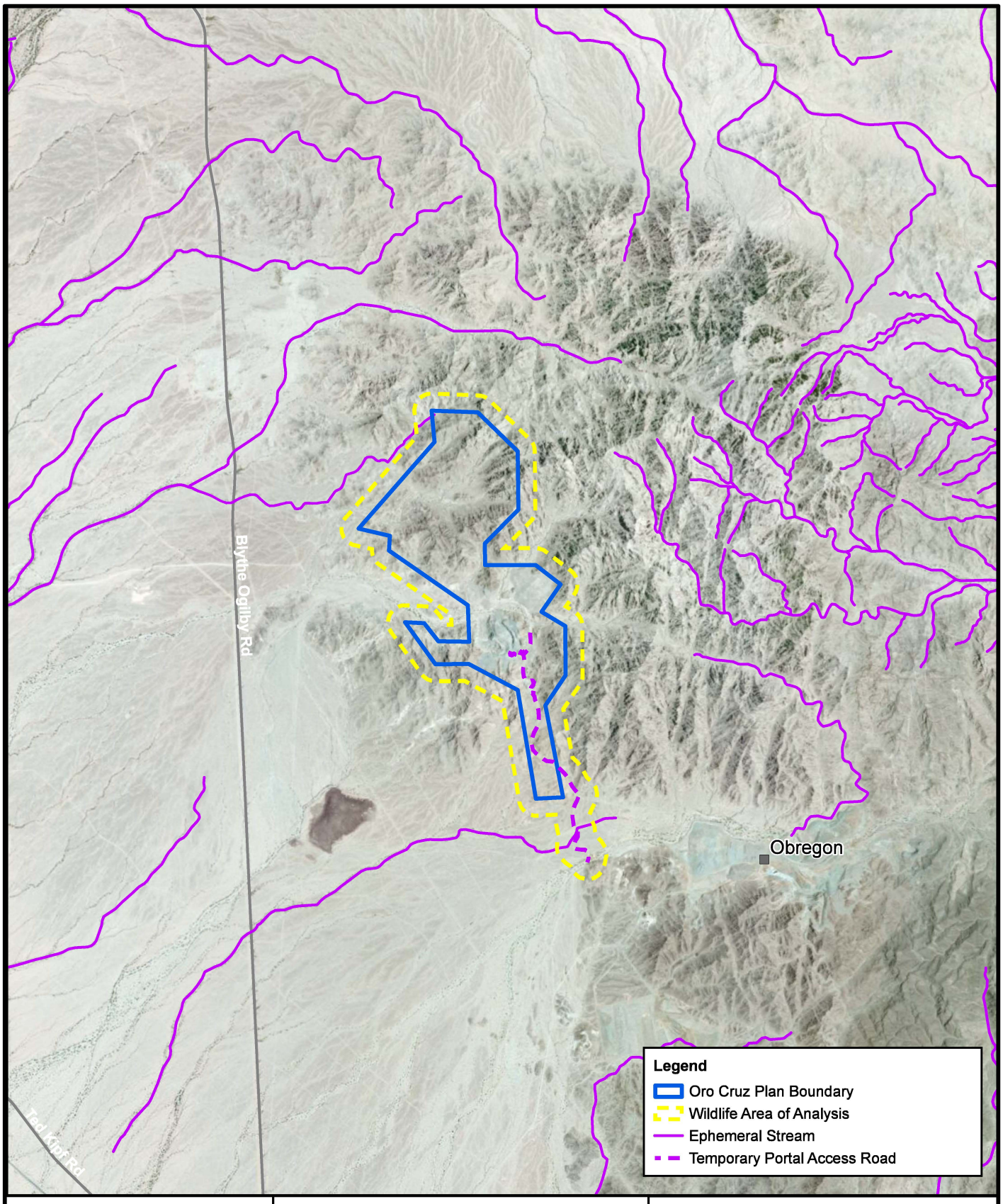

BLM California
Desert District
El Centro Field Office

ORO CRUZ MINE PROPERTY EXPLORATION PROJECT EA

3,000 1,500 0 3,000 Feet

1:48,000

N

WILDLIFE AREA OF ANALYSIS

FIGURE 3-12

2023-04-05

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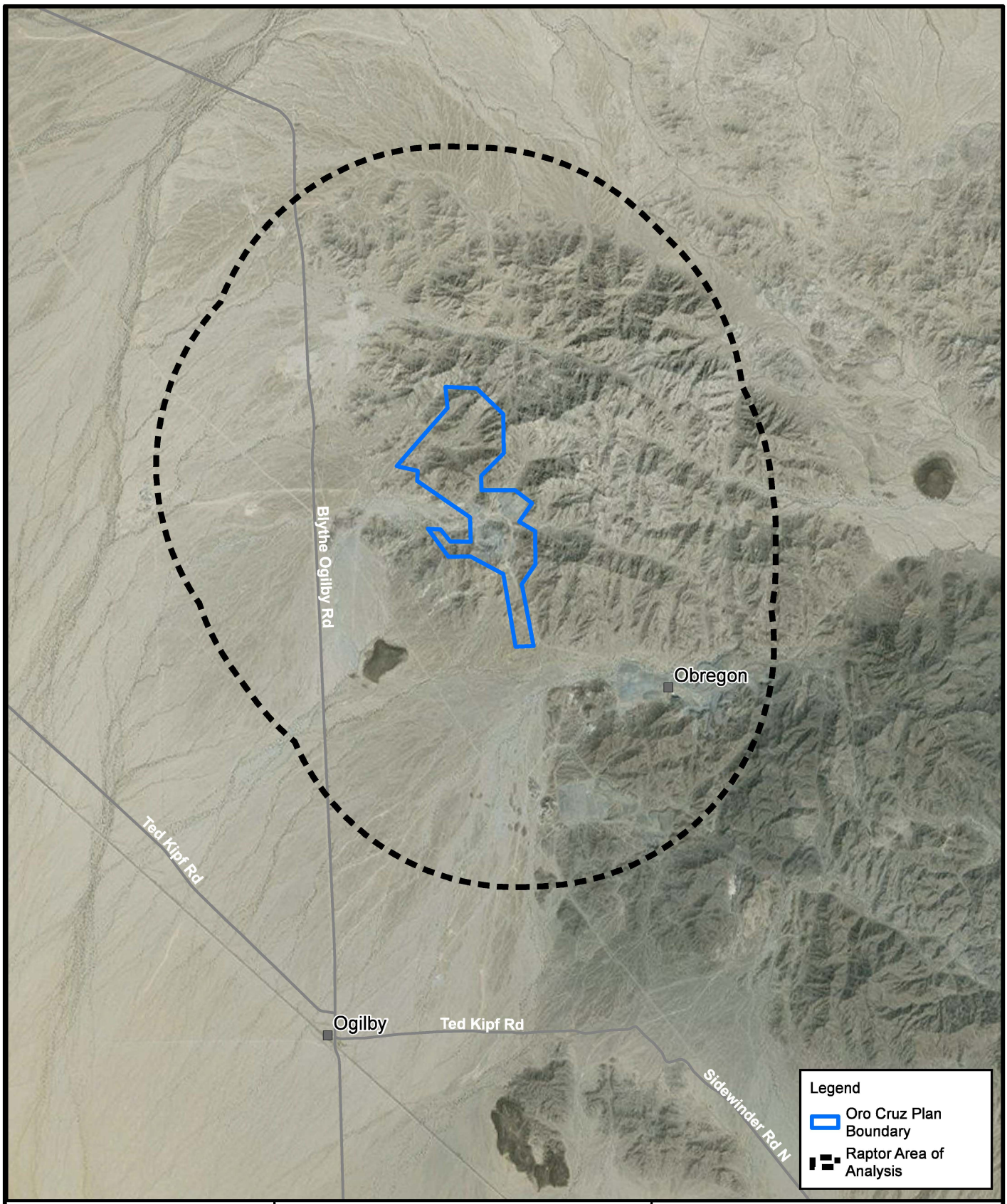

Stantec

ENVIRONMENTAL ASSESSMENT
MITIGATED NEGATIVE DECLARATION
ORO CRUZ EXPLORATION PROJECT

5,000 2,500 0 5,000 Feet

1 in = 6,000 ft

N

RAPTOR AREA OF ANALYSIS

FIGURE 3-13

2023-01-04

REVISION **A**

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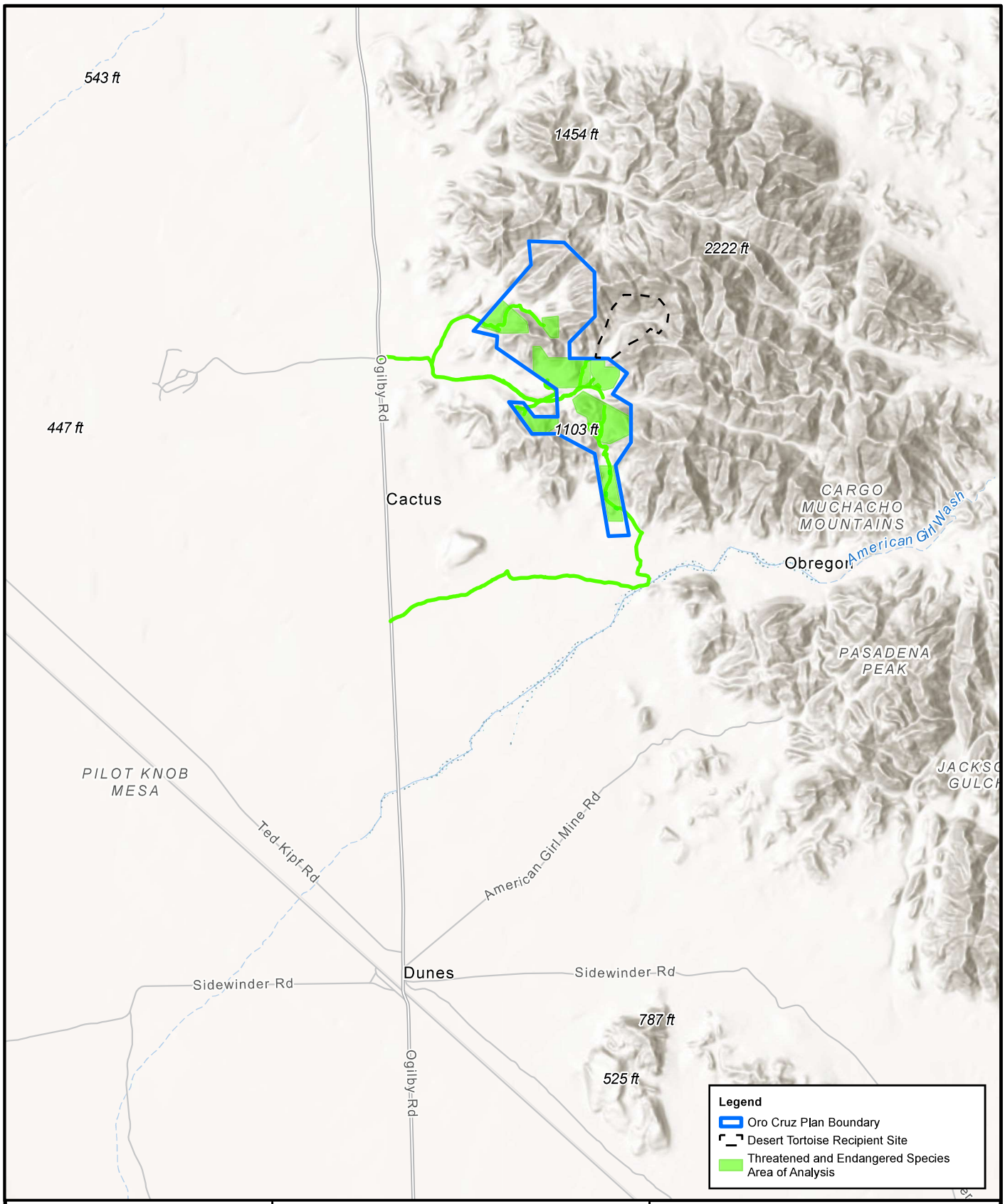

Stantec

ENVIRONMENTAL ASSESSMENT
MITIGATED NEGATIVE DECLARATION
ORO CRUZ EXPLORATION PROJECT

Miles
0 0.5 1
1 inch = 1 mile

N

THREATENED AND ENDANGERED SPECIES AREA OF ANALYSIS

FIGURE 3-14

REVISION **A**

2023-03-23

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Appendix A: Plan of Operations

SIXTH REVISED DRAFT

SMP GOLD CORP.
EXISTING ORO CRUZ PIT AREA
EXPLORATION PLAN OF OPERATIONS
BLM CASE FILE NUMBER CACA-059124

Prepared for: Bureau of Land Management

Prepared by: SMP Gold Corp.

Date: Sixth Revision, January 30, 2023

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Figure 4. Portal Staging Area Layout
Figure 5. Typical Road-Accessed Drill Site Layout

1. INTRODUCTION AND BACKGROUND

SMP Gold Corp. (SMP) proposes mineral exploration activities at the Oro Cruz Pit Area (the Project) within lands administered by the Bureau of Land Management (BLM), northwest of Yuma, Arizona, in Imperial County, California. The Project is located on previously mined BLM lands within Township 15 South, Range 20 East, Sections 1, 2, 12 and 13, and Township 15 South, Range 21 East, Section 6, 7 and 18 (the Project Area, **Figures 1 and 2**) that are managed by the El Centro Field Office. The Project Area has been previously disturbed by mining activities. Current surrounding land uses include prospecting and recreation.

Activities would be conducted in accordance with BLM regulations published in the Code of Federal Regulations (CFR) at 43 CFR part 3809 (BLM 2016). Pursuant to 43 CFR 3809.21 and 3809.301, the Project would result in minor surface reworking of previously mined and disturbed areas, and measures would be taken to prevent unnecessary or undue degradation during Project operations. The Project would comply with the performance standards in 43 CFR 3809.420 and other Federal and state laws related to environmental protection and protection of cultural resources, and the Project would attain the stated level of protection and reclamation required by specific laws in the California Desert Conservation Area. The Project Area occurs within the Picacho Area of Critical Environmental Concern (ACEC) as designated under the Desert Renewable Energy Conservation Plan, and thus requires a BLM Plan of Operations.

The Project is described in this Draft Exploration Plan of Operations (Plan).

2. CLAIMANT AND OPERATOR INFORMATION

Claimant:

Lincoln Gold US Corp.
912 N. Division Street
Carson City, Nevada 89703

ADGIS, Inc.
210 South Rock Blvd.
Reno, Nevada 89502

Operator:

SMP Gold Corp.
912 N. Division Street
Carson City, Nevada 89703

Operator Employer Identification Number:

85-1734310

Contact:

David Tupper
Vice President - Exploration
Phone: 604-802-0334
Email: david@smp.gold

Drilling Contractor:

To be determined

Subject Claims:

See **Table 1**.

3. PROJECT AREA DESCRIPTION

The Project Area has been previously disturbed by significant mining activities. Current surrounding land uses include prospecting and recreation. The Tumco Historic Mine is a historic and recreational area managed by the BLM for uses such as hiking, prospecting, wildlife viewing, and photography within western portions of the Project Area.

Soils on the site vary between rocky, hard-packed areas similar to desert pavement to pockets of loose sand. Soils in and adjacent to the existing Oro Cruz mine site are disturbed. Within the Project Area, elevations range from 600 feet (ft) above sea level (asl) to 800 ft asl. Vegetation within the Project Area is sparse consisting of primarily Creosote Bush Series, and Sonoran Creosote Scrub (Brown and Lowe 1994); dominant plant species include creosote bush (Larrea tridentata), burro bush (Ambrosia dumosa) and numerous annual and perennial scrubs and grasses (Tetra Tech 2011).

The Project Area occurs within the Picacho ACEC. The BLM's goals for the management of this ACEC are to enhance, protect and preserve the cultural and biological resources while providing compatible recreational opportunities; and to maintain desert tortoise habitat connectivity between the Chuckwalla Desert Wildlife Management/ACEC/Critical Habitat Units and high value climate refugia for wildlife (BLM 2016).

4. PLANNED EXPLORATION PROGRAM

The Project consists of using existing access roads, constructing approximately 10,410 ft (2.0 miles) of existing road improvements, approximately 6.2 miles of new 12-foot-wide temporary exploration drilling access road, up to 8 helicopter landing pads, and 65 drill pads to support exploration in seven Drill Areas; and constructing approximately 9,640 linear ft (1.8 miles)of new , 15-foot-wide access road and 2.8-acre staging area for access to the Oro Cruz Portal on BLM lands (**Figures 2, 3a and**

3b). The 2.8-acre staging area at the Oro Cruz Portal would be used for exploration within the proposed Drill Areas and underground mine area and resources. The area would house a 1,000-gallon diesel fuel tank and fueling station; helicopter landing area with 300-gallon Jet fuel tank and refueling station; two diesel-powered generators (125 kW or equivalent); two portable compressors (375 Series or equivalent); parking for access to the underground mine; small office and dry shop; and laydown areas for exploration drilling (**Figure 4**). Access to the portal staging area would be gated to prevent public access during Project implementation and reclamation.

4.1. SCHEDULE OF ACTIVITIES

The Project is proposed to begin upon completion of all BLM and Imperial County coordination, permitting and bonding. The Project mobilization, road construction, drilling, and borehole abandonment would be completed within 12 to 24 months. Activities at the Oro Cruz Mine Portal and project drilling activities in Drill Area 1 would be implemented first. Drilling activities potentially would be completed in up to two drill areas at once. Drill areas would be potentially revisited a second and third time based on the findings. Project reclamation would be completed concurrently for exploration drilling activities and monitoring for the success of reclamation of those areas would be completed within 5 years of Project implementation. Activities at the portal staging area and access route for underground investigations may extend beyond the 12- to 24- month exploration activities; but reclamation and monitoring of those areas would also be completed within 5 years of Project implementation.

4.2. ACCESS

Existing access roads would be used to the extent possible but some new access roads would be required across BLM land (**Figures 2 and 3a-3h**). The existing access routes that would be used are BLM-authorized routes. The proposed drill sites and new access roads would be mostly located within previously mined and disturbed areas. Interstate 8 and Ogilby Road (State Route 34) and Gold Rock Ranch Road are the primary roads that would be used for access (**Figures 2 and 3a**). Drilling equipment would be trucked to one of two truck unload points and then would be mobilized to the Drill Areas within the Project Area (**Figures 2 and 3a**). Equipment would be unloaded from low boys onto the existing road at the unload points and no improvements are needed to accommodate the unloading of equipment.

Access to the drill pads would be gained via existing and new roadways and via helicopter (AStar AS350 B2 or similar) from the Yuma Airport. The exploration drilling aspects of the Project would require approximately 10,410 ft (2.0 miles) of existing road improvements; approximately 32,740 ft (6.2 miles) of new temporary access road construction; and the construction of up to 8 helicopter landing pads (**Figure 2 and 3a-3h**). These new access roads would be used strictly for Project support vehicles to access the exploration Drill Areas, and they would be signed as having limited access.

The helicopter used for access to up to 8 drill pads would only be flown during daylight hours. The helicopter would be used to transport the drilling equipment needed during drilling operations for up to ten (10) trips per day for drilling crew member access and delivery of water, fuel, and drilling supplies. Drilling operations would be conducted at each of the sites for 4 to 8 days, therefore a helicopter would be in use on the project for up to 64 days. The helicopter would fly from Yuma Airport, approximately 20 miles east of the Project. The flight to and from the Project would be approximately 15 minutes in duration. An additional designated helicopter landing and refueling area would be provided at the 2.8-acre portal staging area.

Access to the Oro Cruz Portal would require the construction of 9,640 linear ft (1.8 miles) of new 15-foot-wide road. The road would be secured from unauthorized access for the duration of activity at the portal staging area while assuring access by BLM staff. A gate would be placed across the road accompanied by proper deterrence on either side of the gate (i.e. fence, berm, or large boulder).

Reclamation would be implemented at the 2.8-acre portal staging area and all equipment would be removed within the 5-year reclamation monitoring period. The portal staging area would be secured with chain link fence and razor wire and locked during brief periods of non-operation.

Road construction would be conducted using a D8 Dozer (or equivalent). Vegetation disturbance would be avoided to the maximum extent possible. No maintenance is planned for improved existing roads, as they will only be used for 12 to 24 months during active drilling and then would be reclaimed. Improvements would require selected stretches of existing access road to be bladed and cleared of vegetation. Most of the existing roads in the Project Area are about 6 ft wide, so it is assumed that road improvements would require approximately 6 ft of additional disturbance.

New access roads for exploration drilling would not disrupt the surface except where necessary to gain safe access. These roads would be used temporarily for access to the drill sites and would require a 12-foot width for access of drilling equipment.

Where needed to restrict access to Drill Areas 1 and 6, barriers constructed of onsite materials from areas disturbed as part of the Project would be installed to prevent unauthorized vehicular traffic from interfering with the reclamation of access roads and signs would be posted indicating these roads would be for authorized use only. The conceptual locations of the planned safety barriers (or berms) are depicted in **Figures 3b and 3g**. Berms would be 6 ft in height and placed along new access routes to prevent the public from accessing the Drill Areas. Gold Rock Ranch Road is gated at its intersection with Tumco Wash, so that gate will serve as the safety barrier to Drill Areas 2, 3, 4, 5, and 7. Road fill will be stabilized and maintained during and following any construction to prevent any erosion.

4.3. VEHICLES AND EQUIPMENT

The proposed activities would be conducted using the following equipment (or similar):

- AStar AS350 B2 Helicopter or similar (size = 40 by 11 ft; weight ~ 2,600 lbs)
- LF-90D – Boart Longyear track-mounted drill rig (up to two rigs; size = 12 by 20 ft; weight ~ 18,000 lbs)
- Pipe truck (size = 10 by 35 ft; weight ~ 35,000 lbs)
- CAT® bulldozer (size = D8, weight ~80,000 lbs)
- Track hoe (weight ~30,000 lbs)
- Portable Water Tank (2,000 gallon; weight ~400 lbs)
- Diesel Fuel Tank (1,000 gallon; weight ~1,500 lbs)
- Above-Ground Jet fuel tank (300 gallon; weight ~500 lbs)
- Excavator (Size = 200; weight ~52,000 lbs)
- Water trucks (two 1,000 gallon; weight ~50,000 lbs each)
- Generators associated with drill rig (one 125 kW) and Oro Cruz Portal Staging Area (two 125 kW; weight ~13,000 lbs each)
- Portable compressors (two 375 Series; weight ~4,500 lbs each)
- Support vehicles (approximately five one-ton vehicles)

4.4. DISTURBANCES ON PREVIOUSLY MINED LANDS

The access routes will be used by a track-mounted drill rig and support vehicles. The drill pads will consist of an approximately 60-foot by 40-foot area that will be cleared to hold the drilling collar and sumps for drilling mud (wastewater and fluid), along with all drilling equipment and personnel during construction (**Figure 5**). The sumps would be approximately 12 ft by 12 ft and 6 ft deep, sloped approximately 2:1 on one side to allow for wildlife access out of the sump, if needed.

Clearing activities would be conducted with a bulldozer, track hoe and hoe ram. The total surface disturbance for the proposed activities is estimated at 20.5 acres on BLM lands (**Table 1**).

Table 1. Project Estimated Disturbance Area

Activity Area	Claims (BLM Serial No.)	Description of Activity	Estimated Impact by Activity (square feet)	Estimated Impact by Activity (Acres)	Estimated Impact Per Drill Area (Acres)
Drill Area 1	Hercules 7 (CAMC-79795) Hercules 8 (CAMC-79796) Hercules 9 (CAMC-79797)	Exploration Reverse Circulation (RC) or core drilling to be conducted within 14 60-by-40-ft drill sites (Accessed via Existing and New Roads)	33,600	0.8	1.9
		Exploration core drilling to be conducted within 2 60-by-40-ft drill sites (Accessed via Helicopter)	4,800	0.1	
		Approximately 3,500 linear ft of 12-foot-wide New Temporary Exploration Drilling Access Road	42,000	1.0	
Drill Area 2	Hercules 11 (CAMC-79799) Hercules 12 (CAMC-79800) Hercules 28 (CAMC-79816) Hercules 29 (CAMC-79817) Hercules 30 (CAMC-79818) Hercules 53 (CAMC-79818) OC 11 (CAMC-296330)	Exploration RC or core drilling to be conducted within 13 60-by-40-ft drill sites (Accessed via Existing and New Roads)	31,200	0.7	3.8
		Exploration core drilling to be conducted within 2 60-by-40-ft drill sites (Accessed via Helicopter)	4,800	0.1	
		2 Helicopter Landing Pads (50-by-50-ft area)	5,000	0.1	
		Approximately 10,500 linear ft of 12-foot-wide New Temporary Exploration Drilling Access Road	126,000	2.9	
Drill Area 3	Hercules 54 (CAMC-79842) Hercules 55 (CAMC-79843) OC 9 (CAMC- 296328) SMP 1 (Not staked yet) SMP 2 (Not staked yet)	Exploration RC or core drilling to be conducted within 7 60-by-40-ft drill sites (Accessed via Existing and New Roads)	16,800	0.4	1.8
		Exploration core drilling to be conducted within 3 60-by-40-ft drill sites (Accessed via Helicopter)	7,200	0.2	
		3 Helicopter Landing Pads (50-by-50-ft area)	7,500	0.2	
		Approximately 3,500 linear ft of 12-foot-wide New Temporary Exploration Drilling Access Road	42,000	1.0	

Table 1. Project Estimated Disturbance Area

Activity Area	Claims (BLM Serial No.)	Description of Activity	Estimated Impact by Activity (square feet)	Estimated Impact by Activity (Acres)	Estimated Impact Per Drill Area (Acres)
Drill Area 4	OC 13 (CAMC-296332) OC 14 (CAMC-296333) OC 15 (CAMC-296334) Hercules 32 (CAMC-79820) Hercules 33 (CAMC-79821)	Exploration RC or core drilling to be conducted within 4 60-by-40-ft drill sites (Accessed via Existing and New Roads)	9,600	0.2	1.2
		Approximately 3,500 linear ft of 12-foot-wide New Temporary Exploration Drilling Access Road	42,000	1.0	
Drill Area 5	Hercules 26 (CAMC-79814) Hercules 27 (CAMC-79815)	Exploration RC or core drilling to be conducted within 2 60-by-40-ft drill sites (Accessed via Existing and New Roads)	4,800	0.1	1.2
		Exploration core drilling to be conducted within 3 60-by-40-ft drill sites (Accessed via Helicopter)	7,200	0.2	
		3 Helicopter Landing Pads (50-by-50-ft area)	7,500	0.2	
		Approximately 2,700 linear ft of 12-foot-wide New Temporary Exploration Drilling Access Road	32,400	0.7	
Drill Area 6	Hercules 6 (CAMC-79794) OC 55 (CAMC-297374) OC 57 (CAMC-297376) OC 58 (CAMC-297377) OC 59 (CAMC-297378) OC 60 (CAMC-297379) OC 61 (CAMC-297380) OC 62 (CAMC-297381)	Exploration RC or core drilling to be conducted within 5 60-by-40-ft drill sites (Accessed via new access road)	12,000	0.3	0.8
		Approximately 1,800 linear ft of 12-foot-wide New Temporary Exploration Drilling Access Road	21,600	0.5	

Table 1. Project Estimated Disturbance Area

Activity Area	Claims (BLM Serial No.)	Description of Activity	Estimated Impact by Activity (square feet)	Estimated Impact by Activity (Acres)	Estimated Impact Per Drill Area (Acres)
Drill Area 7	Hercules 10 (CAMC-79798) Hercules 11 (CAMC-79799) Hercules 12 (CAMC-79800) OC 48 (CAMC-296367) OC 49 (CAMC-296368)	Exploration RC or core drilling to be conducted within 10 60-by-40-ft drill sites (Accessed via Existing and New Roads)	24,000	0.6	2.5
		Approximately 7,000 linear ft of 12-foot-wide New Temporary Exploration Drilling Access Road	84,000	1.9	
Existing Access Roads (Improvements Required)	SMP 1 (Not staked yet) SMP 2 (Not staked yet) OC 9 (CAMC- 296328) OC 13 (CAMC-296332) OC 14 (CAMC-296333) Hercules 10 (CAMC-79798) Hercules 11 (CAMC-79799) Hercules 12 (CAMC-79800) Hercules 26 (CAMC-79814) Hercules 55 (CAMC-79843) Hercules 31 (CAMC-79819)	Approximately 10,410 ft (2.0 miles) of existing road improvements; Assumes an additional 6 ft of disturbance would be added to the width of the existing roads.	62,460	1.4	NA
New Access to Oro Cruz Portal	See Drill Area 6 OC 64 (CAMC-297383) OC 66 (CAMC-297385) OC 68 (CAMC-297387) OC 93 (CAMC-297934)	Approximately 9,640 linear ft (1.8 miles) of 15-foot-wide New Portal Access Road	144,600	3.3	NA
Oro Cruz Portal Staging Area	Hercules 7 (CAMC-79795) Hercules 8 (CAMC-79796)	Access, fueling station, staging and parking to support the exploration of the underground resource accessible through the Oro Cruz Portal Approximately 2.8-acre staging area in at the entrance of the Oro Cruz Portal	121,970	2.8	NA
		TOTAL	**895,030**	**20.5**	

4.5. DRILLING ACTIVITY

Sixty-five (65) boreholes would be completed using reverse circulation or core techniques. The boreholes would be placed within seven Drill Areas (depicted in **Figures 2 and 3a-3h**). The anticipated maximum depth for the boreholes is approximately 800 ft. Drilling would be accomplished with a track-mounted rig. Any water encountered or generated by drilling will be fully contained within the drill sumps and removed, if required, to be recirculated for use in the drilling process or hauled away. The sumps will be backfilled once all water is evaporated.

A drill rig would operate on a 12- or 24-hour-per-day schedule (12 hours per shift) for 12 to 24 months. Once a hole is completed, the drillers would abandon the hole before moving to the next hole. There would only be two drill rigs in operation at a time within the Project Area.

Each drill site requires an approximately 60-by-40-foot drill pad that will encompass approximately 0.06 acres of disturbed area. A typical layout of a road-accessed drill site is provided in **Figure 5**. The drill sites would include sumps for drilling water and muds along with all drilling equipment and personnel during construction, portable toilet, and additional parking areas for support trucks and a water truck. The sumps would be approximately 12 ft by 12 ft and 6 ft deep.

Drill sites requiring access by helicopter would be cleared by hand where required and would require a drill area that is a maximum 60-by-40-feet in area. The drill rigs that would be used (LF-90D – Boart Longyear drill rig or similar) are unitized to enable disassembly. The helicopter would be used to complete the heavy lifts and to deliver the drilling rig components in sequence on a long-line lanyard for reassembly at each site. A steel skid would be placed directly on the ground surface if a level drill site can be established using hand tools. If additional leveling is required, 10-inch by 10-inch timbers would be used to create a temporary cribbing structure for the skid set to sit on. The cribbing will not exceed 4 ft in height at the low elevation points of the drill site. The cribbing will be fastened together using steel spikes and fully disassembled and removed upon completion of each drill hole. Helicopter-accessed drill sites would include all drilling equipment and personnel during construction and operation, and two hand dug sumps (maximum 12-ft by 12-ft in area) on the downslope sidehill. A portable toilet would be provided at each site. No support trucks or water trucks would be provided at the helicopter-accessed sites. Helicopter-accessed sites would be accessed only by helicopter and cleared entirely by hand. Water, fuel and supplies needed for the drilling process would be delivered by helicopter. Where necessary, daily crew changes would be done by helicopter.

4.6. WATER MANAGEMENT

Water for drilling and dust suppression would be provided by the drilling company via a water truck. SMP would likely procure water from Gold Rock Ranch and/or Yuma. It is anticipated that two 1,000-gallon water trucks would be required onsite each day. A 2,000-gallon portable water storage tank would also be kept onsite for drilling and dust suppression (**Figure 4**).

Water would be needed during the drilling process, and the drill holes are expected to produce water during the drilling process. Water would come into contact with bentonite drilling mud and ground rock at depth. Water would be managed and handled at each drill site after it is pumped out of the hole either by recirculating it for use in the drilling process, by removing the water and hauling it away, or by evaporation and allowing solids to settle out in excavated mud pits or sumps at the drill site. The sumps would be backfilled after evaporation. There would be no discharges outside the drill site or in surface tributaries, and no pollutants would be discharged in accordance with Clean Water Act requirements. Activities would be in compliance with applicable state and federal laws.

Upon completion of the exploration, the exploratory drill holes would be sealed and abandoned in compliance with the most current edition of State Water Resources Control Board Bulletin #74-81 and #74-90. SMP would coordinate with Imperial County Planning and Development Services Department to obtain appropriate permitting for the exploration Project.

4.7. HAZARDOUS AND SOLID WASTE MANAGEMENT

No hazardous substances would be used in the drilling program and no hazardous wastes would be generated by the Project.

Fuel and lubricants would be stored in a reservoir to prevent any leakage. During drilling operations, the drill rig would be parked on top of plastic sheeting overlain by absorbent clay or shale (i.e., Oil-Dri, or "kitty litter").

Trash generated by the contractors would be collected in appropriate containers and removed as required from the Project Area. Project-related refuse would be hauled to an authorized landfill for disposal in accordance with applicable laws and regulations. No refuse would be disposed onsite.

4.8. SPILL CONTINGENCY PLAN

SMP would have two fuel tanks onsite that would contain no more than 1,000 gallons of diesel fuel and 300 gallons of Jet fuel, respectively (**Figure 4**).

To prevent the spread of any accidental leakage in storage, fuel and lubricants would be stored in a shallow (4-inch depth), 10-foot by 10-foot lined reservoir at each drill site and in an approximately 6-inch

deep, 20-foot by 40-foot lined reservoir at the fueling station. During drilling operations, the drill rig would be parked on top of plastic sheeting. A spill prevention kit would be stored on site consisting of an oil-only absorbent mat material (i.e., PIG ® adsorbent mat pad) and absorbent clay or shale (i.e., Oil-Dri, or "kitty litter"). The volume of absorbent that would be kept onsite for potential spills is estimated to be 50 gallons at each active drill site and 100 gallons at the fueling station. Since there will be, at most, 2 active drill sites at one time the estimated volume of absorbent onsite is 200 gallons.

A Spill Contingency Plan would be prepared to describe the procedures followed by SMP and their contractors to prevent, control, and mitigate releases of oil and petroleum products to the environment within the Project Area. The following proposed spill prevention, control and countermeasures would be implemented:

- Fueling would be performed on a 20-ft by 40-ft plastic sheeting over an approximately 6-inch deep reservoir. The fueling area would be sloped gently to one corner with a small sump to contain any accidental releases of fuel.
- Equipment servicing would be performed within the fueling area or on plastic sheeting within the drill sites.
- A standard procedure fueling and servicing would be performed at the designated fueling stations and drill sites; however, equipment may need to be serviced at times elsewhere within the Project Area, and spill protection measures would be implemented.
- Diesel fuel is a major consumable for the mine equipment. Diesel fuel is available from local suppliers and would be received in tank trucks. The Project would receive and unload diesel to the onsite storage tank.
- Diesel fuel would be offloaded using drip-less connections in a contained area to eliminate spillage contamination. The off-loading sites would be designed to drain into the main storage site containment and have a spill response kit containing booms, and clean-up materials to ensure that any off-containment spillage is immediately contained and cleaned.
- A small spill response trailer would be maintained in the Project Area to clean-up any spills.
- Inspections of fuel valves and other inlets and outlets as well as secondary containment would be made daily.
- All site personnel that would be involved in fuel-handling would be trained in the operation and maintenance of equipment to prevent discharges.
- The 1,300-gallon fuel tank would be secured and locked during times when SMP personnel and contractors are not on site.
- Berms and protective barriers would be placed around the fuel tank to prevent accidental or malicious damage by vehicles or equipment.

4.9. FIRE PREVENTION PLAN AND PUBLIC SAFETY

SMP would implement site-specific fire prevention/protection actions. At a minimum these actions would include designating Project fire coordinators, providing adequate fire suppression equipment (including in vehicles), and establishing emergency response information relevant to the Project Area.

SMP would have a 2,000-gallon portable water storage tank onsite for dust suppression that would also be available to assist in firefighting operations (**Figure 4**). SMP would ensure that all mobile equipment be equipped with fire extinguishers, hand tools, and first aid kits.

In the event of an initial, small fire that does not create enough smoke, flame, and heat to prevent fighting the fire using a hand-held fire extinguisher or a small water hose, and providing no one would be endangered, SMP personnel and/or contractors would use make a reasonable effort to extinguish the fire. If two or more people are present, one would fight the fire while one reports to 911 the size, type, and location in the event the fire grows out of control. Personnel would not directly engage any fire which is beyond the incipient stage, i.e., a fire which has progressed to the point it has substantially involved any structure/equipment.

Planning and prevention of fires is also managed through the appropriate handling and storage of fuels, inspections and recordkeeping, spill prevention and response procedures, proper use of safety equipment, resource management training, and fire prevention training.

SMP will coordinate with local law enforcement and fire departments to provide 24-hour access as needed for emergency response.

Cellular telephone service is generally available within the Project Area site for emergency and other communications. A satellite phone would also be made available in case of emergencies. Contractors would be trained in proper emergency response, incident reporting, and general health and safety issues. All equipment would be maintained in a safe and orderly manner.

4.10. PLAN FOR INTERIM CURTAILMENT

This plan for interim curtailment describes the procedures that SMP will implement to prevent unnecessary or undue degradation of BLM lands in the event of a temporary suspension of the Project. These procedures are intended to provide for public safety and environmental protection, while facilitating resumption of operations when appropriate.

SMP will implement the following procedures as appropriate in the event of a curtailment.

- *Measures to monitor the Project*: SMP would designate a field contact representative (FCR) to conduct routine maintenance and inspections and maintain compliance with requirements in

environmental permits and this Plan. Monitoring would be conducted monthly or periodically as needed based on communications with BLM and Imperial County.

- *Measures to stabilize excavations*: Excavations anywhere within the Project will be stabilized by preventing stormwater erosion of or excessive run-on into these features. Sediment control structures could include, but not be limited to fabric and/or hay bale filter fences, siltation or filter berms, and downgradient drainage channels in order to prevent unnecessary or undue degradation.
- *Measures to maintain the Project in a safe condition*: Public access will be controlled by signing, fencing, gates, or berms to warn the public of hazards associated with the Project area. All equipment, facilities and fuels would be removed from the site or secured at the Portal Staging Area, which would be fenced and locked to prevent access.

5. ENVIRONMENTAL PROTECTION MEASURES

5.1. PREVENTION OF UNNECESSARY OR UNDUE DEGRADATION

SMP would prevent unnecessary or undue degradation of public lands by complying with the performance standards found in 43 CFR § 3809.415 and 3809.420, as applicable. SMP would comply with BLM's terms and conditions related to the specific mining and reclamation activities and with other federal and state laws related to environmental protection and protection of cultural resources.

SMP would commit to the following environmental protection measures to prevent unnecessary or undue degradation during project activities. The measures are derived from the general requirements established in 43 CFR § 3809.420, as applicable, as well as other federal and state water and air quality regulations.

5.2. SURFACE WATER AND GROUNDWATER

Surface water within the Project Area consists of stormwater runoff within natural ephemeral drainages. The Project will comply with all applicable regulations relating to hydrology and water quality. SMP would obtain coverage for the Project under a CGP pursuant to CGP Regulation (NPDES No. CAS000002; SWRCB Order No. 2009-0009-DWQ amended by 2010-0014-DWQ & 2012-0006-DWQ), if required. The Project may be located in an area that is not hydrologically connected to waters of the U.S., and would be therefore, eligible for a Notice of Non-Applicability (NONA) in the Statewide Stormwater Industrial General Permit (IGP).

Best Management Practices (BMPs) would be installed to manage disturbed surfaces. Sediment control structures could include, but not be limited to fabric and/or hay bale filter fences, siltation or filter berms, and downgradient drainage channels in order to prevent unnecessary or undue degradation.

Water used for dust control will be kept to a practicable minimum in order to minimize the risk of water runoff, and any water runoff will be managed so to not cause downstream erosion or flooding nor cause an exceedance of applicable water quality standards.

Only minor servicing of mobile equipment (greasing and periodic fueling) would be conducted on BLM lands, limiting the potential for diesel fuel spills. Spill response kits would be maintained to ensure that pollutants are prevented from entering into washes. Any pollutants generated by Project activities would be properly disposed of in accordance with applicable regulations.

The Project does not trigger any waste discharge requirements under Title 27, CCR, Section 20005 et seq.

5.3. EROSION AND SEDIMENT CONTROL

Prior to commencement of operations, site-specific stormwater and erosion control BMP's will be implemented on an as needed basis. BMPs to be implemented onsite may include, but are not limited to, the following: specific prohibitions, effluent limitations, potential contaminant source identification, practices to reduce pollutants, assessment of pollutant sources, materials inventory, preventative maintenance program, spill prevention and response procedures, general storm water BMPs, training, record keeping, sampling procedures and a description of the monitoring program.

Table 2 summarizes the potential erosion control BMPs that would be implemented as part of the Project.

Table 2. Summary of Erosion BMPs

Industrial Activity/Material	Potential Pollutants	BMPs Implemented	Required Equipment & Tools
Site Preparation and/or Exploratory Drilling	Sediment	Erosion control; Sediment control; Stormwater containment.	Silt fencing and fiber rolls. Mobile equipment for berm maintenance as needed.
	Dust	Wind erosion control; Erosion control; Sediment control; Tracking control.	Water truck; Soil binders.
Equipment and Vehicle Maintenance	Oil & Grease Hydrocarbons Gross Pollutants Trace Metals	Good housekeeping; Spill prevention & maintenance; Interior berms as needed to direct surface flows to pit; Secondary containment.	Covered trash bin; Spill kit; Bulldozer for berm maintenance.

No stockpiling of material is anticipated other than for temporary storage as may be necessary. For example, temporary stockpiles may be formed when developing the access roads and/or individual drill pads. If needed, additional BMPs (e.g., berms, sandbags, fiber rolls, or silt fencing, etc.) will be

installed to ensure sediment does not inadvertently erode into adjacent areas during a large storm event.

Due to the existing topography and the proposed design of the access roads and drill pads, stormwater runoff and sediment erosion from the Project Area is considered unlikely. Development of the Project would not add any paving or impervious surface areas. Due to site topography and design, and through the implementation of BMPs, the chances of discharge, erosion, and/or sedimentation from the Project Area that could adversely impact adjacent properties is considered very low.

5.4. AIR QUALITY

Air quality impacts associated with the Project would be primarily from fugitive dust generation by vehicles and equipment during operations and from vehicle and drill powerplant emissions. Road dust emissions and tailpipe emissions from drilling activities and vehicle travel along the access roads have the potential to release regulated pollutants. The Project would comply with applicable State of California and Imperial County Air District rules for fugitive dust emissions and greenhouse gas emissions.

5.5. SOLID WASTES

SMP would properly dispose of waste oil, other related fluids, filters, oily rags, etc. in appropriate disposal locations. Litter and trash generated by the contractors would be collected in appropriate containers and removed as required from the Site. Project-related refuse would be hauled to an authorized landfill for disposal. No refuse would be disposed onsite.

Portable toilet facilities provided for the duration of the Project would be maintained by contractors and accumulated human waste would periodically be collected and transported to an approved disposal site. No waste would be buried on site.

5.6. BIOLOGICAL RESOURCES

A biological resources assessment was conducted by Tetra Tech, Inc. within the Project Area in October 2011, and concluded that desert tortoise (*Gopherus agassizii*) has some potential to occur within the Project Area (Tetra Tech 2011). Known observations of desert tortoise in the general vicinity of the Project Area are not recent (1988-2005) and are primarily from desert wash habitat with little disturbance (BLM 2018), significantly different than the Project Area, which is on previously mined areas and associated access roads. The nearest designated critical habitat is approximately 10 miles from the Project Area. As provided in the measures below, adverse impacts to tortoise would be avoided. It was also determined that the Gila woodpecker (*Melanerpes uropygialis*), a state-listed endangered species may occur in the Project Area but that was determined to be unlikely due to the lack of large trees in this area (Tetra Tech 2011).

Given the following, no designated or proposed threatened or endangered species or designated or proposed critical habitat listed under the Endangered Species Act are expected to be adversely impacted by the Project.

1. To the extent possible, the Project would be completed outside the tortoise active season (March 15-November 1), between November 2 and March 14.
2. The Project would result in limited surface disturbance,
3. Project impacts would occur on previously disturbed areas,
4. The exploration drilling portion of the Project is short term, and would be conducted within a period of 12 to 24 months,
5. Measures are proposed to avoid and limit effects to wildlife and vegetation,

Similarly, because of the items identified above, the proposed exploration activities are not expected to result in adverse impacts to BLM-sensitive species that may be present in the area that would lead towards loss of viability or a trend towards listing.

Due to the limited scope and duration of the Project, it is recommended that potential impacts to sensitive species habitats be avoided using measures identified below.

1. Prior to Project activities, pre-construction tortoise surveys shall be conducted by a BLM-approved Qualified Biologist within the area to be disturbed plus a 500-foot buffer, focusing on areas that could provide suitable burrow or cover sites, such as dry washes with caliche. A subsequent survey shall be conducted by a Qualified Biologist within 24 hours of the commencement of surface disturbance activities (should Project activities occur between March 15 and November 1). Burrows will be flagged such that they will be avoided by Project activities.
2. A BLM-Qualified Biologist will be onsite during the initial activities or mobilization (should Project activities occur between March 15 and November 1).
3. All surface disturbing activity shall be limited to the land area essential for the Project. In determining these limits, consideration shall be given to topography, public health and safety, placement of facilities, and other limiting factors. Work area boundaries shall be appropriately marked to minimize disturbance. All workers shall strictly limit their activities and vehicles to the areas marked. All workers shall be trained to recognize work area markers and to understand equipment movement restrictions.
4. All workers, including all construction and drilling contractor personnel, and others who implement Project activities would be given special instruction, which would include training on distribution, general behavior and ecology, protection afforded by State and Federal endangered species acts (including prohibitions and penalties), and procedures for reporting encounters, and the importance of following the protection measures. The education program

may consist of a class or video presented by a BLM-approved Qualified Biologist. The presentation to be used would be reviewed and approved by a BLM biologist.

5. All personnel would be notified that the desert tortoise is a species listed as threatened under the Endangered Species Act and protected by State and Federal law. Fines can be as high as $50,000 and/or one year in prison for violations.
6. Personnel would be notified that desert tortoises are not to be handled, fed, or harassed in any way. If encountered, tortoises will be allowed space and time to move from the area on their own volition.
7. Personnel who attend tortoise training will sign an attendance sheet, which would be submitted to the BLM for their information. Should BLM staff inspect the site during construction activities, workers onsite should be able to provide proof of tortoise training (a hard hat sticker is recommended for this purpose).
8. SMP would designate a field contact representative (FCR) who will be responsible for overseeing compliance with protective stipulations for the desert tortoise and for coordination on compliance with the BLM. The FCR must be onsite during all Project activities (should Project activities occur between March 15 and November 1). The FCR would have the authority to halt Project activities that are in violation of the stipulations. The FCR would have a copy of all stipulations when work is being conducted on the site. The FCR may be a crew chief or field supervisor, a project manager, any other employee of the project proponent, or a BLM-approved Authorized Biologist Any incident occurring during project activities which is considered by the biological monitor to be in non-compliance with the mitigation plan shall be documented immediately by the biological monitor. The FCR shall ensure that appropriate corrective action is taken. Corrective actions shall be documented by the monitor. The following incidents shall require immediate cessation of the construction activities causing the incident, including:
    a) imminent threat of injury or death to a desert tortoise;
    b) unauthorized handling of a desert tortoise, regardless of intent;
    c) operation of construction equipment or vehicles outside a project area cleared of desert tortoise, except on designated roads, and
    d) conducting any construction activity without a biological monitor where one is required.
9. If a tortoise is encountered during construction activities, work would be halted in proximity to the tortoise until an on-call BLM-approved Authorized Biologist can move the animal from harm's way, or until the desert tortoise leaves of its own accord.
10. Where possible, motor vehicle access would be limited to maintained roads and designated routes. All vehicle tracks that might encourage public use would be reclaimed after Project-specific use. Barriers would be installed to prevent unauthorized vehicular traffic and signs would be posted indicating these roads would be for authorized use only.

11. The following requirements apply to vehicle use:
    a) Speed Limits: Vehicle speed within Project area, along right-of-way maintenance roads and on routes designated for limited use shall not exceed 20 miles per hour. Speed limits shall be clearly marked by the proponent, and workers shall be made aware of these limits.
    b) Tortoises Under Vehicles: Vehicles parked in desert tortoise habitat would be inspected immediately prior to being moved. The practice of placing an orange cone by the driver side door will be used as a reminder to check for tortoise before re-entering and moving the vehicle. If a tortoise is found beneath a vehicle, a BLM-approved Authorized Biologist would be contacted to move the animal from harm's way, or the vehicle shall not be moved until the desert tortoise leaves of its own accord.
12. Access roadside signs depicting a picture of desert tortoise will be posted to remind workers of the potential presence of tortoise within the Project Area.
13. Project maintenance and construction, stockpiles of excavated materials, equipment storage, and vehicle parking shall be limited to existing disturbed areas wherever possible. Should use of existing disturbed areas prove infeasible, any new disturbance shall be confined to the smallest practical area, considering topography, placement of facilities, location of burrows or vegetation, public health and safety, and other limiting factors. Special habitat features, particularly tortoise burrows, shall be flagged by the Qualified Biologist so that they may be avoided by installation equipment and during placement of poles and anchors.
14. All trash and food items generated by construction and maintenance activities shall be promptly contained and regularly removed from the project site to reduce the attractiveness of the area to common ravens and other desert predators. Portable toilets shall be provided on site if appropriate.
15. Feeding of wildlife and/or leaving of food or trash as an attractive nuisance to wildlife is prohibited. Particular attention will be paid to "micro-trash" (including such small items as screws, nuts, washers, nails, coins, rags, small electrical components, small pieces of plastic, glass or wire, and any debris or trash that is colorful or shiny). All trash and food items shall be promptly contained within closed, wildlife-proof containers. These shall be regularly removed from the project site to reduce the attractiveness of the area to ravens and other predators.
16. Domestic pets are prohibited on site. This prohibition does not apply to the use of domestic animals that may be used to aid in official and approved monitoring procedures/protocols, or service animals under Titles II and III of the Americans with Disabilities Act.
17. Injury: Should any desert tortoise be injured or killed, all activities shall be halted, and the Authorized Biologist immediately contacted. The biologist shall have the responsibility for determining whether the animal should be transported to a veterinarian for care, which is paid

for by the project proponent, if involved. If the animal recovers, USFWS is to be contacted to determine the final disposition of the animal; few injured desert tortoises are returned to the wild.

5.7. CULTURAL RESOURCES

WestLand Resources, Inc. (WestLand) conducted a cultural resources assessment within the Project Area, where two cultural resources inventory projects have been previously conducted (WestLand 2020). Eight known historic resources are located within the Project Area. The records search indicates all eight of the historic resources within the Project Area are related to and are located within the current boundary of the Hedges/Tumco Historic Townsite. No prehistoric archaeological sites have been previously identified within the Project Area. However, previous studies have documented late nineteenth–century Native American Quechan buff ware ceramics in other portions of the larger townsite (Burney et al. 1993:B.8).

The results of the records search indicate that the prehistoric resources within the Project Area are within the geographic area previously described by Imperial County for the Keruk/Xam Kwatcan Trail Landscape (Imperial County 2015). Additionally, the results of the records search from the Native American Heritage Commission Sacred Lands Search (NAHC SLF) indicate that further tribal consultation, particularly with the Quechan Tribe of the Fort Yuma Reservation, may be required as part of additional data-gathering efforts for identifying cultural resources that could be affected by the proposed Project (WestLand 2020).

Given the nature of the previous research in the Project Area, SMP plans to retain a qualified archaeologist to conduct cultural resources inventory in all areas that will be potentially affected by surface disturbance associated with the Project to identify any historic resources present on the surface and areas that may be sensitive to intact buried cultural deposits. This type of inventory will collect precise locational data on the resources present and allow SMP to incorporate avoidance measures. Additionally, SMP proposes to prepare and implement a tribal engagement plan with the Native American Heritage Commission and the Quechan Tribe of the Fort Yuma Reservation regarding the Project.

All ground-disturbing activities have the potential to unearth archaeological sites or human remains and that all such discoveries on federal lands will be treated in accordance with the Native American Graves and Repatriation Act (25 USC 30001-3013).

6. RECLAMATION PLAN

The intent of the California Surface Mining and Reclamation Act (SMARA) is to "maintain an effective and comprehensive surface mining and reclamation policy with regulation of surface mining

operations so as to assure that: (a) adverse environmental effects are prevented or minimized and that mined lands are reclaimed to a usable condition which is readily adaptable for alternative uses; (b) the production and conservation of aggregates are encouraged, while giving consideration to values relating to recreation, watershed, wildlife, range and forage, and aesthetic enjoyment; and (c) residual hazards to the public health and safety are eliminated" (Section 2712)." Article 9, Section 3700 of SMARA states the following: "Reclamation of mined lands shall be implemented in conformance with standards in this Article. The standards shall apply to each surface mining operation to the extent that:

- They are consistent with required mitigation identified in conformance with CEQA; and
- They are consistent with the planned or actual subsequent use or uses of the site."

Section 6 herein describes the Reclamation Plan for reclaiming land disturbed by exploration drilling within the Project Area, as required under SMARA. This Reclamation Plan addresses the reclamation activities that will be undertaken following completion of the exploratory drilling, in conformance with SMARA.

6.1. PURPOSE, APPROACH, AND SCHEDULE

The anticipated post-Project land uses are mining, recreational uses, and open space. Following the completion of all drilling, solids and desiccated drilling muds that have been contained in the sump would be treated by evaporation and by allowing solids to settle out in excavated mud pits or sumps at the drill site. The sumps would then be backfilled. The drilling muds that would be used do not contain toxic or deleterious materials. The proposed drilling mud material data sheets could be provided to BLM upon request. The inert drilling mud materials would be disposed of in accordance with applicable state and federal regulations. The drill site, mud pits, and outer berm would then be returned to natural grade with a track hoe using rocks and soil set aside during site construction and mud pit excavation.

Water bars and erosion-control features would be repaired and constructed as necessary. All equipment and supporting structures would be removed from BLM lands.

Upon completion of the exploration, the exploratory drill holes would be sealed and abandoned in compliance with the most current edition of State Water Resources Control Board Bulletin #74-81 and #74-90. This would include backfilling with onsite materials, sealing with bentonite clay; and covering with a 2- to 3-foot mound of onsite material. Drilling and drill hole abandonment would be conducted in accordance with SMARA, Public Resources Code Sections 2710 et seq. and its regulations at 14 California Code of Regulations Section 3500 et seq.

Consistent with the H-3809-1 Surface Management Handbook (BLM 2012), this Reclamation Plan would be updated or appended to reflect other agency permits or authorizations, final designs, or certain stipulations, as more specific and detailed plans become available.

Project reclamation for drilling activities and monitoring for the success of reclamation would be completed within 5 years of Project implementation.

A reclamation cost estimate would be submitted to BLM upon approval of the Final Plan in accordance with 43 CFR 3809.401(d).

6.2. REMOVAL OF EQUIPMENT AND FACILITIES

Generally, the strategy for reclamation and closure of equipment and facilities would include:

- Removing temporary instrumentation and equipment, utilities, and unneeded access roads; and
- Reclaiming disturbed surfaces by ripping and/or covering and reseeding.

6.3. ROAD CLOSURE

The main entrance road would remain in use during the post-closure period to provide access for post closure land uses, including reclamation work and monitoring.

Closure of roads that are not needed for post-closure access would involve demolishing fill while maintaining satisfactory drainage. Roads not needed for post-closure access would be reclaimed. The abandoned road surfaces would be scarified by ripping, if necessary. Where needed, rock or earthen berms and water bars would be placed to prevent vehicular access and reduce erosion. The road corridors would be reclaimed by treatment with a mulch/seed mix to promote revegetation.

6.4. REVEGETATION

Reclaimed areas would be revegetated with a BLM-approved seed mix. These areas would be revegetated after cover placement and at the appropriate time of the year for optimum seed germination and plant growth.

6.4.1. Growth Media

Generally, initial seedbed preparation on flatter surfaces would include ripping or discing the surface along contours. Conventional seeding techniques (including drill and broadcast) would be used as appropriate depending on soil/cover characteristics and landform. Hydroseed, hydromulch, and tackifier may be used on slopes that are not suitable for conventional seeding. Mulch may be applied to minimize erosion and promote moisture retention where appropriate.

6.4.2. Seed Mix

Revegetation would require site-appropriate, BLM-approved native seed mixtures. A diverse native plant community would be targeted through the definition of seed mixtures and application rates. The seed mix list would be reviewed before revegetation activities are initiated to confirm the availability of the seeds, and the list would be adjusted as needed. The seed mix and mulch materials would be certified by the revegetation contractor to be relatively weed free.

The proposed native seed mixture will consist of the following: creosotebush (*Larrea tridentata*), burrobush (*Ambrosia dumosa*), brittlebush (*Encelia farinosa*), desert spineflower (*Geraea canescens*), turtleback (*Psathyrotes ramosissima*), forget-me-not (*Cryptantha* spp.), and hairy prairie clover (*Dalea mollis*). Seeds will be purchased and mixed in equal quantities and will be hand broadcasted at approximately 10 pounds per acre.

The seed mix would be designed to meet the following criteria:

- Native non-invasive species that have a high compatibility with the existing landscape;
- Species and plant type diversity to promote a sustainable vegetative cover throughout the seasonal changes and other climate related variances; and
- Species and plant type diversity to promote a variety of germination periods and seasonal growth.

7. MONITORING PLAN

The scale of the Project is relatively small, affecting approximately only 21 acres of BLM lands. The Project poses relatively low risks of environmental impacts and would not require extensive monitoring at closure. Reclamation would occur concurrently with the Project implementation; once access is no longer required by SMP, the Project Area would be reclaimed and revegetated. The reclaimed and revegetated Project Area would be monitored and maintained annually in late Spring or early Summer for 3 years to ensure that vegetation is established, and reclaimed areas are stable.

As described in detail in **Section 5.6** (**Biological Resources**), Project activities will be monitored to avoid potential impacts to sensitive species habitats (particularly Mojave Desert tortoise habitat) should Project activities occur between March 15 and November 1 (the active Mojave Desert tortoise season). Pre-construction tortoise surveys shall be conducted by a BLM-approved Qualified Biologist within the area to be disturbed plus a 500-foot buffer, and a BLM-Qualified Biologist will be onsite during the initial activities or mobilization. In addition, SMP would designate a FCR who will be responsible for overseeing compliance with protective stipulations for the desert tortoise and for coordination on compliance with the BLM. The FCR must be onsite during all Project activities (should Project activities occur between March 15 and November 1).

As described in **Section 5.7** (**Cultural Resources**), SMP will avoid impacts to cultural resources and engage in consultation with the Native American Heritage Commission and the Quechan Tribe of the Fort Yuma Reservation regarding the Project.

8. REFERENCES

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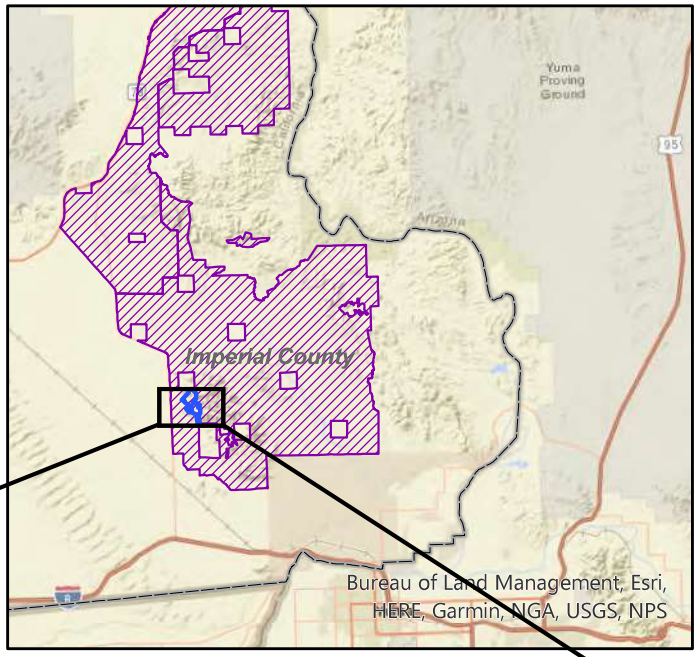
FIGURES

CALIFORNIA

PROJECT VICINITY



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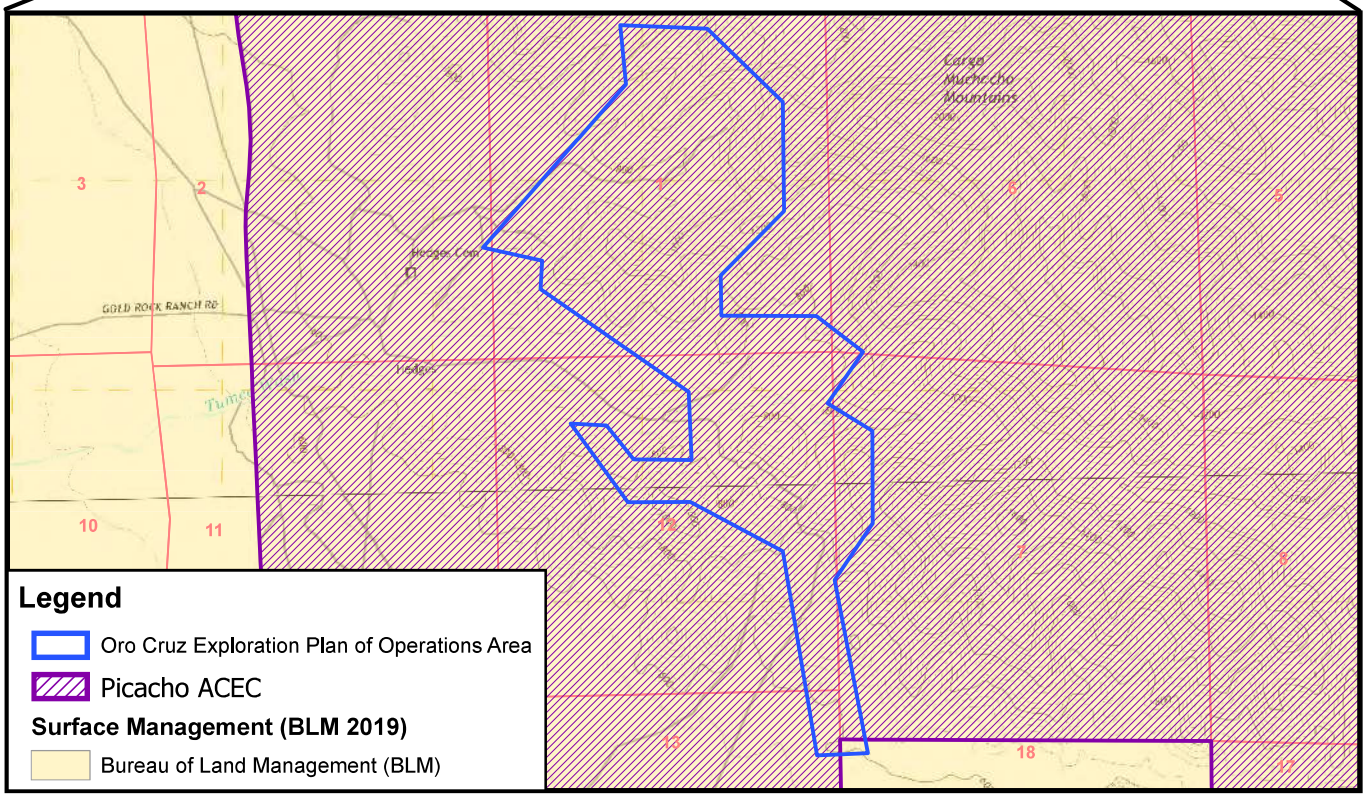

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T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California,
Ogilby and Hedges USGS 7.5' Quadrangles (2018)
Data Source: SMP
Image Source: ArcGIS Online, World Street Map

WestLand Resources

N

0 1,500 3,000 Feet

0 500 1,000 Meters

SMP GOLD CORP.

Oro Cruz Exploration Plan of Operations

VICINITY MAP

Figure 1

Path: M:\Jobs\2000's\2072.03\ENV\MPO\ArcGISpro\OroCruzMPO_2072_03\OroCruzMPO_2072_03.aprx Date: 7/22/2021 User: cpowell

Drill Area 3
Drill Area 5
Drill Area 2
Drill Area 7
Tumco Wash
Drill Area 4
Drill Area 1
Oro Cruz Portal
Drill Area 6
American Girl Wash

Legend

- Locked Gate
- Truck Upload Point
- BLM Approved Access Road
- Existing Access (Improvement Required)
- Existing Access (No Improvement Required)
- New Access Road
- Drill Area
- Oro Cruz Exploration Plan of Operations Area
- Oro Cruz Portal Staging Area

T15S, R20E, Portions of Sections 1, 2, 12 and 13,
T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California, Data Source: SMP
Image Source: ArcGIS Online, World Imagery, 2018

WestLand Resources

N

0 800 1,600 Feet

0 400 800 Meters

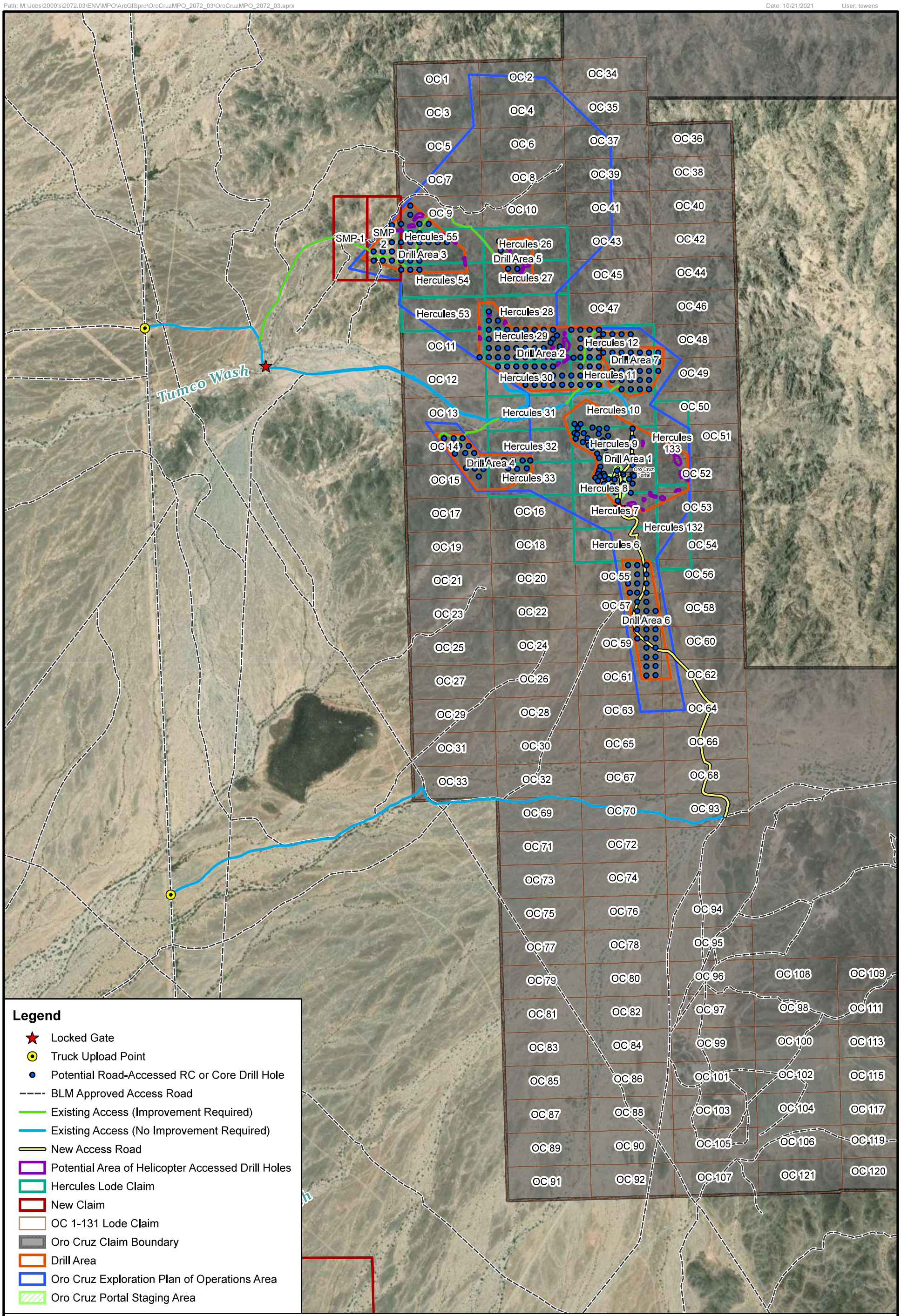
SMP GOLD CORP.

Oro Cruz Exploration Plan of Operations

PROJECT LOCATION

Figure 2

Path: M:\Jobs\2000's\2072.03\ENV\MPO\ArcGISpro\OroCruzMPO_2072_03\OroCruzMPO_2072_03.aprx Date: 10/21/2021 User: towens



Legend

- Locked Gate
- Truck Upload Point
- Potential Road-Accessed RC or Core Drill Hole
- BLM Approved Access Road
- Existing Access (Improvement Required)
- Existing Access (No Improvement Required)
- New Access Road
- Potential Area of Helicopter Accessed Drill Holes
- Hercules Lode Claim
- New Claim
- OC 1-131 Lode Claim
- Oro Cruz Claim Boundary
- Drill Area
- Oro Cruz Exploration Plan of Operations Area
- Oro Cruz Portal Staging Area

T15S, R20E, Portions of Sections 1, 2, 12 and 13,
T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California, Data Source: SMP
Image Source: ArcGIS Online, World Imagery, 2018

WestLand Resources

N

0 800 1,600 Feet

0 400 800 Meters

SMP GOLD CORP.

Oro Cruz Exploration Plan of Operations

BLM CLAIMS BOUNDARY

Figure 3a

Path: M:\Jobs\2000's\2072.03\ENV\MPO\ArcGISpro\OroCruzMPO_2072_03\OroCruzMPO_2072_03.aprx

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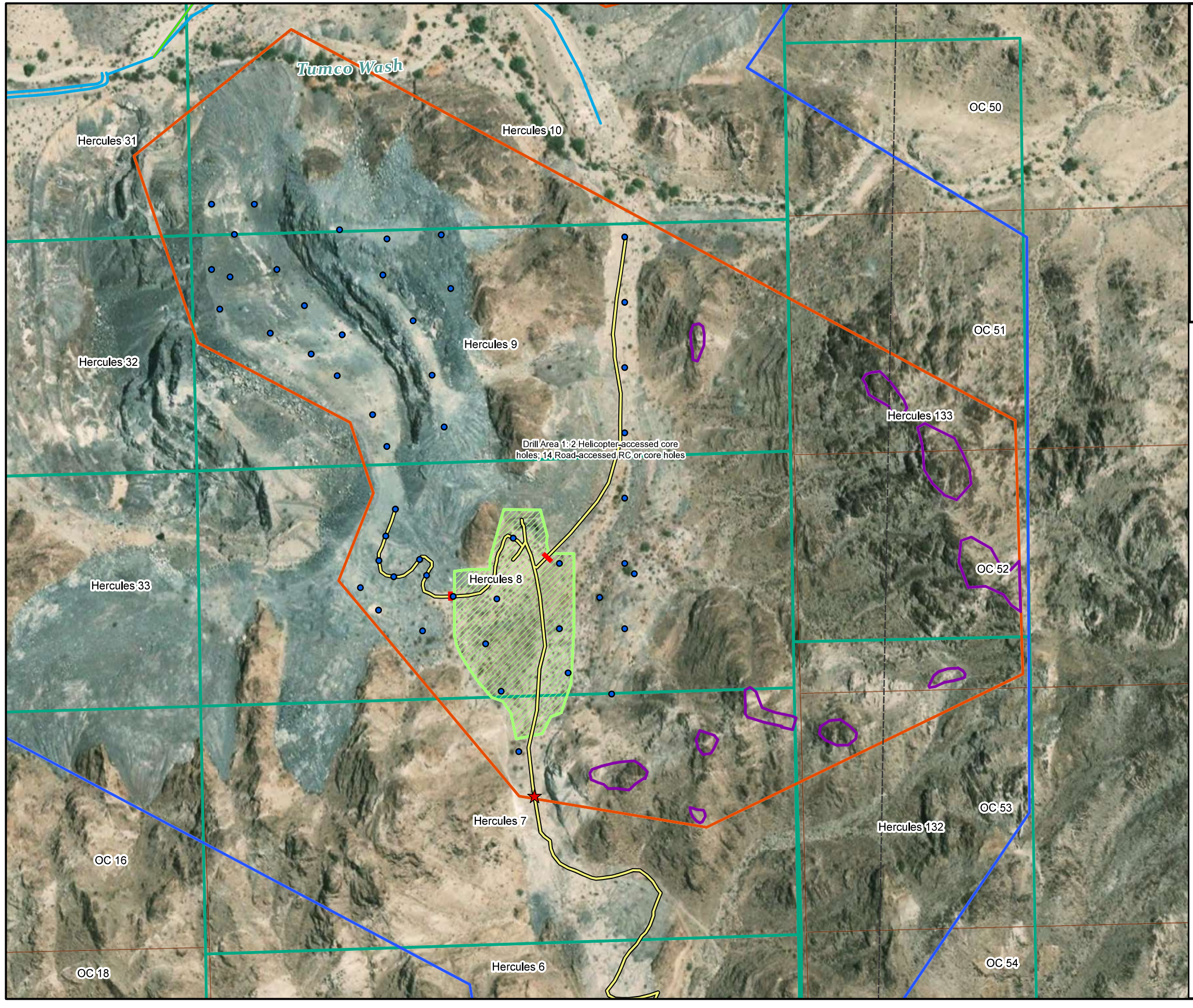

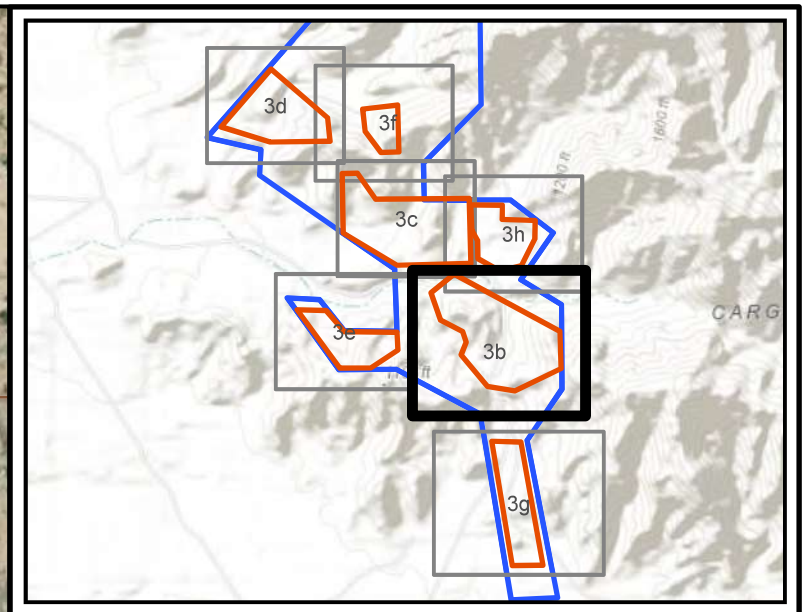

T15S, R20E, Portions of Sections 1, 2, 12 and 13,
T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California, Data Source: SMP
Image Source: ArcGIS Online, World Imagery, 2018

Legend

- Gate
- Potential Road-Accessed RC or Core Drill Hole
- Existing Access (Improvement Required)
- Existing Access (No Improvement Required)
- New Access Road
- Safety Berm
- Drill Area
- Potential Area of Helicopter Accessed Drill Holes
- Hercules Lode Claim
- OC 1-131 Lode Claim
- Oro Cruz Claim Boundary
- Oro Cruz Exploration Plan of Operations Area
- Oro Cruz Portal Staging Area

NOTE: Drill Area 1: 2 Helicopter-accessed core holes; 14 Road-accessed RC or core holes

N

0 125 250 Feet

0 50 100 Meters

WestLand Resources

SMP GOLD CORP.

Oro Cruz Exploration Plan of Operations

BLM CLAIMS BOUNDARY

Figure 3b

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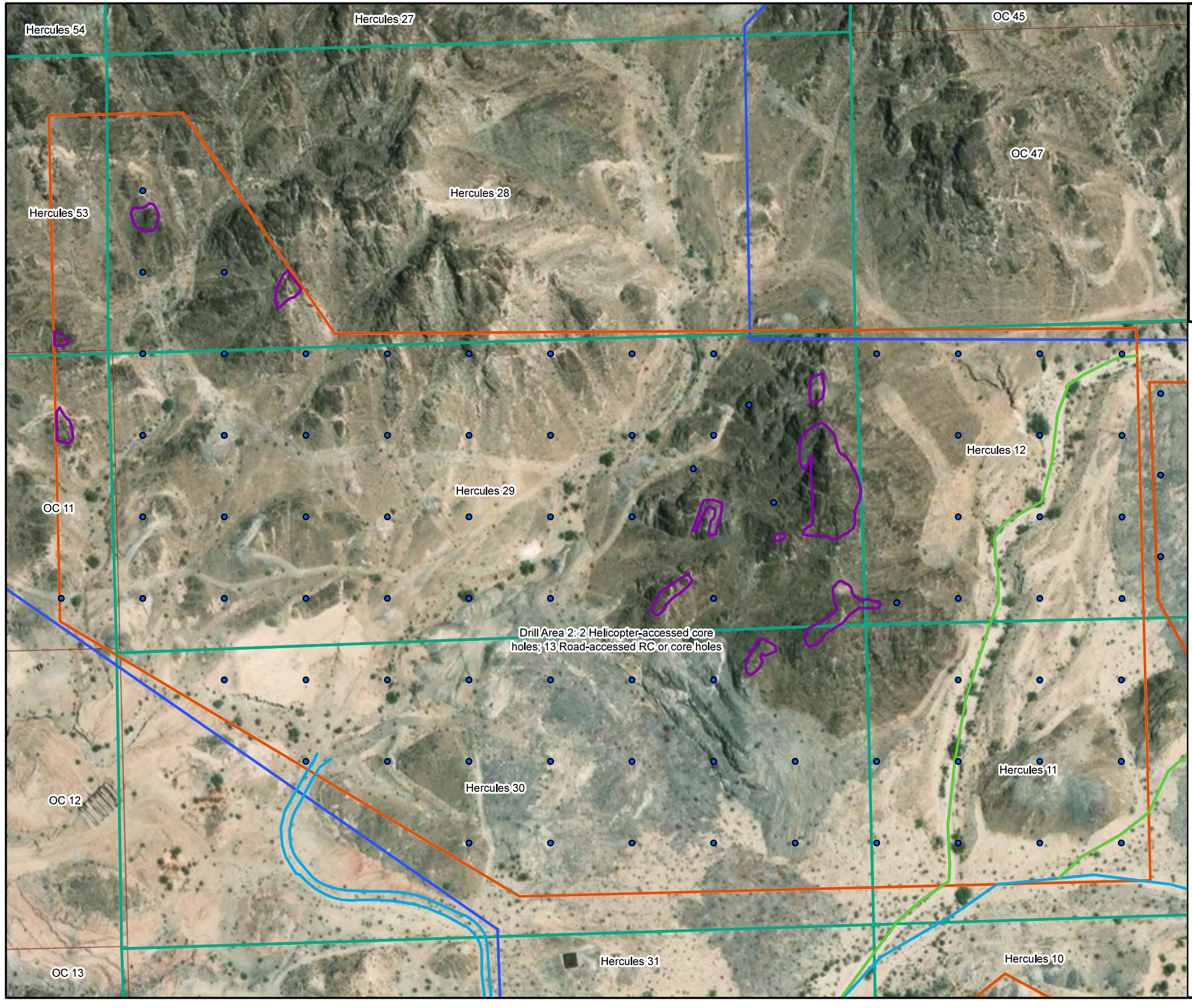

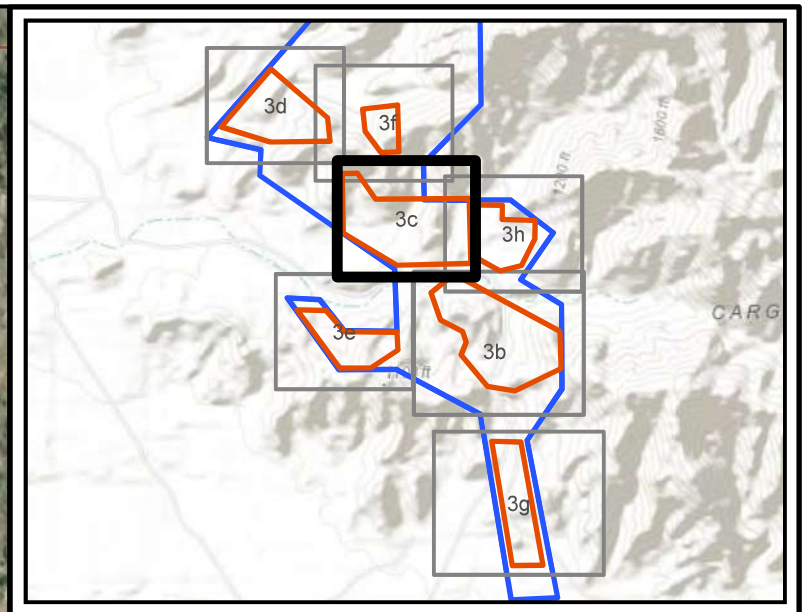

T15S, R20E, Portions of Sections 1, 2, 12 and 13,
T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California, Data Source: SMP
Image Source: ArcGIS Online, World Imagery, 2018

Legend

- Potential Road-Accessed RC or Core Drill Hole
- Existing Access (Improvement Required)
- Existing Access (No Improvement Required)
- Drill Area
- Potential Area of Helicopter Accessed Drill Holes
- Hercules Lode Claim
- OC 1-131 Lode Claim
- Oro Cruz Claim Boundary
- Oro Cruz Exploration Plan of Operations Area

NOTE: Drill Area 2: 2 Helicopter-accessed core holes; 13 Road-accessed RC or core holes

N

0 100 200 Feet

0 50 100 Meters

WestLand Resources

SMP GOLD CORP.

Oro Cruz Exploration Plan of Operations

BLM CLAIMS BOUNDARY

Figure 3c

Path: M:\Jobs\2000's\2072.03\ENV\MPO\ArcGISpro\OroCruzMPO_2072_03\OroCruzMPO_2072_03.aprx

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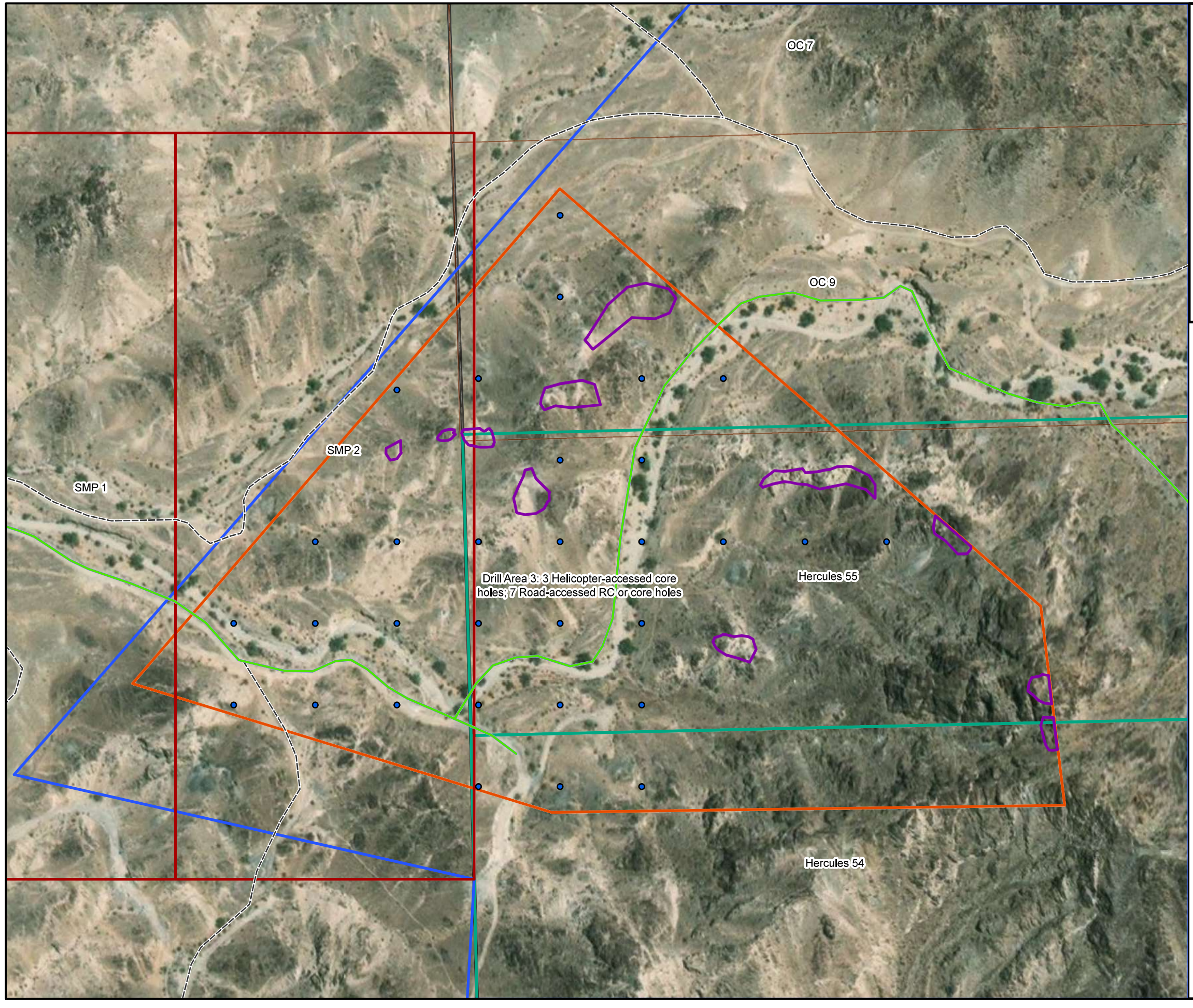

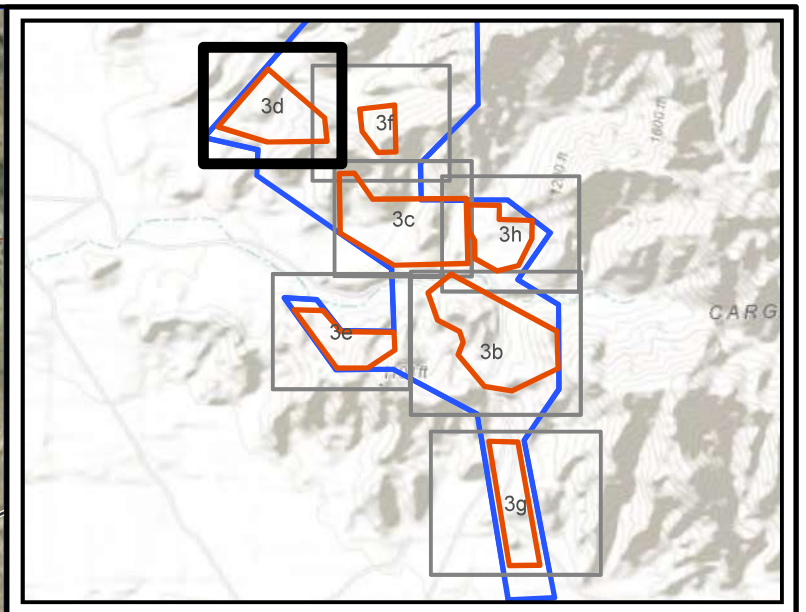

T15S, R20E, Portions of Sections 1, 2, 12 and 13,
T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California, Data Source: SMP
Image Source: ArcGIS Online, World Imagery, 2018

Legend

- Potential Road-Accessed RC or Core Drill Hole
- BLM Approved Access Road
- Existing Access (Improvement Required)
- Drill Area
- Potential Area of Helicopter Accessed Drill Holes
- Hercules Lode Claim
- New Claim
- OC 1-131 Lode Claim
- Oro Cruz Claim Boundary
- Oro Cruz Exploration Plan of Operations Area

NOTE: Drill Area 3: 3 Helicopter-accessed core holes; 7 Road-accessed RC or core holes

N

0 100 200 Feet

0 50 100 Meters

WestLand Resources

SMP GOLD CORP.

Oro Cruz Exploration Plan of Operations

BLM CLAIMS BOUNDARY

Figure 3d

Path: M:\Jobs\2000's\2072.03\ENV\MPO\ArcGISpro\OroCruzMPO_2072_03\OroCruzMPO_2072_03.aprx

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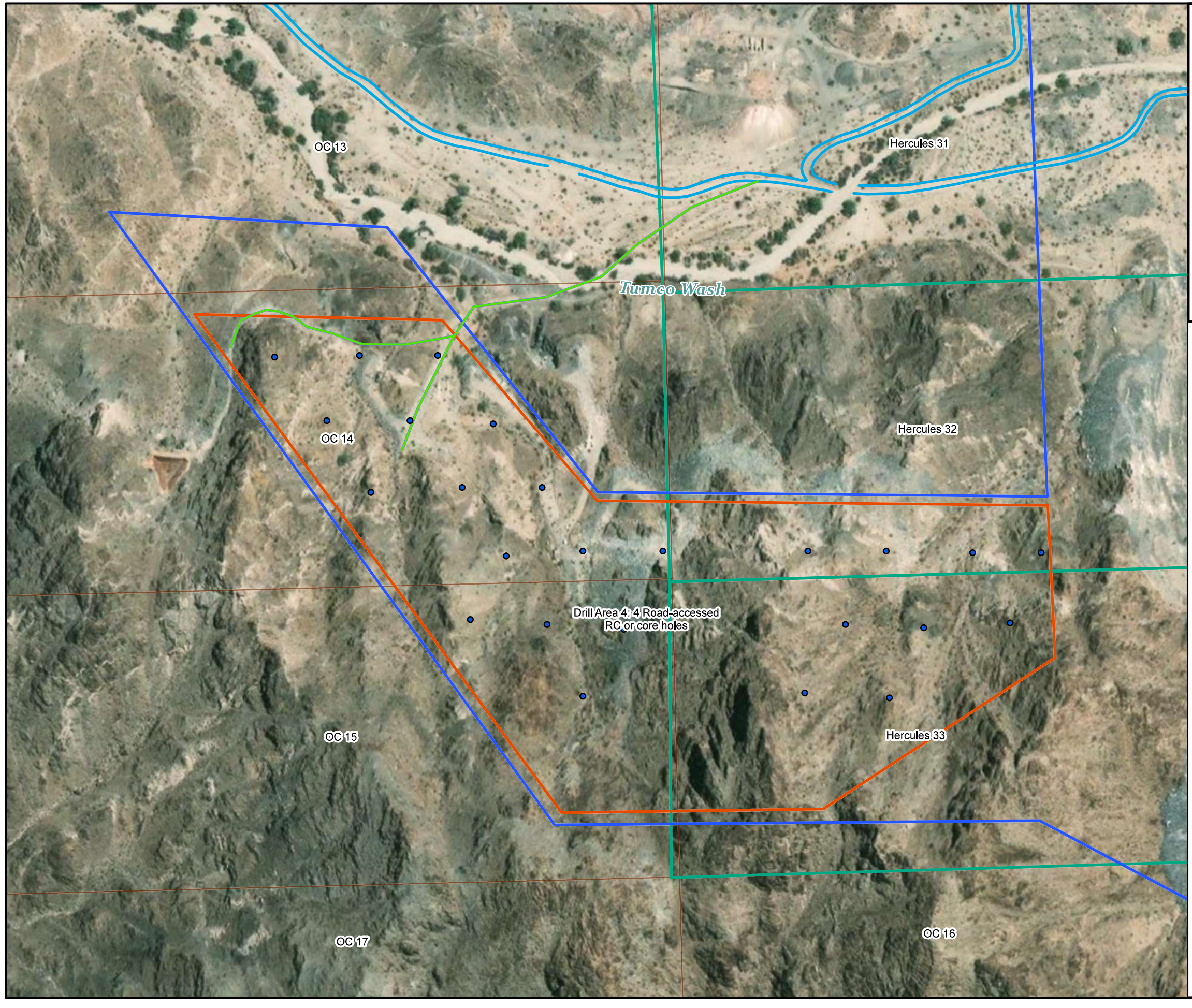

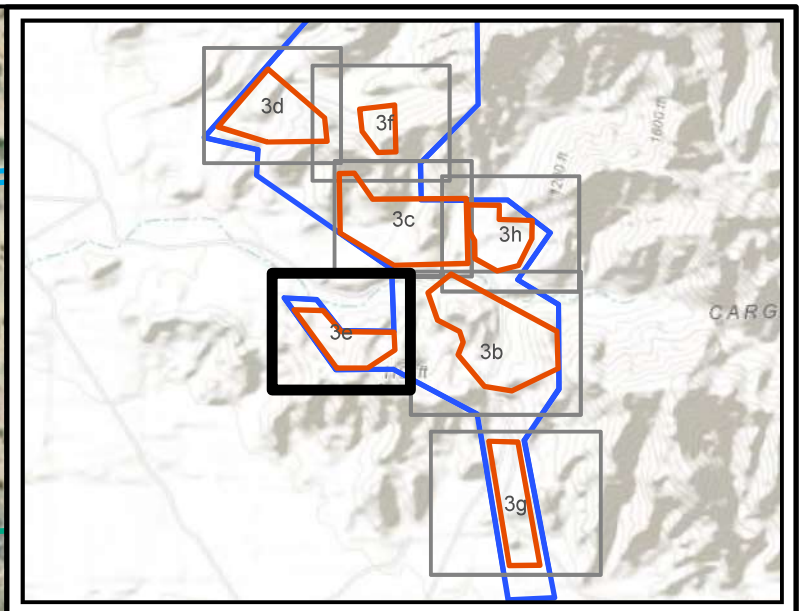

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T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California, Data Source: SMP
Image Source: ArcGIS Online, World Imagery, 2018

Legend

- Potential Road-Accessed RC or Core Drill Hole
- Existing Access (Improvement Required)
- Existing Access (No Improvement Required)
- Drill Area
- Hercules Lode Claim
- OC 1-131 Lode Claim
- Oro Cruz Claim Boundary
- Oro Cruz Exploration Plan of Operations Area

NOTE: Drill Area 4: 4 Road-accessed RC or core holes

N

0 100 200 Feet

0 50 100 Meters

WestLand Resources

SMP GOLD CORP.

Oro Cruz Exploration Plan of Operations

BLM CLAIMS BOUNDARY

Figure 3e

Path: M:\Jobs\2000's\2072.03\ENV\MPO\ArcGISpro\OroCruzMPO_2072_03\OroCruzMPO_2072_03.aprx

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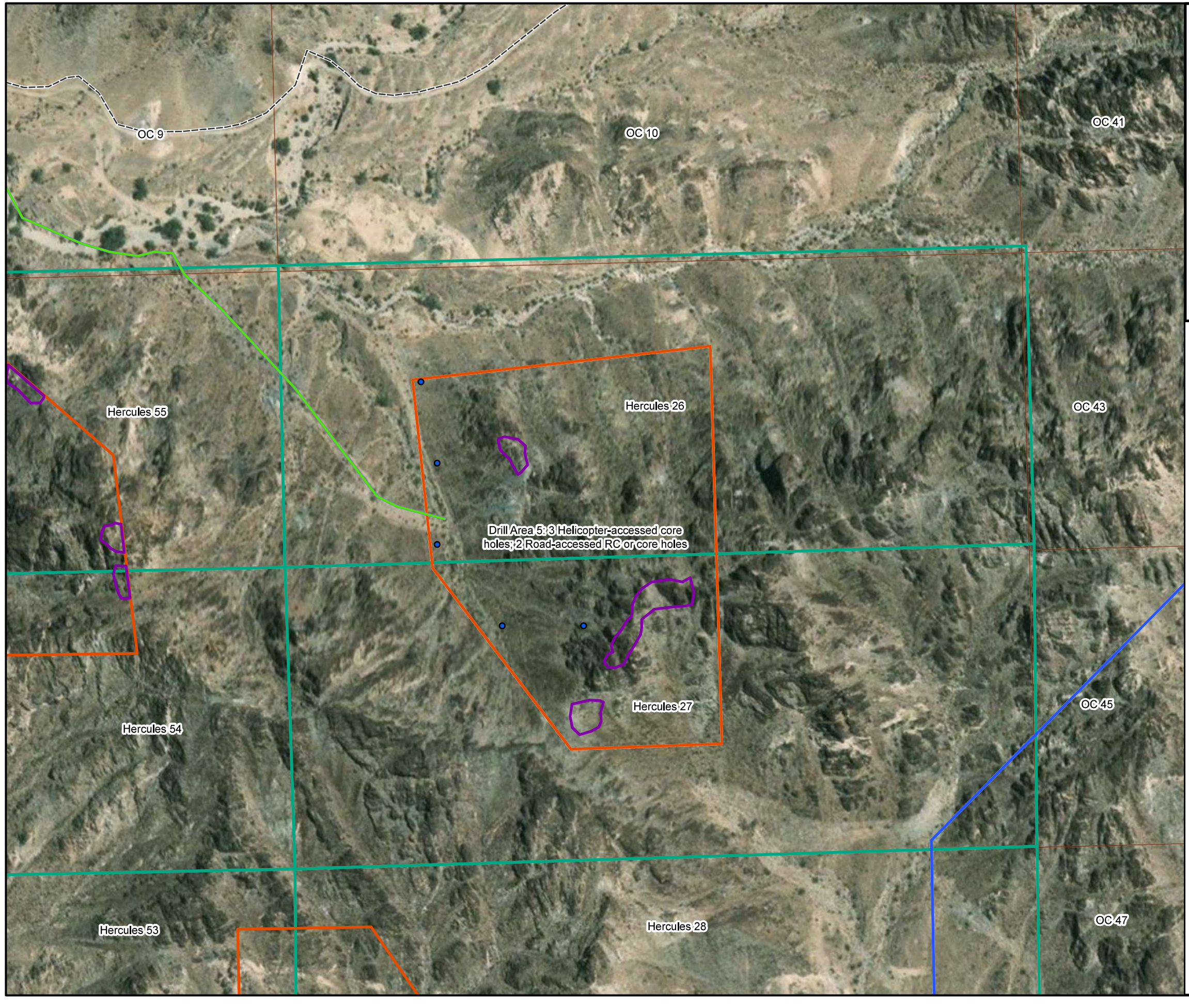

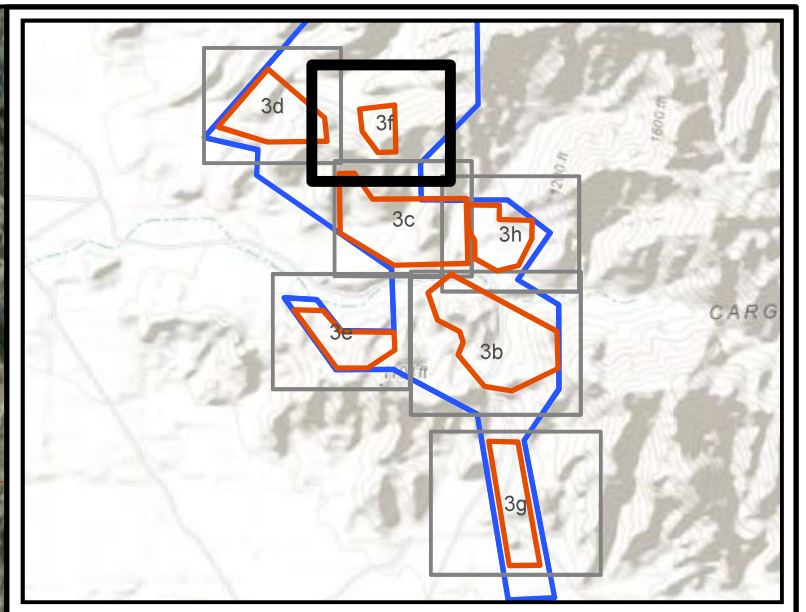

T15S, R20E, Portions of Sections 1, 2, 12 and 13,
T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California, Data Source: SMP
Image Source: ArcGIS Online, World Imagery, 2018

Legend

- Potential Road-Accessed RC or Core Drill Hole
- BLM Approved Access Road
- Existing Access (Improvement Required)
- Drill Area
- Potential Area of Helicopter Accessed Drill Holes
- Hercules Lode Claim
- OC 1-131 Lode Claim
- Oro Cruz Claim Boundary
- Oro Cruz Exploration Plan of Operations Area

NOTE: Drill Area 5: 3 Helicopter-accessed core holes; 2 Road-accessed RC or core holes

N

0 100 200 Feet

0 50 100 Meters

WestLand Resources

SMP GOLD CORP.

Oro Cruz Exploration Plan of Operations

BLM CLAIMS BOUNDARY

Figure 3f

Path: M:\Jobs\2000's\2072.03\ENV\MPO\ArcGISpro\OroCruzMPO_2072_03\OroCruzMPO_2072_03.aprx

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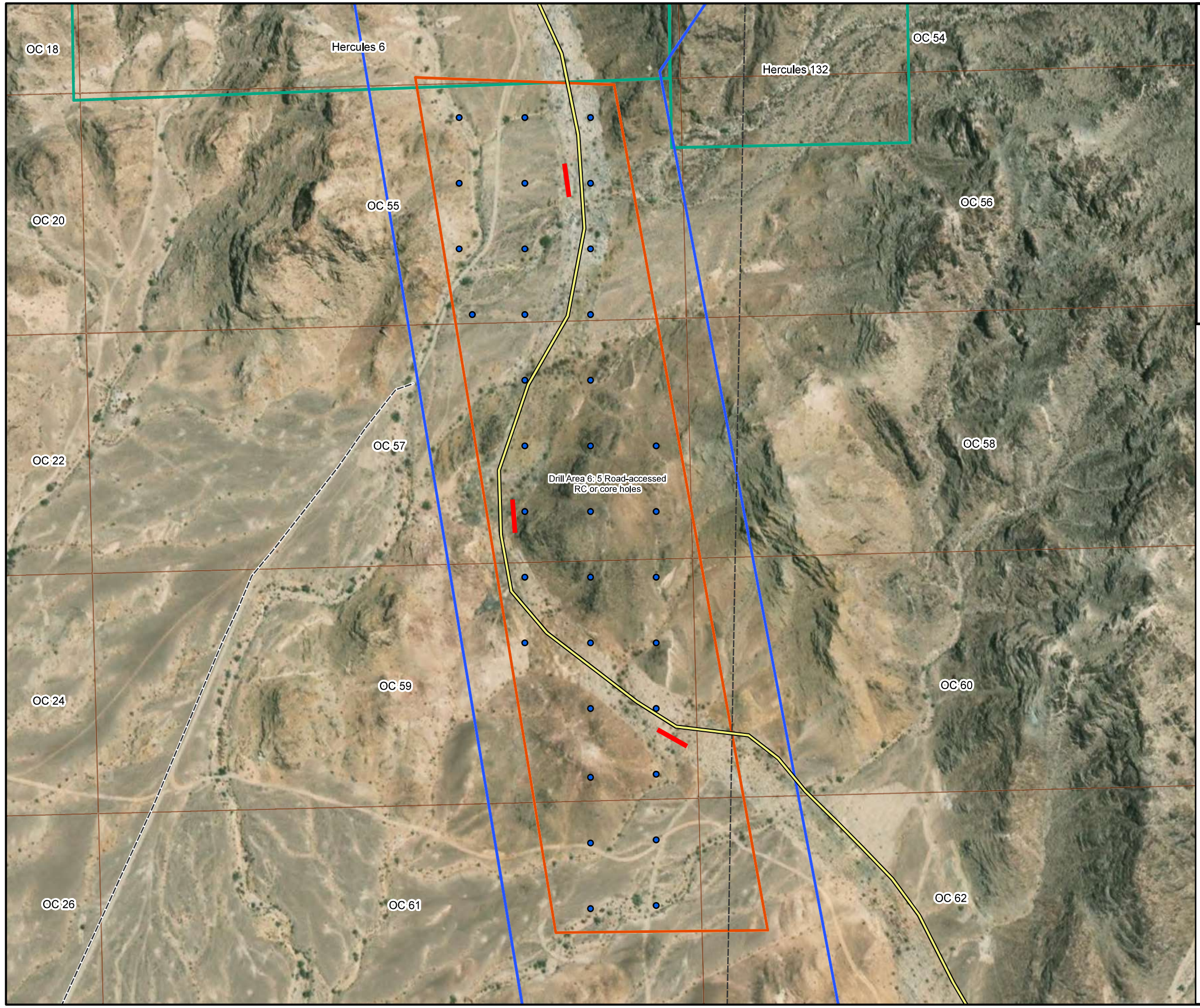

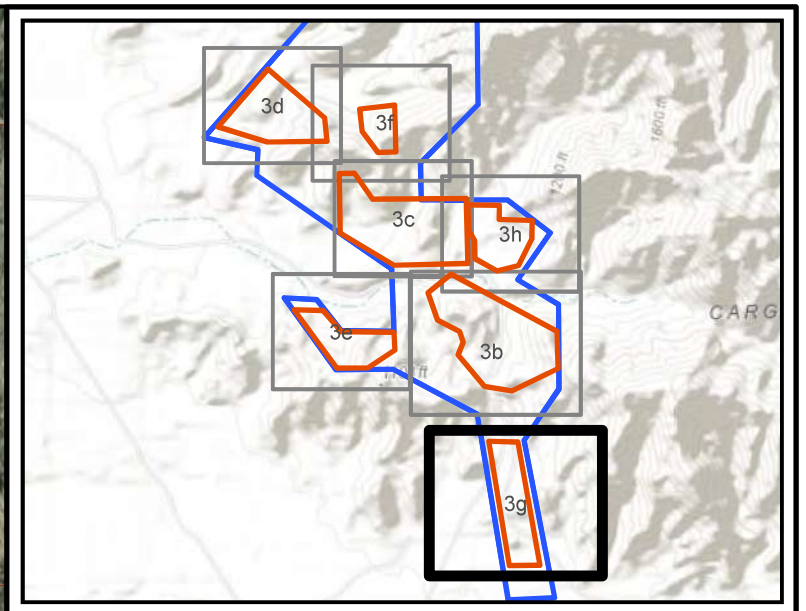

T15S, R20E, Portions of Sections 1, 2, 12 and 13,
T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California, Data Source: SMP
Image Source: ArcGIS Online, World Imagery, 2018

Legend

- Potential Road-Accessed RC or Core Drill Hole
- BLM Approved Access Road
- New Access Road
- Safety Berm
- Drill Area
- Hercules Lode Claim
- OC 1-131 Lode Claim
- Oro Cruz Claim Boundary
- Oro Cruz Exploration Plan of Operations Area

NOTE: Drill Area 6: 5 Road-accessed RC or core holes

N

0 125 250 Feet

0 50 100 Meters

WestLand Resources

SMP GOLD CORP.

Oro Cruz Exploration Plan of Operations

BLM CLAIMS BOUNDARY

Figure 3g

Path: M:\Jobs\2000's\2072.03\ENV\MPO\ArcGISpro\OroCruzMPO_2072_03\OroCruzMPO_2072_03.aprx

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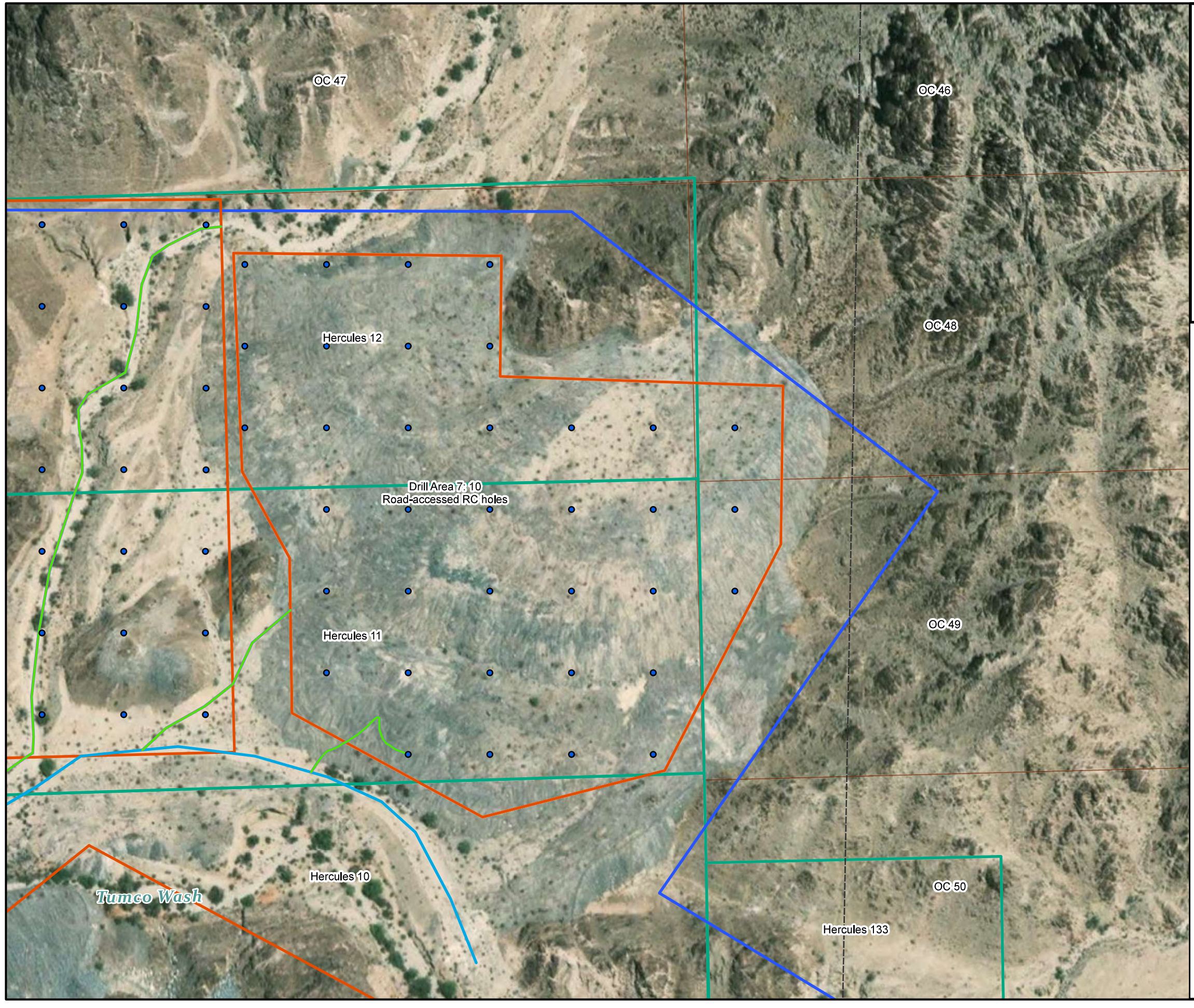

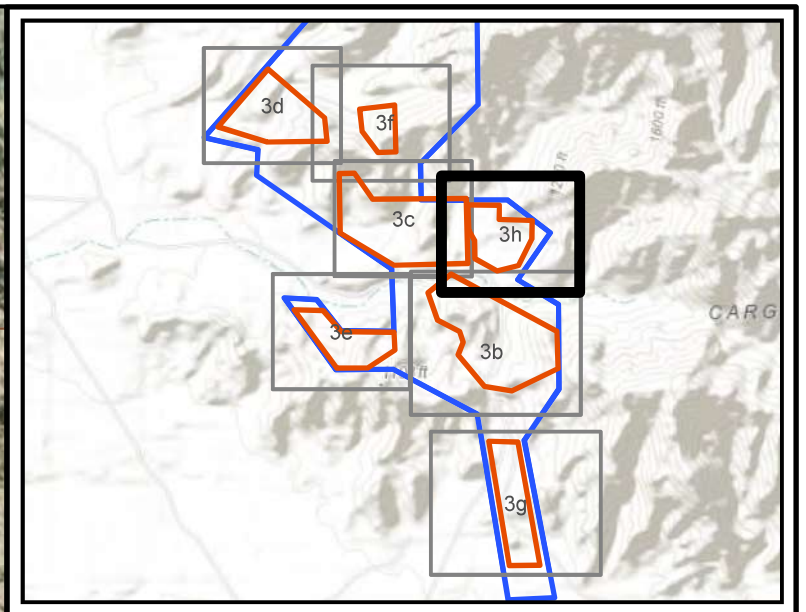

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T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California, Data Source: SMP
Image Source: ArcGIS Online, World Imagery, 2018

Legend

- Potential Road-Accessed RC or Core Drill Hole
- Existing Access (Improvement Required)
- Existing Access (No Improvement Required)
- Drill Area
- Hercules Lode Claim
- OC 1-131 Lode Claim
- Oro Cruz Claim Boundary
- Oro Cruz Exploration Plan of Operations Area

NOTE: Drill Area 7: 10 Road-accessed RC holes

N

0 100 200 Feet

0 50 100 Meters

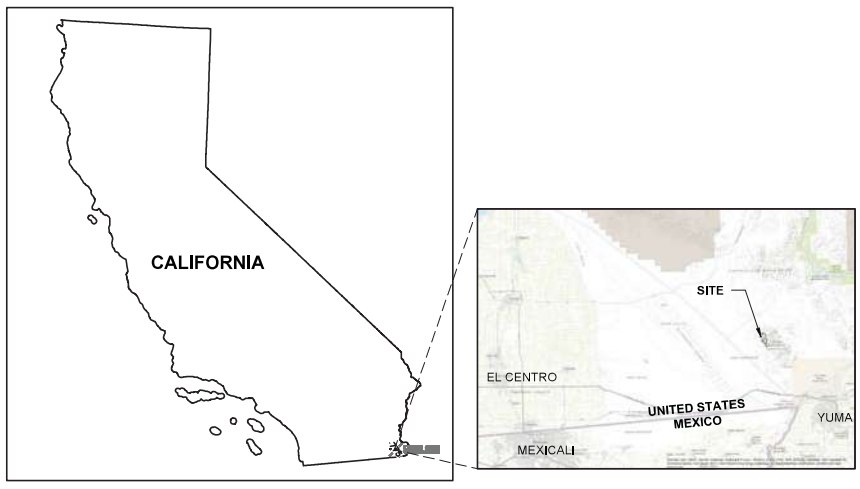
WestLand Resources

SMP GOLD CORP.

Oro Cruz Exploration Plan of Operations

BLM CLAIMS BOUNDARY

Figure 3h



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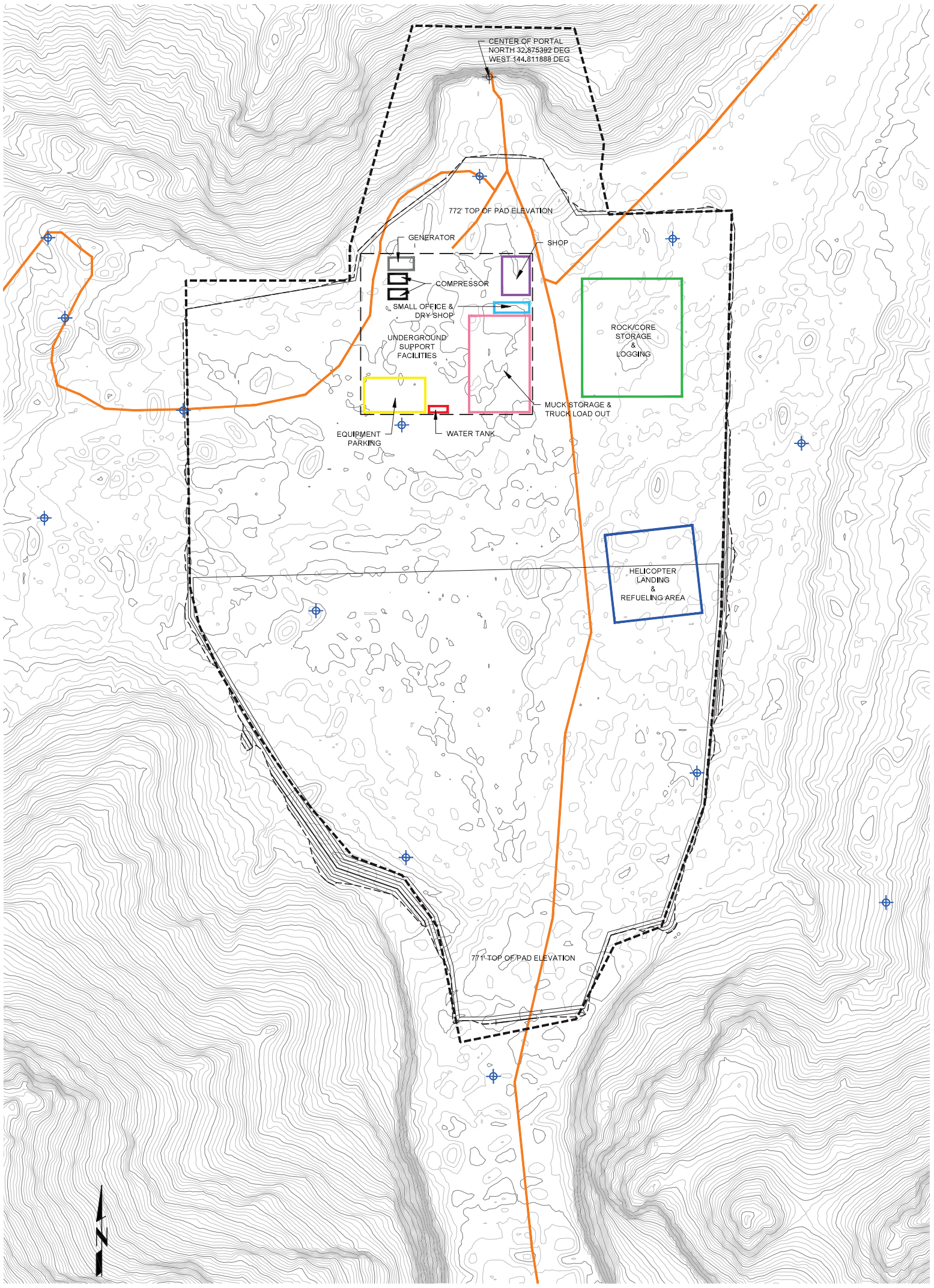
LEGEND

- EXISTING CONTOURS
- PAD CONTOURS
- NEW ACCESS ROAD
- POTENTIAL LOCATION OF ROAD-ACCESS RC OR CORE DRILL HOLE



500 0 500 1000

SCALE IN FEET
SCALE: 1" = 500'
SCALE INDICATED IS BASED ON A 24" X 36" FORMAT PRINT

THIS DRAWING HAS BEEN PREPARED IN ACCORDANCE WITH A STANDARD OF CARE ORDINARY AND CUSTOMARY WITHIN THE PRACTICE OF ENGINEERING. THE SCOPE OF RESPONSIBILITY OF THE UNDERSIGNED IS LIMITED SPECIFICALLY TO THE AREA OF PRACTICE OF CIVIL ENGINEERING DEFINED IN THE CALIFORNIA PROFESSIONAL ENGINEERS ACT.

REGISTERED PROFESSIONAL ENGINEER · A. PEARCE SWERDFEGER · NO. C87466 · CIVIL · STATE OF CALIFORNIA

A. PEARCE SWERDFEGER R.C.E. 87466 EXP. 09-30-2021

SOURCE DATA:

BOUNDARIES:	
ORO CRUZ CLAIM BOUNDARY:	WESTLAND RESOURCES
ORO CRUZ EXPLORATION:	WESTLAND RESOURCES
TOPOGRAPHY:	
LiDAR:	EAGLE MAPPING LTD., FLIGHT DATE 01/15/2021
GROUND CONTROL:	DESERT SURVEYING & ENGINEERING, GORDON O. OLSON, PE, PLS (CA PLS NO. 7107)
CONTOUR INTERVAL:	10 FEET
DATUM:	HORZ= NAD83, CALIFORNIA ZONE 5, US FOOT VERT= NAVD88

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REVISIONS

MARK	DATE	DESCRIPTION	BY
	06/16/21	INITIAL DRAFT	GJC

REVIEWED BY:
DATE
DATE

SMP GOLD CORP.
ORO CRUZ EXPLORATION PROJECT

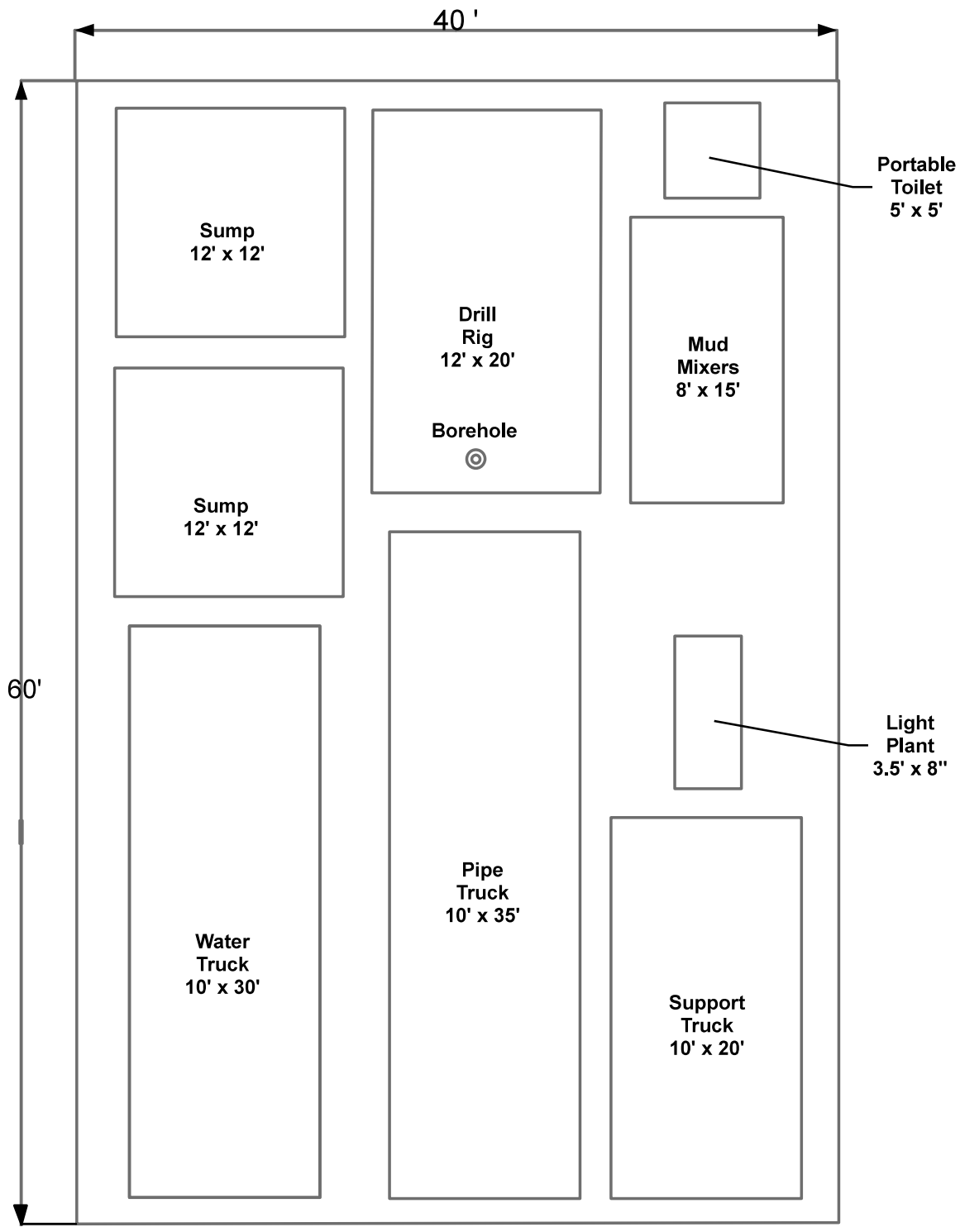
PORTAL STAGING AREA GRADING

SCALE: HORIZ. AS SHOWN VERT. AS SHOWN
DRAWN BY: G.CAMUS
CHECKED BY: APS

FIGURE 4

Plot Date: S:\WE18 – Westland – Oro Cruz\CAD\2021\WE18 – Westland – Oro Cruz_Grading_2021-10-22.dwg Oct 22, 2021, 11:33am GJC

Path: M:\Jobs\2000's\2072.03\ENV\MPO\ArcGISpro\OroCruzMPO_2072_03\OroCruzMPO_2072_03.aprx



Note: Layout will vary depending on site conditions

SMP GOLD CORP.

Oro Cruz Exploration
Plan of Operations

TYPICAL ROAD-ACCESSED DRILL SITE LAYOUT

Figure 5

WestLand Resources

N

0 5 10 Feet

0 1.5 3 Meters

Appendix B: Conservation Management Actions

LUPA Wide					
Category	**CMA #**	**CMA Text**	**Applicability**	**Explanation: Why CMA is not applicable**	**Comments**
Biological Resources	**LUPA-BIO-1**	Conduct a habitat assessment (see Glossary of Terms) of Focus and BLM Special Status Species' suitable habitat for all activities and identify and/or delineate the DRECP vegetation types, rare alliances, and special features (e.g., Aeolian sand transport resources, Joshua tree, microphyll woodlands, carbon sequestration characteristics, seeps, climate refugia) present using the most current information, data sources, and tools (e.g., DRECP land cover mapping, aerial photos, DRECP species models, and reconnaissance site visits) to identify suitable habitat (see Glossary of Terms) for Focus and BLM Special Status Species. If required by the relevant species specific CMAs, conduct any subsequent protocol or adequate presence/absence surveys to identify species occupancy status and a more detailed mapping of suitable habitat to inform siting and design considerations. If required by relevant species specific CMAs, conduct analysis of percentage of impacts to suitable habitat and modeled suitable habitat. • BLM will not require protocol surveys in sites determined by the designated biologist to be unviable for occupancy of the species, or if baseline studies inferred absence during the current or previous active season. Utilize the most recent and applicable assessment protocols and guidance documents for vegetation types and jurisdictional waters and wetlands that have been approved by BLM, and the appropriate responsible regulatory agencies, as applicable.	Yes		A habitat assessment was conducted during the 2021 biological survey and the resulting report was approved by the BLM. The Biological Resources Assessment is included within Appendix E of the EA and is on file with the BLM El Centro Field Office. Further mitigation would not be necessary in addition to the PDFs and an additional habitat assessment would not be required as it was already conducted; therefore this CMA would not be required to be implemented.
	LUPA-BIO-2	Designated biologist(s) (see Glossary of Terms), will conduct, and oversee where appropriate, activity-specific required biological monitoring during pre-construction, construction, and decommissioning to ensure that avoidance and minimization measures are appropriately implemented and are effective. The appropriate required monitoring will be determined during the environmental analysis and BLM approval process. The designated biologist(s) will submit monitoring reports directly to BLM.	Yes		Required pre-clearance surveys and continued monitoring would take place during all phases of the Proposed Action by a BLM-approved biologist per the PDFs in Appendix F of the EA. Further mitigation would not be necessary in addition to the PDFs; therefore, this CMA would not be required to be implemented.
Resource Setback Standards	**LUPA-BIO-3**	Resource setbacks (see Glossary of Terms) have been identified to avoid and minimize the adverse effects to specific biological resources. Setbacks are not considered additive and are measured as specified in the applicable CMA. Allowable minor incursions (see Glossary of Terms), as per specific CMAs do not affect the following setback measurement descriptions. Generally, setbacks (which range in distances for different biological resources) for the appropriate resources are measured from: • The edge of each of the DRECP desert vegetation types, including but not limited to those in the riparian or wetland vegetation groups (as defined by alliances within the vegetation type descriptions and mapped based on the vegetation type habitat assessments described in LUPA-BIO-1). • The edge of the mapped riparian vegetation or the Federal Emergency Management Agency (FEMA) 100-year floodplain, whichever is greater, for the Mojave River. • The edge of the vegetation extent for specified Focus and BLM sensitive plant species. • The edge of suitable habitat or active nest substrates for the appropriate Focus and BLM Special Status Species.	Yes		Avoidance buffers to protect special status species such as desert tortoise, migratory birds including raptors, and bats would be implemented per the PDFs within Appendix F of the EA. Further mitigation would not be necessary in addition to the PDFs; therefore, this CMA would not be required to be implemented.
Seasonal Restrictions	**LUPA-BIO-4**	For activities that may impact Focus and BLM Special Status Species, implement all required species-specific seasonal restrictions on pre-construction, construction, operations, and decommissioning activities. Species-specific seasonal restriction dates are described in the applicable CMAs. Alternatively, to avoid a seasonal restriction associated with visual disturbance, installation of a visual barrier may be evaluated on a case-by-case basis that will result in the breeding, nesting, lambing, fawning, or roosting species not being affected by visual disturbance from construction activities subject to seasonal restriction. The proposed installation and use of a visual barrier to avoid a species seasonal restriction will be analyzed in the activity/project specific environmental analysis.	Yes		Seasonal surface occupancy restrictions would be put in place for desert tortoise, migratory birds, and bats as defined in Appendix F of the EA. Further mitigation would not be necessary in addition to the PDFs; therefore, this CMA would not be required to be implemented.
Worker Education	**LUPA-BIO-5**	All activities, as determined appropriate on an activity-by-activity basis, will implement a worker education program that meets the approval of the BLM. The program will be carried out during all phases of the project (site mobilization, ground disturbance, grading, construction, operation, closure/decommissioning or project abandonment, and restoration/reclamation activities). The worker education program will provide interpretation for non-English speaking workers, and provide the same instruction for new workers prior to their working on site. As appropriate based on the activity, the program will contain information about: • Site-specific biological and nonbiological resources. • Information on the legal protection for protected resources and penalties for violation of federal and state laws and administrative sanctions for failure to comply with LUPA CMA requirements intended to protect site-specific biological and nonbiological resources. • The required LUPA and project-specific measures for avoiding and minimizing effects during all project phases, including but not limited to resource setbacks, trash, speed limits, etc. • Reporting requirements and measures to follow if protected resources are encountered, including potential work stoppage and requirements for notification of the designated biologist. • Measures that personnel can take to promote the conservation of biological and nonbiological resources.	Yes		A worker education program would be implemented as associated with desert tortoise protection, raven control, and speed limits per Section 5.6 of the Plan of Operations and included as a PDF within Appendix F of the EA. Further mitigation would not be necessary in addition to the PDFs; therefore, this CMA would not be required to be implemented.
Subsidized Predators Standards	**LUPA-BIO-6**	Subsidized predator standards, approved by BLM, in coordination with the USFWS and CDFW, will be implemented during all appropriate phases of activities, including but not limited to renewable energy activities, to manage predator food subsidies, water subsidies, and breeding sites including the following: • Common Raven management actions will be implemented for all activities to address food and water subsidies and roosting and nesting sites specific to the Common Raven. These include identification of monitoring reporting procedures and requirements; strategies for refuse management; as well as design strategies and passive repellant methods to avoid providing perches, nesting sites, and roosting sites for Common Ravens. • The application of water and/or other palliatives for dust abatement in construction areas and during project operations and maintenance will be done with the minimum amount of water necessary to meet safety and air quality standards and in a manner that prevents the formation of puddles, which could attract wildlife and wildlife predators. • Following the most recent national policy and guidance, BLM will take actions to not introduce, dispose of, or release any non- native species into areas of native habitat, suitable habitat, and natural or artificial waterways/water bodies containing native species. All activity work areas will be kept free of trash and debris. Particular attention will be paid to "micro-trash" (including such small items as screws, nuts, washers, nails, coins, rags, small electrical components, small pieces of plastic, glass or wire, and any debris or trash that is colorful or shiny) and organic waste that may subsidize predators. All trash will be covered, kept in closed containers, or otherwise removed from the project site at the end of each day or at regular intervals prior to periods when workers are not present at the site. • In addition to implementing the measures above on activity sites, each activity will provide compensatory mitigation that contributes to LUPA-wide raven management.	Yes		Proposed desert tortoise protective measures, measures to prevent perching and nesting, water usage guidelines, and measures to control debris and trash would all be implemented per the PDFs in Appendix F of the EA. Further mitigation would not be necessary in addition to the PDFs; therefore, this CMA would not be required to be implemented.

LUPA Wide					
Category	**CMA #**	**CMA Text**	**Applicability**	**Explanation: Why CMA is not applicable**	**Comments**
Restoration of Areas Disturbed by Construction Activities But Not Converted by Long-Term Disturbance	**LUPA-BIO-7**	Where DRECP vegetation types or Focus or BLM Special Status Species habitats may be affected by ground- disturbance and/or vegetation removal during pre-construction, construction, operations, and decommissioning related activities but are not converted by long-term (i.e., more than two years of disturbance, see Glossary of Terms) ground disturbance, restore these areas following the standards, approved by BLM authorized officer, following the most recent BLM policies and procedures for the vegetation community or species habitat disturbance/impacts as appropriate, summarized below: • Implement site-specific habitat restoration actions for the areas affected including specifying and using: ○ The appropriate seed (e.g., certified weed- free, native, and locally and genetically appropriate seed) ○ Appropriate soils (e.g., topsoil of the same original type on site or that was previously stored by soil type after being salvaged during excavation and construction activities) ○ Equipment ○ Timing (e.g., appropriate season, sufficient rainfall) ○ Location ○ Success criteria ○ Monitoring measures ○ Contingency measures, relevant for restoration, which includes seeding that follows BLM policy when on BLM administered lands. • Salvage and relocate cactus, nolina, and yucca from the site prior to disturbance using BLM protocols. To the maximum extent practicable for short-term disturbed areas (see Glossary of Terms), the cactus and yucca will be re-planted back to the original site. • Restore and reclaim short-term (i.e. 2 years or less, see Glossary of Terms) disturbed areas, including pipelines, transmission projects, staging areas, and short-term construction-related roads immediately or during the most biologically appropriate season as determined in the activity/project specific environmental analysis and decision, following completion of construction activities to reduce the amount of habitat converted at any one time and promote recovery to natural habitats and vegetation as well as climate refugia and ecosystem services such carbon storage.	Yes		The Project would reclaim disturbed areas, except for the proposed permanent access road for access to Drill Area 1 using site-appropriate, BLM-approved native seed mixtures that are weed-free and compatible with landscape conditions. The Reclamation Plan is included within Appendix E of the EA, and Appendix F further describes PDFs that would be implemented for revegetation. Further mitigation would not be necessary in addition to the PDFs; however, should additional revegetation measures be deemed necessary in combination with those outlined in the Reclamation Plan, this CMA would be implemented.
General Closure and Decommissioning Standards	**LUPA-BIO-8**	All activities that are required to close and decommission the site (e.g., renewable energy activities) will specify and implement project-specific closure and decommissioning actions that meet the approval of BLM, and that at a minimum address the following: • Specifying and implementing the methods, timing (e.g., criteria for triggering closure and decommissioning actions), and criteria for success (including quantifiable and measurable criteria). • Recontouring of areas that were substantially altered from their original contour or gradient and installing erosion control measures in disturbed areas where potential for erosion exists. • Restoring vegetation as well as soil profiles and functions that will support and maintain native plant communities, associated carbon sequestration and nutrient cycling processes, and native wildlife species. • Vegetation restoration actions will identify and use native vegetation composition, native seed composition, and the diversity to values commensurate with the natural ecological setting and climate projections.	No	Land use does not occur on project site.	The Project proposes short-term exploration activities and would not entail renewable energy activities, thus no closure and decomissioning processes would be required.
Water and Wetland Dependent Species Resources	**LUPA-BIO-9**	Implement the following general LUPA CMA for water and wetland dependent resources • Implement construction site standard practices to prevent toxic chemicals, hazardous materials, and other fluids from entering vegetation type streams, washes, and tributary networks through water runoff, erosion, and sediment transport by, at a minimum, implementing the following: ○ On project sites, vehicles and other equipment will be maintained in proper working condition and only stored in designated containment areas where runoff is collected or controlled and that are located outside of streams, washes, and distributary networks to minimize accidental fluids and hazardous materials spills. ○ Hazardous material leaks, spills, or releases will be immediately cleaned and equipment will be repaired upon identification. Removal and disposal of spill and related clean-up materials will occur at an approved off-site landfill. ○ Maintenance and operations vehicles will carry the appropriate equipment and materials to isolate, clean up, and repair any hazardous material leaks, spills, or releases. • Activity-specific drainage, erosion, and sedimentation control actions, which meet the approval of BLM and the applicable regulatory agencies, will be carried out during all appropriate phases of the approved project. These actions, as needed, will address measures to ensure the proper protection of water quality, site-specific stormwater and sediment retention, and design of the project to minimize site disturbance, including the following: ○ Identify site-specific surface water runoff patterns and implement measures to prevent excessive and unnatural soil deposition and erosion. ○ Implement measures to maintain natural drainages and to maintain hydrologic function in the event drainages are disturbed. ○ Reduce the amount of area covered by impervious surfaces through use of permeable pavement or other pervious surfaces. Direct runoff from impervious surfaces into retention basins. ○ Stabilize disturbed areas following grading in the manner appropriate to the soil type so that wind or water erosion is minimized. ○ Minimize irrigation runoff by using low or no irrigation native vegetation landscaping for landscaped retention basins. ○ Conduct regular inspections and maintenance of long-term erosion control measures to ensure long-term effectiveness. ○ Project applicants for sites that may affect intermittent and perennial streams, springs, swales, ephemeral washes, wetland vegetation, other DRECP water land covers, or sites occupied by aquatic or riparian Focus and BLM Special Status Species due to groundwater or surface water extraction will conduct hydrologic studies during project planning to determine the potential effect of groundwater and surface water extraction on the hydrologic unit. These studies will include both watershed effects as well as effects on perched, alluvial, and regional aquifers. Projects that are likely to affect ground-water resources in a manner that would result in substantial loss of riparian or wetland communities or habitat for riparian or aquatic Focus and BLM Special Status Species are prohibited. ○ The use of evaporation ponds for water management will be avoided when the water could harm birds or other terrestrial wildlife due to constituents of concern present in the wastewater (e.g., selenium, hypersalinity, etc.). Evaporation ponds will be configured to minimize attractiveness to shorebirds (e.g., maintain water depths over two feet; maintain steep slopes along edge; enclose evaporation ponds in long-term structures; or obscure evaporation ponds from view using materials that blend in with the natural surroundings). • Ramps that allow the egress of wildlife from ponds or other water management infrastructure will be installed.	Yes		The Project does not trigger any waste discharge requirements under Title 27, CCR, Section 20005 et seq. Construction Stormwater General Permits are required pursuant to CGP Regulation (NPDES No. CAS000002; SWRCB Order No. 2009-0009-DWQ amended by 2010-0014-DWQ & 2012-0006-DWQ). A Stormwater Pollution Prevention Plan (SWPPP) would be developed and implemented to control sedimentation from disturbance. Best Management Practices (BMPs) would be installed to manage disturbed surfaces. A detailed Spill Containment Plan is identified to prevent the spread of any accidental leakage in storage, fuel and lubricants per the PDFs in Appendix F. Only minor servicing of mobile equipment (greasing and periodic fueling) would be conducted on BLM lands, limiting the potential for diesel fuel spills. Spill response kits would be maintained, pollutants generated would be properly disposed of in accordance with applicable regulations. Further mitigation would not be necessary in addition to the PDFs; therefore, this CMA would not be required to be implemented.

LUPA Wide					
Category	**CMA #**	**CMA Text**	**Applicability**	**Explanation: Why CMA is not applicable**	**Comments**
Standard Practices for Weed Management	**LUPA-BIO-10**	Consistent with BLM state and national policies and guidance, integrated weed management actions, will be carried out during all phases of activities, as appropriate, and at a minimum will include the following: • Thoroughly clean the tires and undercarriage of vehicles entering or reentering the project site to remove potential weeds. • Store project vehicles on site in designated areas to minimize the need for multiple washings whenever vehicles re-enter the project site. • Properly maintain vehicle wash and inspection stations to minimize the introduction of invasive weeds or subsidy of invasive weeds. • Closely monitor the types of materials brought onto the site to avoid the introduction of invasive weeds and non-native species. • Reestablish native vegetation quickly on disturbed sites. • Monitor and quickly implement control measures to ensure early detection and eradication of weed invasions to avoid the spread of invasive weeds and non-native species on site and to adjacent off-site areas. • Use certified weed-free mulch, straw, hay bales, or equivalent fabricated materials for installing sediment barriers.	Yes		This CMA would be implemented under the Project. SMP would be required to thoroughly clean the tires and undercarriage of vehicles entering or reentering the Project site to remove potential weeds, maintain vehicle wash and inspection stations, and closely monitor materials brought to site, in addition to the PDFs included in Appendix F for revegetation materials and invasive and non-native species management.
Nuisance Animals and Invasive Species	**LUPA-BIO-11**	Implement the following CMAs for controlling nuisance animals and invasive species: • No fumigant, treated bait, or other means of poisoning nuisance animals including rodenticides will be used in areas where Focus and BLM Special Status Species are known or suspected to occur. • Manage the use of widely spread herbicides and do not apply herbicides effective against dicotyledonous plants within 1,000 feet from the edge of a 100-year floodplain, stream and wash channels, and riparian vegetation or to soils less than 25 feet from the edge of drains. Exceptions will be made when targeting the base and roots of invasive riparian species such as tamarisk and Arundo donax (giant reed). Manage herbicides consistent with the most current national and California BLM policies. • Minimize herbicide, pesticide, and insecticide treatment in areas that have a high risk for groundwater contamination. • Clean and dispose of pesticide containers and equipment following professional standards. Avoid use of pesticides and cleaning containers and equipment in or near surface or subsurface water. • When near surface or subsurface water, restrict pesticide use to those products labeled safe for use in/near water and safe for aquatic species of animals and plants.	No		The Project does not propose use of herbicide, pesticides, rodenticides, or insecticides.
Noise	**LUPA-BIO-12**	For activities that may impact Focus or BLM Special Status Species**,** implement the following LUPA CMA for noise: • To the extent feasible, and determined necessary by BLM to protect Focus and BLM sensitive wildlife species, locate stationary noise sources that exceed background ambient noise levels away from known or likely locations of BLM sensitive wildlife species and their suitable habitat. • Implement engineering controls on stationary equipment, buildings, and work areas including sound-insulation and noise enclosures to reduce the average noise level, if the activity will contribute to noise levels above existing background ambient levels. • Use noise controls on standard construction equipment including mufflers to reduce noise	Yes		This CMA would be required for implementation. The Project would be required to implement noise controls to the extent feasible given the potential presence of desert tortoise and BLM Sensitive bat species.
General Siting and Design	**LUPA-BIO-13**	Implement the following CMA for project siting and design • To the maximum extent practicable site and design projects to avoid impacts to vegetation types, unique plant assemblages, climate refugia as well as occupied habitat and suitable habitat for Focus and BLM Special Status Species (see “avoid to the maximum extent practicable” in Glossary of Terms). • The siting of projects along the edges (i.e. general linkage border) of the biological linkages identified in Appendix D (Figures D-1 and D-2) will be configured (1) to maximize the retention of microphyll woodlands and their constituent vegetation type and inclusion of other physical and biological features conducive to Focus and BLM Special Status Species’ dispersal, and (2) informed by existing available information on modeled focus and BLM Special Status Species habitat and element occurrence data, mapped delineations of vegetation types, and based on available empirical data, including radio telemetry, wildlife tracking sign, and road-kill information. Additionally, projects will be sited and designed to maintain the function of F Special Status Species connectivity and their associated habitats in the following linkage and connectivity areas: o Within a 5-mile-wide linkage across Interstate 10 centered on Wiley’s Well Road to connect the Mule and McCoy mountains (the majority of this linkage is within the Chuckwalla ACEC and Mule-McCoy Linkage ACEC) . o Within a 3-mile-wide linkage across Interstate 10 to connect the Chuckwalla and Palen mountains. o Within a 1.5-mile-wide linkage across Interstate 10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center. o The confluence of Milpitas Wash and Colorado River floodplain within 2 miles of California State Route 78 (this linkage is entirely within the Chuckwalla ACEC) . • Delineate the boundaries of areas to be disturbed using temporary construction fencing and flagging prior to construction and confine disturbances, project vehicles, and equipment to the delineated project areas to protect vegetation types and focus and BLM Special Status Species. • Long-term nighttime lighting on project features will be limited to the minimum necessary for project security, safety, and compliance with Federal Aviation Administration requirements and will avoid the use of constant-burn lighting. • All long-term nighttime lighting will be directed away from riparian and wetland vegetation, occupied habitat, and suitable habitat areas for Focus and BLM Special Status Species. Long- term nighttime lighting will be directed and shielded downward to avoid interference with the navigation of night-migrating birds and to minimize the attraction of insects as well as insectivorous birds and bats to project infrastructure. • To the maximum extent practicable (see Glossary of Terms), restrict construction activity to existing roads, routes, and utility corridors to minimize the number and length/size of new roads, routes, disturbance, laydown, and borrow areas. • To the maximum extent practicable (see Glossary of Terms), confine vehicular traffic to designated open routes of travel to and from the project site, and prohibit, within project boundaries, cross- country vehicle and equipment use outside of approved designated work areas to prevent unnecessary ground and vegetation disturbance.	Yes		The Project would implement measures to minimize surface disturbance and vegetation disturbance would be avoided to the maximum extent possible per the Plan of Operations (SMP 2021) and the PDFs included in Appendix F. Special status plant and wildlife species are analyzed within the EA. Additional measures under this CMA, as applicable and determined by the BLM, would be implemented.

LUPA Wide					
Category	**CMA #**	**CMA Text**	**Applicability**	**Explanation: Why CMA is not applicable**	**Comments**
		• To the maximum extent practicable(see Glossary of Terms) , construction of new roads and/or routes will be avoided within Focus and BLM Special Status Species suitable habitat within identified linkages for those Focus and BLM Special Status Species, unless the new road and/or route is beneficial to minimize net impacts to natural or ecological resources of concern. These areas will have a goal of "no net gain" of project roads and/or routes • To the maximum extent practicable (see Glossary of Terms), any new road and/or route considered within Focus and BLM Special Status Species suitable habitat within identified linkages for those Focus and BLM Special Status Species will not be paved so as not to negatively affect the function of identified linkages. • Use nontoxic road sealants and soil stabilizing agents.			
Biology: General Standard Practices	**LUPA-BIO-14**	Implement the following general standard practices to protect Focus and BLM Special Status Species: • Feeding of wildlife, leaving of food or trash as an attractive nuisance to wildlife, collection of native plants, or harassing of wildlife on a site is prohibited. • Any wildlife encountered during the course of an activity, including construction, operation, and decommissioning will be allowed to leave the area unharmed. • Domestic pets are prohibited on sites. This prohibition does not apply to the use of domestic animals (e.g., dogs) that may be used to aid in official and approved monitoring procedures/protocols, or service animals (dogs) under Title II and Title III of the American with Disabilities Act. • All construction materials will be visually checked for the presence of wildlife prior to their movement or use. Any wildlife encountered during the course of these inspections will be allowed to leave the construction area unharmed. • All steep-walled trenches or excavations used during the project will be covered, except when being actively used, to prevent entrapment of wildlife. If trenches cannot be covered, they will be constructed with escape ramps, following up-to-date design standards to facilitate and allow wildlife to exit, or wildlife exclusion fencing will be installed around the trench(s) or excavation(s). Open trenches or other excavations will be inspected by a designated biologist immediately before backfilling, excavation, or other earthwork. • Minimize natural vegetation removal through implementation of crush and drive or cut or mow vegetation rather than removing entirely.	Yes		A worker education program, food/trash abatement measures, domestic pet prohibition, wildlife entrapment protective measures, and minimizing vegetative disturbance would be implemented per the PDFs in Appendix F; therefore, this CMA would not be required in addition to the proposed PDFs.
	LUPA-BIO-15	Use state-of-the-art, as approved by BLM, construction and installation techniques, appropriate for the specific activity/project and site, that minimize new site disturbance, soil erosion and deposition, soil compaction, disturbance to topography, and removal of vegetation.	Yes		The Project is designed to minimize impacts, and additonal measures would be implemented as appropriate as determined by the BLM; therefore, this CMA is a duplication of the PDFs already included within Appendix F and therefore would not be required for implementation.
Activity-Specific Bird and Bat CMAs	**LUPA-BIO-16**	For activities that may impact Focus and BLM sensitive birds, protected by the ESA and/or Migratory Bird Treaty Act of 1918, and bat species, implement appropriate measures as per the most up-to-date BLM state and national policy and guidance, and data on birds and bats, including but not limited to activity specific plans and actions. The goal of the activity -specific bird and bat actions is to avoid and minimize direct mortality of birds and bats from the construction, operation, maintenance, and decommissioning of the specific activities. Activity-specific measures to avoid and minimize impacts may include, but are not limited to: • Siting and designing activities will avoid high bird and bat movement areas that separate birds and bats from their common nesting and roosting sites, feeding areas, or lakes and rivers. • For activities that impact bird and bat Focus and BLM Special Status Species, during project siting and design, conducting monitoring of bird and bat presence as well as bird and bat use of the project site using the most current survey methods and best procedures available at the time. • Reusing or co-locating new transmission facilities and other ancillary facilities with existing facilities and disturbed areas to reduce habitat destruction and avoid additional collision risks. • Reducing bird and bat collision hazards by utilizing techniques such as unguyed monopole towers or tubular towers. Where the use of guywires is unavoidable, demarcate guywires using the best available methods to minimize avian species strikes. • When fencing is necessary, use bird and bat compatible design standards. • Using lighting that does not attract birds and bats or their prey to project sites including using non-steady burning lights (red, dual red and white strobe, strobe- like flashing lights) to meet Federal Aviation Administration requirements, using motion or heat sensors and switches to reduce the time when lights are illuminated, using appropriate shielding to reduce horizontal or skyward illumination, and avoiding the use of high-intensity lights (e.g., sodium vapor, quartz, and halogen). • Implementing a robust monitoring program to regularly check for wildlife carcasses, document the cause of mortality, and promptly remove the carcasses. • Incorporating a bird and bat use and mortality monitoring program during operations using current protocols and best procedures available at time of monitoring	Yes		SMP has committed to implement species-specific avoidance buffers around raptor and migratory bird nests as well as bat maternity roosts as described within Chapter 3 of the EA and within the PDFs in Appendix F. Further mitigation would not be necessary in addition to the PDFs; therefore, this CMA would not be required to be implemented in addition to the proposed PDFs in Appendix F.
Activity-Specific Bird and Bat CMAs	**LUPA-BIO-17**	For activities that may result in mortality to Focus and BLM Special–Status bird and bat species, a Bird and Bat Conservation Strategy (BBCS) will be prepared with the goal of assessing operational impacts to bird and bat species and incorporating methods to reduce documented mortality. The BBCS actions for impacts to birds and bats during these activities will be determined by the activity-specific bird and bat operational actions. The strategy shall be approved by BLM in coordination with USFWS, and CDFW as appropriate, and may include, but is not limited to: • Incorporating a bird and bat use and mortality monitoring program during operations using current protocols and best procedures available at time of monitoring. • Activity-specific operational avoidance and minimization actions that reduce the level of mortality on the populations of bird and bat species, such as: ○ Use techniques that minimize attraction of birds to hazardous situations that are mistaken to be or simulate natural habitats (e.g., bodies of water). ○ Implement operational management techniques that minimize impacts to migratory birds during diurnal and seasonal cycles (e.g., positioning of heliostats to decrease surface area exposed to avian species). ○ Evaluation and installation of the best available bird and bat detection and deterrent technologies available at the time of construction. Known important Focus and BLM Special Status bird areas are: • Dry lakes and playas of the north Mojave region, which include China Lake, Koehn Lake, Harper Lake, and Searles Lake (as shown in the Audubon Important Bird Areas in Appendix D) • Antelope Valley (as shown in the Audubon Important Bird Areas in Appendix D) • Lower Colorado River Valley (as shown in the Audubon Important Bird Areas in Appendix D)	Yes		SMP has committed to implement species-specific avoidance buffers around raptor and migratory bird nests as well as bat maternity roosts, and measures to minimize wildlife mortalities, as described within Chapter 3 of the EA and within the PDFs in Appendix F. Further mitigation would not be necessary in addition to the PDFs; therefore, this CMA would not be required to be implemented in addition to the proposed PDFs in Appendix F.

LUPA Wide					
Category	**CMA #**	**CMA Text**	**Applicability**	**Explanation: Why CMA is not applicable**	**Comments**
		• The Salton Sea and bordering areas including agricultural land of the Imperial Valley (as shown in the Audubon Important Bird Areas in Appendix D) • Documented avian movement corridors along the north slope of the San Gabriel and San Bernardino mountain ranges • Other regionally important seasonal use areas and migratory corridors identified in future studies or otherwise documented in the scientific literature over the term of the LUPA The following provides the DRECP vegetation type, and Focus and BLM Special Status Species biological CMAs to be implemented throughout the LUPA Decision Area. **Riparian and Wetland Vegetation Types and Associated Species (RIPWET)** Riparian Vegetation Types • Madrean Warm Semi-Desert Wash Woodland/Scrub • Mojavean Semi-Desert Wash Scrub • Sonoran-Coloradan Semi-Desert Wash Woodland/Scrub • Southwestern North American Riparian Evergreen and Deciduous Woodland • Southwestern North American Riparian/Wash Scrub Wetland Vegetation Types • Arid west freshwater emergent marsh • Californian Warm Temperate Marsh/Seep • North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat • Southwestern North American Salt Basin and High Marsh Riparian and Wetland Bird Focus Species • Willow Flycatcher • Southwestern Willow Flycatcher • Least Bell's Vireo • Western Yellow-billed Cuckoo • Yuma Clapper Rail • California Black Rail • Tricolored Blackbird Fish Focus Species • Desert pupfish • Mohave Tui Chub • Owens Tui Chub • Owens Pupfish			
Other Riparian & Wetland Focus Species: Tehachapi Slender Salamander	**LUPA-BIO-RIPWET-1**	The riparian and wetland DRECP vegetation types and other features listed in **Table 17** will be avoided to the maximum extent practicable, except for allowable minor incursions (see Glossary of Terms for "avoidance to the maximum extent practicable" and "minor incursion") with the specified setbacks. For minor incursion (see "minor incursion" in the Glossary of Terms) to the DRECP riparian vegetation types, wetland vegetation types, or encroachments on the setbacks listed in **Table 17**, the hydrologic function of the avoided riparian or wetland communities will be maintained. • Minor incursions in the riparian and wetland vegetation types or other features including the setbacks listed in **Table 17** will occur outside of the avian nesting season, February 1 through August 31 or otherwise determined by BLM, USFWS and CDFW if the minor incursion(s) is likely to result in impacts to nesting birds.	No	Resource not found on the project site	There is no riparian or wetland vegetation present within the Project Area.
	LUPA-BIO-RIPWET-2	Hydrologic function of the following DRECP vegetation types will be maintained: North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat, Southwestern North American Salt Basin and High Marsh, and other undifferentiated wetland-related land covers (i.e., "Playa," "Wetland," and "Open Water").	No	Resource not found on the project site	There is no riparian or wetland vegetation present within the Project Area.
BLM Special Status Riparian Bird Species	**LUPA-BIO-RIPWET-3**	For activities that occur within 0.25 mile of a riparian or wetland DRECP vegetation type and may impact BLM Special Status riparian and wetland birds species, conduct a pre-construction/activity nesting bird survey for BLM Special Status riparian and wetland birds according to agency-approved protocols. • Based on the results of the nesting bird survey above, setback activities that are likely to impact BLM Special Status riparian and wetland bird species, including but not limited to pre-construction, construction and decommissioning, 0.25 mile from active nests Special Status during the breeding season (February 1 through August 31 or otherwise determined by BLM, USFWS and CDFW). For activities in areas covered by this provision that occur during the breeding season and that last longer than one week, nesting bird surveys may need to be repeated, as determined by BLM, in coordination with USFWS and CDFW, as appropriate. No pre-activity nesting bird surveys are necessary for activities occurring outside of the breeding season.	No	Project is not located in or near the area specified in the CMA.	There is no riparian or wetland vegetation present within the Project Area.
Federally Listed Fish Species	**LUPA-BIO-RIPWET-4**	Setback pre-construction, construction, and decommissioning activities and other activities that may impact federally listed fish species, 0.25 mile from the edge of existing or newly discovered occurrences of federally listed fish species, except for minor incursions (see Glossary of Terms). • Demonstrate neutral or beneficial long-term hydrologic effects on federally listed fish species and the adjoining riparian and wetland habitat prior to seeking authorization for and commencing a minor incursion.	No	Resource not found on the project site	There are no fish species present within the Project Area.
	LUPA-BIO-RIPWET-5	Site and design activities to fully avoid operational impacts to existing and newly discovered occurrences of federally listed fish species.	No	Resource not found on the project site	There are no fish species present within the Project Area.
Tehachapi Slender Salamander	**LUPA-BIO-RIPWET-6**	Avoid pre-construction, construction, and decommissioning activities or other activities that may impact the Tehachapi slender salamander within 0.25 mile of existing or newly discovered occurrences of or suitable habitat for Tehachapi slender salamander, except for minor incursions (see Glossary of Terms).	No	Project not within the range or habitat of this species.	The Tehachapi Slender Salamander does not occur within BLM El Centro Field Office-administered lands.
	LUPA-BIO-RIPWET-7	Construct culverts or other suitable below-grade crossings for new or improved roadways that bisect suitable habitat for the Tehachapi Slender Salamander. • Construct barriers to reduce at-grade crossings along new or improved roadways that bisect suitable habitat.	No	Project not within the range or habitat of this species.	The Tehachapi Slender Salamander does not occur within BLM El Centro Field Office-administered lands.
Dune DRECP Vegetation Types, Aeolian Processes and Associated Species (DUNE): Aeolian Processes	**LUPA-BIO-DUNE-1**	Because DRECP sand dune vegetation types and Aeolian sand transport corridors are, by definition, shifting resources, activities that potentially occur within or bordering the sand dune DRECP vegetation types and/or Aeolian sand transport corridors must conduct studies to verify the location [refer to Appendix D, Figure D-7] and extent of the sand resource(s) for the activity-specific environmental analysis to determine:	No	Project is not located in or near the area specified in the CMA.	There are no Aeolian sand transport corridors within or in the vicinity of the Project Area.

LUPA Wide					
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–		• Whether the proposed activity(s) occur within a sand dune or an Aeolian sand transport corridor • If the activity(s) is subject to dune/Aeolian sand transport corridor CMAs • If the activity(s) needs to be reconfigured to satisfy applicable avoidance requirements			
	LUPA-BIO-DUNE-2	Activities that potentially affect the amount of sand entering or transported within Aeolian sand transport corridors will be designed and operated to: • Maintain the quality and function of Aeolian transport corridors and sand deposition zones, unless related to maintenance of existing [at the time of the DRECP LUPA ROD] facilities/operations/activities • Avoid a reduction in sand-bearing sediments within the Aeolian system • Minimize mortality to DUNE associated Focus and BLM Special Status Species	No	Project is not located in or near the area specified in the CMA.	There are no Aeolian sand transport corridors within or in the vicinity of the Project Area.
	LUPA-BIO-DUNE-3	Any facilities or activities that alter site hydrology (e.g., sediment barrier) will be designed to maintain continued sediment transport and deposition in the Aeolian corridor in a way that maintains the Aeolian sorting and transport to downwind deposition zones. Site designs for maintaining this transport function must be approved by BLM in coordination with USFWS and CDFW as appropriate.	No	Project is not located in or near the area specified in the CMA.	There are no Aeolian sand transport corridors within or in the vicinity of the Project Area.
Mohave Fringe-Toed Lizard	**LUPA-BIO-DUNE-4**	Dune formations and other sand accumulations (i.e., sand ramps, sand sheets) with suitable habitat characteristics for the Mojave fringe-toed lizard (i.e., unconsolidated blow-sand) will be mapped according to mapping standards established by the BLM National Operations Center. For minor incursions (see "minor incursion" in the Glossary of Terms) into sand dunes and sand transport areas the activity will be sited in the mapped zone with the least impacts to sand dunes and sand transport and Mojave fringe-toed lizards.	No	Project not within the range or habitat of this species.	The Mohave Fringe-Toed Lizard does not occur within BLM El Centro Field Office-administered lands.
	LUPA-BIO-DUNE-5	If suitable habitat characteristics are identified during the habitat assessment, clearance surveys (see Glossary of Terms) for Mojave fringe-toed lizard will be performed in suitable habitat areas.	No	Project not within the range or habitat of this species.	The Mohave Fringe-Toed Lizard does not occur within BLM El Centro Field Office-administered lands.
		The following CMAs will be implemented for bat Focus and BLM Special Status Species, including but not limited to those listed below: • California Leaf-nosed Bat • Pallid Bat • Townsend's Big-eared Bat			
Bat Species (BAT)	**LUPA-BIO-BAT-1**	Activities, except wind projects, will not be sited within 500 feet of any occupied maternity roost or presumed occupied maternity roost as described below. Refer to CMA **DFA-VPL-BIO-BAT-1** for distances within DFAs and VPLs.	Yes		The Project would include a PDF to implement a 500-foot avoidance buffer of bat maternity roosts during the bat maternity season, as specified in the PDFs in Appendix F. This CMA would not be required to be implemented as it is a duplicate of the already proposed PDFs.
	LUPA-BIO-BAT-2	Mines will be assumed to be occupied bat roosts, unless appropriate surveys for bat use have been conducted during all seasons (including maternity, lekking or swarming, and winter use). Mines not considered potential bat roosts are only those that have no structure/workings (adits or shafts or crevices out of view).	Yes		The Project would include a PDF to implement a 500-foot avoidance buffer of bat maternity roosts during the bat maternity season, as specified in the PDFs in Appendix F. This CMA would not be required to be implemented as it is a duplicate of the already proposed PDFs.
		The following CMAs will be implemented for all plant Focus and BLM Special Status Species, including but not limited to those listed below • Alkali mariposa-lily • Bakersfield cactus • Barstow woolly sunflower • Desert cymopterus • Little San Bernardino Mountains linanthus • Mojave monkeyflower • Mojave tarplant • Owens Valley checkerbloom • Parish's daisy • Triple-ribbed milk-vetch			
Plant Species (PLANT): Plant Focus and BLM Special Status Species CMAs	**LUPA-BIO-PLANT-1**	Conduct properly timed protocol surveys in accordance with the BLM's most current (at time of activity) survey protocols for plant Focus and BLM Special Status Species.	Yes		A habitat assessment was conducted during the 2021 biological survey and the resulting report was approved by the BLM. The Biological Resources Assessment is included within Appendix E of the EA and is on file with the BLM El Centro Field Office. Further mitigation would not be necessary in addition to the PDFs and an additional habitat assessment would not be required; therefore, this CMA would not be required for implementation.
	LUPA-BIO-PLANT-2	Implement an avoidance setback of 0.25 mile for all Focus and BLM Special Status Species occurrences. Setbacks will be placed strategically adjacent to occurrences to protect ecological processes necessary to support the plant Species (see Appendix Q, Baseline Biology Report, in the Proposed LUPA and Final EIS [2015], or the most recent data and modeling).	Yes		No avoidance buffers for special status plants have been identified. Should special status plants be identified upon Project surface occupancy, this CMA would be implemented in addition to the PDFs and mitigation measures in Appendix F.
	LUPA-BIO-PLANT-3	Impacts to suitable habitat for Focus and BLM Special Status plant species should be avoided to the extent feasible, and are limited [capped] to a maximum of 1% of their suitable habitat throughout the entire LUPA Decision Area. The baseline condition for measuring suitable habitat is the DRECP modeled suitable habitat for these species utilized in the EIS analysis (2014 and 2015), or the most recent suitable habitat modeling. • For those plants with Species Specific DFA Suitable Habitat Impact Caps listed in **Table 23**, those caps apply in the DFAs only. Refer to CMA DFA-PLANT-1.	No	Project is not located in or near the area specified in the CMA.	Ground disturbance caps do not apply to mining and mineral exploration projects.
Special Vegetation Features (SVF)	**LUPA-BIO-SVF-1**	For activity-specific NEPA analysis, a map delineating potential sites and habitat assessment of the following special vegetation features is required: Yucca clones, creosote rings, Saguaro cactus, Joshua tree woodland, microphyll woodland, Crucifixion thorn stands. BLM guidelines for mapping/surveying cactus, yuccas, and succulents shall be followed.	Yes	Resource not found on the project site	Special status vegetation species specified have not been identified within the Project Area; however a habitat assessment identified some limited areas of microphyll woodland, however, direct impacts from project disturbance to this habitat is not anticipated. Pre-construction surveys would occur prior to any surface disturbing activities as outlined in the measures in Appendix F of the EA/MND, and this CMA would be implemented as necessary in coordination with the BLM.
	LUPA-BIO-SVF-2	Yucca clones larger than 3 meters in diameter (longest diameter if the clone forms an ellipse rather than a circular ring) shall be avoided.	No	Resource not found on the project site	This species is not present within the Project Area.
	LUPA-BIO-SVF-3	Creosote bush rings (see Glossary of Terms) larger than 5 meters in diameter (longest diameter if the "ring" forms an ellipse rather than a circle) shall be avoided.	No	Resource not found on the project site	This species is not present within the Project Area.
	LUPA-BIO-SVF-4	Saguaro cactus should be managed in such a way as to provide long-term habitat for the California populations not just individual plants, except in DFAs.	No	Resource not found on the project site	This species is not present within the Project Area.
	LUPA-BIO-SVF-5	Joshua tree woodland (*Yucca brevifolia* Woodland Alliance): impacts to Joshua tree woodlands (see Glossary of Terms) will be avoided to the maximum extent practicable (see Glossary of Terms), except for minor incursions (see Glossary of Terms).	No	Project not within the range or habitat of this species.	Joshua trees do not occur within BLM El Centro Field Office-administered lands.

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	LUPA-BIO-SVF-6	Microphyll woodland: impacts to microphyll woodland (see Glossary of Terms) will be avoided, except for minor incursions (see Glossary of Terms).	Yes		There are very limited microphyll woodland occurrences within the Project Area; however, if identifed upon Project surface occupancy, this CMA would be implemented.
	LUPA-BIO-SVF-7	Crucifixion thorn stands: (*Castela emoryi* Shrubland Special Stands) Crucifixion thorn stands with greater than 100 individuals will be avoided.	No	Resource not found on the project site	This species is not present within the Project Area.
General Vegetation Management (VEG)	**LUPA-BIO-VEG-1**	Management of cactus, yucca, and other succulents will adhere to current up-to-date BLM policy.	Yes		Any potential disturbance would be minimized per the measures in the Reclamation Plan. This CMA would be implemented should additional measures be determined necessary by the BLM for impact minimization to these species.
	LUPA-BIO-VEG-2	Promote appropriate levels of dead and downed wood on the ground, outside of campground areas, to provide wildlife habitat, seed beds for vegetation establishment, and reduce soil erosion, as determined appropriate on an activity-specific basis.	Yes		The detailed Reclamation Plan has been submitted to the Imperial County Planning Department and is under review with the California Divison of Mining and Reclamation, which identifies appropriate measures using existing dead/downed wood; however, this CMA would be required to be implemented for appropriate monitoring.
	LUPA-BIO-VEG-3	Allow for the collection of plant material consistent with the maintenance of natural ecosystem processes.	No	Land use does not occur on project site.	The Project would not involve collection of plant material.
	LUPA-BIO-VEG-4	Within the Bishop Field Office area, provide yearlong protection of endangered, threatened, candidate, and sensitive plant and animal habitats. Yearlong protection means that no discretionary actions which would adversely affect target resources will be allowed.	No	Project is not located in or near the area specified in the CMA.	This CMA is specific to the Bishop Field Office.
	LUPA-BIO-VEG-5	All activities will follow applicable BLM state and national regulations and policies for salvage and transplant of cactus, yucca, other succulents, and BLM Sensitive plants.	No	Land use does not occur on project site.	No salvage or transplant of cactus, yucca, other succulents, or BLM Senstive Species would occur under the Project.
	LUPA-BIO-VEG-6	BLM may consider disposal of succulents through public sale, as per current up-to-date state and national policy.	No	Land use does not occur on project site.	The Project would not involve disposal of succulents through public sale.
Individual Focus Species (IFS): Desert Tortoise	**LUPA-BIO-IFS-1**	Activities within desert tortoise linkages, identified in Appendix D, that may have a negative impact on the linkage will require an evaluation, in the environmental document(s), of the effects on the maintenance of long- term viable desert tortoise populations within the affected linkage. The analysis will consider the amount of suitable habitat, including climate refugia, required to ensure long-term viability within each linkage given the linkage's population density, long-term demographic and genetic needs, degree of existing habitat disturbance/impacts, mortality sources, and most up-to-date population viability modeling. Activities that would compromise the long-term viability of a linkage population or the function of the linkage, as determined by the BLM in coordination with USFWS and CDFW, are prohibited and will require reconfiguration or re-siting.	No	Project is not located in or near the area specified in the CMA.	The Project would not occur within desert tortoise linkages.
	LUPA-BIO-IFS-2	Construction of new roads and/or routes will be avoided to the maximum extent practicable (see Glossary of Terms) within desert tortoise habitat in tortoise conservation areas (TCAs) or tortoise linkages identified in Appendix D, unless the new road and/or route is beneficial to minimize net impacts to natural or ecological resources of concern for desert tortoise. TCAs and identified linkages should have the goal of "no net gain" of road density. Any new road considered within a TCA or identified linkage will not be paved and will be designed and sited to minimize the effect to the function of identified linkages or local desert tortoise populations and shall have a maximum speed limit of 25 miles per hour. Roads requiring the installation of long-term desert tortoise exclusion fencing for construction or operation will incorporate wildlife underpasses (e.g., culverts) to reduce population fragmentation.	No	Project is not located in or near the area specified in the CMA.	The Project would not occur within a Tortoise Conservation Area.
	LUPA-BIO-IFS-3	All culverts for access roads or other barriers will be designed to allow unrestricted access by desert tortoises and will be large enough that desert tortoises are unlikely to use them as shelter sites (e.g., 36 inches in diameter or larger). Desert tortoise exclusion fencing may be utilized to direct tortoise use of culverts and other passages.	No	Land use does not occur on project site.	No culverts would be constructed under the Project. Barriers would be installed to prevent unauthorized vehicular traffic from interfering with the reclamation of access roads. Conceptual locations of the planned safety barriers (or berms) are depicted in Figures 3b and 3g of the Plan of Operations and would be approximately 6 feet in height. Barriers would be temporary and would not have the length to restrict access by desert tortoises.
	LUPA-BIO-IFS-4	In areas where protocol and clearance surveys are required (see Appendix D), prior to construction or commencement of any long-term activity that is likely to adversely affect desert tortoises, desert tortoise exclusion fencing shall be installed around the perimeter of the activity footprint (see Glossary of Terms) in accordance with the Desert Tortoise Field Manual (USFWS 2009) or most up-to- date USFWS protocol. Additionally, short-term desert tortoise exclusion fencing will be installed around short-term construction and/or activity areas (e.g., staging areas, storage yards, excavations, and linear facilities), as appropriate, per the Desert Tortoise Field Manual (USFWS 2009) or most up-to-date USFWS protocol. • Exemption from desert tortoise protocol survey requirements can be obtained from BLM, in coordination with USFWS, and CDFW as applicable, on a case-by-case basis if a designated biologist determines the activity site does not contain the elements of desert tortoise habitat, is unviable for occupancy, or if baseline studies inferred absence during the current or previous active season. • Construction of desert tortoise exclusion fences will occur during the time of year when tortoise are less active in order to minimize impacts and to accommodate subsequent desert tortoise surveys. Any exemption or modification of desert tortoise exclusion fencing requirements will be based on the specifics of the activity and the site-specific population and habitat parameters. Sites with low population density and disturbed, fragmented, or poor habitat are likely to be candidates for fencing requirement exemptions or modifications. Substitute measures, such as on-site biological monitors in the place of the fencing requirement, may be required, as appropriate. • After an area is fenced, and until desert tortoises are removed, the designated biologist is responsible for ensuring that desert tortoises are not being exposed to extreme temperatures or predators as a result of their pacing the fence. Remedies may include the use of shelter sites placed along the fence, immediate translocation, removal to a secure holding area, or other means determined by the BLM, USFWS, and CDFW, as applicable. • Modification or elimination of the above requirement may also be approved if the activity design will allow retention of desert tortoise habitat within the footprint. If such a modification is approved, modified protective measures may be required to minimize impacts to desert tortoises that may reside within the activity area. • Immediately prior to desert tortoise exclusion fence construction, a designated biologist (see Glossary of Terms) will conduct a clearance survey of the fence alignment to clear desert tortoises from the proposed fence line's path. • All desert tortoise exclusion fencing will incorporate desert tortoise proof gates or other approved barriers to prevent access of desert tortoises to work sites through access road entry points. • Following installation, long-term desert tortoise exclusion fencing will be inspected for damage quarterly and within 48 hours of a surface flow of water due to a rain event that may damage the fencing. • All damage to long-term or short-term desert tortoise exclusion fencing will be immediately blocked to prevent desert tortoise access and repaired within 72 hours.	Yes		A BLM-qualified biologist and/or field contact representative would be present (March 15 - November 1) to oversee compliance with protective measures per the PDFs in Appendix F. Exclusionary fencing would be required to prevent desert tortoise crossings and collisions per the mitigation measures in Appendix F. This CMA would not be required to be implemented as it would duplicate the existing PDFs and BLM-required mitigation.

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	LUPA-BIO-IFS-5	Following the clearance surveys (see Glossary of Terms) within sites that are fenced with long-term desert tortoise exclusion fencing a designated biologist (see Glossary of Terms) will monitor initial clearing and grading activities to ensure that desert tortoises missed during the initial clearance survey are moved from harm's way. A designated biologist will inspect construction pipes, culverts, or similar structures: (a) with a diameter greater than 3 inches, (b) stored for one or more nights, (c) less than 8 inches aboveground and (d) within desert tortoise habitat (such as, outside the long-term fenced area), before the materials are moved, buried, or capped. As an alternative, such materials shall be capped before storing outside the fenced area or placing on pipe racks. Pipes stored within the long-term fenced area after completing desert tortoise clearance surveys will not require inspection.	Yes		A BLM-qualified biologist and/or field contact representative would be present (March 15 - November 1) to oversee compliance with protective measures per the PDFs in Appendix F. Exclusionary fencing would be required to prevent desert tortoise crossings and collisions per the mitigation measures in Appendix F. This CMA would not be required to be implemented as it would duplicate the existing PDFs and BLM-required mitigation.
	LUPA-BIO-IFS-6	When working in areas where protocol or clearance surveys are required (see Appendix D), biological monitoring will occur with any geotechnical boring or geotechnical boring vehicle movement to ensure no desert tortoises are killed or burrows are crushed.	No	Land use does not occur on project site.	Geotechnical testing would not be utilized under the Project within the Project Area.
	LUPA-BIO-IFS-7	A designated biologist (see Glossary of Terms) will accompany any geotechnical testing equipment to ensure no tortoises are killed and no burrows are crushed.	No	Land use does not occur on project site.	Geotechnical boring would not occur under the Project within the Project Area.
	LUPA-BIO-IFS-8	Inspect the ground under the vehicle for the presence of desert tortoise any time a vehicle or construction equipment is parked in desert tortoise habitat outside of areas fenced with desert tortoise exclusion fencing. If a desert tortoise is seen, it may move on its own. If it does not move within 15 minutes, a designated biologist may remove and relocate the animal to a safe location.	Yes		Specific protective measures for tortoises under vehicles are included in the PDFs in Appendix F. If desert tortoise are encountered during construction activities, work would be halted until a BLM-approved Qualified Biologist arrives to relocate the animal. No further mitigation would be required; therefore, this CMA would not be required to be implemented as it would duplicate the existing PDFs.
	LUPA-BIO-IFS-9	Vehicular traffic will not exceed 15 miles per hour within the areas not cleared by protocol level surveys where desert tortoise may be impacted.	Yes		The PDFs included in Appendix F state that vehicles would not exceed 20 miles per hour within the Project Area; therefore, this CMA would be implemented for areas that have not been cleared by pre-clearance surveys where desert tortoise may be impacted.
Flat-Tailed Horned Lizard	**LUPA-BIO-IFS-10**	Comply with the conservation goals and objectives, criteria, and management planning actions identified in the most recent revision of the Flat-tailed Horned Lizard Rangewide Management Strategy (RMS). Activities will include appropriate design features using the most current information from the RMS and RMS Interagency Coordinating Committee to minimize adverse impacts during siting, design, pre-construction, construction, operation, and decommissioning; ensure that current or potential linkages and habitat quality are maintained; reduce mortality; minimize other adverse impacts during operation; and ensure that activities have a neutral or positive effect on the species.	No	Resource not found on the project site	Habitat is not included in the DRECP FTHL species distribution model or identified occurrences and this species has not been documented within the Project Area.
Bendire's Thrasher	**LUPA-BIO-IFS-11**	If Bendire's thrasher is present, conduct appropriate activity-specific biological monitoring (see Glossary of Terms) to ensure that Bendire's thrasher individuals are not directly affected by operations (i.e., mortality or injury, direct impacts on nest, eggs, or fledglings).	No	Resource not found on the project site	Habitat is not included in the DRECP FTHL species distribution model or identified occurrences and this species has not been documented within the Project Area.
Burrowing Owl	**LUPA-BIO-IFS-12**	If burrowing owls are present, a designated biologist (see Glossary of Terms) will conduct appropriate activity-specific biological monitoring (see Glossary of Terms) to ensure avoidance of occupied burrows and establishment of the 656 feet (200 meter) setback to sufficiently minimize disturbance during the nesting period on all activity sites, when practical.	Yes		There is a low potential for occurrence within the Project Area; however, should burrowing owls be identified during pre-clearance surveys, this CMA would be implemented in additional the PDFs and mitigation measures in Appendix F.
	LUPA-BIO-IFS-13	If burrows cannot be avoided on-site, passive burrow exclusion by a designated biologist (see Glossary of Terms) through the use of one-way doors will occur according to the specifications in Appendix D or the most up-to-date agency BLM or CDFW specifications. Before exclusion, there must be verification that burrows are empty as specified in Appendix D or the most up-to-date BLM or CDFW protocols. Confirmation that the burrow is not currently supporting nesting or fledgling activities is required prior to any burrow exclusions or excavations.	Yes		There is a low potential for occurrence within the Project Area; however, should burrowing owls be identified during pre-clearance surveys, this CMA would be implemented in additional the PDFs and mitigation measures in Appendix F.
	LUPA-BIO-IFS-14	Activity-specific active translocation of burrowing owls may be considered, in coordination with CDFW.	Yes		There is a low potential for occurrence within the Project Area; however, should burrowing owls be identified during pre-clearance surveys, this CMA would be implemented in additional the PDFs and mitigation measures in Appendix F.
California Condor	**LUPA-BIO-IFS-15**	All activities will be designed and sited in a manner to avoid or minimize the likelihood of contact, injury, and mortality of California condors. If a condor is identified at a site, the BLM biological staff and USFWS will be immediately notified for guidance.	No	Project not within the range or habitat of this species.	The California Condor does not occur within BLM El Centro Field Office-administered lands.
	LUPA-BIO-IFS-16	Flight activity (e.g., surveys, construction, as well as operation and maintenance activities) related to any activities will not be allowed in the airspace extending to 3,000 feet above condor nest sites.	No	Project not within the range or habitat of this species.	The California Condor does not occur within BLM El Centro Field Office-administered lands.
	LUPA-BIO-IFS-17	In the range of the California condor, structures supported by guy wires will be marked with recommended bird deterrent devices at the appropriate spacing intervals.	No	Project not within the range or habitat of this species.	The California Condor does not occur within BLM El Centro Field Office-administered lands.
	LUPA-BIO-IFS-18	In the range of the California condor, all equipment and work-related materials that are potentially hazardous to condors, including but not limited to items that can be ingested, picked up, or carried away (e.g., loose-wires, open containers with fluids, some construction materials, etc.) will be kept in closed containers either in the work area or placed inside vehicles when they are not being used and at the end of every work day.	No	Project not within the range or habitat of this species.	The California Condor does not occur within BLM El Centro Field Office-administered lands.
	LUPA-BIO-IFS-19	In the range of the California condor, when feasible, ethylene glycol-based anti-freeze or other ethylene glycol-based liquid substances will be avoided, and propylene glycol-based antifreeze will be used. Vehicles and equipment using ethylene glycol based substances will be inspected before and after field use as well as during storage on sites for leaks and puddles. Standing fluid will be remediated without unnecessary delay.	No	Project not within the range or habitat of this species.	The California Condor does not occur within BLM El Centro Field Office-administered lands.
	LUPA-BIO-IFS-20	Activities that are determined to have a potential risk of taking condors will implement the best detect, deter, and curtailment strategy available at the time of the activity to minimize adverse effects, and avoid or minimize the likelihood of condor injury and mortality. (An example of a 2015 curtailment strategy is shutting down wind generation operations when condor(s) are present, or wind generation facilities switching to night operations only). The strategy must be approved by the BLM and USFWS, in coordination with CDFW as appropriate.	No	Project not within the range or habitat of this species.	The California Condor does not occur within BLM El Centro Field Office-administered lands.
	LUPA-BIO-IFS-21	If condors begin to regularly visit a site, BLM may require, in coordination with USFWS, and CDFW as appropriate, the implementation of additional measures to minimize potential impacts to condors. These measures will be based on best available data, activity and areas specifics, and may include, but are not limited to: • Barriers, including welded wire fabric or hardware cloth, will be installed to prevent access around any facility element that poses a danger to condors. • Stainless steel lines, rather than poly chemical lines will be used to preclude condors from obtaining and ingesting pieces of poly chemical lines. • Landing deterrents attached to the walking perching substrates, such as porcupine wire or Daddi Long Legs ®.	No	Project not within the range or habitat of this species.	The California Condor does not occur within BLM El Centro Field Office-administered lands.

LUPA Wide Category	CMA #	CMA Text	Applicability	Explanation: Why CMA is not applicable	Comments
	LUPA-BIO-IFS-22	Operations and/or activities that reach an activity-specified trigger for condor injury and/or mortality as determined by BLM and USFWS, and CDFW as appropriate, will curtail operations and/or activities using best available techniques, as determined by BLM and USFWS, and CDFW as appropriate. (An example of a 2015 curtailment strategy is shutting down wind generation operations when condor(s) are present, or wind generation facilities switching to night operations only.) If curtailment techniques are not viable or available, then operations and/or activities will be suspended until the injury and/or condor mortality issue is resolved to the satisfaction of BLM and USFWS, and CDFW, as appropriate.	No	Project not within the range or habitat of this species.	The California Condor does not occur within BLM El Centro Field Office-administered lands.
	LUPA-BIO-IFS-23	In the range of the California condor, if an activity may have an impact on California condors, a Condor Operations Strategy (COS) will be developed and implemented on a activity-specific basis in order to avoid and/or reduce the likelihood of injury and mortality from activities. The COS shall be approved by BLM in coordination with USFWS, and CDFW as appropriate for third party activities, and may include, but is not limited, to detailing specifics on: the activity-specific detect, deter and curtailment strategy; monitoring approach to detect condor use of the site; adaptive management approach if condors are found to visit the site; and, activity-specific measures that assist in the recovery of condor.	No	Project not within the range or habitat of this species.	The California Condor does not occur within BLM El Centro Field Office-administered lands.
Golden Eagle	**LUPA-BIO-IFS-24**	Provide protection from loss and harassment of active golden eagle nests through the following actions: • Activities that may impact nesting golden eagles, will not be sited or constructed within 1-mile of any active or alternative golden eagle nest within an active golden eagle territory, as determined by BLM in coordination with USFWS as appropriate.	Yes		Pre-clearance migratory bird surveys would be conducted per the PDFs described in Appendix F; if activity of migratory bird nests, specifically golden eagle nests, are identified, species-specific avoidance buffers would be implemented and nest information would be submitted to the BLM. SMP would coordinate with USFWS as necessary and this CMA would be implemented should it be determined that golden eagle are present and may be impacted.
	LUPA-BIO-IFS-25	Cumulative loss of golden eagle foraging habitat within a 1 to 4 mile radius around active or alternative golden eagle nests (as identified or defined in the most recent USFWS guidance and/or policy) will be limited to less than 20%. See **CONS-BIO-IFS-5** for the requirement in Conservation Lands.	No		Loss of golden eagle foraging habitat is not anticipated to exceed 20 percent. Pre-clearance migratory bird surveys would be conducted per the PDFs described in Appendix F; if activity of migratory bird nests are identified, species-specific avoidance buffers would be implemented. Should golden eagles be identified as present during the pre-clearance surveys, SMP would consult with the USFWS and this CMA would be implemented.
	LUPA-BIO-IFS-26	For activities that impact golden eagles, applicants will conduct a risk assessment per the applicable USFWS guidance (e.g. the Eagle Conservation Plan Guidance) using best available information as well as the data collected in the pre-project golden eagle surveys.	No		Pre-clearance migratory bird surveys would be conducted per the PDFs described in Appendix F; if activity of migratory bird nests are identified, species-specific avoidance buffers would be implemented. Should golden eagles be identified as present during the pre-clearance surveys, SMP would consult with the USFWS and this CMA would be implemented.
	LUPA-BIO-IFS-27	If a permit for golden eagle take is determined to be necessary, an application will be submitted to the USFWS in order to pursue a take permit.	No		Pre-clearance migratory bird and raptor surveys would be conducted per the PDFs described in Appendix F; if activity of migratory bird and raptor nests is identified, species-specific avoidance buffers would be implemented. Coordination with USFWS for an eagle take permit is not anticipated based on results of the Biological Resources Assessment; however, should golden eagles be identified as present during the pre-clearance surveys, SMP would consult with the USFWS and this CMA would be implemented.
	LUPA-BIO-IFS-28	In order to evaluate the potential risk to golden eagles, the following activities are required to conduct 2 years of pre-project golden eagle surveys in accordance with USFWS Eagle Conservation Plan Guidance as follows: • Wind projects and solar projects involving a power tower • Other activities for which the BLM, in coordination with USFWS, and CDFW as appropriate, determines take of golden eagle is reasonably foreseeable or there is a potential for take of golden eagle	No	Project is not located in or near the area specified in the CMA.	No golden eagles or nests have been identified within the Project Area, therefore golden eagle take would not occur under the Project and is not being requested.
	LUPA-BIO-IFS-29	For active nests with recreational conflicts that risk the occurrence of take, provide public notification (e.g., signs) of the sensitive area and implement seasonal closures as appropriate.	No	Project is not located in or near the area specified in the CMA.	No golden eagles or nests have been identified within the Project Area, therefore golden eagle take would not occur under the Project and is not being requested.
	LUPA-BIO-IFS-30	For activities where ongoing take of golden eagles is anticipated, develop advanced conservation practices per USFWS Eagle Conservation Plan Guidance.	No	Land use does not occur on project site.	No golden eagles or nests have been identified within the Project Area, therefore golden eagle take would not occur under the Project and is not being requested.
	LUPA-BIO-IFS-31	As determined necessary by BLM in coordination with USFWS, and CDFW as appropriate, for activities/projects that are likely to impact golden eagles implement site-specific golden eagle mortality monitoring in support of the pre-construction, pre-activity risk assessment surveys.	No	Land use does not occur on project site.	No golden eagles or nests have been identified within the Project Area, therefore golden eagle take would not occur under the Project and is not being requested.
Swainson's Hawk	**LUPA-BIO-IFS-32**	Avoid use of rodenticides and insecticides within five miles of active Swainson's hawk nest.	No	Land use does not occur on project site.	Rodenticides or insecticides are not proposed for use under the Project.
Desert Bighorn Sheep	**LUPA-BIO-IFS-33**	Access to, and use of, designated water sources for desert bighorn sheep will not be impeded by activities in designated and new utility corridors.	No	Resource not found on the project site	Desert bighorn sheep have not been identified within the Project Area or vicinity, and the Project would not restrict access to water sources.
	LUPA-BIO-IFS-34	Transmission projects and new utility corridors will minimize effects on access to, and use of, designated water sources for desert bighorn sheep.	No	Project is not located in or near the area specified in the CMA.	The Project is not a transmission project and does not propose a new utility corridor.
Mohave Ground Squirrel	**LUPA-BIO-IFS-35**	Protocol surveys (see Glossary of Terms) are required for activities in Mohave ground squirrel key population centers and linkages as indicated in Appendix D. Results of protocol surveys will be provided to BLM and CDFW to consult on, as appropriate, for third party activities.	No	Project not within the range or habitat of this species.	The Mohave ground squirrel does not occur within BLM El Centro Field Office-administered lands.
	LUPA-BIO-IFS-36	Activities in Mohave ground squirrel key population centers, as identified in Appendix D, requiring an Environmental Impact Statement are required to assess the effect of the activity on the long term function of the affected key population center. • Activities within a key population center, as identified in Appendix D, must be designed to avoid adversely impacting the long-term function of the affected key population center.	No	Project not within the range or habitat of this species.	The Mohave ground squirrel does not occur within BLM El Centro Field Office-administered lands.
	LUPA-BIO-IFS-37	Activities in key population centers will be sited in previously disturbed areas, areas of low habitat quality and in areas with low habitat intactness, to the maximum extent practicable (see Glossary of Terms).	No	Project not within the range or habitat of this species.	The Mohave ground squirrel does not occur within BLM El Centro Field Office-administered lands.
	LUPA-BIO-IFS-38	Disturbance of suitable habitat from activities, requiring an EA or EIS, within the Mohave ground squirrel key population centers and linkages (as identified in Appendix D) will not occur during the typical dormant season (August 1 through February 28) unless absence is inferred and supported by protocol surveys or other available data during the previous active season.	No	Project not within the range or habitat of this species.	The Mohave ground squirrel does not occur within BLM El Centro Field Office-administered lands.
	LUPA-BIO-IFS-39	During the typical active Mohave ground squirrel season (February 1 through August 31), conduct clearance surveys throughout the site, immediately prior to initial ground disturbance in the areas depicted in Appendix D. In the cleared areas, perform monitoring to determine if squirrels have entered cleared areas. Contain ground disturbance to within areas cleared of squirrels. • Detected occurrences of Mohave ground squirrel will be flagged and avoided, with a minimum avoidance area of 50 feet, until the squirrels have moved out of harm's way. A designated biologist (see Glossary of Terms) may also actively move squirrels out of harm's way.	No	Project not within the range or habitat of this species.	The Mohave ground squirrel does not occur within BLM El Centro Field Office-administered lands.

LUPA Wide					
Category	**CMA #**	**CMA Text**	**Applicability**	**Explanation: Why CMA is not applicable**	**Comments**
	LUPA-BIO-IFS-40	Activities sited in a Mohave ground squirrel linkage (see Appendix D) that may impact the linkage are required to analyze the potential effects on connectivity through the linkage. The activity must be designed to maintain the function of the linkage after construction/implementation and during project/activity operations. Linkage function will be assessed by considering pre- and post-activity ability of the area to support resident Mohave ground squirrels and provide for dispersal of their offspring to key population centers outside the linkage, and dispersal through the linkage between key population centers. Activities that occur in Mohave ground squirrel linkages shown in Appendix D must be configured and located in a manner that does not diminish Mohave ground squirrel populations in the linkage.	No	Project not within the range or habitat of this species.	The Mohave ground squirrel does not occur within BLM El Centro Field Office-administered lands.
	LUPA-BIO-IFS-41	For any ground-disturbing (e.g., vegetation removal, earthwork, trenching) activities, occurrences of Mohave ground squirrel will be flagged and avoided, with a minimum avoidance area of 50 feet, until the squirrels have moved out of harm's way. A designated biologist (see Glossary of Terms) may also actively move squirrels out of harm's way.	No	Project not within the range or habitat of this species.	The Mohave ground squirrel does not occur within BLM El Centro Field Office-administered lands.
	LUPA-BIO-IFS-42	Rodenticides will not be used to manage rodents on activity within the range of the Mohave ground squirrel. Use of rodenticide inside of buildings is allowed.	No	Project not within the range or habitat of this species.	The Mohave ground squirrel does not occur within BLM El Centro Field Office-administered lands.
Compensation	**LUPA-BIO-COMP-1**	Impacts to biological resources, identified and analyzed in the activity specific environmental document, from activities in the LUPA Decision Area will be compensated using the standard biological resources compensation ratio, except for the biological resources and specific geographic locations listed as compensation ratio exceptions, specifics in CMAs **LUPA-BIO-COMP-2** through **-4**, and previously listed CMAs. Compensation acreage requirements may be fulfilled through non-acquisition (i.e., restoration and enhancement), land acquisition (i.e., preserve), or a combination of these options, depending on the activity specifics and BLM approval/authorization. Compensation for the impacts to designated desert tortoise critical habitat will be in the same critical habitat unit as the impact (see **Table 18**). Compensation for impacts to desert tortoise will be in the same recovery unit as the impact.	No	Resource not found on the project site	Biological resources compensation would not be required under the Project.
		Refer to CMA **LUPA-COMP-1** and **2** for the timing requirements for initiation or completion of compensation.			
	LUPA-BIO-COMP-2	Birds and Bats – The compensation for the mortality impacts to bird and bat Focus and BLM Special Status Species from activities will be determined based on monitoring of bird and bat mortality and a fee re-assessed every 5 years to fund compensatory mitigation. The initial compensation fee for bird and bat mortality impacts will be based on pre-project monitoring of bird use and estimated bird and bat species mortality from the activity. The approach to calculating the operational bird and bat compensation is based on the total replacement cost for a given resource, a Resource Equivalency Analysis. This involves measuring the relative loss to a population (debt) resulting from an activity and the productivity gain (credit) to a population from the implementation of compensatory mitigation actions. The measurement of these debts and gains (using the same "bird years" metric as described in Appendix D) is used to estimate the necessary compensation fee. Each activity, as determined appropriate by BLM in coordination with USFWS, and CDFW as applicable, will include a monitoring strategy to provide activity-specific information on mortality effects on birds and bats in order to determine the amount and type of compensation required to offset the effects of the activity, as described above and in detail in Appendix D. Compensation will be satisfied by restoring, protecting, or otherwise improving habitat such that the carrying capacity or productivity is increased to offset the impacts resulting from the activity. Compensation may also be satisfied by non-restoration actions that reduce mortality risks to birds and bats (e.g., increased predator control and protection of roosting sites from human disturbance). Compensation will be consistent with the most up to date DOI mitigation policy.	No	Resource not found on the project site	Potential for bird and bat mortality is expected to be very low. Pre-clearance surveys for migratory birds and raptors would be conducted and species-specific avoidance buffers would be implemented should activity be identifed, and a 500-foot avoidance buffers around known features with evidence of bat presence would be implemented during the bat maternity season, as described in the PDFs in Appendix F. Biological resources compensation would not be required under the Project.
	LUPA-BIO-COMP-3	Golden eagle – BLM and third-party initiated activities, will provide specific golden eagle compensation in accordance with the most up to date BLM or USFWS policies, including applicable USFWS Eagle Conservation Plan Guidance.	No	Resource not found on the project site	No golden eagles or nests have been identified within the Project Area and golden eagle compensation would not be required under the Project
	LUPA-BIO-COMP-4	Golden eagle – Third-party applicant/activity proponents are required to contribute to a DRECP-wide golden eagle monitoring program, if the activity/project(s) has been determined, through the environmental analysis, to likely impact golden eagles.	No	Resource not found on the project site	No golden eagles or nests have been identified within the Project Area and golden eagle compensation would not be required under the Project
Air Resources	**LUPA-AIR-1**	All activities must meet the following requirements: • Applicable National Ambient Air Quality Standards (Section 109) • State Implementation Plans (Section 110) • Control of Pollution from Federal Facilities (Section 118) including non-point source • Prevention of Significant Deterioration, including visibility impacts to mandatory Federal Class I Areas (Section 160 et seq.) • Conformity Analyses and Determinations (Section 176[c]) • Apply best management practices on a case by case basis • Applicable local Air Quality Management Jurisdictions (e.g., 403 SCAQMD)	Yes		The Project would comply with applicable State of California and Imperial County Air District rules for fugitive dust emissions and greenhouse gas emissions and significance thresholds would not be exceeded. No further mitigation would be necessary; this CMA would not be required for implementation in addition to the PDFs already proposed within Appendix F.
	LUPA-AIR-2	Because project authorizations are a federal undertaking, air quality standards for fugitive dust may not exceed local standards and requirements.	Yes		The Project would comply with applicable State of California and Imperial County Air District rules for fugitive dust emissions and greenhouse gas emissions and significance thresholds would not be exceeded. No further mitigation would be necessary; this CMA would not be required for implementation in addition to the PDFs already proposed within Appendix F.
	LUPA-AIR-3	Where impacts to air quality may be significant under NEPA, requiring analysis through an Environmental Impact Statement, require documentation for activities to include a detailed discussion and analysis of Ambient Air Quality conditions (baseline or existing), National Ambient Air Quality Standards, criteria pollutant nonattainment areas, and potential air quality impacts of the proposed project (including cumulative and indirect impacts and greenhouse gas emissions). This content is necessary to disclose the potential impacts from temporary or cumulative degradation of air quality. The discussion will include a description and estimate of air emissions from potential construction and maintenance activities, and proposed mitigation measures to minimize net PM_{10} and $PM_{2.5}$ emissions. The documentation will specify the emission sources by pollutant from mobile sources, stationary sources, and ground disturbance. A Construction Emissions Mitigation Plan will be developed.	No	Land use does not occur on project site.	Impacts to air quality would be negligible, per the analysis within Chapter 3 of the EA.
	LUPA-AIR-4	Because fugitive dust is the number one source of PM_{10} and $PM_{2.5}$ emissions in the Mojave and Sonoran Deserts, fugitive dust impacts to air quality must be analyzed for all activities/projects requiring an Environmental Impact Statement and Environmental Assessment. • The NEPA air quality analysis may include modelling of the sources of PM10 and PM2.5 that occur prior to construction and/or ground disturbance from the activity/project, and show the timing, duration and transport of emissions off site. When utilized, the modeling will also identify how the generation and movement of PM10 and PM2.5 will change during and after construction and/or ground disturbance of the activity/project under all activity/project specific NEPA alternatives. The BLM air resource specialist and Authorizing Officer will determine if modelling is required as part of the NEPA analysis based on estimated types and amounts of emissions.	Yes		The Project would comply with applicable State of California and Imperial County Air District rules for fugitive dust emissions and greenhouse gas emissions. An air emissions inventory was analyzed in Chapter 3 of the EA and because significance thresholds would not be exceeded and the Project would comply with the aforementioned rules, air quality modeling is not determined necessary. No further mitigation would be necessary; this CMA would not be required for implementation in addition to the PDFs already proposed within Appendix F.

LUPA Wide					
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	LUPA-AIR-5	A fugitive Dust Control Plan will be developed for all projects where the NEPA analysis shows an impact on air quality from fugitive dust. ***II.4.2.1.3 Comprehensive Trails and Travel Management*** **Components of a Designated Travel Network** In 2006, the BLM issued Instruction Memorandum No. 2006-173, which established policy for the use of terms and definitions associated with the management of transportation-related linear features. It also set a data standard and a method for storing electronic transportation asset data. According to the memorandum, all transportation assets are defined as follows: • Road: A linear route declared a road by the owner, managed for use by low-clearance vehicles having four or more wheels, and maintained for regular and continuous use. These may include ROW roads granted by the BLM to other entities. • Primitive Road: A linear route managed for use by four-wheel drive or high-clearance vehicles. These routes do not normally meet any BLM road design standards. • Trail: A linear route managed for human-powered, stock, or OHV forms of transportation or for historical or heritage values. Trails are not generally managed for use by four-wheel drive or high-clearance vehicles. Designated Roads, Primitive Roads, and Trails are categorized as follows: • Tier 1: Roads and Primitive Roads with high values for commercial, recreational, casual uses, and/or to provide access to other recreation activities. • Tier 2: Roads and Primitive Roads with high values for recreation and other motorized access (i.e., important through routes). • Tier 3: Primitive Roads and Trails with high value for motorized and non-motorized recreational pursuits (i.e., spur routes). **Off Highway Vehicle Management** OHVs are synonymous with off-road vehicles. As defined in 43 CFR 8340.0-5 (a): Off-road vehicle means any motorized/battery-powered vehicle capable of, or designed for, travel on or immediately over land, water, or other natural terrain. In accordance with 43 CFR 8342.1, the BLM's regulations for OHV management, "the authorized officer shall designate all public lands as open, limited, or closed to [OHVs]." As such, all public lands within the Planning Area have been designated in one of three OHV designation categories, as follows: • Open Area Designations are used for intensive OHV or other transportation use areas where there are no special restrictions or where there are no compelling resource protection needs, user conflicts, or public safety issues to warrant limiting cross-country travel. • Limited Area Designations are used where travel must be restricted to meet specific resource/resource use objectives. For areas classified as limited, the BLM must consider a range of possibilities, including travel that will be limited to the following: ○ Types or modes of travel, such as foot, equestrian, bicycle, and motorized ○ Existing roads and trails ○ Time or season of use; limited to certain types of vehicles (OHVs, motorcycles, all-terrain vehicles, high clearance, etc.); limited to licensed or permitted vehicles or use ○ BLM administrative use only ○ Other types of limitations • Closed Area Designations prohibit vehicular travel, both motorized and mechanized, transportation cross-country and on routes, except for where valid rights continue to allow access, such as within a designated Wilderness Area. Areas are designated closed if closure to all vehicular use is necessary to protect resources, promote visitor safety, or reduce use conflicts. **Back Country Byways Program** The BLM developed the Back County Byway Program to complement the National Scenic Byway Program established by the U.S. Secretary of Transportation. Back County Byways highlight the spectacular nature of the western landscapes. These routes vary from narrow graded roads that are passable only during a few months of the year to two-lane paved highways with year-round access. BLM will comply with the policy and guidelines of the BLM Back Country Byway Program and intent to showcase routes with high scenic and outstanding natural, cultural, historic or other values consistent with the designation. Where appropriate and feasible, BLM will highlight the spectacular nature of the western landscapes through education and interpretation along linear travel routes which provide recreational driving opportunities that allow for the experiences of solitude and isolation by: • Maintaining or improving access to BLM recreational destinations and activities • Helping meet the increasing demand for pleasure driving in back country environments. • Facilitating effective partnerships at the local, state, and national levels • Contributing to local and regional economies through increased tourism • Increasing public awareness of the availability of outstanding recreation attractions on public lands • Enhancing the visitors' recreation experience and communicate the multiple-use management message through an effective wayside interpretive program • Increasing the visibility of BLM as a major supplier of outdoor recreation opportunities • Managing the increased use created through the program to minimize impacts to the environment • Contributing to the National Scenic Byways Program in a way that is uniquely suited to national public lands managed by BLM Back country byways are designated by the type of road and the vehicle needed to safely travel the byway. Some back country byways vary from a single track bike trail to a low speed paved road that traverses back country areas. Segments of Back Country Byways are subdivided into four types based on the characteristic of the road. Due to their remoteness, byway travelers should always inquire locally as to byway access and road conditions. • Type I – Roads are paved or have an all-weather surface and have grades that are negotiable by 2-wheel drive vehicles and passenger cars. Most of these roads are narrow, slow speed, secondary routes though public lands. • Type II – Roads that require high-clearance type vehicles such as trucks or 4-wheel drive vehicles. These roads are usually not paved, but may have some type of surfacing. Grades, curves, and road surface are such that they can be negotiated with a 2-wheel drive high clearance vehicle without undue difficulty.	No		The Project would have a negligible impact on air quality from fugitive dust as analyzed in Chapter 3 of the EA. The Project would comply with applicable State of California and Imperial County Air District rules for fugitive dust emissions.

LUPA Wide					
Category	**CMA #**	**CMA Text**	**Applicability**	**Explanation: Why CMA is not applicable**	**Comments**
		• Type III – Roads require 4-wheel drive vehicles or other specialized vehicles such as dirt bikes, all-terrain vehicles (ATVs), etc. These roads are usually not surfaced, but are managed to provide for safety and resource protection needs. These roads can often have steep grades, uneven tread surfaces, and other characteristics that will require specialized vehicles to negotiate usually at slow speeds. • Type IV – Trails are managed specifically to accommodate dirt bike, mountain bike, snowmobile or all-terrain vehicle use. Most of these routes are single track trails.			
LUPA-Wide Conservation and Management Actions for Comprehensive Trails and Travel Management	**LUPA-CTTM-1**	Maintain and manage adequate Road, Primitive Road, and Trail Access to and within SRMAs, ERMAs, OHV Open Areas, and Level 1, 2, and 3 Recreation Facilities.	Yes	Project is not located in or near the area specified in the CMA.	The Project is not located within an SRMA, ERMA, Level 1-3 Recreation Facilities. Open OHV roads occurs within the Project Area and the Project would restrict public access on some existing access roads and the temporary access roads that would be constructed for drill site access. Access road restrictions would be temporary. PDFs and additional mitigation measures for access restriction safety and restriction notifications to the public who may recreate within the area are included in Appendix F. No further mitigation would be required.
	LUPA-CTTM-2	Avoid activities that would have a significant adverse impact on use and enjoyment within 0.5 mile from centerline of tier 2 Roads/Primitive Roads, and 300 feet from centerline of tier 3 primitive roads/trails. If avoidance of Tier 2 and 3 roads, primitive roads and trails is not practicable, relocate access to the same or higher standard and maintain the setting characteristics and access to recreation activities, facilities, and destinations.	No	Project is not located in or near the area specified in the CMA.	The Project is not located within the distances specified from Tier 2 and 3 roads and trails.
	LUPA-CTTM-3	Manage other significant linear features such as Mojave Road, Bradshaw Trail, or other recognized linear features to protect their important recreation activities, experiences and benefits. Prohibit activities that have a significant adverse impact on use and enjoyment within 0.5 mile (from centerline) of such linear features.	No	Project is not located in or near the area specified in the CMA.	The significant linear features specified do not occur within the Project Area or vicinity.
	LUPA-CTTM-4	If residual impacts to Tier 1 and Tier 2 roads/primitive roads, Back Country Byways, or significant linear features occur from adjacent DFAs or other activities, commensurate compensation in the form of enhanced recreation operations, access, recreation facilities or opportunities will be required.	No	Project is not located in or near the area specified in the CMA.	Residual impacts to the resources specified would not occur under the Project as such resources/areas are not present.
	LUPA-CTTM-5	Manage OHV use per the appropriate Transportation and Travel Management Plan/RMP and/or the SRMA Objectives as outlined in Appendix C as Open, Limited or Closed.	No	Land use does not occur on project site.	No OHV use is proposed under the Project.
	LUPA-CTTM-6	Manage Back Country Byways as a component of BLM Recreation and Travel and Transportation Management program**.**	No	Project is not located in or near the area specified in the CMA.	There are no Back Country Byways present within the Project Area.
	LUPA-CTTM-7	Manage Recreation Facilities consistent with the objectives for the recreation management areas and facilities (see also Section II.4.2.1.10).	Yes		The Tumco Historic Townsite is present within and adjacent to the Project Area. This CMA would be required for Project implementation as determined appropriate by the BLM to be consistent with recreation management objectives.
Cultural Resources and Tribal Interests	**LUPA-CUL-1**	Continue working with the California Office of Historic Preservation (OHP) to develop and implement a program for record keeping and tracking agency actions that meets the needs of BLM and OHP organizations pursuant to existing State and National agreements and regulation (BLM State Protocol Agreement; BLM National Programmatic Agreement).	No		This is a BLM action, not relevant to a proposed project.
	LUPA-CUL-2	Using relevant archaeological and environmental data, identify priority geographic areas for new field inventory, based upon a probability for unrecorded significant resources and other considerations.	No		This is a BLM action, not relevant to a proposed project.
	LUPA-CUL-3	Identify places of traditional cultural and religious importance to federally recognized Tribes and maintain access to these locations for traditional use.	No		This is a BLM action, not relevant to a proposed project.
	LUPA-CUL-4	Design activities to minimize impacts on cultural resources including places of traditional cultural and religious importance to federally recognized Tribes.	Yes		A BLM-approved Cultural Resources Inventory Report has been completed. The Project would be in compliance with Section 106 of the NHPA and other applicable requirements; Native American Tribal government-to-government consultation is ongoing and would occur throughout the life of the Project. All documented cultural resource sites would be avoided throughout the life of the Project, including reclamation. Additional mitigation measures for cultural resources have been identified as included in Appendix F. This CMA would not be required to be implemented separately in additional to the PDFs and mitigation measures in Appendix F.
	LUPA-CUL-5	Develop interpretive material to correspond with recreational uses to educate the public about protecting cultural resources and avoiding disturbance of archaeological sites.	No	Land use does not occur on project site.	This is a BLM action, not relevant to a proposed project.
	LUPA-CUL-6	Develop partnerships to assist in the training of groups and individuals to participate in site stewardship programs.	No	Land use does not occur on project site.	This is a BLM action, not relevant to a proposed project.
	LUPA-CUL-7	Coordinate with visual resources staff to ensure VRM Classes consider cultural resources and tribal consultation to include landmarks of cultural significance to Native Americans (TCPs, trails, etc.).	No		This is a BLM action, not relevant to a proposed project.
	LUPA-CUL-8	Conduct regular contact and consultation with federally recognized Tribes and individuals, consistent with statute, regulation and policy.	Yes		Section 106 of the NHPA consultation will be ongoing throughout the life of the Project and additional mitigation measures required by the BLM have been included in Appendix F. Impacts to cultural resources would be neglible. No further mitigation measures in additon to the PDFs and mitigation in Appendix F would be required; therefore, this CMA would not need to be implemented separately.

LUPA Wide					
Category	**CMA #**	**CMA Text**	**Applicability**	**Explanation: Why CMA is not applicable**	**Comments**
	LUPA-CUL-9	Promote DRECP desert vegetation types/communities by avoiding them where possible, then use required compensatory mitigation, off-site mitigation, and other means to ensure Native American vegetation collection areas and practices are maintained.	Yes		Impacts to DRECP desert vegetation types/communities important to Native American vegetation collection and pracities are not anticipated; however, if presence of such communities are identified upon surface occupancy of the Project and throughout Section 106 of the NHPA consultation over the life of the Project, this CMA would be required for implementation in addition to the PDFs and mitigation measures for cultural resources identified in Appendix F.
	LUPA-CUL-10	Promote and protect desert fan palm oasis vegetation type/communities by avoiding where possible, then use required compensatory mitigation, off-site mitigation, and other means to ensure Native American cultural values are maintained.	No	Project not within the range or habitat of this species.	Desert fan palm oasis vegetation type and/or communities are not present within the Project Area or vicinity.
	LUPA-CUL-11	Promote and protect desert microphyll woodland vegetation type/communities to ensure Native American cultural values are maintained.	Yes		Occurrence is very limited within the Project Area and impacts are not anticipated; however, if presence is identified upon surface occupancy of the Project, this CMA would be required for implementation in addition to the PDFs and mitigation measures for cultural resources identified in Appendix F.
Lands and Realty	**LUPA-LANDS-1**	Identify acquired lands as right-of-way exclusion areas when development is incompatible with the purpose of the acquisition.	No	Project is not located in or near the area specified in the CMA.	The Project would not require land acquisition or Right-of-Way exclusions.
	LUPA-LANDS-2	Prioritize acquisition of land within and adjacent to conservation designation allocations. Acquired land in any land use allocation in this Plan will be managed according to the applicable allocation requirements and/or for the purposes of the acquisition. Management boundaries for the allocation may be adjusted to include the acquired land if the acquisition lies outside the allocation area through a future land use plan amendment process.	No	Project is not located in or near the area specified in the CMA.	The Project would not require land acquisition.
	LUPA-LANDS-3	Within land use allocations where renewable energy and ancillary facilities are not allowed, an exception exists for geothermal development. Geothermal development will be an allowable use if a geothermal-only DFA overlays the allocation and the lease includes a no surface occupancy stipulation with exception of three specific parcels in the Ocotillo Wells SRMA (refer to the Ocotillo Wells SRMA Special Unit Management Plan in Appendix C).	No	Land use does not occur on project site.	The Project does not involve geothermal development.
	LUPA-LANDS-4	Nonfederal lands within the boundaries of BLM LUPA land use allocations are not affected by the LUPA.	No	Project is not located in or near the area specified in the CMA.	The Project is located entirely on lands managed by the BLM.
	LUPA-LANDS-5	The MUCs used to determine land tenure in the CDCA Plan will be replaced by areas listed in the CMAs below.	No	Project is not located in or near the area specified in the CMA.	The land tenture would not be replaced by the below areas under the Project.
	LUPA-LANDS-6	Any activities on Catellus Agreement lands will be consistent with deed restrictions	No	Project is not located in or near the area specified in the CMA.	The Project does not occur on Catellus Agreement lands.
	LUPA-LANDS-7	Any activities on Catellus Agreement lands will be subject to the approval of the California State Director.	No	Project is not located in or near the area specified in the CMA.	The Project does not occur on Catellus Agreement lands.
	LUPA-LANDS-8	The CDCA Plan requirement that new transmission lines of 161kV or above, pipelines with diameters greater than 12 inches, coaxial cables for interstate communications, and major aqueducts or canals for interbasin transfers of water will be located in designated utility corridors, or considered through the plan amendment process outside of designated utility corridors, remains unchanged. The only exception is that transmission facilities may be located outside of designated corridors within DFAs without a plan amendment. This CMA does not apply the Bishop and Bakersfield RMPs.	No	Project is not located in or near the area specified in the CMA.	The Project does not propose transmission lines or pipelines, or major aqeudacts andor canals, or transmission facilities.
Exchanges with the State of California	**LUPA-LANDS-8**	Continue land exchanges with the State of California, as per the LUPA goals and objectives in Section II.4.1.4. Refer to Appendix F.	No	Project is not located in or near the area specified in the CMA.	No land exchanges would occur under the Project.
	LUPA-LANDS-9	Enter into land exchanges with the California State Lands Commission (CSLC) which convey BLM lands suitable for, or developed as, large-scale renewable energy related projects in exchange for CSLC school lands located in and adjacent to designated conservation areas. These exchanges will follow the procedures outlined in Memorandum of Agreement Relating to Land Exchanges to Consolidate Land Parcels signed by the BLM and CSLC on May 21, 2012.	No	Project is not located in or near the area specified in the CMA.	No land exchanges would occur under the Project.
	LUPA-LANDS-10	Prioritize land exchange proposals from the CSLC on available lands if there are competing land tenure proposals (e.g., land sale or exchange), CSLC proposals that enhance revenues for schools will generally be given priority.	No	Project is not located in or near the area specified in the CMA.	No land exchanges would occur under the Project.
Livestock Grazing	**LUPA-LIVE-1**	Adopt the Standards of Rangeland Health and Guidelines for Grazing Management, as detailed below, for the CDCA. This CMA does not apply in the Bishop and Bakersfield RMPs. **Standards of Rangeland Health and Guidelines for Grazing Management** Regional Public Land Health Standards and Guidelines are required for all BLM administered lands in accordance with Part 43 of the CFR subsection 4180. These regulations require that State Directors, in consultation with Resource Advisory Councils, develop Standards for Rangeland Health and Guidelines for grazing management. The BLM in coordination and consultation with the California Desert District Advisory Committee (see Section 601 of the FLPMA as amended) developed standards and guidelines for the CDCA and used the following land use plan amendments to analyze the specific standard and guideline and to provide the public and opportunity to comment. • Northern and Eastern Colorado Desert Management Plan—NECO—ROD signed Dec. 2002 (BLM 2002a) • Northern and Eastern Mojave Desert Management Plan—NEMO—ROD signed Dec. 2002 (BLM 2002b) • West Mojave Plan—WEMO—ROD signed March 2006 (BLM 2006) The regulations require approval by the Secretary of the Interior prior to full implementation of standards and guidelines. Until approval is received, the fallback standards and guidelines will be used. The regulations require approval by the Secretary of the Interior prior to full implementation of the California Desert District standards and guidelines. Until approval is received, the fallback standards and guidelines will be used in the 5 Desert District Offices. Bakersfield and Bishop Field Offices are covered under the Central California Standards and Guidelines and require no additional approval to continue to use that document. **Standards and Guidelines for the CDCA** **Standards** of land health are expressions of levels of physical and biological condition or degree of function required for healthy lands and sustainable uses, and define minimum resource conditions that must be achieved and sustained (BLM 2001). **Guideline.** A practice, method or technique determined to be appropriate to ensure that standards can be met or that significant progress can be made toward meeting the standard. Guidelines are tools such as grazing systems, vegetative treatments, or improvement projects that help managers and permittees achieve standards. Guidelines may be adapted or modified when monitoring or other information indicates the guideline is not effective, or a better means of achieving the applicable standard becomes appropriate (H-4180-1 Rangeland Health Standards). The following **Standards** for the CDCA are from the NECO, NEMO, WEMO, and Palm Springs South Coast Resource Management Plan (PSSCRMP) land use plan amendments. **Soils**	No	Land use does not occur on project site.	The El Centro Field Office does not have any active livestock grazing leases.

LUPA Wide					
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		Soils exhibit infiltration and permeability rates that are appropriate to soil type, climate, geology, land form, and past uses. Adequate infiltration and permeability of soils allow accumulation of soil moisture necessary for optimal plant growth and vigor, and provide a stable watershed, as indicated by: • Canopy and ground cover are appropriate for the site. • There is a diversity of plant species with a variety of root depths. • Litter and soil organic matter are present at suitable sites. • Microbiotic soil crusts are maintained and in place at appropriate locations. • Evidence of wind or water erosion does not exceed natural rates for the site. • Soil permeability, nutrient cycling, and water infiltration are appropriate for the soil type. **Native Species** Healthy, productive, and diverse habitats for native species, including Special Status Species (federal threatened and endangered, federally proposed, federal candidates, BLM sensitive, or California State threatened and endangered, and Unique Plant Assemblages), are maintained in places of natural occurrence, as indicated by: • Photosynthetic and ecological processes are continuing at levels suitable for the site, season, and precipitation regimes. • Plant vigor, nutrient cycle, and energy flow are maintaining desirable plants and ensuring reproduction and recruitment. • Plant communities are producing litter within acceptable limits. • Age class distribution of plants and animals are sufficient to overcome mortality fluctuations. • Distribution and cover of plant species and their habitats allow for reproduction and recovery from localized catastrophic events. • Alien and noxious plants and wildlife do not dominate a site or do not require action to prevent the spread and introduction of noxious/invasive weeds. • Appropriate natural disturbances are evident. • Populations and their habitats are sufficiently distributed and healthy to prevent the need for new listing as Special Status Species. **Riparian/Wetland and Stream Function** Wetland systems associated with subsurface, running, and standing water function properly and have the ability to recover from major disturbances. Hydrologic conditions are maintained, as indicated by: • Vegetative cover adequately protects banks and dissipates energy during peak water flows. • Dominant vegetation is an appropriate mixture of vigorous riparian species. • Recruitment of preferred species is adequate to sustain the plant community. • Stable soils store and release water slowly. • Plant species present indicate soil moisture characteristics are being maintained. • There is minimal cover of shallow-rooted invader species, and they are not displacing deep-rooted native species. • Shading of stream courses and water courses is sufficient to support riparian vertebrates and invertebrates. • Stream is in balance with water and sediment being supplied by the watershed. • Stream channel size (depth and width) and meander is appropriate for soils, geology, and landscape. • Adequate organic matter (litter and standing dead plant material) is present to protect the site from excessive erosion and to replenish soil nutrients through decomposition. **Water Quality** Surface and groundwater complies with objectives of the Clean Water Act and other applicable water quality requirements, including meeting the California State standards, as indicated by: • The following do not exceed the applicable requirements: chemical constituents, water temperature, nutrient loads, fecal coliform, turbidity, suspended sediment, and dissolved oxygen. • Standards are achieved for riparian, wetlands, and water bodies. • Aquatic organisms and plants (e.g., macro-invertebrates, fish, algae, and plants) indicate support for beneficial uses. • Monitoring results or other data show water quality is meting the Standard. The following **Guidelines** for grazing in the CDCA are from the NECO, NEMO, WEMO, and PSSCRMP land use plan amendments. • Facilities will be located away from riparian-wetland areas whenever they conflict with achieving or maintaining riparian-wetland functions. • The development of springs and seeps or other projects affecting water and associated resources will be designed to protect the ecological functions and processes of those sites. • Grazing activities at an existing range improvement that conflict with achieving proper functioning conditions (PFC) and resource objectives for wetland systems (lentic, lotic, springs, adits, and seeps) would be modified so PFC and resource objectives can be met, and incompatible projects would be modified to bring them into compliance. The BLM would consult, cooperate, and coordinate with affected interests and livestock producers prior to authorizing modification of existing projects and initiation of new projects. New range improvement facilities would be located away from wetland systems if they conflict with achieving or maintaining PFC and resource objectives. • Supplements (e.g., salt licks) will be located one-quarter mile or more away from wetland systems so they do not conflict with maintaining riparian-wetland functions. • Management practices will maintain or promote perennial stream channel morphology (e.g., gradient, width/depth ratio, channel roughness, and sinuosity) and functions that are appropriate to climate and landform. • Grazing management practices will meet state and federal water quality Standards. Impoundments (stock ponds) having a sustained discharge yield of less than 200 gallons per day to surface or groundwater, are excepted from meeting state drinking water standards per California State Water Resources Control Board Resolution Number 88-63. • Refer to the most-up-to-date BLM Fire Policy for information related to suppression and use of wildland fire within the planning area. • In years when weather results in extraordinary conditions, seed germination, seedling establishment, and native plant species growth should be allowed by modifying grazing use. • Grazing on designated ephemeral rangeland could be allowed only if reliable estimates of production have been made, an identified level of annual growth or residue to remain on site at the end of the grazing season has been established, and adverse effects on perennial species are avoided.			

LUPA Wide Category	CMA #	CMA Text	Applicability	Explanation: Why CMA is not applicable	Comments
		• During prolonged drought, range stocking will be reduced to achieve resource objectives and/or prescribed perennial forage utilization. Livestock utilization of key perennial species on year-long allotments should be checked about March 1 when the Palmer Severity Drought Index/Standardized Precipitation Index indicates dry conditions are expected to continue. • Through the assessment process or monitoring efforts, the extent of invasive and/or exotic plants and animals should be recorded and evaluated for future control measures. Methods and prescriptions should be implemented, and an evaluation would be completed to ascertain future control measures for undesirable species. • Restore, maintain or enhance habitats to assist in the recovery of federally listed threatened and endangered species. Restore, maintain or enhance habitats of Special Status Species including federally proposed, federal candidates, BLM sensitive, or California State threatened and endangered to promote their conservation. • Grazing activities should support biological diversity across the landscape, and native species and microbiotic crusts are to be maintained. • Experimental research efforts should be encouraged to provide answers to grazing management and related resource concerns through cooperative and collaborative efforts with outside agencies, groups, and entities. • Livestock utilization limits of key perennial species will be as shown in (see **Table 19**) for the various range types. **Monitoring** Monitoring of grazing allotment resource conditions would be routinely assessed to determine if Public Land Health Standards are being met. In those areas not meeting one or more Standards, monitoring processes would be established where none exist to monitor indicators of health until the Standard or resource objective has been attained. Livestock trail networks, grazed plants, livestock facilities, and animal waste are expected impacts in all grazing allotments and these ongoing impacts would be considered during analysis of the assessment and monitoring process. Activity plans for other uses or resources that overlap an allotment could have prescribed resource objectives that may further constrain grazing activities (e.g., ACEC). In an area where a Standard has not been met, the results from monitoring changes to grazing management required to meet Standards would be reviewed annually. During the final phase of the assessment process, the Range Determination includes the schedule for the next assessment of resource conditions. To attain Standards and resource objectives, the best science would be used to determine appropriate grazing management actions. Cooperative funding and assistance from other agencies, individuals, and groups would be sought to collect prescribed monitoring data for indicators of each Standard.			
LUPA Wide Conservation and Management Actions for Livestock Grazing	**LUPA-LIVE-2**	In the CDCA only, accept grazing permit/lease donations in accordance with legislation in the Fiscal Year 2012 Appropriations Act (Public Law 112-74).	No	Land use does not occur on project site.	The El Centro Field Office does not have any active livestock grazing leases.
	LUPA-LIVE-3	In the Bishop and Bakersfield RMPs, determine whether continued livestock grazing would be compatible with achieving land use plan management goals and objectives in the event that the permit/lease is relinquished.	No	Land use does not occur on project site.	The El Centro Field Office does not have any active livestock grazing leases.
	LUPA-LIVE-4	If the BLM determines that the grazing allotment is to be put to a different public purpose than grazing, follow the notification requirements outline in the Grazing Regulations at 43 CFR 4110.4-2(b) and BLM Instruction Memorandum (IM) 2011-181 (BLM 2011), or future policy replacing IM 2011-181.	No	Land use does not occur on project site.	The El Centro Field Office does not have any active livestock grazing leases.
	LUPA-LIVE-5	For grazing allotments within the CDCA that BLM has received a voluntary request for relinquishment prior to fiscal year 2012, continue the planning process for making these allotments unavailable for grazing.	No	Land use does not occur on project site.	The El Centro Field Office does not have any active livestock grazing leases.
	LUPA-LIVE-6	Complete the process for approving rangeland health standards and guidelines for the CDCA Plan (NEMO, WEMO, NECO and PSSCRMP).	No	Land use does not occur on project site.	The El Centro Field Office does not have any active livestock grazing leases.
	LUPA-LIVE-7	Make Pilot Knob, Valley View, Cady Mountain, Cronese Lake, and Harper Lake allotments, allocations unavailable for livestock grazing and change to management for wildlife conservation and ecosystem function. Reallocate the forage previously allocated to grazing use in these allotments to wildlife and ecosystem functions. Pilot Knob was closed in the WEMO plan amendment. The Cronese Lake, Harper Lake, and Cady Mountain allotments were closed as mitigation for the impacts to the Agassiz's desert tortoise resulting from the Fort Irwin expansion. All forage allocated to livestock grazing in these allotments will be reallocated to wildlife use and ecosystem function.	No	Land use does not occur on project site.	The El Centro Field Office does not have any active livestock grazing leases.
	LUPA-LIVE-8	The following vacant grazing allotments within the CDCA will have all vegetation previously allocated to grazing use reallocated to wildlife use and ecosystem functions and will be closed and unavailable to future livestock grazing: Buckhorn Canyon, Crescent Peak, Double Mountain, Jean Lake, Johnson Valley, Kessler Springs, Oak Creek, Chemehuevi Valley, and Piute Valley.	No	Land use does not occur on project site.	The El Centro Field Office does not have any active livestock grazing leases.
	LUPA-LIVE-9	Allocate the forage that was allocated to livestock use in the Lava Mountain and Walker Pass Desert allotments (which have already been relinquished under the 2012 Appropriations Act) to wildlife use and ecosystem function and permanently eliminate livestock grazing on the allotments.	No	Land use does not occur on project site.	The El Centro Field Office does not have any active livestock grazing leases.
Minerals	**LUPA-MIN-1**	High Potential Mineral Areas (identified in CA GEM data) • These areas have been identified as mineral lands having existing and/or historic mining activity and a reasonable probability of future mineral resource development. These identified areas will be designated as mineral land polygons on DRECP maps, recognized as probable future development areas for planning purposes and allowable use areas. • If an activity is proposed in a High Potential Mineral Area, analyze and consider the mineral resource value in the NEPA analysis.	No	Project not located on federal lands with this designation.	The Project is not located wtihin a High Potential Mineral Area.
	LUPA-MIN-2	Existing Mineral/Energy Operations Existing authorized mineral/energy operations, including existing authorizations, modifications, extensions and amendments and their required terms and conditions, are designated as an allowable use within all BLM lands in the LUPA Decision Area, and unpatented mining claims subject to valid existing rights. Amendments and expansions authorized after the signing of the DRECP LUPA ROD are subject to applicable CMAs, including ground disturbance caps within Ecological and Cultural Conservation Areas, subject to valid existing rights, subject to governing laws and regulations.	Yes		This CMA would be required for implementation.
	LUPA-MIN-3	Existing High Priority Mineral/Energy Operations Exclusion Areas • Existing high-priority operation footprints and their identified expansion areas are excluded from DFA and conservation CMAs, but must comply with LUPA-wide CMAs subject to the governing laws and regulations. • High priority operation exclusions are referenced by name with their respective footprint (acreage) below. ○ MolyCorp REE (General Legal Description: 35º 26'N; 115º 29'W)—10,490.9 surface acres ○ Briggs Au, Etna (General Legal Description: 35º 56'N; 117º 11'W)—3,216.9 surface acres	No	Project is not located in or near the area specified in the CMA.	The Project is not located wtihin existing High Priority Mineral/Energy Operations Exclusion Areas and therefore would not impact such areas.

LUPA Wide					
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		○ Cadiz Evaporites (General Legal Description: 34º 17'N; 115º 23'W)—2,591.5 surface acres ○ Searles Dry Lake (Evaporate) Operation (General Legal Description: 35º 43'N; 117º 19'W)—72,000 surface acres ○ Bristol Dry Lake (Evaporate) Operation (General Legal Description: 34º 29'N; 115º 43'W)—3,500 surface acres ○ Mesquite Gold Mine (General Legal Description: 33º 04'N; 114º 59'W)—4,500 surface acres ○ Hector Mine (Hectorite Clay) (General Legal Description: 34º 45'N; 116º 25'W)—1,500 surface acres ○ Castle Mountain/Viceroy Mine (Gold) (General Legal Description: 35º 17'N; 115º 3'W)—5,000 surface acres			
	LUPA-MIN-4	Access to Existing Operations • Established designated, approved, or authorized access routes to the aforementioned existing authorized operations and areas will be designated as allowable uses. • Access routes to Plans of Operations and Notices approved under 43 CFR 3809 will be granted subject to valid existing rights listed in 43 CFR 3809.100.	No	Project is not located in or near the area specified in the CMA.	The Project is not located wtihin existing High Priority Mineral/Energy Operations Exclusion Areas and therefore would not impact access to such areas.
	LUPA-MIN-5	Areas Located Outside Identified Mineral Areas • Areas which could not be characterized due to insufficient data and mineral potential may fluctuate dependent on market economy, extraction technology, and other geologic information- requiring periodic updating. Authorizations are subject to the governing laws and regulations and LUPA requirements.	No	Project not located on federal lands with this designation.	The Project is located within a historic mining district and a previously disturbed area from past-mining.
	LUPA-MIN-6	New or expanded mineral operations will be evaluated on a case-by-case basis, and authorizations are subject to LUPA requirements, and the governing laws and regulations.	Yes		All applicable CMAs will be implemented under the Project that are not duplications of the already developed PDFs and the BLM-required additional mitigation measures within Appendix F.
National Recreation Trails	**LUPA-NRT-1**	The Nadeau Road NRT was designated by the Secretary of the Interior in June 2013. The California Desert District nominates the Sperry Wash Road, El Mirage Interpretive Trail East, and El Mirage Interpretive Trail West for NRT designation.	No	Project is not located in or near the area specified in the CMA.	The Project is not located within the vicinity of the nominated trails.
	LUPA-NRT-2	The Nadeau NRT Management Corridor will be protected and activities impacting use and enjoyment of the trail will be avoided within 0.5 mile from centerline of the route.	No	Project is not located in or near the area specified in the CMA.	The Project is not located wtihin the Nadeau National Recreation Trail Corridor.
Paleontology	**LUPA-PALEO-1**	If not previously available, prepare paleontological sensitivity maps consistent with the Potential Fossil Yield Classification for activities prior to NEPA analysis.	Yes		The Project Area has very low potential for preservation of significant fossils (i.e., paleontological resources) in the metamorphic Tumco Formation and in the igneous rocks, and low potential for preservation in the young colluvial and alluvial sediments deposited from high energy events. The project is unlikely to negatively impact fossil resources per Stantec 2022c referenced in the EA. This CMA would not be required for implementation as paleontological resources were determined present not affected.
	LUPA-PALEO-2	Incorporate all guidance provided by the Paleontological Resources Protection Act.			
	LUPA-PALEO-3	Ensure proper data recovery of significant paleontological resources where adverse impacts cannot be avoided or otherwise mitigated.			
	LUPA-PALEO-4	Paleontological surveys and construction monitors are required for ground disturbing activities that require an EIS.	No	Project is not located in or near the area specified in the CMA.	The BLM has determined that the level of NEPA analysis required for the Project as proposed in the Plan of Operations is an EA; therefore, EIS-level analysis associated with this CMA is not relevant.
Recreation and Visitor Services	**LUPA-REC-1**	Maintain, and where possible enhance, the recreation setting characteristics – physical components of remoteness, naturalness and facilities; social components of contact, group size and evidence of use; and operational components of access, visitor services and management controls.	Yes		The physcial landscape would be reclaimed to near pre-disturbance conditions which would maintain a similar recreational setting within the Project Area as currently existing, per the Reclamation Plan included as Appendix E. No further mitigaiton would be required in addition the reclamation measures proposed and the PDFs and mitigation measures included in Appendix F; therefore, this CMA would not be required for implementation.
	LUPA-REC-2	Cooperate with the network of communities and recreation service providers active within the planning area to protect the principal recreation activities and opportunities, and the associated conditions for quality recreation, by enhancing appropriate visitor services, and by identifying and mitigating impacts from development, inconsistent land uses and unsustainable recreation practices such as minimizing impacts to known rockhounding gathering areas.	Yes	Land use does not occur on project site.	The BLM would require the Project to post signage in designated recreational areas known within the vicinity of the Project Area to notify the public of dates and times that drilling would occur, per the mitigation measures identified in Appendix F. No further mitigation would be required.
	LUPA-REC-3	Manage lands not designated as SRMAs or ERMAs to meet recreation and visitor services and resource stewardship needs as described in Resource Management Plans (RMPs).			
	LUPA-REC-4	Prohibit activities that have a significant adverse impact and that do not enhance conservation or recreation values within one mile of Level 1 and Level 2 Recreation facility footprint.			
	LUPA-REC-5	Avoid activities that have a significant adverse impact and that do not enhance conservation or recreation values within one-half mile of Level 3 Recreation facility footprint including route access and staging areas. If avoidance is not practicable, the facility must be relocated to the same or higher recreation standard and maintain recreation objectives and setting characteristics.			
	LUPA-REC-6	Limit signage to that necessary for recreation facility/area identification, interpretation, education and safety/regulatory enforcement.			
	LUPA-REC-7	Refer to local RMPs, RMP amendments, and activity level planning for specially designated areas for Vehicular Stopping, Parking, and Camping limitations.			
	LUPA-REC-8	Provide on-going maintenance of recreation and conservation facilities, interpretive and regulatory signs, roads, and trails.			
Soil and Water General	**LUPA-SW-1**	Stipulations or conditions of approval for any activity will be imposed that provide appropriate protective measures to protect the quantity and quality of all water resources (including ephemeral, intermittent, and perennial water bodies) and any associated riparian habitat (see biological CMAs for specific riparian habitat CMAs). The water resources to which this CMA applies will be identified through the activity-specific NEPA analysis.	Yes		The Project would be required to obtain a California General Permit for protection of stormwater runoff within natural ephemeral drainages and impacts from construction activities. A Stormwater Pollution Prevention Plan would be developed and implemented to control sedimentation. No further mitigation would be required in addition to the PDFs included in Appendix F; therefore, this CMA would not be required for implementation.
	LUPA-SW-2	Buffer zones, setbacks, and activity limitations specifically for soil and water (ground and surface) resources will be determined on an activity/site-specific basis through the environmental review process, and will be consistent with the soil and water resource goals and objectives to protect these resources . Specific requirements, such as buffer zones and setbacks, may be based, in part, on the results of the Water Supply Assessment defined below. In general, placement of long-term facilities within buffers or protected zones for soil and water resources is discouraged, but may be permitted if soil and water resource management objectives can be maintained.	No	Project is not located in or near the area specified in the CMA.	Buffers would not be required under the Project for soils or water resources.
	LUPA-SW-3	Where a seeming conflict between CMAs within or between resources arises, the CMA(s) resulting in the most resource protection apply.	Yes		This CMA would be implemented should the proposed PDFs within Appendix F not be sufficient for protection and/or impact minimization of a specific resource.
	LUPA-SW-4	Nothing in the “Exceptions” below applies to or takes precedence over any of the CMAs for biological resources.	No	Land use does not occur on project site.	The exceptions for groundwater resources below do not apply to the Project.
Groundwater Resources	**LUPA-SW-5**	Exceptions to any of the specific soil and water stipulations contained in this section, as well as those listed below under the subheadings “Soil Resources,” “Surface Water,” and “Groundwater Resources,” may be granted by the authorized officer if the applicant submits a plan, or, for BLM-initiated actions, the BLM provides documentation, that demonstrates:	Yes		The estimated amount of water needed for the life of the Project is about 0.736 acre-feet or 0.0000098 percent of the total current level of Lake Mead. The natural groundwater recharge of the Ogilby Valley Groundwater Basin is 250 acre-feet per year (California’s Groundwater Bulletin 118) and the Project estimated water amount is 0.30 percent of the natural recharge rate. The project does not

LUPA Wide					
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		• The impacts are minimal (e.g., no predicted aquifer drawdown beyond existing annual variability in basins where cumulative groundwater use is not above perennial yield and water tables are not currently trending downward) or can be adequately mitigated.			propose groundwater pumping for Project activities. Procurement of water for Project activities from local vendors may be sourced from groundwater or from the Colorado River
Soil Resources	**LUPA-SW-6**	In addition to the applicable required governmental safeguards, third party activities will implement up-to-date standard industry construction practices to prevent toxic substances from leaching into the soil.	Yes		A Spill Contingency Plan would be developed and implemented per the PDF in Appendix F. No further mitigation would be required; therefore, this CMA would not be required for implementation.
	LUPA-SW-7	Prepare an emergency response plan, approved by the BLM contaminant remediation specialist, that ensures rapid response in the event of spills of toxic substances over soils.	Yes		A Spill Contingency Plan would be developed and implemented per the PDF in Appendix F. No further mitigation would be required; therefore, this CMA would not be required for implementation.
	LUPA-SW-8	As determined necessary on an activity specific basis, prepare a site plan specific to major soil types present (≥5% of footprint or laydown surfaces) in Wind Erodibility Groups 1 and 2 and in Hydrology Soil Class D as defined by the USDA Natural Resource Conservation Service to minimize water and air erosion from disturbed soils on activity sites.	No	Project is not located in or near the area specified in the CMA.	Soils within the Project Area are not classified as within Wind Erodibility Groups 1 and 2 or in Hydrology Soil Class D.
	LUPA-SW-9	The extent of desert pavement within the proposed boundary of an activity shall be mapped if it is anticipated that the activity may create erosional or ecologic impacts. Mapping will use the best available data and standards, as determined by BLM. Disturbance of desert pavement within the boundary of an activity shall be limited to the extent possible. If disturbance from an activity is likely to exceed 10% of the desert pavement mapped within the activity boundary, the BLM will determine whether the erosional and ecologic impacts of exceeding the 10% cap by the proposed amount would be insignificant and/or whether the activity should be redesigned to minimize desert pavement disturbance.	No	Project is not located in or near the area specified in the CMA.	Surface disturbing exploration activities are expected to be conducted within previously disturbed areas and outside of potential desert pavement areas.
	LUPA-SW-10	The extent of additional sensitive soil areas (cryptobiotic soil crusts, hydric soils, highly corrosive soils, expansive soils, and soils at severe risk of erosion) shall be mapped if it is anticipated that an activity will impact these resources. To the extent possible, avoid disturbance of desert biologically intact soil crusts, and soils highly susceptible to wind and water erosion.	No	Project is not located in or near the area specified in the CMA.	The Project is not located within an area with sensitive soils.
	LUPA-SW-11	Where possible, side casting shall be avoided where road construction requires cut- and-fill procedures.	Yes		All access areas, except for the proposed permanent access road for access to Drill Area 1, would be reclaimed; therefore this CMA would be implemented.
Surface Water	**LUPA-SW-12**	Except in DFAs, exclude long-term structures in, playas (dry lake beds), and Wild and Scenic River corridors, except as allowed with minor incursions (see definition in the Glossary of Terms).	No	Land use does not occur on project site.	The Project would not construct long-term structures.
	LUPA-SW-13	BLM will manage all riparian areas to be maintained at, or brought to, proper functioning condition.	No	Project is not located in or near the area specified in the CMA.	There are no riparian areas within the Project Area and vicinity.
	LUPA-SW-14	All relevant requirements of Executive Orders 11988 (Floodplain Management) and 11990 (Protection of Wetlands) will be complied with.	Yes		All applicable requirements would be complied with. A jurisdictional determination is currently under review with the US Army Corps of Engineers detailed that no jurisdictional waters or wetlands are present within the Project Area and vicinity. No further mitigation measures would be required; therefore, this CMA would not be required for implementation.
	LUPA-SW-15	Surface water diversion for beneficial use will not occur absent a state water right.	No	Land use does not occur on project site.	The Project would not divert surface water.
	LUPA-SW-16	The 100-year floodplain boundaries for any surface water feature in the vicinity of the project will be identified. If maps are not available from the Federal Emergency Management Agency (FEMA), these boundaries will be determined via hydrologic modeling and analysis as part of the environmental review process. Construction within, or alteration of, 100-year floodplains will be avoided where possible, and permitted only when all required permits from other agencies are obtained.	No	Project is not located in or near the area specified in the CMA.	The Project is not located within a 100-year floodplain.
Groundwater	**LUPA-SW-17**	An activity's groundwater extraction shall not contribute to exceeding the estimated perennial yield for the basin in which the extraction is taking place. Perennial yield is that quantity of groundwater that can be withdrawn from the groundwater basin without exceeding the long-term recharge of the basin or unreasonably affecting the basin's physical, chemical, or biological integrity. It is further clarified arithmetically below.	No	Land use does not occur on project site.	There would be no groundwater extraction activities under the Project.
	LUPA-SW-18	Water extracted or consumptively used for the construction, operation, maintenance, or remediation of the project shall be solely for the beneficial use of the project or its associated mitigation and remediation measures, as specified in approved plans and permits.			
	LUPA-SW-19	Water flow meters shall be installed on all extraction wells permitted by BLM.			
	LUPA-SW-20	After application of applicable avoidance and minimization measures, all remaining unavoidable residual impacts to surface waters from the proposed activity shall be mitigated to ensure no net loss of function and value, as determined by the BLM.	No	Land use does not occur on project site.	No unavoidable residual impacts to surface waters are anticiapted. A Stormwater Pollution Prevention Plan (SWPPP) would be developed and implemented and impacts to surface hydrology would be minimized and reclaimed as described in Appendix F of the EA.
	LUPA-SW-21	Consideration shall be given to design alternatives that maintain the existing hydrology of the site or redirect excess flows created by hardscapes and reduced permeability from surface waters to areas where they will dissipate by percolation into the landscape.	No	Land use does not occur on project site.	No obstructions to surface water flow are anticipated with the short-term, temporary nature of epxloration activities. A SWPPP would be developed and implemented and impacts to surface hydrology would be minimized and reclaimed as detailed in Appendix F of the EA.
	LUPA-SW-22	All hydrologic alterations shall be avoided that could reduce water quality or quantity for all applicable beneficial uses associated with the hydrologic unit in the project area, or specific mitigation measures shall be implemented that will minimize unavoidable water quality or quantity impacts, as determined by BLM in coordination with USFWS, CDFW, and other agencies, as appropriate. These beneficial uses may include municipal, domestic, or agricultural water supply; groundwater recharge; surface water replenishment; recreation; water quality enhancement; flood peak attenuation or flood water storage; and wildlife habitat.	No	Land use does not occur on project site.	Water required for project activities would be purchased commercially and transported to the project site.
	LUPA-SW-23	A Water (Groundwater) Supply Assessment shall be prepared in conjunction with the activity's NEPA analysis and prior to an approval or authorization. This assessment must be approved by the BLM in coordination with USFWS, CDFW, and other agencies, as appropriate, prior to the development, extraction, injection, or consumptive use of any water resource. The purpose of the Water Supply Assessment is to determine whether over-use or over-draft conditions exist within the project basin(s), and whether the project creates or exacerbates these conditions. The Assessment shall include an evaluation of existing extractions, water rights, and management plans for the water supply in the basin(s) (i.e., cumulative impacts), and whether these cumulative impacts (including the proposed project) can maintain existing land uses as well as existing aquatic, riparian, and other water-dependent resources within the basin(s). This assessment shall identify: • All relevant groundwater basins or sub-basins and their relationships. • All known aquifers in the basin(s), including their dimensions, whether confined or unconfined, estimated hydraulic conductivity and transmissivity, groundwater surface elevations, and direction and movement of groundwater. • All surface water basin(s) related to water runoff, delivery, and supply, if different from the groundwater basin(s). • All sites of surface outflow (springs or seeps) contained within the basin(s), including historic sites. • All other surface water bodies in the basins(s), including rivers, streams, ephemeral washes/drainages, lakes, wetlands, playas, and floodplains. • The water requirements of the proposed project and the source(s) of that water. • An analysis demonstrating that water of sufficient quantity and quality is available from identified source(s) for the life of the project.	No	Land use does not occur on project site.	There would be no groundwater extraction activities under the Project.

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		• An analysis of potential project-related impacts on water quality and quantity needed for beneficial uses, reserved water rights, existing groundwater users, or habitat management within or down gradient of the groundwater basin within which the project would be constructed. • The above analyses shall be in the form of a numerical groundwater model. The model extent shall encompass the groundwater basin within which the project would be constructed, and any groundwater-dependent resources within or down gradient of that basin. The primary product of the Water Supply Assessment shall be a baseline water budget, which shall be established based on the best-available data and hydrologic methods for the identified basin(s). This water budget shall classify and describe all water inflow and outflow to the identified basin(s) or system using best-available science and the following basic hydrologic formula or a derivation: P – R – E – T – G = ΔS where P is precipitation and all other water inflow or return flow, R is surface runoff or outflow, E is evaporation, T is transpiration, G is groundwater outflow (including consumptive component of existing pumping), and ΔS is the change in storage. The volumes in this calculation shall be in units of either acre-feet per year or gallons per year. The water budget shall quantify the existing perennial yield of the basin(s). Perennial yield is defined arithmetically as that amount such that P – R – E – T – G is greater than or equal to 0 Water use by groundwater-dependent resources is implicitly included in the definition of perennial yield. For example, in many basins the transpiration component (T) includes water use by groundwater-dependent vegetation. Similarly, groundwater outflow (G) includes discharge to streams, springs, seeps, and wetlands. If one or more budget components is altered, then one or more of the remaining components must change for the hydrologic balance to be maintained. For example, an increase in the consumptive component of groundwater pumping can lower the water table and reduce transpiration by groundwater-dependent vegetation. The groundwater that had been utilized by the groundwater-dependent vegetation would then be considered "captured" by groundwater pumping. Similarly, increased groundwater consumption can capture groundwater that discharges to streams, springs, seeps, wetlands and playas. These changes can occur slowly over time, and may require years or decades before the budget components are fully adjusted. Accordingly, the water/groundwater supply assessment requires that the best-available data and hydrologic methods be employed to quantify these budgets, and that groundwater consumption effects on groundwater-dependent ecosystems be identified and addressed. The Water Supply Assessment shall also address: • Estimates of the total cone of depression considering cumulative drawdown from all potential pumping in the basin(s), including the project, for the life of the project through the decommissioning phase • Potential to cause subsidence and loss of aquifer storage capacity due to groundwater pumping • Potential to cause injury to other water rights, water uses, and land owners • Changes in water quality and quantity that affect other beneficial uses • Effects on groundwater dependent vegetation and groundwater discharge to surface water resources such as streams, springs, seeps, wetlands, and playas that could impact biological resources, habitat, or are culturally important to Native Americans • Additional field work that may be required, such as an aquifer test, to evaluate site specific project pumping impacts and if necessary, establish trigger points that can be used for a Groundwater Water Monitoring and Mitigation Plan • The mitigation measures required, if there are significant or potentially significant impacts on water resources include but are not limited to, the use of specific technologies, management practices, retirement of active water rights, development of a recycled water supply, or water imports			
	LUPA-SW-24	A Groundwater Monitoring and Reporting Plan, and Mitigation Action Plan shall be prepared to verify the Water Supply Assessment and adaptively manage water use as part of project operations. This plan shall be approved by BLM, in coordination with USFWS, CDFW, and other agencies as appropriate, prior to the development, extraction, injection, or consumptive use of any water resource. The quality and quantity of all surface water and groundwater used for the project shall be monitored and reported using this plan. Groundwater monitoring includes measuring the effects of a project's groundwater extraction on groundwater surface elevations, groundwater flow paths, changes to groundwater-dependent vegetation, and of aquifer recovery after project decommissioning. Surface water monitoring, if applicable, shall monitor for changes in the flows, water volumes, channel characteristics, and water quality as a result of a project's surface water use. Monitoring frequency and geographic scope and reporting frequency shall be decided on a project and site-specific basis and in coordination with the appropriate agencies that manage the water and land resources of the region. The geographic scope may include at the very least, all basins/sub-basins that potentially receive inflow from the basin where the proposed project may be sited, and all basins/sub-basins that may potentially contribute inflow to the basin where the proposed project is located. The plan shall also detail any mitigation measures that may be required as a result of the project. This plan and all monitoring results shall be made available to BLM. BLM will make the plan and results available to USFWS, CDFW, and other applicable agencies.	No	Land use does not occur on project site.	There would be no groundwater extraction activities under the Project.
	LUPA-SW-25	Where groundwater extraction, in conjunction with other cumulative impacts in the basin, has potential to exceed the basin's perennial yield or to impact water resources, one or more "trigger points," or specified groundwater elevations in specific wells or surface water bodies, shall be established by BLM. If the groundwater elevation at the designated monitoring wells falls below the trigger point(s)(or exceeds the trigger pumping rate), additional mitigation measures, potentially including cessation of pumping, will be imposed.	No	Land use does not occur on project site.	There would be no groundwater extraction activities under the Project.
	LUPA-SW-26	Groundwater pumping mitigation shall be imposed if groundwater monitoring data indicate impacts on water-dependent resources that exceed those anticipated and otherwise mitigated for in the NEPA analysis and ROD, even if the basin's perennial yield is not exceeded. Water-dependent resources include riparian or phreatophytic vegetation, springs, seeps, streams, and other approved domestic or industrial uses of groundwater. Mitigation measures may include changes to pumping rates, volume, or timing of water withdrawals; coordinating and scheduling groundwater pumping activities in conjunction with other users in the basin; acquisition of project water from outside the basin; and/or replenishing the groundwater resource over a reasonably short timeframe. For permitted activities, permittees may also be required to contribute funds to basin-wide groundwater monitoring networks in basins such as those encompassed by the East Riverside DFA or in the Calvada Springs/South Pahrump Valley area, and to cooperate in the compilation and analysis of groundwater data.	No	Land use does not occur on project site.	There would be no groundwater extraction activities under the Project.

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	LUPA-SW-27	Water-conservation measures shall be required in basins where current groundwater demand is high and has the future potential to rise above the estimated perennial yield (e.g., Pahrump Valley). These measures may include the use of specific technology, management practices, or both. A detailed discussion and analysis of the effectiveness of mitigation measures must be included. Application of these measures shall be detailed in the Groundwater Water Monitoring and Mitigation Plan.	No	Project is not located in or near the area specified in the CMA.	The Project is not located wtihin a basin with current high groundwater demands, and there would be no groundwater extraction activities under the Project.
	LUPA-SW-28	Groundwater extractions from adjudicated basins, such as the Mojave River Basin, may be subject to additional restrictions imposed by the designated authority; examples include the Mojave Water Agency and San Bernardino County (see County Ordinance 3872). Where provisions of the adjudication allow for acquisition of water rights, project developers could be required to retire water rights at least equal in volume to those necessary for project operation or propose an alternative offset based on the conditions unique to the adjudicated basin.	No	Land use does not occur on project site.	There would be no groundwater extraction activities under the Project.
	LUPA-SW-29	Groundwater pumping mitigation may be imposed if monitoring data indicate impacts on groundwater or groundwater-dependent habitats outside the DRECP area, including those across the border in Nevada. See **LUPA-SW-26** for potential mitigation measures.	No	Land use does not occur on project site.	There would be no groundwater extraction activities under the Project.
	LUPA-SW-30	Activities shall comply with local requirements for any long term or short term domestic water use and wastewater treatment.	No	Land use does not occur on project site.	The Project would transport water to the Project site using water trucks and no wastewater treatment would occur.
	LUPA-SW-31	The siting, construction, operation, maintenance, remediation, and abandonment of all wells shall conform to specifications contained in the California Department of Water Resources Bulletins #74-81 and #74-90 and their updates.	No	Land use does not occur on project site.	There would be no new wells constructed under the Project.
	LUPA-SW-32	Colorado River hydrologic basin - The concepts, principles and general methodology used in the Colorado River Accounting Surface Method, as defined in U.S. Geological Survey Scientific Investigations Report 2008-5113 (USGS 2009), and existing and future updates or a similar methodology, are considered the best available data for assessing activity/project related ground water impacts in the Colorado River hydrologic basin. The best available data and methodology shall be used to determine whether activity/project-related pumping would result in the extracted water being replaced by water drawn from the Colorado River. If activity/project-related groundwater pumping results in the static groundwater level at the well being near (within 1 foot), equal to, or below the Accounting Surface in a basin hydrologically connected to the Colorado River, that consumption shall be considered subject to the Law of the River (Colorado River Compact of 1922 and amendments). In such circumstances, BLM shall require the applicant to offset or otherwise mitigate the volume of water causing drawdown below the Accounting Surface. Details of such mitigation measures and the right to the use of water shall be described in the Groundwater Water Monitoring and Mitigation Plan.	No	Land use does not occur on project site.	There would be no groundwater extraction activities under the Project.
Soil, Water, and Water-Dependent Resources Restricted to Specific Areas on BLM Lands	**LUPA-SW-33**	**Stipulations for groundwater development in the proximity of Devils Hole**: Any development scenario for an activity within 25 miles of Devils Hole shall include a plan to achieve *zero-net* or *net-reduced* groundwater pumping to reduce the risk of adversely affecting senior federal reserved water rights, the designated critical habitat of the endangered Devils Hole pupfish, and the free-flowing requirements of the Wild and Scenic Amargosa River. This plan will require operators to acquire one or more minimization water rights (MWRs) in the over-appropriated, over-pumped, and hydraulically connected Amargosa Desert Hydrographic Basin in Nevada. The MWR(s) shall be: (1) an amount equal (at minimum) to that which is needed for construction and operations; (2) historically fully utilized, preferably for agricultural use; and (3) senior and closer to Devils Hole than the proposed point of diversion.	No	Project is not located in or near the area specified in the CMA.	The Project is not located wtihin or in proximity to Devils Hole.
	LUPA-SW-34	**Stipulations for groundwater development in the Calvada Springs/South Pahrump Valley area:** Activities in this area shall be required to acquire one or more MWRs in the Pahrump Valley Hydrographic Basin in Nevada. The acquired MWR(s) must: (1) be at least equal to the amount proposed to be required and actually used for project construction and operations; and (2) be fully utilized for at least the prior ten years.	No	Project is not located in or near the area specified in the CMA.	The Project is not located wtihin the Calvada Springs/South Pahrump Valley area.
	LUPA-SW-35	Stipulations for activities in the vicinity of Death Valley National Park, Joshua Tree National Park, or Mojave National Preserve: The NEPA for activities involving groundwater extraction that are in the vicinity of Death Valley National Park, Joshua Tree National Park, or the Mojave National Preserve shall analyze and address any potential impacts of groundwater extraction on Death Valley National Park, Joshua Tree National Park, or Mojave National Preserve. BLM will consult with the National Park Service on this process. The analysis or analyses shall include: • Potential impacts on the water balances of groundwater basins within these parks and preserves • A map identifying all potentially impacted surface water resources in the vicinity of the project, including a narrative discussion of the delineation methods used to discern those surface waters in the field • Any project-related modifications to surface water resources, both temporary and permanent • Analysis of any potential impacts on perennial streams, intermittent streams, and ephemeral drainages that could negatively impact natural riparian buffers • Impacts of any project proposed truncation, realignment, channelization, lining, or filling of surface water resources that could change drainage patterns, reduce available riparian habitat, decrease water storage capacity, or increase water flow velocity or sediment deposition, in particular where stormwater diverted around or through the project site is returned to natural drainage systems downslope of the project • Any potential indirect project-related causes of hydrologic changes that could exacerbate flooding, erosion, scouring, or sedimentation in stream channels • Alternatives and mitigation measures proposed to reduce or eliminate such impacts	No	Project is not located in or near the area specified in the CMA.	The Project is not located within or in the vicinity of Death Valley National Park, Joshua Tree National Park, or Mojave National Preserve.
Visual Resources Management	**LUPA-VRM-1**	Manage Visual Resources in accordance with the VRM classes shown on Figure 9.	Yes		The majority of the Project Area falls within Class III, with some Class IV in the southernmost portion. Impacts to visual resources are analyzed within the EA and visual contrast rating worksheets are provided in Appendix H. The Project would comply with all VRM objectives. Further mitigation would not be required; therefore, this CMA would not be required for implementation in addition to the PDFs in Appendix F and based on the visual resources analysis.
	LUPA-VRM-2	Ensure that activities within each of the VRM Class polygons meets the VRM objectives described above, as measured through a visual contrast rating process.	Yes		The majority of the Project Area falls within Class III, with some Class IV in the southernmost portion. Impacts to visual resources are analyzed within the EA and visual contrast rating worksheets are provided in Appendix H. The Project would comply with all VRM objectives. Further mitigation would not be required; therefore, this CMA would not be required for implementation in addition to the PDFs in Appendix F and based on the visual resources analysis.

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	LUPA-VRM-3	Ensure that transmission facilities are designed and located to meet the VRM Class objectives for the area in which they are located. New transmission lines routed through designated corridors where they do not meet VRM Class Objectives will require RMP amendments to establish a conforming VRM Objective. All reasonable effort must be made to reduce visual contrast of these facilities in order to meet the VRM Class before pursing RMP amendments. This includes changes in routing, using lattice towers (vs. monopole), color treating facilities using an approved color from the BLM Environmental Color Chart CC-001 (dated June 2008, as updated on April 2014, or the most recent version) (vs. galvanized) on towers and support facilities, and employing other BMPs to reduce contrast. Such efforts will be retained even if an RMP amendment is determined to be needed. Visual Resource BMPs that reduce adverse visual contrast will be applied in VRM Class conforming situations. For a reference of BMPs for reducing visual impacts see the "Best Management Practices for Reducing Visual Impacts of Renewable Energy Facilities on BLM-Administered Lands", available at http://www.blm.gov/style/medialib/blm/wo/MINERALS__REALTY__AND_RESOURCE_PROTECTION_/energy/renewable_references.Par.1568.File.dat/RenewableEnergyVisualImpacts_BMPs.pdf, or the most recent version of the document or BMPs for VRM, as determined by BLM.	No	Project is not located in or near the area specified in the CMA.	The Project does not propose transmission facilities.
Wilderness Characteristics	**LUPA-WC-1**	Complete an inventory of areas for proposed activities that may impact wilderness characteristics if an updated wilderness characteristics inventory is not available.	No	Project is not located in or near the area specified in the CMA.	Lands with Wilderness Characteristics are not present within the Project Area.
	LUPA-WC-2	Employ avoidance measures as described under DFAs and approved transmission corridors.	No	Project is not located in or near the area specified in the CMA.	Lands with Wilderness Characteristics are not present within the Project Area.
	LUPA-WC-3	For inventoried lands found to have wilderness characteristics but not managed for those characteristics compensatory mitigation is required if wilderness characteristics are directly impacted. The compensation will be: • 2:1 ratio for impacts from any activities that impact those wilderness characteristics, except in DFAs and transmission corridors • 1:1 ratio for impact from any activities that impact the wilderness characteristics in DFAs and transmission corridors Wilderness compensatory mitigation may be accomplished through acquisition and donation, by willing landowners, to the federal government of (a) wilderness inholdings, (b) wilderness edge holdings that have inventoried wilderness characteristics, or (c) other areas within the LUPA Decision Area that are managed to protect wilderness characteristics. Restoration of impaired wilderness characteristics in Wilderness, Wilderness Study Area, and lands managed to protect wilderness characteristics could be substituted for acquisition.	No	Project is not located in or near the area specified in the CMA.	Lands with Wilderness Characteristics are not present within the Project Area.
	LUPA-WC-4	For areas identified to be managed to protect wilderness characteristics, identified in Figure 7, the following CMAs are required: • Include a no surface occupancy stipulation for any leasable minerals with no exceptions, waivers, or modifications. • Exclude these areas from land use authorizations, including transmission. • Close areas to construction of new roads and routes. Vehicles will continue to be permitted on existing designated routes. • Close areas to mineral material sales. • Prohibit commercial or personal-use permits for extraction of materials (e. g. no wood-cutting permits). • Manage the area as VRM II. • Require that new structures and facilities are related to the protection or enhancement of wilderness characteristics or are necessary for the management of uses allowed under the land use plan. • Make lands unavailable for disposal from federal ownership.	No	Project is not located in or near the area specified in the CMA.	Lands with Wilderness Characteristics are not present within the Project Area.
	LUPA-WC-5	Manage the following Wilderness Inventory Units to protect wilderness characteristics: • 132A-2 / 132A-3 / 132B / 136 / 136-1 / 145-1-1 / 145-2-1 / 145-3-1 / 149-2 / 150-2-2 / 158-1 / 158-2 / 159 / 159-1 / 159A-1 / 160 / 160-1 / 160B-2A / 160B-2B / 160B-2F / 160B-3A / 160B-4A / 160B-3B / 160B-4B / 170-1 / 170-3 / 193-1 / 206-1-1 / 206-1-2 / 206-1-3 / 206-1-4 / 222-2-1 / 251-1 / 251-1-1 / 251-1-2 / 251-2-2 / 251-3 / 251A / 252 / 259-1 / 259-2 / 266-1 / 276-1 / 276-3 / 277 / 277A-1 / 278 / 280 / 294-1 / 294-2 / 295 / 295A / 304-2 / 305-1 / 305-2 / 307-1 / 307-2 / 307-1-1 / 307-1-2 / 307-1-3 / 312-1 / 312-2 / 312-3 / 322-1 / 325-1 / 325-2 / 325-3 / 325-4 / 325-5 / 325-7 / 325-8 / 315-14 / 325-17 / 329 / 352-2 / 352A / 352A-1 / 354 / 355-1 / 355-2 / 355-3	No	Project is not located in or near the area specified in the CMA.	Lands with Wilderness Characteristics are not present within the Project Area.

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Comprehensive Trails &Travel Management	**NLCS-CTTM-1**	**Comprehensive Trails and Travel Management –** Trails and Travel Management in California Desert National Conservation Lands will be in accordance with the applicable Transportation and Travel Management Plan. Future Transportation and Travel Management Plans for National Conservation Lands would be developed in accordance to the appropriate BLM guidance and policy. The California Desert National Conservation Land designation will be addressed in those subsequent plans with an emphasis on routes that provide for the conservation, protection, and restoration, as well as recreational use and enjoyment of the California Desert National Conservation Lands that is compatible with the values for which the areas were designated.	No	Land use does not occur on project site.	The Project does not propose transportation routes for conservation, protection, restoration, or recreational use.
Cultural Resources & Tribal Interests	**NLCS-CUL-1**	Any adverse effects to historic properties resulting from allowable uses will be addressed through the Section 106 process of the National Historic Preservation Act and the implementing regulations at 36 CFR Part 800. Resolution of adverse effects will in part be addressed via alternative mitigation that includes regional synthesis and interpretation of existing archaeological data in addition to mitigation measures determined through the Section 106 consultation process.	Yes		The Project would avoid all cultural resources. A Class III Cultural Resources Inventory Report is on file with the BLM El Centro Field Office. Additional mitigation measures for protection of cultural resources would be required by the BLM and are included as Appendix F of the EA. Section 106 of the NHPA consultation would continue throughout the life of the Project.
Ground Disturbance Caps	**NLCS-DIST-1**	**Ground Disturbance Caps –** Development in California Desert National Conservation Lands are limited by the 1% ground disturbance cap which is the total ground disturbance (existing [past and present] plus future), or to the level allowed by collocated ACEC(s) with its smaller ground disturbance cap units, whichever is more restrictive. Refer to Appendix B for the ACEC Special Unit Management Plans. The ground disturbance caps will be used, managed and implemented following the methodology in the California Desert National Conservation Lands and ACEC land allocation sections, and repeated in, **NLCS-DIST-2** and **ACEC-DIST-2**.	No	Land use does not occur on project site.	Ground disturbance caps do not apply to mining or mineral exploration projects.
	NLCS-DIST-2	**Ground Disturbance Cap Management and Implementation.** Specifically, the ground disturbance caps would be implemented as a limitation and objective using the following process: • Limitation: If the ground disturbance condition of the California Desert National Conservation Lands and/or ACEC unit is below the designated ground disturbance cap (see calculation method), the ground disturbance cap is a limitation on ground-disturbing activities within the California Desert National Conservation Lands and/or ACEC, and precludes approval of future discretionary ground disturbing activities (see exceptions below) above the cap. • Objective, triggering disturbance mitigation: If the ground disturbance condition of the California Desert National Conservation Lands and/or ACEC is at or above its designated cap, the cap functions as an objective, triggering the specific ground disturbance mitigation requirement. Ground disturbance mitigation is unique to ground disturbance cap implementation and a discrete form of compensatory mitigation, separate from other required mitigation in the DRECP LUPA (see Glossary of Terms). The ground disturbance mitigation requirement remains in effect for all (see exceptions below) activities until which time the California Desert National Conservation Lands and/or ACEC drops below the cap, at which time the cap becomes a limitation and the ground disturbance mitigation is no longer a requirement. If ground disturbance mitigation opportunities do not exist in a unit (see below for "unit" of measurement), ground disturbing activities (see exceptions below) will not be allowed in that unit until which time opportunities for ground disturbance mitigation in the unit become available (see types and forms of ground disturbance mitigation below) or the unit recovers and drops below the cap. • Actions necessary to control the immediate impacts of an emergency that are urgently needed to reduce the risk to life, property, or important natural, cultural, or historic resources, in accordance with 43 Code of Federal Regulations (CFR) 46.150, are an exception to the ground disturbance cap limitation, objective and ground disturbance mitigation requirements. Ground disturbance from emergency actions will count in the ground disturbance calculation for other activities, and also be available for ground disturbance mitigation opportunities and restoration, as appropriate.	No	Land use does not occur on project site.	Ground disturbance caps do not apply to mining or mineral exploration projects.

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		Calculating ground disturbance: Ground disturbance will be calculated on BLM managed land at the time of an individual proposal, by BLM for a BLM initiated action or by a third party for an activity needing BLM approval or authorization, for analysis in the activity-specific National Environmental Policy Act (NEPA) document. Once BLM approves/accepts or conducts a calculation for a ACEC, that calculation is considered the baseline of past and present disturbance and is valid for 12 months, and can be used by other proposed activities in the same unit. Ground disturbances, that meet the criteria below, would be added into the calculation for the 12 month period without having to revisit the entire calculation. After a 12 month period has passed and a proposed action triggers the disturbance calculation, BLM will examine the existing ground disturbance calculation to determine: 1) if the calculation is still reliable, in which case add in any additional disturbance that has occurred since that calculation; or 2) if the disturbance must be recalculated in its entirety. Once completed for a specific activity, the ground disturbance calculation may be used throughout the activity's environmental analysis. However, the BLM may recalculate the affected unit(s) or portions of the unit(s) if it determines such recalculation is necessary for the BLM's environmental analysis. **Unit of measurement:** When calculating the ground disturbance, it is necessary to identify the appropriate unit level at which the disturbance will be calculated. For ground disturbing activities that occur within California Desert National Conservation Lands, the disturbance calculation will be based on the California Desert National Conservation Lands, ACEC unit boundary, or the boundary of the disturbance cap area(s), whichever area is smaller. If there is overlap between California Desert National Conservation Lands and an ACEC, the calculation will take place based on the smallest unit. If an activity/project overlaps two or more smaller units, the cap will be calculated, individually, for all affected units. **Ground disturbance includes:** The calculation shall include existing ground disturbance in addition to the estimated ground disturbance from the proposed activity (future) determined at the time of the individual proposal: • Authorized/approved ground disturbing activities – built and not yet built • BLM identified routes – all routes, trails, etc., authorized and unauthorized, identified in the Ground Transportation Linear Feature (GTLF) and/or other BLM route network database (i.e., BLM local databases that contain the best available data on routes and trails, replacement for GTLF, etc.), following applicable BLM standards and policy for identification of routes (authorized and unauthorized) • Assumptions may be used to identify the percentage/degree/area/etc. of ground disturbance for a specific authorized/approved activity or activity-type based on: o Activity-specific environmental analysis, such as NEPA or ESA Section 7 Biological Assessment o Known and documented patterns of ground disturbance o Other documented site-specific factors that limit or play a role in ground disturbance, such as topography, geography, hydrology (e.g. desert washes obliterating authorized routes on a regular basis), historical and predicted patterns of use • Any unauthorized disturbance that can be seen at a 1:10,000 scale using the best available aerial imagery • Ground disturbance from wildfire, animals, or other disturbances that can be seen at a 1:10,000 scale using the best available aerial imagery • Historic Route 66 maintenance - potential ground disturbance estimates: – As part of the ground disturbance calculation, the potential disturbance associated with estimated operations related to the maintenance of Historic Route 66 will automatically be included in the ground disturbance calculation as existing ground disturbance for the units specified below, until which time these estimated acres are no longer necessary due to approved operations:			

California Desert NCL

Category	CMA #	CMA Text	Applicability	Explanation: Why CMA is not applicable	Comments
		▪ South Amboy-Mojave California Desert National Conservation Lands ▪ Bristol Mountains ACEC 92 acres ▪ Chemehuevi ACEC 43 acres ▪ Pisgah ACEC 86 acres o The estimated ground disturbance acreage includes disturbance associated with potential access to the locations if no current access exists. o The estimated ground disturbance acres for maintenance of Historic Route 66 in the before mentioned conservation units is not approval of these activities by BLM. Activities associated with the management and maintenance of Historic Route 66 on BLM administered land will follow all applicable laws, regulations and policies. **Exceptions to the disturbance calculation:** • Actions necessary to control the immediate impacts of an emergency that are urgently needed to reduce the risk to life, property, or important natural, cultural, or historic resources, in accordance with 43 CFR 46.150, will not be required to conduct a disturbance calculation. If the actions are ground disturbing, that disturbance will count towards the disturbance cap when next calculated for non-emergency activities. • Actions that are authorized under a Department of Interior (DOI) or BLM NEPA Categorical Exclusion will not be required to conduct a disturbance calculation; however, these actions are not exempt from the disturbance mitigation requirement if a unit is at or above its cap. Although the BLM is not required to calculate the disturbance cap before approving an activity under a Categorical Exclusion, if the BLM knows an area is at or exceeding the cap, the disturbance mitigation requirements would apply to that activity. • BLM authorized/approved research or restoration activities that are designed or intended to promote and enhance the nationally significant landscape values for which the California Desert National Conservation Land was designated. • Actions that are entirely within the footprint of an existing authorized/approved site of ground disturbance that is within the calculation above. • Livestock grazing permit renewals (however, water developments or other range improvements requiring an Environmental Assessment or Environmental Impact Statement would be subject to the disturbance calculation and any mitigation requirements). **Ground disturbance mitigation:** The purpose of ground disturbance mitigation (disturbance mitigation) is to allow actions to occur in California Desert National Conservation Lands and/or ACEC that is at or above its designated disturbance cap(s), while at the same time providing a restoration mechanism that will, over time, improve the condition of the unit(s) and take them below their cap. Disturbance mitigation is compensatory. Disturbance mitigation is unique to ground disturbance cap implementation and a discrete form of compensatory mitigation, separate from other required mitigation in the DRECP (see Glossary of Terms). Disturbance mitigation may only be used for ground disturbance that is otherwise allowed by the LUPA and consistent with the purposes for which the California Desert National Conservation Lands and/or ACEC was designated. Areas used for disturbance mitigation are still considered disturbed until which time they meet the “Ground Disturbance Recovery” criteria in the description below.			

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		Unit for implementing disturbance mitigation: The appropriate unit level for implementing disturbance mitigation is the same as that used for calculating ground disturbance. For ground disturbing activities that occur within California Desert National Conservation Lands, the disturbance mitigation will be required within the California Desert National Conservation Lands, ACEC boundary, or the boundary of the disturbance cap area(s), whichever area is smaller. If there is overlap between California Desert National Conservation Lands and an ACEC, the disturbance mitigation will take place in the smallest unit. If an activity/project overlaps two or more smaller units, disturbance mitigation will be required for all units that are at or over their specified disturbance cap. **No disturbance mitigation required:** If the calculated ground disturbance for the unit(s) is under the cap: • No disturbance mitigation required; use activity design features to minimize new ground disturbance and help stay below cap. **Disturbance mitigation required:** If the calculated ground disturbance is at or above the unit(s) cap, disturbance mitigation is required: • Use activity design features to minimize new ground disturbance to the extent practicable. • For the portion of the proposed activity that is located on land within an area previously disturbed by an authorized/approved action that has been terminated the required disturbance mitigation ratio is 1.5 (1½):1. • For the portion of the proposed activity that is located on undisturbed land or land disturbed by unauthorized activities, the required disturbance mitigation ratio is 3:1. • Although the BLM is not required to calculate the ground disturbance cap before approving/authorizing an activity under a Categorical Exclusion, if the BLM knows an area is at or exceeding the cap, the disturbance mitigation requirements would apply to that activity. • In the rare circumstance where the BLM authorizes activities on areas restored (e.g., as disturbance or other forms of mitigation), the required disturbance mitigation ratio requirement is doubled, that is, 3:1 or 6:1, respectively. • If disturbance mitigation opportunities do not exist in a unit, ground-disturbing activities (see exceptions below) will not be allowed in that unit until which time opportunities for disturbance mitigation in the unit become available (see types and forms of disturbance mitigation below) or the unit recovers and drops below the cap. **Exceptions to the disturbance mitigation requirement:** • Any portion of the proposed activity that is located on land previously disturbed by an existing, valid authorized/approved action. • Livestock grazing permit renewals (however, water developments or other range improvements requiring an Environmental Assessment or Environmental Impact Statement would be subject to the disturbance calculation and any mitigation requirements). • Land use authorization assignments and renewals with no change in use. • BLM authorized/approved activities that are designed and implemented to reduce existing ground disturbance, such as ecological, cultural, or habitat restoration or enhancement activities. • Non-discretionary actions, where BLM has no authority to require compensatory mitigation. **Types and forms of disturbance mitigation:** • Restoration of previously disturbed BLM lands within the boundary of the specific California Desert National Conservation Lands and/or ACEC unit(s) being impacted. • Acquisition of undisturbed lands within the boundary of the specific California Desert National Conservation Lands and/or ACEC unit being impacted.			

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		• Ground disturbance mitigation can be "nested" (i.e., combined) with other resource mitigation requirements, when appropriate. For example, a parcel restored for desert tortoise habitat mitigation may also satisfy the disturbance mitigation requirement if the parcel is within the appropriate unit of California Desert National Conservation Lands, ACEC boundary, or smaller disturbance cap unit. **Ground Disturbance Recovery** In general, California Desert National Conservation Lands and/or ACEC ground disturbance recovery would be determined during the decadal ground disturbance threshold ecoregion trend monitoring assessments (see below, and Monitoring and Adaptive Management). California Desert National Conservation Lands and/or ACEC recovery may be assessed at intermediate intervals, in between the decadal assessments, at BLM's discretion based on adequate funding and staffing. Between the decadal assessments, BLM will assume disturbed areas and units (same as used for calculations and mitigation) are not yet recovered until data is presented and BLM determines the area meets one of the two criteria below: • Field verification that disturbed area(s) are dominated by the establishment of native shrubs, as appropriate for the site, and demonstrated function of ecological processes (e.g., water flow, soil stability). • Ground disturbance can no longer be seen at the 1:10,000 scale using the best available aerial imagery. Areas within California Desert National Conservation Lands and/or ACEC(s) may be determined recovered by BLM at any time, once one of the two criteria above are met, prior to the entire unit (of calculation and mitigation) being determined recovered. Areas determined recovered by BLM would be removed from the subsequent ground disturbance calculation for that unit.			
Lands & Realty	**NLCS-LANDS-1**	Renewable energy activities and related ancillary facilities are not allowed. New transmission and interconnect (i.e. generation tie lines) lines are allowed in designated corridors only. California Desert National Conservation Lands are a right-of-way avoidance areas for all other land use authorizations. Right-of-way avoidance areas are defined as areas to be avoided but may be available for location of right-of-ways with special stipulations.	No	Land use does not occur on project site.	The Project does not propose energy activities.
	NLCS-LANDS-2	Avoid use authorizations that negatively affect the values for which the California Desert National Conservation Lands are designated, unless mitigation, including compensatory mitigation, result in a net benefit to the California Desert National Conservation Lands.	No	Land use does not occur on project site.	With the PDFs from the Plan of Operations (SMP 2021) and the implementation of BLM-required mitigation measures, the Project would not negatively affect California Desert NCLs.
	NLCS-LANDS-3	Public access will be designed to facilitate or enhance the use, enjoyment, conservation, protection, and restoration of California Desert National Conservation Land values identified for the ecoregion.	No	Land use does not occur on project site.	The Project would temporarily restrict access to the Project Area for public use; however, the BLM-required mitigation for public notices (Appendix F) to be posted would inform the public of access restrictions, and restrictions would be lifted upon completion of the Project.
	NLCS-LANDS-4	All lands within California Desert National Conservation Lands are identified for retention. If the BLM determines that disposal through exchange would result in a net benefit to the values of the California Desert National Conservation Lands, it may consider that exchange through a land use plan amendment.	No	Land use does not occur on project site.	Disposal through exchange would not occur and a land use plan amendment would not be necessary as a result of the Project.
	NLCS-LANDS-5	Site authorizations that protect or enhance conservation values, such as those granted as compensatory mitigation or for habitat restoration, are allowed. Compensatory mitigation measures sited on California Desert National Conservation Lands are not be limited to mitigation for activities on BLM-managed public land.	No	Project not located on federal lands with this designation.	The Project would not be located at a site that is designated for habitat restoration or compensatory mitigation.
Minerals	**NLCS-MIN-1**	**High Potential Mineral Areas** • In California Desert National Conservation Lands and ACECs, determine if reasonable alternatives exist outside of the California Desert National Conservation Lands and ACECs prior to proposing mineral resource development within one of these areas. • In California Desert National Conservation Lands, subject to valid existing rights, if mineral resource development is proposed on a parcel of public land administered by the BLM for conservation purposes and designated as part of the NLCS within the CDCA, pursuant to Omnibus Public Land Management Act Section 2002(b)(2)(D):	No	Project not located on federal lands with this designation.	The Project is not located within a High Potential Mineral Area.

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		○ Identify, analyze, and consider the resources and values for which that parcel of public land is administered for conservation purposes. ○ Determine whether development of mineral resources is compatible with the BLM's administration of that parcel of public land for conservation purposes. If development is incompatible, the mineral resource would not be developed, subject to valid existing rights. ○ Approve any operation for which valid existing rights have been determined, subject to the applicable CMAs in the DRECP LUPA, including LUPA-MIN-1 through 6. • In California Desert National Conservation Lands, to protect the values for which a California Desert National Conservation Land unit was designated, and avoid, minimize, and compensate impacts to those values that results in net benefit for California Desert National Conservation Lands values, all Plans of Operation will meet the performance standards found at 43 CFR 3809.420, specifically 43 CFR 3809.420(a)(3)—Land-use plans, and 43 CFR 3809.420(b)(7)—Fisheries, wildlife and plant habitat, and will be subject to the regulations found at 43 CFR 3809.100 and 43 CFR 3809.101, if applicable.			
	NLCS-MIN-2	For the purposes of locatable minerals, California Desert National Conservation Lands are treated as "controlled" or "limited" use areas in the CDCA, requiring a Plan of Operations for greater than casual use under 43 CFR 3809.11.	Yes		The Project is being considered based on the regulations set forth in 43 CFR 3809.11. A Plan of Operations (SMP 2021) has been submitted to the BLM for mineral exploration.
	NLCS-MIN-3	California Desert National Conservation Lands are available for mineral material sales and solid mineral leases, and would require mitigation, including compensatory mitigation, that results in net benefit for California Desert National Conservation Lands values consistent with applicable statutes and regulations.	No	Land use does not occur on project site.	The Project does not propose mineral material sales or new solid mineral leases.
	NLCS-MIN-4	California Desert National Conservation Lands are available for geothermal leasing only in the specified areas where a DRECP LUPA DFA overlaps with the California Desert National Conservation Lands and the geothermal lease contains a specific no surface occupancy stipulation.	No	Land use does not occur on project site.	The Project does not propose geothermal activities.
	NLCS-MIN-5	Geothermal and other leasing must protect groundwater quality and quantity.	No	Land use does not occur on project site.	The Project does not propose geothermal activities.
National Scenic & Historic Trails	NLCS-NSHT-1	**Management of National Scenic and Historic Trails –** Manage National Scenic and Historic Trails as units of the BLM's NLCS per PL 111-11, and components of the National Trails System under the National Trails System Act. Where National Scenic and Historic Trails overlap California Desert National Conservation Lands or other NLCS units (e.g., Wilderness Areas), the more protective CMAs or land use allocations apply.	No	Project not located on federal lands with this designation.	No National Scenic or Historic Trails are present within the Project Area or vicinity.
	NLCS-NSHT-2	**Management Corridor –** The National Trail Management Corridor, on BLM land, has a width generally 1 mile from the centerline of the trail, 2-mile total width. Where the National Trail Management Corridors overlap California Desert National Conservation Lands or other NLCS units, the more protective CMAs or land use allocations will apply.	No	Project not located on federal lands with this designation.	There is no National Scenic or Historic Trail Management Corridor within the Project Area or vicinity.
	NLCS-NSHT-3	**Site Authorization –** NSHT Management Corridors are right-of-way avoidance areas for land use authorizations. Sites authorizations will require mitigation, including compensatory mitigation resulting in net benefit to the NSHT. Authorizations that interfere with the Nature and Purpose for which the NSHT was established are not be allowed, as required by the National Trail Systems Act.	No	Project not located on federal lands with this designation.	There is no National Scenic or Historic Trail Management Corridor within the Project Area or vicinity.
	NLCS-NSHT-4	**Linear Rights-of-Way –** Generally, the NSHT Management Corridors are avoidance areas for linear rights-of-way, except in existing designated transmission/utility corridors, which are available for linear rights-of-way. Cultural landscapes, high potential historic sites, and high potential route segments within or along National Historic Trail Management Corridors are excluded from transmission activities, except in existing designated transmission/utility corridors. For all linear rights-of-way adversely impacting NSHT Management Corridors, the BLM will follow the protocol in BLM Manual 6280 to coordinate, as required, and complete an analysis showing that the development does not substantially interfere with the nature and purposes of the NSHT, and that mitigation results in a net benefit to the NSHT.	No	Land use does not occur on project site.	The Project does not propose any Rights-of-Way.

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	NLCS-NSHT-5	**Renewable Energy Rights-of-Way –** Renewable energy activities are not be allowed within NSHT Management Corridors, except in LUPA approved DFAs. Where development may adversely impact NSHT Management Corridors, the BLM will follow the protocol in BLM Manual 6280 as required and complete an analysis to ensure that it does not substantially interfere with the nature and purposes of the NSHT, avoids activities incompatible with NSHT nature and purposes, and that mitigation, including compensatory mitigation, results in a net benefit to the NSHT.	No	Land use does not occur on project site.	The Project does not entail geothermal activities.
	NLCS-NSHT-6	**Land Tenure –** All lands within NSHT Management Corridors are identified for retention. If the BLM determines that disposal through exchange would result in a net benefit to the values of the NSHT, it may consider that exchange through a land use plan amendment.	No	Project not located on federal lands with this designation.	There is no National Scenic or Historic Trail Management Corridor within the Project Area or vicinity.
	NLCS-NSHT-7	**Locatable Minerals –** For the purposes of locatable minerals, NSHT Management Corridors are treated as "controlled" or "limited" use areas in the CDCA, requiring a Plan of Operations for greater than casual use under 43 CFR 3809.11.	No	Project not located on federal lands with this designation.	There is no National Scenic or Historic Trail Management Corridor within the Project Area or vicinity.
	NLCS-NSHT-8	**Mineral Material Sales –** NSHT Management Corridors are available for mineral material sales if the sale does not conflict or cause adverse impact on resources, qualities, values, settings, or primary uses or substantially interfere with nature and purpose of NSHT, and avoids activities inconsistent with NHST purposes. The sale must require mitigation/compensation and must result in net benefit to NSHT values.	No	Project not located on federal lands with this designation.	There is no National Scenic or Historic Trail Management Corridor within the Project Area or vicinity.
	NLCS-NSHT-9	**Solid Mineral Leases –** NSHT Management Corridors will be available for solid mineral leases if the lease does not conflict or cause adverse impact on resources, qualities, values, settings, or primary uses or substantially interfere with nature and purpose of NSHT, and avoids activities inconsistent with NHST purposes. The lease must require mitigation/compensation and result in net benefit to NSHT values.	No	Project not located on federal lands with this designation.	There is no National Scenic or Historic Trail Management Corridor within the Project Area or vicinity.
	NLCS-NSHT-10	**Geothermal Leasable Minerals –** NSHT Management Corridors are available for geothermal leasing in LUPA approved DFAs only and with a no surface occupancy stipulation, as long as the action would not substantially interfere with the nature and purposes of the NSHT, and will follow the most recent national policy and guidance.	No	Project not located on federal lands with this designation.	There is no National Scenic or Historic Trail Management Corridor within the Project Area or vicinity and the Project does not propose geothermal activities.
	NLCS-NSHT-11	**Recreation and Visitor Services –** Commercial and competitive Special Recreation is a discretionary action and will be considered on a case-by-case basis for activities consistent with the NSHT nature and purposes.	No	Project not located on federal lands with this designation.	No National Scenic or Historic Trails are present within the Project Area or vicinity.
	NLCS-NSHT-12	**Cultural Resources –** Any adverse effects to historic properties resulting from allowable uses will be addressed through the Section 106 process of the National Historic Preservation Act and the implementing regulations at 36 CFR Part 800.	Yes		At this time, no National Scenic or Historic Trails have been identified within the Project Area of cultural resources area of analysis. Throughout archaeological monitoring of the Project per the mitigation measures included in Appendix F, should a National Scenic or Historic Trail be documented, the same mitigation measures for avoidance would be implemented. The Section 106 of the NHPA consultation process would be ongoing throughout the life of the Project.
	NLCS-NSHT-13	**Cultural Resources –** All high potential NHT segments will be assumed to contain remnants, artifacts and other properties eligible for the National Register of Historic Places, pending evaluation.	No	Project not located on federal lands with this designation.	No high potential National Historic Trail segments have been identified within the Project Area or vicinity.
	NLCS-NSHT-14	**Visual Resources Management –** All NSHT Management Corridors are designated as VRM Class I or II dependent on the CMA's or land use allocation, except within existing approved transmission/utility corridors (VRM Class III) and DFAs (VRM Class IV). However, state of the art VRM BMPs for renewable energy will be employed commensurate with the protection of nationally significant scenic resources and cultural landscapes to minimize the level of intrusion and protect trail settings.	No	Project not located on federal lands with this designation.	There is no National Scenic or Historic Trail Management Corridor within the Project Area or vicinity and the Project does not propose renewable energy activities.

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	NLCS-NSHT-15	**Mitigation Requirements –** If there is overlap between a National Scenic or Historic Trail, National Trail Management Corridor on BLM land, or trail under study for possible designation and a DFA, BLM Manual 6280 must be followed. Efforts will be made to avoid conflicting activities and approved activities will be subject to mitigation for adverse impacts to the resources, qualities, values, settings, and primary use or uses (RQVs), including, but not limited to, the following: avoidance, the cost of trail relocation, on-site mitigation and off-site mitigation. Compensation can include acquisition or restoration of corridor RQVs, features and landscapes will be at a minimum of 2:1, and must result in a net benefit to the overall trail corridor. Proposed development of high potential route segments must not substantially interfere with the nature and purposes of the National Scenic or Historic Trail.	No	Project not located on federal lands with this designation.	The Project is not located within a Development Focus Area and there are no National Scenic or Historic Trails or National Trail Management Corridors present within the Project Area and vicinity.
Recreation & Visitor Services	**NLCS-REC-1**	Commercial and competitive Special Recreation Permits are a discretionary action and will be issued on a case by case basis, for activities that do not diminish the values of the California Desert National Conservation Lands unit and will be prohibited if the proposed activities would adversely impact the nationally significant ecological, cultural or scientific values for which the area was designated.	No	Land use does not occur on project site.	The Project would not require a Special Recreation Permit.
	NLCS-SW-1	Apply for water rights on a case by case basis to protect water dependent California Desert National Conservation Land values.	No	Land use does not occur on project site.	The Project would not require water rights applications.

ACECs

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Cultural Resources & Tribal Interests	**ACEC-CUL-1**	Survey, identify and record new cultural resources within ACEC boundaries prioritizing ACECs where the relevant and important criteria include cultural resources.	No		This CMA specifies actions the BLM will take regarding overall management of ACECs.
	ACEC-CUL-2	Update records for existing cultural resources within ACECs, prioritizing ACECs where the relevant and important criteria include cultural resources.	No		This CMA specifies actions the BLM will take regarding overall management of ACECs.
	ACEC-CUL-3	Develop baseline assessment of specific natural and man-made threats to cultural resources in ACECs (i.e., erosion, looting and vandalism, grazing, OHV), prioritizing ACECs where the relevant and important criteria include cultural resources.	No		This CMA specifies actions the BLM will take regarding overall management of ACECs.
	ACEC-CUL-4	Provide on-going monitoring for cultural resources based on the threat assessment, prioritizing ACECs where the relevant and important criteria include cultural resources.	No		This CMA specifies actions the BLM will take regarding overall management of ACECs.
	ACEC-CUL-5	Identify, develop or incorporate standard protection measures and best management practices to address threats.	No		This CMA specifies actions the BLM will take regarding overall management of ACECs.
	ACEC-CUL-6	Where specific threats are identified, implement protection measures consistent with agency NHPA Section 106 responsibilities.	Yes		SMP has developed and implemented a tribal monitoring plan regarding the Project. Tribal consultation would be ongoing through the life of the Project and associated additional mitigation measures would be required by the BLM to ensure impacts to cultural resources are minimized. Required mitigation is provided in Chapter 5 of the EA as determined appropriate by the BLM and in acordance with the relevant regulations.
Ground Disturbance Cap	**ACEC-DIST-1**	Development in ACECs is limited by specified ground disturbance caps which are the total ground disturbance (existing [past and present] plus future). The specific ACEC ground disturbance caps are delineated in each of the individual ACEC Special Unit Management Plans (Appendix B). The ground disturbance caps will be used, managed and implemented following the methodology for California Desert National Conservation Lands and ACECs identified in Section II.2 and repeated in CMAs **NLCS-DIST-2**, and **ACEC-DIST-2**.	No	Land use does not occur on project site.	Ground disturbance caps do not apply to mining or mineral exploration projects.
	ACEC-DIST-2	Specifically, the ground disturbance caps would be implemented as a limitation and objective using the following process: • Limitation: If the ground disturbance condition of the ACEC is below the designated ground disturbance cap (see calculation method), the ground disturbance cap is a limitation on ground-disturbing activities within the California Desert National Conservation Lands and/or ACEC, and precludes approval of future discretionary ground disturbing activities (see exceptions below) above the cap. • Objective, triggering disturbance mitigation: If the ground disturbance condition of the ACEC is at or above its designated cap, the cap functions as an objective, triggering the specific ground disturbance mitigation requirement. Ground disturbance mitigation is unique to ground disturbance cap implementation and a discrete form of compensatory mitigation, separate from other required mitigation in the DRECP LUPA (see Glossary of Terms). The ground disturbance mitigation requirement remains in effect for all (see exceptions below) activities until which time the ACEC drops below the cap, at which time the cap becomes a limitation and the ground disturbance mitigation is no longer a requirement. If ground disturbance mitigation opportunities do not exist in a unit (see below for "unit" of measurement), ground disturbing activities (see exceptions below) will not be allowed in that unit until which time opportunities for ground disturbance mitigation in the unit become available (see types and forms of ground disturbance mitigation below) or the unit recovers and drops below the cap. • Actions necessary to control the immediate impacts of an emergency that are urgently needed to reduce the risk to life, property, or important natural, cultural, or historic resources, in accordance with 43 Code of Federal Regulations (CFR) 46.150, are an exception to the ground disturbance cap limitation, objective and ground disturbance mitigation requirements. Ground disturbance from emergency actions will count in the ground disturbance calculation for other activities, and also be available for ground disturbance mitigation opportunities and restoration, as appropriate.	No	Land use does not occur on project site.	Ground disturbance caps do not apply to mining or mineral exploration projects.

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Calculating ground disturbance: Ground disturbance will be calculated on BLM managed land at the time of an individual proposal, by BLM for a BLM initiated action or by a third party for an activity needing BLM approval or authorization, for analysis in the activity-specific National Environmental Policy Act (NEPA) document. Once BLM approves/accepts or conducts a calculation for a ACEC, that calculation is considered the baseline of past and present disturbance and is valid for 12 months, and can be used by other proposed activities in the same unit. Ground disturbances, that meet the criteria below, would be added into the calculation for the 12 month period without having to revisit the entire calculation After a 12 month period has passed and a proposed action triggers the disturbance calculation, BLM will examine the existing ground disturbance calculation to determine: 1) if the calculation is still reliable, in which case add in any additional disturbance that has occurred since that calculation; or 2) if the disturbance must be recalculated in its entirety. Once completed for a specific activity, the ground disturbance calculation may be used throughout the activity's environmental analysis. However, the BLM may recalculate the affected unit(s) or portions of the unit(s) if it determines such recalculation is necessary for the BLM's environmental analysis.

Unit of measurement: When calculating the ground disturbance, it is necessary to identify the appropriate unit level at which the disturbance will be calculated. For ground disturbing activities that occur within an ACEC, the disturbance calculation will be based on the ACEC unit boundary, or the boundary of the disturbance cap area(s), whichever area is smaller. If there is overlap between California Desert National Conservation Lands and an ACEC, the calculation will take place based on the smallest unit. If an activity/project overlaps two or more smaller units, the cap will be calculated, individually, for all affected units.

Ground disturbance includes: The calculation shall include existing ground disturbance in addition to the estimated ground disturbance from the proposed activity (future) determined at the time of the individual proposal:

- Authorized/approved ground disturbing activities – built and not yet built
- BLM identified routes – all routes, trails, etc., authorized and unauthorized, identified in the Ground Transportation Linear Feature (GTLF) and/or other BLM route network database (i.e., BLM local databases that contain the best available data on routes and trails, replacement for GTLF, etc.), following applicable BLM standards and policy for identification of routes (authorized and unauthorized)
- Assumptions may be used to identify the percentage/degree/area/etc. of ground disturbance for a specific authorized/approved activity or activity-type based on:
  - Activity-specific environmental analysis, such as NEPA or ESA Section 7 Biological Assessment
  - Known and documented patterns of ground disturbance
  - Other documented site-specific factors that limit or play a role in ground disturbance, such as topography, geography, hydrology (e.g. desert washes obliterating authorized routes on a regular basis), historical and predicted patterns of use

- Any unauthorized disturbance that can be seen at a 1:10,000 scale using the best available aerial imagery
- Ground disturbance from wildfire, animals, or other disturbances that can be seen at a 1:10,000 scale using the best available aerial imagery
- Historic Route 66 maintenance - potential ground disturbance estimates:
  - As part of the ground disturbance calculation, the potential disturbance associated with estimated operations related to the maintenance of Historic Route 66 will automatically be included in the ground disturbance calculation as existing ground disturbance for the units specified below, until which time these estimated acres are no longer necessary due to approved operations:
    - South Amboy-Mojave California Desert National Conservation Lands 221 acres
    - Bristol Mountains ACEC 92 acres
    - Chemehuevi ACEC 43 acres
    - Pisgah ACEC 86 acres
  - The estimated ground disturbance acreage includes disturbance associated with potential access to the locations if no current access exists.
  - The estimated ground disturbance acres for maintenance of Historic Route 66 in the before mentioned conservation units is not approval of these activities by BLM. Activities associated with the management and maintenance of Historic Route 66 on BLM administered land will follow all applicable laws, regulations and policies.

Exceptions to the disturbance calculation:

- Actions necessary to control the immediate impacts of an emergency that are urgently needed to reduce the risk to life, property, or important natural, cultural, or historic resources, in accordance with 43 CFR 46.150, will not be required to conduct a disturbance calculation. If the actions are ground disturbing, that disturbance will count towards the disturbance cap when next calculated for non-emergency activities.
- Actions that are authorized under a Department of Interior (DOI) or BLM NEPA Categorical Exclusion will not be required to conduct a disturbance calculation; however, these actions are not exempt from the disturbance mitigation requirement if a unit is at or above its cap. Although the BLM is not required to calculate the disturbance cap before approving an activity under a Categorical Exclusion, if the BLM knows an area is at or exceeding the cap, the disturbance mitigation requirements would apply to that activity.

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		• BLM authorized/approved research or restoration activities that are designed or intended to promote and enhance the relevant and important values for which the ACEC was designated. • Actions that are entirely within the footprint of an existing authorized/approved site of ground disturbance that is within the calculation above. • Livestock grazing permit renewals (however, water developments or other range improvements requiring an Environmental Assessment or Environmental Impact Statement would be subject to the disturbance calculation and any mitigation requirements). **Ground disturbance mitigation:** The purpose of ground disturbance mitigation (disturbance mitigation) is to allow actions to occur in California Desert National Conservation Lands and/or ACEC that is at or above its designated disturbance cap(s), while at the same time providing a restoration mechanism that will, over time, improve the condition of the unit(s) and take them below their cap. Disturbance mitigation is compensatory. Disturbance mitigation is unique to ground disturbance cap implementation and a discrete form of compensatory mitigation, separate from other required mitigation in the DRECP (see Glossary of Terms). Disturbance mitigation may only be used for ground disturbance that is otherwise allowed by the LUPA and consistent with the purposes for which the California Desert National Conservation Lands and/or ACEC was designated. Areas used for disturbance mitigation are still considered disturbed until which time they meet the "Ground Disturbance Recovery" criteria in the description below. **Unit for implementing disturbance mitigation:** The appropriate unit level for implementing disturbance mitigation is the same as that used for calculating ground disturbance. For ground disturbing activities that occur within an ACEC, the disturbance mitigation will be required within the ACEC unit boundary, or the boundary of the disturbance cap area(s), whichever area is smaller. If there is overlap between California Desert National Conservation Lands and an ACEC, the disturbance mitigation will take place in the smallest unit. If an activity/project overlaps two or more smaller units, disturbance mitigation will be required for all units that are at or over their specified disturbance cap. **No disturbance mitigation required:** If the calculated ground disturbance for the unit(s) is under the cap: • No disturbance mitigation required; use activity design features to minimize new ground disturbance and help stay below cap. **Disturbance mitigation required:** If the calculated ground disturbance is at or above the unit(s) cap, disturbance mitigation is required: • Use activity design features to minimize new ground disturbance to the extent practicable. • For the portion of the proposed activity that is located on land within an area previously disturbed by an authorized/approved action that has been terminated the required disturbance mitigation ratio is 1.5 (1½):1. • For the portion of the proposed activity that is located on undisturbed land or land disturbed by unauthorized activities, the required disturbance mitigation ratio is 3:1. • Although the BLM is not required to calculate the ground disturbance cap before approving/authorizing an activity under a Categorical Exclusion, if the BLM knows an area is at or exceeding the cap, the disturbance mitigation requirements would apply to that activity. • In the rare circumstance where the BLM authorizes activities on areas restored (e.g., as disturbance or other forms of mitigation), the required disturbance mitigation ratio requirement is doubled, that is, 3:1 or 6:1, respectively. • If disturbance mitigation opportunities do not exist in a unit, ground-disturbing activities (see exceptions below) will not be allowed in that unit until which time opportunities for disturbance mitigation in the unit become available (see types and forms of disturbance mitigation below) or the unit recovers and drops below the cap. **Exceptions to the disturbance mitigation requirement:** • Any portion of the proposed activity that is located on land previously disturbed by an existing, valid authorized/approved action. • Livestock grazing permit renewals (however, water developments or other range improvements requiring an Environmental Assessment or Environmental would be subject to the disturbance calculation and any mitigation requirements). • Land use authorization assignments and renewals with no change in use. • BLM authorized/approved activities that are designed and implemented to reduce existing ground disturbance, such as ecological, cultural, or habitat restoration or enhancement activities. • Non-discretionary actions, where BLM has no authority to require compensatory mitigation. **Types and forms of disturbance mitigation:** • Restoration of previously disturbed BLM lands within the boundary of the specific ACEC unit(s) being impacted. • Acquisition of undisturbed lands within the boundary of the specific ACEC unit being impacted. • Ground disturbance mitigation can be "nested" (i.e., combined) with other resource mitigation requirements, when appropriate. For example, a parcel restored for desert tortoise habitat mitigation may also satisfy the disturbance mitigation requirement if the parcel is within the appropriate unit of California Desert National Conservation Lands, ACEC boundary, or smaller disturbance cap unit.			

ACECs

Category	CMA #	CMA Text	Applicability	Explanation: Why CMA is not applicable	Comments
		Ground Disturbance Recovery In general, California Desert National Conservation Lands and/or ACEC ground disturbance recovery would be determined during the decadal ground disturbance threshold ecoregion trend monitoring assessments (see below, and Monitoring and Adaptive Management). California Desert National Conservation Lands and/or ACEC recovery may be assessed at intermediate intervals, in between the decadal assessments, at BLM's discretion based on adequate funding and staffing. Between the decadal assessments, BLM will assume disturbed areas and units (same as used for calculations and mitigation) are not yet recovered until data is presented and BLM determines the area meets one of the two criteria below: • Field verification that disturbed area(s) are dominated by the establishment of native shrubs, as appropriate for the site, and demonstrated function of ecological processes (e.g., water flow, soil stability). • Ground disturbance can no longer be seen at the 1:10,000 scale using the best available aerial imagery. Areas within California Desert National Conservation Lands and/or ACEC(s) may be determined recovered by BLM at any time, once one of the two criteria above are met, prior to the entire unit (of calculation and mitigation) being determined recovered. Areas determined recovered by BLM would be removed from the subsequent ground disturbance calculation for that unit.			
Lands & Realty	**ACEC-LANDS-1**	Renewable energy activities are not allowed. ACECs are right-of-way avoidance areas for all other land use authorizations, except when identified as right-of-way exclusion areas in the individual unit's Special Management Plan (Appendix B). Transmission is allowed. Re-powering of an existing wind facility is allowed if the re-power project remains within the existing approved wind energy ROW and reduces environmental impacts.	No	Land use does not occur on project site.	The Project does not propose renewable energy activities or new land use authorizations.
	ACEC-LANDS-2	All lands within Areas of Critical Environmental Concern are identified for retention. If the BLM determines that disposal through exchange would result in a net benefit to the values of the ACEC, it may consider that exchange through a land use plan amendment.	No	Land use does not occur on project site.	CMA not relevant to the Project; a land use plan amendment is not necessary.
Minerals	**ACEC-MIN-1**	**High Potential Mineral Areas** • In California Desert National Conservation Lands and ACECs, determine if reasonable alternatives exist outside of the California Desert National Conservation Lands/ACEC areas prior to proposing mineral resource development within one of these areas.	No	Project is not located in or near the area specified in the CMA.	Project is not located within a High Potential Mineral Area.
	ACEC-VRM-1	Manage Manzanar ACEC to conform to VRM Class II standards.	No	Project is not located in or near the area specified in the CMA.	Project is not located within the Manzanar ACEC.

GLOSSARY OF TERMS

A

acquired lands. Lands in federal ownership that are not *public domain*[1] and that have been obtained by the government by purchase, exchange, donation, or condemnation. Acquired lands are normally dedicated to a specific use or uses.

acquisition. The activity of obtaining land and/or interest in land through purchase, exchange, donation, or condemnation.

activity. Authorized projects and management activities conducted on BLM-administered lands. Activities include actions approved by permit or other authorization as well as actions conducted by the BLM.

activity footprint. The area of long- and short-term ground disturbance associated with the pre-construction, construction, operation, implementation, maintenance, and decommissioning of an activity, including associated linear and non-linear components, such as staging areas, access routes and roads, gen-ties, pipelines, other utility lines, borrow pits, disposal areas, etc. May also be considered synonymous with project/activity site.

adaptive management. A process for assimilating new information, including, but not limited to, from monitoring and research, and assessing if adjustments to the DRECP BLM Land Use Plan Amendment (LUPA) Conservation and Management Actions (CMAs), etc., are needed. The Monitoring and Adaptive Management Program (MAMP) is the vehicle for structuring adaptive management in the LUPA and implementing actions deemed necessary, as needed.

Applicant. A public or private entity, or an individual, that applies to the BLM for a land use authorization or approval of activity.

Area of Critical Environmental Concern (ACEC). A BLM area within public lands where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems of processes, or to protect life and safety from natural hazards. The ACECs are part of the LUPA conservation land allocations. Defined in Section 103(a) of the Federal

[1] **Public domain.** Vacant, unappropriated, and unreserved public lands, or public lands withdrawn by Executive Order 6910 of November 26, 1934, as amended, or Executive Order 6964 of February 5, 1935, as amended, and not otherwise withdrawn or reserved, or public lands within grazing districts established under Section 1 of the Act of June 28, 1934 (45 Stat. 1269), as amended, and not otherwise withdrawn or reserved.

Land Policy and Management Act (FLPMA) of 1976, as amended, and regulation 43 Code of Federal Regulations (CFR) 1601.0-5(a).

avoidance to the maximum extent practicable (as utilized in the LUPA CMAs). A standard identified in the LUPA CMAs and applied to implementation of activities. Under this standard, impacts to identified resources are not allowed unless there is no reasonable or practicable means of avoidance that is consistent with the basic objectives of the activity. Compensation for unavoidable impacts will be required, as specified in the CMAs. The term "maximum extent practicable" as used here in the DRECP LUPA is applicable only to its use in the CMAs; it does not apply to the term as it is used in the Endangered Species Act of 1973, as amended.

B

baseline monitoring. A type of monitoring in which a designated resource specialist that assembles an initial set of information or quantitative data, through an accepted protocol, for comparison or a control by which a determination can be made in the future as to whether change has occurred through events, actions, or time. Baseline monitoring may be appropriate in areas that have not been sufficiently surveyed or for which relevant data is otherwise lacking.

biological monitoring. Visual survey of an area conducted by a designated biologist to determine if a biological resource is present. Biological monitoring is commonly conducted on the sites of proposed projects. Biological monitoring conducted during the implementation of activities is used to implement LUPA CMAs that require construction setbacks or that require the designated biologist to move a biological resource out of harm's way.

BLM land (also known as BLM-managed lands, BLM-administered land, or public land). Land or interest in land owned by the United States and administered by the U.S. Secretary of the Interior through the Bureau of Land Management, without regard to how the United States acquired ownership.

BLM LUPA conservation designations (also known as BLM conservation lands, BLM conservation areas, or conservation allocations). Administrative designations that include California Desert National Conservation Land, ACEC, and Wildlife Allocation designations on BLM-administered land. BLM Wilderness Areas, Wilderness Study Areas, National Monuments, National Historic Trails, and Wild and Scenic River designations (existing and proposed) are included as part of the existing Legislatively and Legally Protected Areas (LLPAs). The BLM LUPA conservation designations were identified through the planning process.

BLM Special-Status Species (also known as Special-Status Species). Includes those plant and animal species that are (1) species listed as threatened or endangered, or proposed for listing under the Endangered Species Act of 1973, and (2) species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the Endangered Species Act, which are designated as sensitive by the BLM California State Director. All federal Endangered Species Act candidate species, and delisted species in the 5 years following delisting, are considered and will be conserved as species sensitive. The BLM California State Director has also conferred sensitive status on California State endangered, threatened, and candidate species, and rare plant species, on species with a California Rare Plant Rank of 1B on the Special Vascular Plants, Bryophytes, and Lichens List maintained by the California Department of Fish and Wildlife that are on BLM lands or affected by BLM actions and that are not already special-status plants by virtue of being federally listed or proposed (unless specifically excluded by the BLM California State Director on a case-by-case basis), and on certain other plants the BLM California State Director believes meet the definition of sensitive. See BLM Manual 6840, Special Status Species Policy, for more detail.

breeding habitat. Vegetation types or landscapes that contain elements required for the reproduction of wildlife Focus or BLM Special Status Species; for example, tree or canopy structure, vegetation composition, soil type, or hydrologic requirements.

C

California Department of Fish and Wildlife (CDFW) fully protected species. Any species identified in California Fish and Game Code Sections 3511, 4700, 4800, 5050 or 5515. Such species may not be taken or possessed at any time, and no licenses or permits may be issued for their take except under an approved Natural Community Conservation Plan (NCCP) or for collection for necessary scientific research.

California Desert Biological Conservation Framework Land Cover Map. A detailed map of vegetation types and other land covers for the DRECP Plan Area. The land cover map is a composite of fine-scale and medium-scale mapping organized hierarchically according to the National Vegetation Classification Standard, including general community groupings, vegetation types, and alliance-level mapping units.

California Desert Conservation Area (CDCA). As defined in Section 601 of the FLPMA, the CDCA is a 25-million-acre expanse of land in Southern California designated by Congress in 1976 through the FLPMA. About 10 million acres of the CDCA are administered by BLM under its CDCA Plan.

California Desert National Conservation Lands (CDNCL or NCL). The Approved LUPA identifies California Desert National Conservation Lands, in accordance with the Omnibus

Public Land Management Act of 2009 (Omnibus Act), which are nationally significant landscapes within the CDCA with outstanding cultural, ecological, and scientific values. The LUPA also establishes CMAs to conserve, protect, and restore these landscapes. The California Desert National Conservation Lands are a permanent addition to the National Landscape Conservation System, as per the direction to BLM in the Omnibus Act.

clearance survey. Survey for Focus and BLM Special Status Species conducted immediately prior to vegetation and/or ground disturbance from activities, as per the CMAs. Clearance surveys must be conducted throughout the LUPA Decision Area and in accordance with applicable species-specific CMAs and protocols, as approved by BLM and U.S. Fish and Wildlife Service (USFWS) and CDFW, if applicable , to detect and clear (i.e., remove, translocate) out of harm's way individuals of a species prior to disturbance.

compensation and compensatory mitigation. For the purposes of the DRECP LUPA, compensation and compensatory mitigation mean replacing or providing substitute resources or habitats by enhancing or restoring lands within appropriate BLM conservation and/or recreation designations, or acquiring and conserving lands from willing sellers.

conservation easement. A partial interest in land that can be transferred to a qualified land conservancy or government entity. The purpose is to conserve or protect the land. Conservation easements typically restrict allowable uses of the land by prohibiting development and sometimes restricting or requiring particular management activities. A conservation easement is legally binding for a specified term, which may be in perpetuity.

Conservation and Management Actions (CMAs). The specific set of avoidance, minimization, and compensation measures, and allowable and non-allowable actions for siting, design, pre-construction, construction, maintenance, implementation, operation, and decommissioning activities on BLM land. CMAs are required for 14 different resources and 7 land allocations.

conserve. The term "conserve" (or "conservation") as used in the DRECP LUPA applies to the protection and management of the multitude of resources and values BLM is managing with land allocations and CMAs in the DRECP LUPA, including but not limited to biological/ecological, cultural, recreation, and visual resources, including the conservation and recreation land allocations and their management, specific CMAs, and compensation actions such as restoration, enhancement, and land acquisition (e.g., fee title purchase from willing sellers). In the DRECP biological conservation strategy, this term is applied more narrowly to the protection and management of ecological processes, Focus and BLM Special Status Species, and vegetation types.

creosote bush rings. Rings of creosote bush (*Larrea tridentata*) that form over long periods of time. As a single creosote bush produces new branches at the periphery of its

crown, the branches in the center of the crown begin to die. Eventually a sterile area of bare ground occupies the center of the original shrub, and as the ring becomes larger the original shrub segments into several shrubs (satellites), forming a ring around the point where the original shrub originated. As more time goes by these rings become elliptical rather than circular. The satellite shrubs in a ring are the same genetically, attesting to the fact that they form a single clone originating from one original shrub. Vasek (1980) showed that some of these clones are several thousand years old. The largest known creosote ring is 20.5 feet in diameter and may be 11,700 years old.

Critical Habitat. Critical habitat is defined in Section 3(5)(A) of the Endangered Species Act of 1973 as (1) the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the Endangered Species Act, on which are found those physical or biological features essential to the conservation of the species, and which may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. Designated critical habitat is protected under Section 7(a)(2) of the Endangered Species Act, which requires federal agencies to ensure that any action they fund, authorize, or carry out is not likely to result in the destruction or adverse modification of critical habitat.

D

Desert Renewable Energy Conservation Plan (DRECP). An interagency planning effort of the REAT agencies addressing a biological conservation framework and renewable energy strategy for the California desert. The DRECP consists of the DRECP BLM LUPA (Phase I), and a Phase II addressing nonfederal lands.

designated biologist. A biologist who is approved as qualified by BLM, and USFWS and CDFW, as appropriate. A designated biologist is the person responsible for overseeing compliance with specific applicable LUPA biological CMAs.

Development Focus Areas (DFAs). Locations where renewable energy generation is an allowable use, incentivized, and could be streamlined for approval under the DRECP LUPA. The LUPA will only streamline and provide incentives for renewable energy activities sited in a DFA.

disposal. Conveyance of federal interest in public land to a nonfederal party through such actions as sale or exchange under various public land law authorities.

distributed generation. The 2011 Integrated Energy Policy Report published by the California Energy Commission (CEC) defines distributed generation as: "(1) fuels and

technologies accepted as renewable for purposes of the Renewable Portfolio Standard supplying power directly to a consumer" (CEC 2012).

DRECP Plan Area (as known as the interagency DRECP Plan Area or DRECP boundary). The Mojave and Colorado/Sonoran desert ecosystems in Southern California, with some map-based extractions primarily for the Coachella Valley Multiple Species Habitat Conservation Plan in Riverside County and the Tejon Ranch Tehachapi Uplands Multiple Species Habitat Conservation Plan in Kern County. This area does not include the lands in the LUPA Decision Area (see definition) in the CDCA but outside the DRECP boundary.

E

ecoregion subarea (also known as ecoregions or subareas). Planning and LUPA implementation units based on a consolidation of U.S. Department of Agriculture (USDA) ecoregion boundaries and U.S. Geological Survey Hydrologic Units. The DRECP LUPA contains 10 ecoregion subareas.

existing conservation areas. Areas where natural resources are substantially protected under existing federal or state law or other legal protections. Existing conservation areas are referred to on the maps and figures as Legislatively and Legally Protected Areas (LLPAs). These lands are assumed to be protected and managed for the benefit of Focus and BLM Special Status Species under existing management regimes.

existing transmission/utility corridors. Linear corridors on public lands designated through the West Wide Energy Corridor Programmatic Environmental Impact Statement, the CDCA Plan, or other Resource Management Plan as a preferred location for pipelines, transmission lines, and other linear infrastructure. Corridors are meant to minimize adverse impacts of these facilities and minimize the proliferation of rights-of-way across public lands.

Extensive Recreation Management Areas (ERMAs). BLM administrative units that require specific management consideration in order to address recreation use and demand. The ERMAs are managed to support and sustain the principal recreation activities and associated qualities and conditions. Recreation management actions within an ERMA are limited to only those of a custodial nature. Management of ERMA areas are commensurate with the management of other resources and resource uses.

F

federal lands. Land or interest in land owned and/or administered by the United States. Activities on federal lands in the LUPA Decision Area are administered by the Secretary of

the Interior through the BLM. Other federal lands administered by the Bureau of Reclamation, or BLM lands withdrawn by other agencies are not included in the definition of federal lands as used in the DRECP LUPA context.

Focus Species. Species whose conservation and management are provided for in the DRECP BLM LUPA.

foraging habitat. Vegetation types or landscapes that contain elements required for Focus and BLM Special Status wildlife species foraging; for example, particular vegetation consumed by Focus or BLM Special-Status wildlife species or habitat for species that are a primary source of Focus or BLM Special Status Species' diets.

G

General Public Lands (GPL). BLM-administered lands that do not have a specific land allocation or designation. These areas are available to renewable energy applications, but do not benefit from permit review streamlining or other incentives. Activities in these areas are required to follow the LUPA-wide CMAs, and the GPL specific CMAs. A land use plan amendment is needed to develop renewable energy and related activities in these areas.

geothermal project. Activities that involve the construction, operation, and maintenance of a facility that generates energy through steam from wells in geothermally active areas. Geothermal projects may include well sites, pipelines, towers, roads, pump or maintenance buildings, generators, transformers, and other supporting infrastructure. Geothermal activities on BLM land are authorized through the geothermal leasing program.

gigawatt (GW). Measure of energy equal to one billion watts. Used as a measure of instantaneous generation capacity.

gigawatt-hour (GWh). Measure of power equivalent to 10^9 watt hours. Used as a measure of energy production from generation facilities.

ground disturbance cap. Generally, a limitation on ground-disturbing activities in California Desert National Conservation Lands and ACECs. Expressed as a percentage of total BLM-managed California Desert National Conservation Lands and/or ACEC acreage, and cumulatively considers past, present, and future (proposed activity) ground disturbance. Baseline/existing (past plus present) ground disturbance would be determined using the most current imagery and knowledge at the time of an individual activity proposal. Specifically, the ground disturbance caps will be implemented as either a limitation or an objective triggering disturbance mitigation. The ground disturbance cap is a limitation on ground-disturbing activities within the California Desert National Conservation Lands and/or ACEC, and precludes approval of future ground-disturbing

activities if the ground disturbance condition of the California Desert National Conservation Lands and/or ACEC is below the designated ground disturbance cap. The ground disturbance cap functions as an objective, triggering a specific disturbance mitigation requirement if the ground disturbance condition of the California Desert National Conservation Lands and/or ACEC is at or above its designated cap. The disturbance mitigation requirement remains in effect until the unit drops below its specified cap, at which time the disturbance cap becomes a limitation. Refer to LUPA Section II.2.1, for the full implementation methodology. The methodology is repeated in Section II.2.2, and in CMAs NLCS-DIST-2 and ACEC-DIST-2.

ground disturbance mitigation (also known as disturbance mitigation). A discrete form of compensatory mitigation, unique to the ground disturbance cap implementation, and separate and distinct from other required mitigation in the DRECP LUPA. The disturbance mitigation requirement is triggered when the ground disturbance condition of the California Desert National Conservation Lands and/or ACEC is at or above its designated cap. The disturbance mitigation requirement remains in effect until the California Desert National Conservation Lands and/or ACEC drops below its designated cap. Refer to LUPA Section II.2.1 for the full ground disturbance cap implementation methodology. The methodology is repeated in Section II.2.2, and in CMAs NLCS-DIST-2 and ACEC-DIST-2.

ground-mounted distributed generation project. For purposes of DRECP LUPA, a solar power system of 20 megawatts (MW) or less consisting of solar modules held in place by racks or frames that are attached to ground-based mounting supports.

H

habitat assessment. As required in the LUPA-BIO CMAs. The DRECP land cover mapping and/or species model(s), updated mapping and species models, reconnaissance-level site visits, available aerial photography/imagery, and mapping of vegetation types and species' suitable habitat are all examples of the type of information that would be utilized during a habitat assessment. For all activities, a habitat assessment is required to assess site-specific vegetation types and Focus and BLM Special Status Species.

herd area. The areas on BLM land in which wild horses and burros were found when the Wild Free-Roaming Horses and Burros Act of 1971 was passed. These are the only areas BLM may manage horses by law.

Herd Management Area. A BLM land allocation. The areas within each herd area that BLM manages to sustain healthy and diverse wild horse and burro populations over the long term.

I

impervious and urban built-up land. Existing developed areas based on the DRECPland cover map.

J

Joshua tree woodlands. Evenly distributed with Joshua trees at ≥1% and *Juniperus* and/or *Pinus* spp. <1% absolute cover in the tree canopy (Thomas et al. 2004).

K

kilowatt (kW). Measure of energy equal to 1,000 watts.

L

land tenure actions. Jurisdictional or ownership changes in public lands. Tenure is derived from the Latin word "tenet" meaning "to hold." Thus, land tenure describes the way in which land is held. These adjustments are accomplished through such actions as disposal, acquisition, or withdrawal.

land use authorization. As used in this LUPA, a term to describe any authorization or instrument to occupy, develop, or use BLM land issued under various realty program authorities available to the BLM, including right-of-way grants, leases, permits, licenses, and easements. The term does not include renewable energy projects and their related ancillary facilities**.**

Land Use Plan Amendment (LUPA). The LUPA is a set of decisions that establishes management direction for BLM-administered land within an administrative area through amendment to existing land use plans. The DRECP BLM LUPA amends the following BLM land use and resource management plans (RMPs): CDCA Plan and its amendments: Western Mojave Plan (WEMO), Northern and Eastern Colorado Desert Coordinated Management Plan (NECO), and Northern and Eastern Mojave Plan (NEMO). The DRECP LUPA also amends portions of the Bishop RMP and the Bakersfield RMP. Described in Section 202 of the FLPMA of 1976, as amended, and in regulation 43 CFR 1600.

Legislatively and Legally Protected Areas (LLPAs). Existing protected lands, including: Wilderness Areas, National Monuments, National Parks, National Preserves, National Wildlife Refuges, California State Parks and Recreation Lands, CDFW Conservation Areas (Ecological Reserves and Wildlife Areas), CDFW areas, privately held conservation areas including mitigation/conservation banks approved by the USFWS and CDFW, land trust lands, Wilderness Study Areas, Wild and Scenic Rivers, and National Scenic and Historic Trails.

limited area. Under BLM's Trails and Travel Management program, an area restricted at certain times, in certain areas, or to certain vehicular use.

long-term impacts. Ground and/or vegetation disturbance that results in impacts lasting greater than 2 years.

LUPA Decision Area. The lands within the LUPA area for which the BLM has the authority to make land use and management decisions. This includes all BLM-administered lands within the interagency DRECP Plan Area, as well as BLM-administered lands within the CDCA outside of the interagency DRECP Plan Area. It excludes some LLPAs and all lands within 1 mile of the Colorado River, which are administered by the BLM-Arizona State Office.

LUPA Planning Area. All BLM-managed lands in the LUPA Decision Area, as well as all BLM managed LLPAs.

M

maximum extent practicable or feasible (as utilized in the LUPA CMAs). A standard identified in the LUPA CMAs and applied to implementation of activities. Under this standard, implementation of the CMA is required unless there is no reasonable or practicable means of doing so that is consistent with the basic objectives of the activity. The term "maximum extent practicable" as used here in the DRECP LUPA is applicable only to its use in the CMAs; it does not apply to the term as it is used in the Endangered Species Act of 1973.

megawatt (MW). Measure of energy equal to one million watts. Used as a measure of instantaneous generation capacity from a generation facility.

microphyll woodlands. Consist of drought-deciduous, small-leaved (microphyllus), mostly leguminous trees. Occurs in bajadas and washes where water availability is somewhat higher than the plains occupied by creosote bush and has been called the "riparian phase" of desert scrub (Webster and Bahre 2001). Composed of the following alliances: desert willow, mesquite, smoke tree, and the blue palo verde-ironwood.

Military Expansion Mitigation Lands (MEMLs). Lands conserved as mitigation for the expansion of Department of Defense installations and considered part of existing conservation areas under the DRECP BLM LUPA.

military lands. Department of Defense installations within the DRECP Plan Area.

minor incursion. Small-scale allowable impacts to sensitive resources, as per specific CMAs, that do not individually or cumulatively compromise the conservation objectives of

that resource or rise to a level of significance that warrants development and application of more rigorous CMAs or a DRECP LUPA amendment. Minor incursions may be allowed to prevent or minimize greater resource impacts from an alternative approach to the activity. Not all minor incursions are considered unavoidable impacts.

mitigation. As defined under both the National Environmental Policy Act (NEPA), mitigation includes: (a) avoiding the impact altogether by not taking a certain action or parts of an action; (b) minimizing impacts by limiting the degree or magnitude of the action and its implementation; (c) rectifying the impact by repairing, rehabilitating, or restoring the affected environment; (d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and (e) compensating for the impact by replacing or providing substitute resources or environments.

Mojave yucca rings. Rings of Mojave yucca (*Yucca schidigera*) that form in a similar manner as described for creosote bush rings (see definition). Mojave yucca reproduces sexually through the production of seed; vegetative reproduction is much more common and likely much more important to its persistence and spread (LaPre 1979; Gucker 2006). The species produces sprouts from short rhizomes that are close to parent stems (Gucker 2006). Rings form as the clonal growth proceeds outward from the original parent stem, and the central plant ages and dies (Gucker 2006). Mojave yucca rings can be as large as 20 feet in diameter and have up to 130 stems. Rings this large are thought to be at least 2,100 years old (mojavedesert.net 2013).

Monitoring and Adaptive Management Program (MAMP). A component of the DRECP BLM LUPA. The MAMP is the vehicle for structuring and reporting adaptive management.

N

National Landscape Conservation System (NLCS). In accordance with and as defined by Public Law 111-11 in the Omnibus Public Land Management Act of 2009 (PL 111-11), Sections 2002(a),(b)(1)(A–F), and (b)(2)(D), the NLCS is a BLM land use designation to conserve, protect, and restore nationally significant landscapes that have outstanding cultural, ecological, and scientific values for the benefit of current and future generations. Areas specially designated as part of the NLCS in PL 111-11 are Wilderness, Wilderness Study Areas, National Monuments, National Scenic Trails, National Historic Trails, and National and Wild and Scenic Rivers. These NLCS lands are part of the LLPAs in the DRECP LUPA. PL 111-11 also directed BLM to designate public land within the CDCA administered for conservation purposes as part of the NLCS. These lands are the **California Desert National Conservation Lands** and are part of the LUPA conservation designations. The California Desert National Conservation Lands designated in the DRECP LUPA are an addition to the other components of the NLCS. The

DRECP LUPA CMAs use the terms and acronyms,NLCS, CDNCL and NCL (National Conservation Lands) interchangeably.

nonfederal lands. Land owned by state agencies, local jurisdictions (e.g., cities or counties), non-governmental organizations, or private citizens, or otherwise not under federal ownership or management.

no surface occupancy. A fluid mineral leasing stipulation that prohibits occupancy or disturbance on all or part of the lease surface to protect special values of uses. Lessees may explore for or exploit the fluid minerals under leases restricted by this stipulation by using directional drilling from sites outside the no surface occupancy area. The no surface occupancy stipulation is used in CMAs relative to geothermal leasing on specific land allocations.

O

occupied habitat. Suitable habitat determined to be inhabited by a Focus or BLM Special Status Species based on the results of a habitat assessment and species-specific presence/absence or protocol surveys. This term is not applicable to wide-ranging large mammals with often poorly defined home ranges. For example, linkages may be typically unoccupied most of the time but nonetheless critical to population viability. In addition, the concept is not applicable to nomadic species, such as burro deer (*Odocoileus hemionus eremicus*), which opportunistically exploit flushes of new plant growth in response to unpredictable precipitation patterns. Thus, an area may not be used for many years because of a lack of summer thunderstorms, but then used heavily when it does rain in that area.

occurrences. Positive detections of specific wildlife or plant species or vegetation type in an area, resulting from protocol or presence/absence surveys, generally confirmed by a qualified biologist or botanist.

Open Off-Highway Vehicle (OHV) Lands. Designations on BLM-administered lands where motorized and non-motorized uses, including cross-country travel, is permitted (generally referred to as Open Areas or Designated Open OHV Areas). The LUPA has designated the open OHV Areas in the DRECP Plan Area as SRMAs.

Open OHV Lands – Imperial Sand Dunes. Open OHV Lands within the approved Imperial Sand Dunes Recreation Area Management Plan (ISDRA). These lands are within the DRECP LUPA planning area boundary, but are not part of the DRECP LUPA Decision Area. The DRECP LUPA does not result in any changes to the ISDRA.

P

pre-activity survey. Surveys conducted prior to project or activity site preparation and construction or implementation of an activity to determine presence and distribution of Focus and BLM Special Status Species, suitable habitat for these species, and/or vegetation types, as well as the need to implement applicable CMAs.

presence/absence survey. A survey conducted during the planning phase of a proposed activity to determine the presence/absence by a Focus or BLM Special Status Species, when a standard protocol survey for that species is not available, as specified in the species-specific CMAs or available from BLM, or USFWS or CDFW as approved for use by BLM. A presence/absence survey may replace a protocol survey in some other circumstances, depending on site conditions and/or timing of the survey (e.g., breeding season), with approval from BLM, in coordination with USFWS and CDFW, as appropriate.

Proposed LUPA. The Proposed LUPA was the BLM's preferred alternative in the Final Environmental Impact Statement (EIS). The Proposed LUPA and Final EIS built on the Draft LUPA and EIS, and incorporated the response to public comment on the Draft LUPA and EIS. The Proposed LUPA was protestable to the BLM Director, as outlined in the Dear Reader Letter that accompanied the Proposed LUPA and Final EIS.

protocol survey. Species-specific surveys that are conducted under a protocol that has been adopted by the USFWS and/or CDFW or is otherwise scientifically accepted for determining the occupancy or presence and absence of Focus and BLM Special Status Species. These surveys are required as specified in the species-specific CMAs in the LUPA.

public land. Land or interest in land owned by the United States and administered by the U.S. Secretary of the Interior through the Bureau of Land Management, without regard to how the United States acquired ownership, but not including (1) lands on the outer continental shelf and (2) lands held for the benefit of Indians, Aluets, and Eskimos.

public land, federal. Land or interest in land owned by the United States, and administered by a federal agency (see **federal lands**).

public land, nonfederal. Land or interest in land owned by the State of California, or the counties, typically administered by a state or local agency.

R

Renewable Energy Action Team (REAT) Agencies (also known as REAT Agencies or DRECP partner agencies). The DRECP REAT comprises representatives from the BLM, California Energy Commission (CEC), USFWS, and CDFW.

renewable energy project area. The total land area affected by a renewable energy activity, including the area directly and indirectly affected (equates to approximately 7.1 acres/MW forsolar development, 40 acres/MW for wind development, and 5 acres/MW forgeothermal development).

right-of-way avoidance area. An area that is to be avoided by, but may be available for, location of land use authorizations and non-renewable energy activities, if the authorization has special stipulations to meet planning goals and objectives for that area. If a land use authorization already exists in an avoidance area, a new authorization would be encouraged, and may be required, to collocate within the bounds of the existing use authorization.

right-of-way exclusion area. An area that is not available for land use authorizations under any conditions.

S

setback. A defined distance, usually expressed in feet or miles, from a resource feature (such as the edge of a vegetation type or an occupied nest) within which an activity would not occur; otherwise often referred to as a buffer. The purpose of the setback is to maintain the function and value of the resource features identified in the DRECP LUPA CMAs.

short-term impacts. Ground and/or vegetation impacts that result in effects lasting 2 years or less.

solar project. Activity that involves the construction, operation, maintenance and eventual decommissioning of a facility that generates energy from sunlight, including photovoltaic panels and thermal systems that convert the heat from sunlight into steam.Solar projects may include up to several acres of photovoltaic or mirror panel arrays, athermal tower, access roads, maintenance facilities, generators, foundations, and transformers, or other supporting infrastructure.

Special Recreation Management Area (SRMA). Designation on BLM-administered lands that are recognized and managed for their recreation opportunities, unique value and importance. SRMAs are high-priority areas for outdoor recreation as defined in the BLM Land Use Planning Handbook H-1601-1 (2005). It is a public lands unit identified in land use plans to direct recreation funding and personnel to manage for a specific set of recreation activities, experiences, opportunities and benefits. Both land use plan decisions and subsequent implementing actions for recreation in each SRMA are geared to a strategically identified primary market— destination, community, or undeveloped areas.

stressors. Physical, chemical, or biological factors (or conditions) that affect biological resources, including species or their suitable habitat, vegetation types, and/or important

ecosystem processes. The precise contribution of each stressor to a species' population may be uncertain, including which stressors have the greatest effect. In many cases stressors interact, and a combination of various stressors may affect a species.

suitable habitat. In general, Focus and BLM Special Status Species habitat consisting of land within a species range that has—in the case of wildlife, breeding and foraging habitat characteristics required by the species, or in the case of plants, vegetation and microhabitat characteristics—consistent with known or likely occurrences, as determined by the habitat assessment.

T

transmission lines. Linear facilities that move electricity from generating sites to electrical substations, and then on to the electrical distribution network. Transmission lines generally consist of: 1) *collector lines, or generator interconnection lines ("gen-tie" lines)* that connect generation projects to collector substations; 2) *connector lines* that connect lower voltage substations with higher voltage substations; and 3) *delivery lines* that support the long distance, bulk power transfer of electricity between generation centers and load centers, generally at high voltage.

transmission activity. Activities that involve the construction, operation, and maintenance of a transmission line, including step-up transformers, towers, and substations, but generally consisting of a linear type of disturbance.

transmission aligned. Renewable energy generation development that occurs in areas immediately adjacent, or in close proximity, to existing transmission facilities and/or approved designated utility corridors. Aligning renewable energy generation development with the existing approved utility corridors or lines (i.e. transmission system) is meant to minimize resource impacts by reducing the need for new, unplanned transmission infrastructure.

Transmission Technical Group (TTG). An independent technical advisory group, convened by the CEC, that assisted with transmission planning for the DRECP.

Travel Management Areas. On BLM-administered land, polygons or delineated areas where a rational approach has been taken to classify areas as open, closed, or limited, and which have an identified and/or designated network of roads, trails, ways, and/or other routes that provide for public access and travel across the LUPA Planning Area.

tribal lands. Those lands that constitute "Indian Country" within the meaning of Title 18 United States Code Section 1151.

U

unavoidable impacts to resources. Small-scale impacts to sensitive resources, as allowed per specific CMAs, that may occur even after such impacts have been avoided to the maximum extent practicable (see definition). Unavoidable impacts are limited to minor incursions (see definition), such as a necessary road or pipeline extension across a sensitive resource required to serve an activity.

V

valid existing rights. A documented, legal right or interest in the land that allows a person or entity to use said land for a specific purpose. Such rights include fee title ownership, mineral rights, rights-of-way, easements, permits, licenses, etc. Such rights may have been reserved, acquired, leased, granted, permitted, or otherwise authorized over time.

Variance Process Lands (VPL). These lands are potentially available for renewable energy development, but projects on Variance Process Lands have minimal streamlining and are not incentivized. Variance Process Lands have a specific set of CMAs. Project Applicants must demonstrate that a proposed activity on Variance Process Lands will avoid, minimize, and/or mitigate sensitive resources as per the CMAs, will be compatible with any underlying BLM land allocation, and per the CMAs be compatible with and not have an adverse effect on the LUPA design and DRECP strategies. Renewable energy applications in Variance Process Lands will follow the process described in the Western Solar Plan Record of Decision, Section B.5.

vegetation types (also referred to a desert vegetation types or communities and DRECP vegetation types). Vegetation types are defined as assemblages of vegetation of similar types and the plant and animal species that use those vegetation types as habitat. A vegetation type is generally characterized by its similarities and the natural ecological processes that dominate the type and give it its unique characteristics. Vegetation types are included as a key element of the DRECP conservation framework, and have specific CMAs. For the purposes of mapping and characterization in the DRECP, vegetation types are mapped within the National Vegetation Classification System hierarchy at the "group" level, which is finer- grained than the broad general community groupings but coarser than "alliances."

Visual Resource Management (VRM) Classes. BLM categories assigned to public lands based on scenic quality, sensitivity level, and distance zones. There are four classes, I–IV. Each class has an objective that prescribes the amount of change allowed in the characteristic landscape.

W

Wildlife Allocation. BLM conservation designation on BLM-administered lands where management emphasizes wildlife values, but the area does not contain the same sensitive values or management limitations as an ACEC.

wind project. An activity that involves the construction, operation, maintenance, and eventual decommissioning of a facility that generates energy from wind, using an array of turbines to capture and convert the wind energy to electricity. Wind projects may include up to several acres of turbines and foundations, access roads, maintenance facilities, generators, and transformers.

withdrawal. Removal or withholding of public lands by statute or secretarial order from the operation of some or all of the public land laws, such as from hard-rock mining or patent entry, in order to maintain other public values in the area. A withdrawal can also be used to reserve an area for a particular public purpose or program or to transfer jurisdiction over an area of public land from one federal department, bureau, or agency to another.

Appendix C: Acronyms and Abbreviations

°F	Degrees Fahrenheit
µg/m^3	Micrograms Per Cubic Meter
AADT	Annual Average Daily Traffic
AB	Assembly Bill
ACEC	Picacho Area Of Critical Environmental Concern
AMSL	Above Mean Sea Level
APCD	Air Pollution Control Districts
APE	Area Of Potential Effects
BLM	Bureau of Land Management
BMP	Best Management Practice
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CCR	California Code of Regulations
CDCA	California Desert Conservation Area
CDFA	California Department of Food and Agriculture
CDFW	California Department of Fish and Wildlife
CEQ	President's Council on Environmental Quality
CEQA	California Environmental Quality Act of 1970
CESA	Cumulative Effects Study Area
CFR	Code of Federal Regulations
CGP	California General Permit
CMA	Conservation Management Action
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_{2e}	Carbon Dioxide Equivalent
CWA	Clean Water Act
dBA	Decibels on the A-weighted Scale
DRECP	Desert Renewable Energy Conservation Plan
EA	Environmental Assessment
ECFO	El Centro Field Office
EEC	Environmental Evaluation Committee
EIR	Environmental Impact Report
EO	Executive Order
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act of 1972
FCR	Field Contact Representative
FLPMA	Federal Land Policy and Management Act of 1876
GHG	Greenhouse Gas
H:V	Horizontal to Vertical
HAP	Hazardous Air Pollutant
Imperial County	Imperial County Planning Department
IS	Initial Study
KOPs	Key Observation Points
kW	Kilowatt
Ldn	Day/Night Average Sound Level
Leq	Energy-Averaged Sound Level
LUPA	Land Use Plan Amendment
MBTA	Migratory Bird Treaty Act of 1918

Mining Law	General Mining Law of 1872
MLRA	Major Land Resource Area
MND	Mitigated Negative Declaration
MSHA	Mine Safety and Health Administration
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Repatriation Act
NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Properties Act of 1966
NO_x	Nitrogen Oxide
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NWPR	Navigable Waters Protection Rule
OHV	Off-Highway Vehicle
PDF	Project Design Feature
Plan	Existing Oro Cruz Pit Area Exploration Plan of Operations
PM_{10}	Particulate Matter 10 Microns in Diameter or Less
$PM_{2.5}$	Particulate Matter 2.5 Microns in Diameter or Less
PRC	Public Resources Code
Project	Oro Cruz Exploration Project
RFFA	Reasonably Foreseeable Future Actions
RWQCB	Regional Water Quality Control Board
SCIC	South Coastal Information Center
SGMA	Sustainable Groundwater Management Act of 2014
SGP	Stormwater General Permit
SIP	State Implementation Plan
SMARA	California Surface Mining and Reclamation Act of 1975
SMP	SMP Gold Corp.
SO_2	Sulfur Dioxide
SWPPP	Stormwater Pollution Prevention Plan
TCP	Traditional Cultural Place
US	United States
USACE	US Army Corps of Engineers
USC	US Code
USDA	US Department of Agriculture
USFWS	US Fish and Wildlife Service
VAA	Visual, Auditory, and Atmospheric
VOC	Volatile Organic Compound
VRM	Visual Resource Management

Appendix D: References

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Appendix E: Technical Studies

Project Emissions Summary

	PM		PM_{10}		$PM_{2.5}$		CO		NOx		SO_2		VOC	
	(lb/day)	(tons/yr)	(lb/day)	(tons/yr)	(lb/day)	(tons/yr)	(lb/day)	(tons/yr)	(lb/day)	(tons/yr)	(lb/day)	(tons/yr)	(lb/day)	(tons/yr)
	Road Construction													
Non-Fugitives	0.00	0.00	0.00	0.00	2.43	0.02	42.57	0.43	45.58	0.46	0.08	0.00	3.08	0.03
Fugitives	50.62	0.51	12.91	0.13	1.40	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Drill Site Construction													
Non-Fugitives	0.00	0.00	0.00	0.00	0.97	0.00	16.92	0.07	18.07	0.07	0.03	0.00	1.27	0.01
Fugitives	87.26	0.35	22.20	0.09	2.80	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Exploratory Drilling**													
Non-Fugitives	3.98	0.25	3.98	0.25	7.93	0.43	132.73	7.26	120.44	6.35	0.21	0.01	9.18	0.50
Fugitives	220.93	13.17	56.57	3.38	5.88	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Helicopter Use Emissions													
Non-Fugitives	0.07	0.00	0.07	0.00	0.07	0.00	3.85	0.02	6.38	0.04	0.02	0.00	3.14	0.02
	Laydown Yard Emissions**													
Non-Fugitives	0.27	0.03	0.27	0.03	2.39	0.24	103.40	10.34	45.06	4.51	0.16	0.02	5.18	0.52
Fugitives	147.97	17.19	38.02	4.42	3.80	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Maximum Hourly and Annual Project Emissions*													
Maximum Non-Fugitives	4.32	0.28	4.32	0.28	10.39	0.67	239.98	17.62	171.89	10.90	0.39	0.03	17.50	1.04
Maximum Fugitives	**368.90**	**30.36**	**94.59**	**7.79**	**9.68**	**0.79**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Total Maximum	**373.22**	**30.64**	**98.90**	**8.08**	**20.07**	**1.46**	**239.98**	**17.62**	**171.89**	**10.90**	**0.39**	**0.03**	**17.50**	**1.04**

*Assumes Exploratory Drilling and Laydown Yard emissions occur simultaneously

**Includes Stationary Source Combustion Emissions

Hazardous Air Pollutants (HAPs)*		
Pollutants	**(lbs/day)**	**(tons/yr)**
Benzene	2.15E-01	1.69E-02
Toluene	9.42E-02	7.37E-03
Xylenes	6.57E-02	5.14E-03
1,3-Butadiene	9.01E-03	7.05E-04
Formaldehyde	2.72E-01	2.13E-02
Acetaldehyde	1.77E-01	1.39E-02
Acrolein	2.13E-02	1.67E-03
Naphthalene	1.95E-02	1.53E-03
Acenaphthylene	1.17E-03	9.12E-05
Acenaphthene	3.27E-04	2.56E-05
Fluorene	6.73E-03	5.26E-04
Phenanthrene	6.77E-03	5.30E-04
Anthracene	4.31E-04	3.37E-05
Fluoranthene	1.75E-03	1.37E-04
Pyrene	1.10E-03	8.61E-05
Benzo(a)anthracene	3.87E-04	3.03E-05
Chrysene	8.13E-05	6.36E-06
Benzo(b)fluoranthene	2.28E-05	1.79E-06
Benzo(k)fluoranthene	3.57E-05	2.79E-06
Benzo(a)pyrene	4.33E-05	3.39E-06
Indeno(1,2,3-cd)pyrene	8.64E-05	6.76E-06
Dibenz(a,h)anthracene	1.34E-04	1.05E-05
Benzo(g,h,i)perylene	1.13E-04	8.81E-06
Total HAPs	**0.8932774**	**0.06993675**

Greenhouse Gas Emissions (GHGs)*		
Pollutants	**(lb/day)**	**(tons/yr)**
CO_2	53,121	2,955
CH_4	110.76	0.80
N_2O	21.62	0.16
Total CO_2e	**62,333**	**3,021**

Project Operational Emissions						
	lb/day					
	NOx	**ROG/VOC**	**PM10**	**SOx**	**CO**	**PM2.5**
Operations	117.97	10.56	98.90	0.22	107.41	20.07
Thresholds	137	137	150	150	550	550

Construction Emissions				
	PM10	**ROG/VOC**	**NOx**	**CO**
Construction	35.12	4.35	63.65	59.50
Thresholds	150	75	100	550

Stantec Consulting Services Inc.
1165 East Jennings Way, Suite 101
Elko, NV 89801-7977

5390 Kietzke Lane, Suite 103
Reno, NV 89511-2213

Memorandum

To:	Mayra Martinez, Bureau of Land Management
	Carrie Sahagun, Bureau of Land Management
	Grant Day, Bureau of Land Management
From:	Shelby Hockaday, Stantec Consulting Services Inc.
Date:	May 4, 2022
Project:	Oro Cruz Exploration Project Stantec Project Number 203722070
Subject:	Noise Modeling for Indirect Auditory Area of Potential Effect

---

This memorandum transmits the noise modeling results for the SMP Gold Corp.'s (SMP) Oro Cruz Exploration Project (Project).

INTRODUCTION

Stantec Consulting Services Inc. (Stantec) was contracted by SMP to conduct a preliminary noise impact analysis following conversations with the Bureau of Land Management (BLM) El Centro Field Office to determine an appropriate Indirect Auditory Area of Potential Effect (Indirect Auditory APE) for a cultural resources and noise analysis in the anticipated Environmental Assessment (EA) for the Project under the National Environmental Policy Act (NEPA). The Noise Control Act of 1972 required the U.S. Environmental Protection Agency (EPA) to establish noise emission criteria as well as noise testing methods to protect public health and welfare against hearing loss, annoyance, and activity interference, which correlates with the human response to noise. The EPAs recommendation for acceptable noise level limits affecting residential land use is 55 decibels on the A-weighted scale (dBA) day/night average sound level (L_{dn}) for outdoors and 45 dBA Ldn for indoors (EPA 1972). These levels of noise are considered those that will permit spoken conversation and other activities such as sleeping, working, and recreation, which are all considered part of the daily human condition; these levels represent averages of acoustic energy over periods of time. Additionally, Section 106 of the National Historic Preservation Act (NHPA) of 1966 (54 United States Code 300101 et seq.) guides that an Indirect Auditory APE should be delineated and should include all locations from which elements of the proposed Project may cause adverse auditory effects to cultural or historic properties.

The Indirect Auditory APE developed for the Project is anticipated to be included in the pending Class III Inventory report that is currently being prepared as required under Section 106 of the NHPA. The Indirect Auditory APE would also be used for analysis of cultural resources and noise impacts in the respective Affective Environment and Environmental Consequences sections of the anticipated EA. Stantec subcontracted with Saxelby Acoustics to conduct an analysis of potential noise level occurrences associated with the Project.

The Project area would include a total of approximately 626 acres on public lands administered by the BLM El Centro Field Office with anticipated total surface disturbance from exploratory drilling activities of up to 20.54 acres. The Project proposes up to 65 temporary drilling locations within the Project area. The Project would have a life expectancy of up to two years, with drilling occurring over up to two weeks at each of the 65 proposed drill sites prior to moving to a new drill site location. There would only be two drill rigs in operation at a time within the Project area, that would operate on a 12- or 24-hour-per-day schedule, with potential for both drill rigs operating within one Drill Area (SMP, 2021).

METHODOLOGY

Stantec consulted with Saxelby Acoustics to develop noise contours through noise modeling software (SoundPlan) to detail the furthest distance in miles where potential Project noise would attenuate to an imperceptible or nearly imperceptible level with a maximum of two drill rigs running at once, per the activities proposed in SMP's Existing Oro Cruz Pit Area Exploration Plan of Operations (Plan). It was recommended that the furthest distance where noise would be nearly imperceptible would be measured down to 25 dBA.

Exploration activities were quantified using a comprehensive list of Project-proposed equipment from the Plan. Because the exact locations of drill sites are unknown at this time and are flexible per the Plan, prior to Saxelby Acoustics running the noise model, Stantec developed potential noise source locations along the boundaries of each of the seven proposed drill areas. The number of potential noise source locations were chosen based on four points along four sides of each of the seven drill areas (28 points total) to represent noise sources along the boundary traveling from each cardinal direction (north, south, east, and west).

Saxelby Acoustics then developed a noise model for the worst-case scenario of noise sources with all 28 points simulating drill rigs in all seven drill areas running at once to determine the absolute furthest distance, and in which direction, that noise would travel according to the following noise standards: Imperial County 45 dBA equivalent or energy-averaged sound level (L_{eq}) nighttime noise standard, and the EPA's 55 dBA L_{dn}. The noise contours resulting from this scenario showed that noise would likely travel the furthest west based on the topography of the area. Based on this initial scenario, it was determined that the following four scenarios would most realistically represent the furthest that noise would travel as generated from the Project:

- Two drill rigs operating in Drill Area 2 to provide a realistic look at potential noise traveling to the northwest;
- Two drill rigs operating in Drill Area 3 to provide a realistic look at potential noise traveling to the northwest;
- Two drill rigs operating in Drill Area 4 to provide a realist look at potential noise traveling to the southwest; and
- Two drill rigs operating in Drill Area 6 to provide a realistic look at potential noise traveling to the southwest.

All scenarios included noise generated form the Drill Area and the staging area equipment. Noise generated from helicopter use via the helicopter landing pad proposed in Drill Area 1 was not included in the noise model as it would not contribute to continuous noise generated by Project drilling activities.

RESULTS OF THE NOISE MODELING

The complete details of the noise modeling results as developed and analyzed by Saxelby Acoustics are included as **Attachment 1**.

The Indirect Auditory APE is shown on **Figure 1**, which incorporates the areas from Drill Areas 2, 3, 4, and 6 out to the furthest noise contour where noise would attenuate to 25 L_{eq} (24-hour) (L_{eq} over 24-hours), a nearly inaudible level to the human ear (**Attachment 1**), which is approximately 1.7 miles to the southwest from the Project area. Noise impacts as a result of exploratory drilling activities would be temporary in nature and would not be stationary throughout the one-to-two-year life of the Project given the nature of the proposed approximately two-week drilling campaign at each drill site. The Indirect Auditory APE shown on **Figure 1** was determined to be an appropriate distance to assess indirect auditory impacts to cultural and historic properties of concern in the area, including the Tumco Historic Mine (**Figure 1**), which has been identified as a cultural property of concern in relation to potential Project impacts. The Indirect Auditory APE will also be used as the noise area of analysis in the Project's anticipated EA.

REFERENCES

Bureau of Land Management (BLM). 1984. Manual 8400-Visual Resource Management. United States Department of the Interior, Bureau of Land Management, Washington, D.C. April 5, 1984.

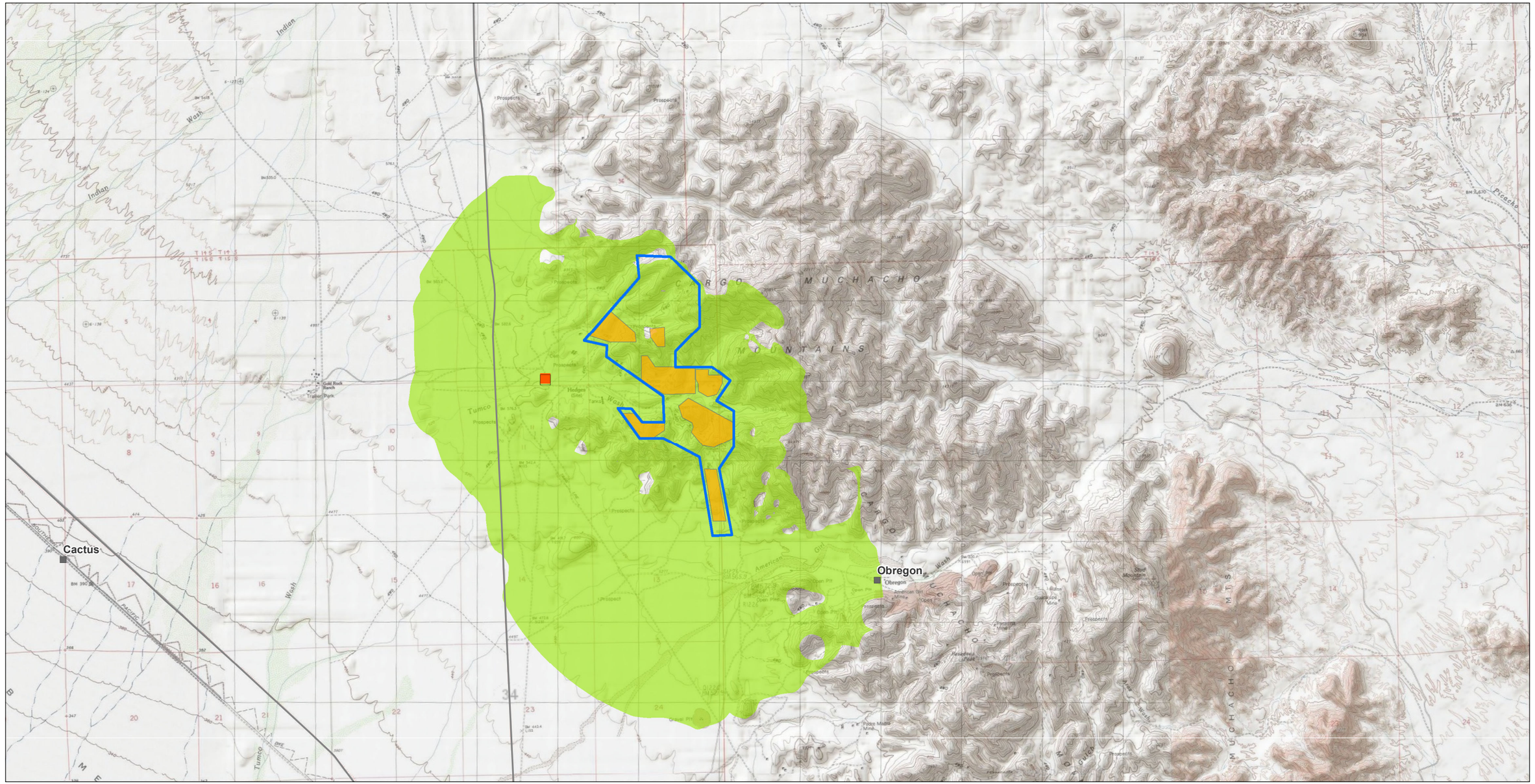
Bureau of Land Management (BLM). 2005. Manual H-1601-1 Land Use Planning Handbook. United States Department of the Interior, Bureau of Land Management. March 11, 2005.

Bureau of Land Management (BLM). 2015. Desert Renewable Energy Conservation Plan Proposed Land Use Plan Amendment and Final Environmental Impact Statement. October 2015. Available at: https://eplanning.blm.gov/eplanning-ui/project/66459/570.

SMP Gold Corp. (SMP). 2021. Existing Oro Cruz Pit Area Exploration Plan of Operations. Submitted to the Bureau of Land Management, El Centro Field Office September 2020. BLM Case File Number CACA-059124. Revised December 2020. Revised August 2021. Revised September 2021. Revised October 2021.

U.S. Environmental Protection Agency (EPA). 1972. The Noise Control Act of 1972. Washington, D.C. October 27, 1972.

FIGURES



Legend

- Tumco Historic Mine
- Indirect Auditory APE
- Oro Cruz Plan Boundary
- Drill Hole Areas

N

Stantec

Feet
0 2,000 4,000 1 in = 4,000 feet

Imperial County, CA
NAD 1983 UTM Zone 11N

DRAWN BY: CJ	1ST REVIEW: BT	2ND REVIEW: SH
DATE: 05/04/2022	PROJECT NO: 203722070	

SMP GOLD CORP.
ORO CRUZ MINE

Figure 1
Potential Project Noise Impact Area

V:\2037\Active\203722070\03_data\gis_cad\gis\mxds\Figure_1_Potential_Project_Noise_Impact_Area_v2.mxd Revised: 2022-04-15 By: chrjohnson

Service Layer Credits: Copyright © 2013 National Geographic Society, i-cubed
Sources: Esri, USGS, NOAA
Sources: Esri, Garmin, USGS, NPS

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ATTACHMENT 1

Memorandum

To: Shelby Hockaday, Project Manager
Stantec
5390 Kietzke Lane Suite 103
Reno NV 89511-2302
shelby.hockaday@stantec.com

From: Luke Saxelby, INCE Bd. Cert.
Principal Consultant
Board Certified, Institute of Noise Control Engineering

Date: April 13, 2022

Project: SMP Gold Corp. Oro Cruz Exploration
Saxelby Acoustics Job Number 220208

Subject: Oro Cruz Exploration Drilling Noise Mapping

INTRODUCTION

Saxelby Acoustics has prepared this letter to summarize our noise modeling for the SMP Gold Corp. Oro Cruz Exploration Drilling project.

BACKGROUND AND INTENT

Saxelby Acoustics has been engaged to prepare noise modeling of proposed drilling operations for the above-reference project located in Imperial County, California. The project is located within the Cargo Muchacho mountains, approximately 14 miles northwest of the City of Yuma, Arizona. Saxelby Acoustics was engaged to map noise contours for the proposed drilling operations. The four scenarios mapped in this analysis are considered worst-case for noise traveling west and south from the proposed drilling areas, resulting in the furthest potential for drilling noise audibility. Drilling noise would be substantially shielded towards the east and north due to topography.

NOISE CRITERIA

For this analysis, Saxelby Acoustics mapped noise contours for four operating scenarios, as described below. For each operating scenario, noise levels are mapped relative to three criteria. The first map of each scenario shows noise levels down to 25 dBA L_{eq}[1]. Based upon our experience, an average drilling noise level of 25 dBA L_{eq} would likely be barely audible to inaudible at most locations. Noise levels were also mapped down to 55 dBA L_{dn}, which is the US EPA recommended exterior noise level limit for outdoor uses, as shown in **Table 1**. Finally, noise levels were also mapped down to 45 dBA L_{eq} which is the Imperial County Municipal Code nighttime noise standard for residential uses.[2]

---

[1] See **Appendix A** for definitions of acoustic terms.

[2] Imperial County Code of Ordinances. Section 90702.00.
https://library.municode.com/ca/imperial_county/codes/code_of_ordinances?nodeId=TIT9LAUSCO_DIV7NOABCO_CH2LI_90702.00SOLELI

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www.SaxNoise.com | Luke@SaxNoise.com
915 Highland Pointe Drive, Suite 250
Roseville, CA 95678

TABLE 1: SUMMARY OF NOISE LEVELS IDENTIFIED AS REQUISITE TO PROTECT THE PUBLIC HEALTH AND WELFARE WITH AN ADEQUATE MARGIN OF SAFETY

Effect	Level dB	Activity Area
Hearing Loss	70 L_{eq} (24-hour)	All areas.
Outdoor activity interference and annoyance	55 L_{dn} 55 L_{eq} (24-hour)	Outdoors in residential areas and farms and other outdoor areas where people spend widely varying amounts of time and other places in which quiet is a basis for use. Outdoor areas where people spend limited amounts of time (e.g., school yards, playgrounds)
Indoor activity Interference and Annoyance	45 L_{dn} 45 L_{eq} (24-hour)	Indoor residential areas. Other indoor areas with human activities (e.g., school yards playgrounds)

L_{eq} (24-hour) Equivalent A-weighted sound level over 24-hours

L_{dn} Day-night average sound level-the 24-hour A-weighted equivalent sound level, with a 10-decibel penalty applied to nighttime levels

Source: *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*. U.S. EPA March 1974.

PROJECT ASSUMPTIONS

Saxelby Acoustics assumed that up to two exploration drills could be operating simultaneously in a given drilling area. The following outlines our noise modeling scenarios:

Scenario 1 Continuous Noise Sources

1. Two exploration drills in Area 2, each with 125kW generator
2. Two portable compressors at Staging Area
3. One 125kW generator at Staging Area

Scenario 2 Continuous Noise Sources

1. Two exploration drills in Area 3, each with 125kW generator
2. Two portable compressors at Staging Area
3. One 125kW generator at Staging Area

Scenario 3 Continuous Noise Sources

1. Two exploration drills in Area 4, each with 125kW generator
2. Two portable compressors at Staging Area
3. One 125kW generator at Staging Area

Scenario 4 Continuous Noise Sources

1. Two exploration drills in Area 6, each with 125kW generator
2. Two portable compressors at Staging Area
3. One 125kW generator at Staging Area

NOISE MODELING

For noise modeling input assumptions, Saxelby Acoustics utilized manufacturer's sound pressure level data for the proposed generators, field-collected data for the drill rigs, and published data for the portable compressors.

In order to input data directly into the SoundPLAN sound prediction model, sound pressure levels must be converted to sound power levels. This conversion is made according to the following formula (*Source:* Miller, L. N., Bolt, Beranek, & Newman, Inc. (1981). *Noise control for buildings and manufacturing plants*. Equation 6-2*)*:

$$PWL = SPL + 10 \times Log\left(2 \times \pi \times d^2\right)$$

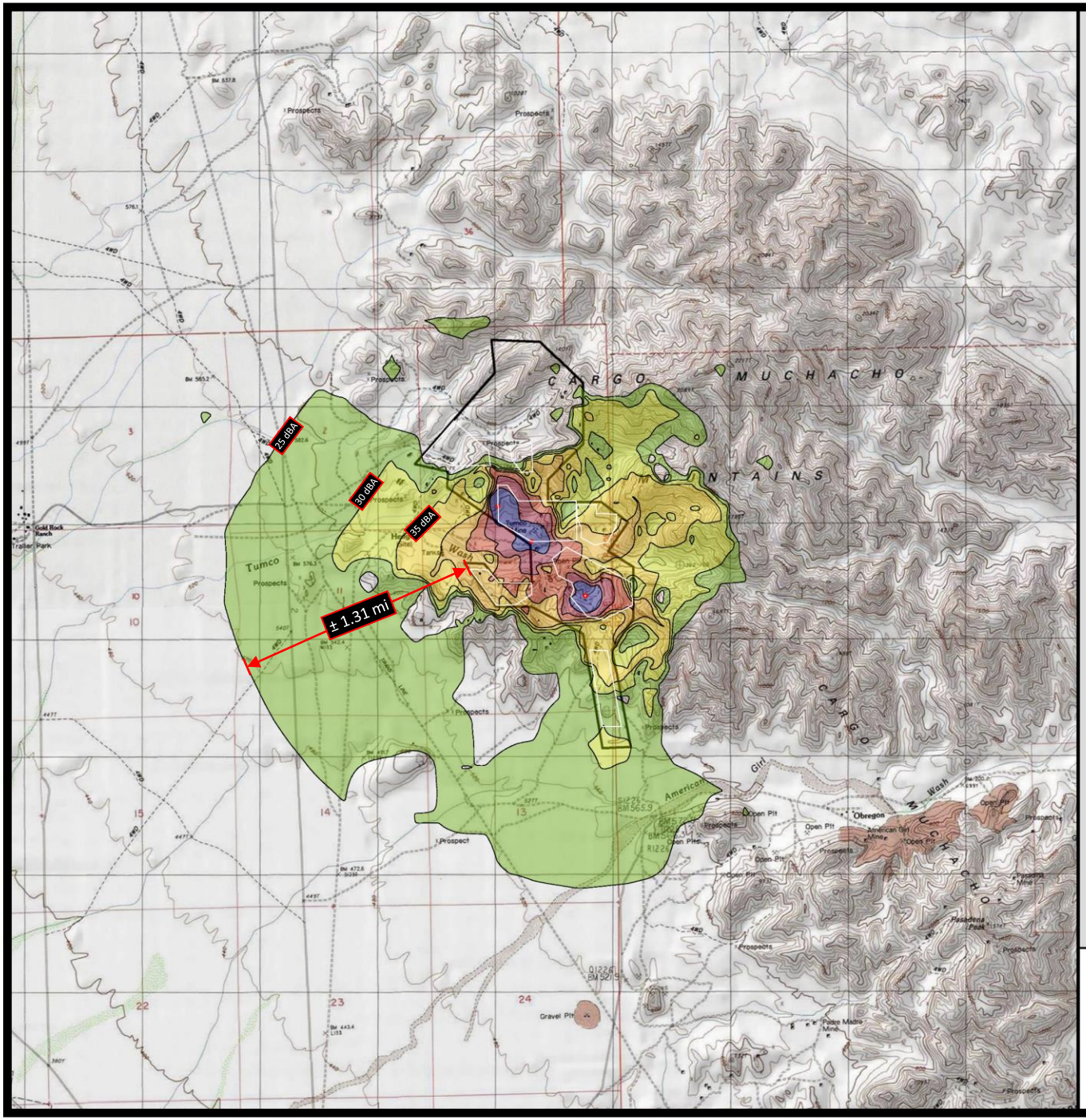
Where:
PWL = Sound Power Level
SPL = Sound Pressure Level
d = Distance from the center of the noise source to the noise measurement location, measured in meters. Assumes unobstructed sound propagation for a point source located on or near a large flat plane. This is known as "hemispherical sound radiation."

Sound power level data for each noise source associated with the drilling operations were used as direct inputs to the SoundPLAN Noise Prediction Model (**Table 2**). Existing topography was also input into the noise model. The SoundPLAN noise prediction model is able to predict overall noise levels for multiple noise sources. Inputs to the model included ground topography and ground type, noise source locations and heights, receiver locations, and sound power level data. These predictions are made in accordance with International Organization for Standardization (ISO) standard 9613-2:1996 (Acoustics – Attenuation of sound during propagation outdoors). Ground type was assumed soft (G=1) for the noise modeling exercise.

Table 2: Sound Power Levels, dBA L_{50}

Equipment / Location	Sound Pressure Level, dBA	Sound Power Level (PWL)	Utilization/Equipment
Noise Level Assumptions			
LF-90D Boart Longyear track-mounted drill rig, or similar	87 dBA at 25 feet	113 dBA	Continuous operation
125 kW generator	65 dBA at 23 feet	90 dBA	Continuous operation
Portable compressor (375 series, or similar)	76 dBA at 50 feet	108 dBA	Continuous operation

Figures 1A-1C show the results of the Scenario 1 noise modeling. **Figures 2A-2C** show the results for Scenario 2. **Figures 3A-3C** show the results for Scenario 3. **Figures 4A-4C** show the results for Scenario 2.



Oro Cruz Exploration Drilling

Imperial County, California

Figure 1A

Project Noise Contours (dBA L_{eq}) –
2 Drills in Area 2 and Staging Area Equipment – Contours Down to 25 dBA

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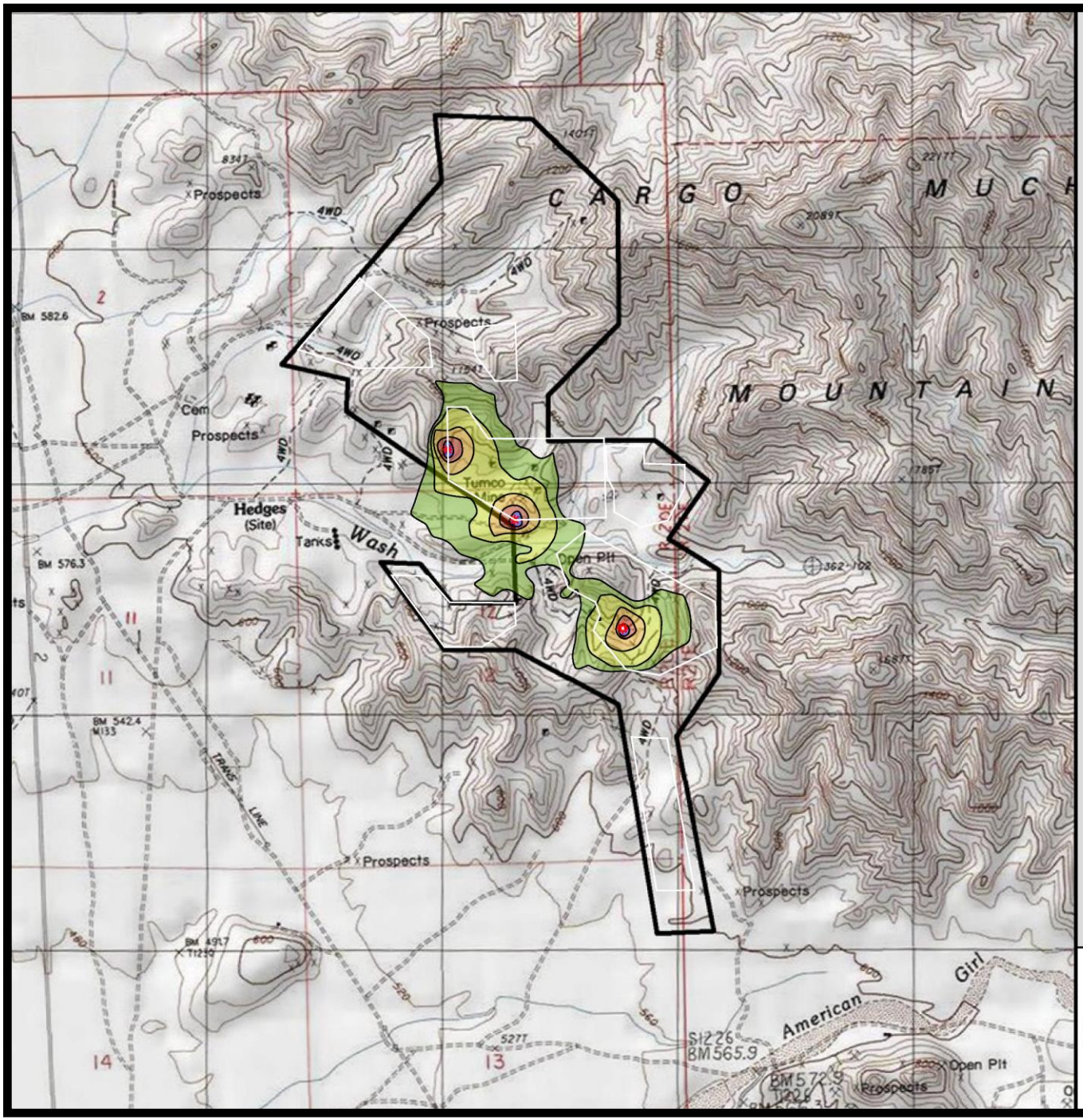
Acoustics · Noise · Vibration



Oro Cruz Exploration Drilling

Imperial County, California

Figure 1B

Project Noise Contours (dBA L_{dn}) –
2 Drills in Area 2 and Staging Area Equipment – Contours Down to US EPA Exterior 55 dBA Ldn Standard

Noise Level, dB(A)

55 <		<=	60
60 <		<=	65
65 <		<=	70
70 <		<=	75
75 <			

Legend

- Point Source
- Drill Areas

Scale 1:2000

0 400 800 1600 2400 3200 feet

N

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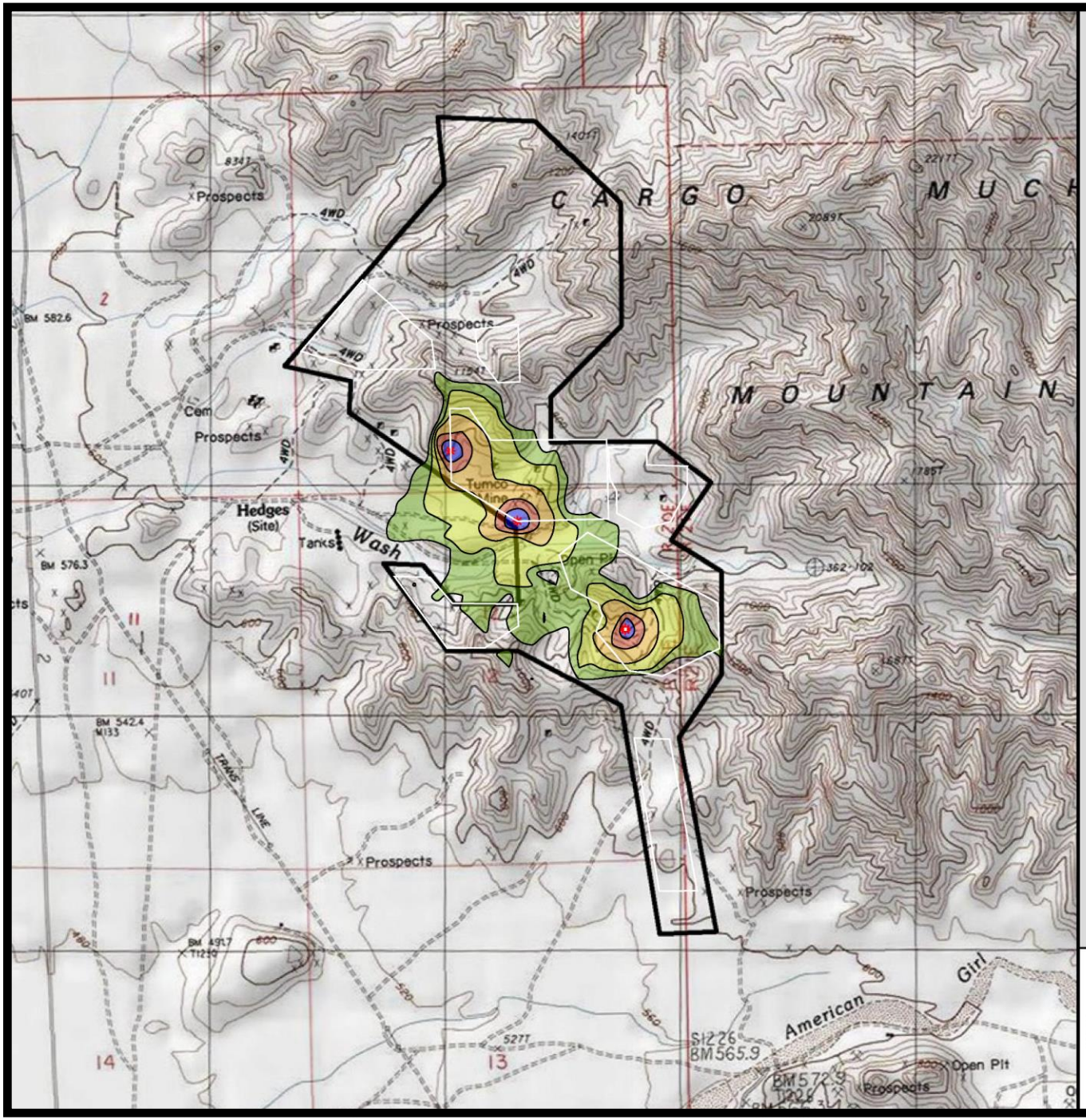
Acoustics · Noise · Vibration



Oro Cruz Exploration Drilling

Imperial County, California

Figure 1C

Project Noise Contours (dBA L_{eq}) –
2 Drills in Area 2 and Staging Area Equipment – Contours Down to Imperial County 45 dBA Leq Nighttime Standard

Noise Level, dB(A)	
45 <	<= 50
50 <	<= 55
55 <	<= 60
60 <	<= 65
65 <	

Legend
- Point Source
- Drill Areas

Scale 1:2000

0 400 800 1600 2400 3200 feet

N

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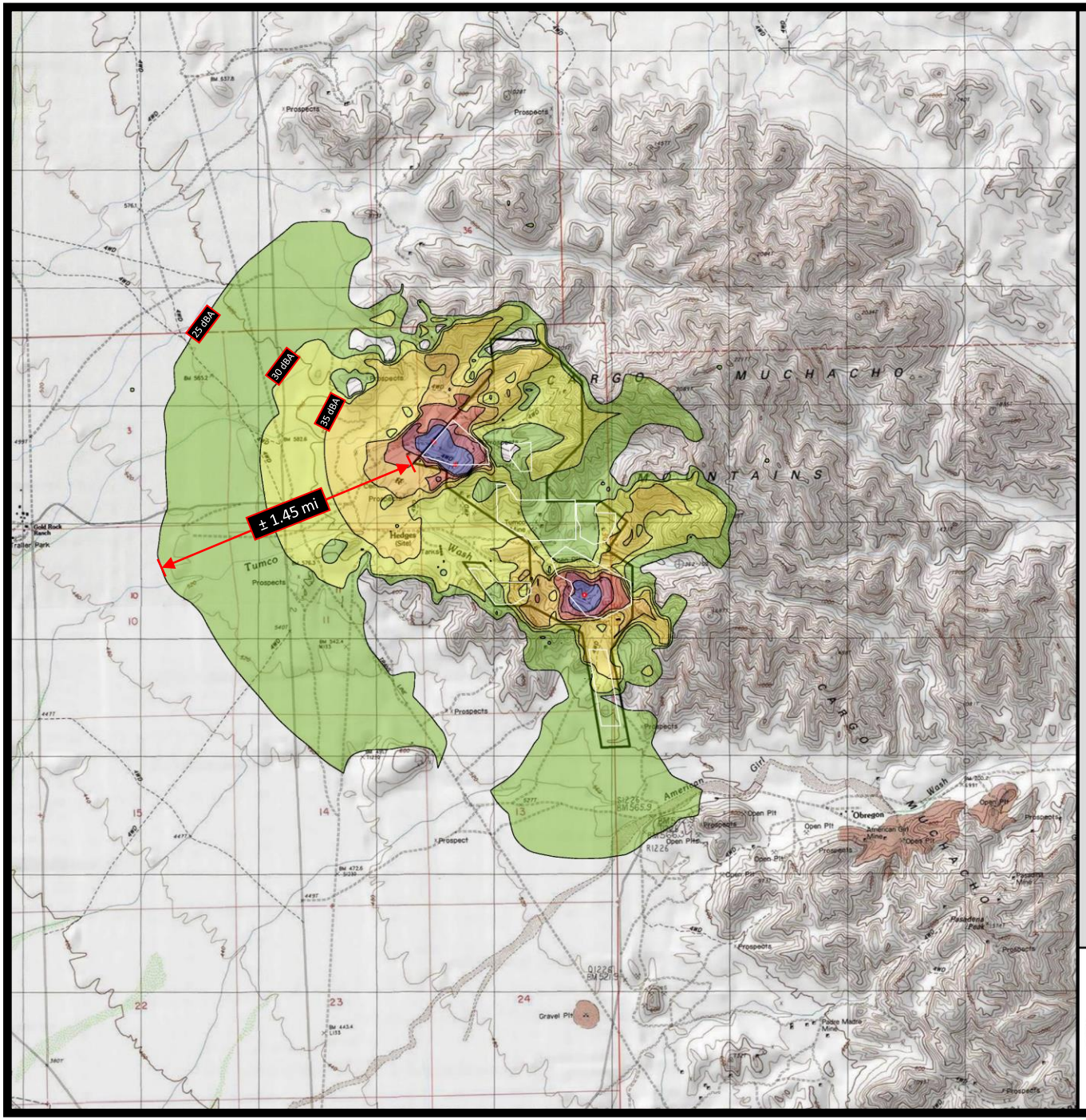

Oro Cruz Exploration Drilling

Imperial County, California

Figure 2A

Project Noise Contours (dBA L_{eq}) –
2 Drills in Area 3 and Staging Area Equipment – Contours Down to 25 dBA

Noise Level, dB(A)	
25 <	<= 30
30 <	<= 35
35 <	<= 40
40 <	<= 45
45 <	<= 50
50 <	<= 55
55 <	

Legend
- Point Source
- Drill Areas

Scale 1:4000

0 750 1500 3000 4500 6000 feet

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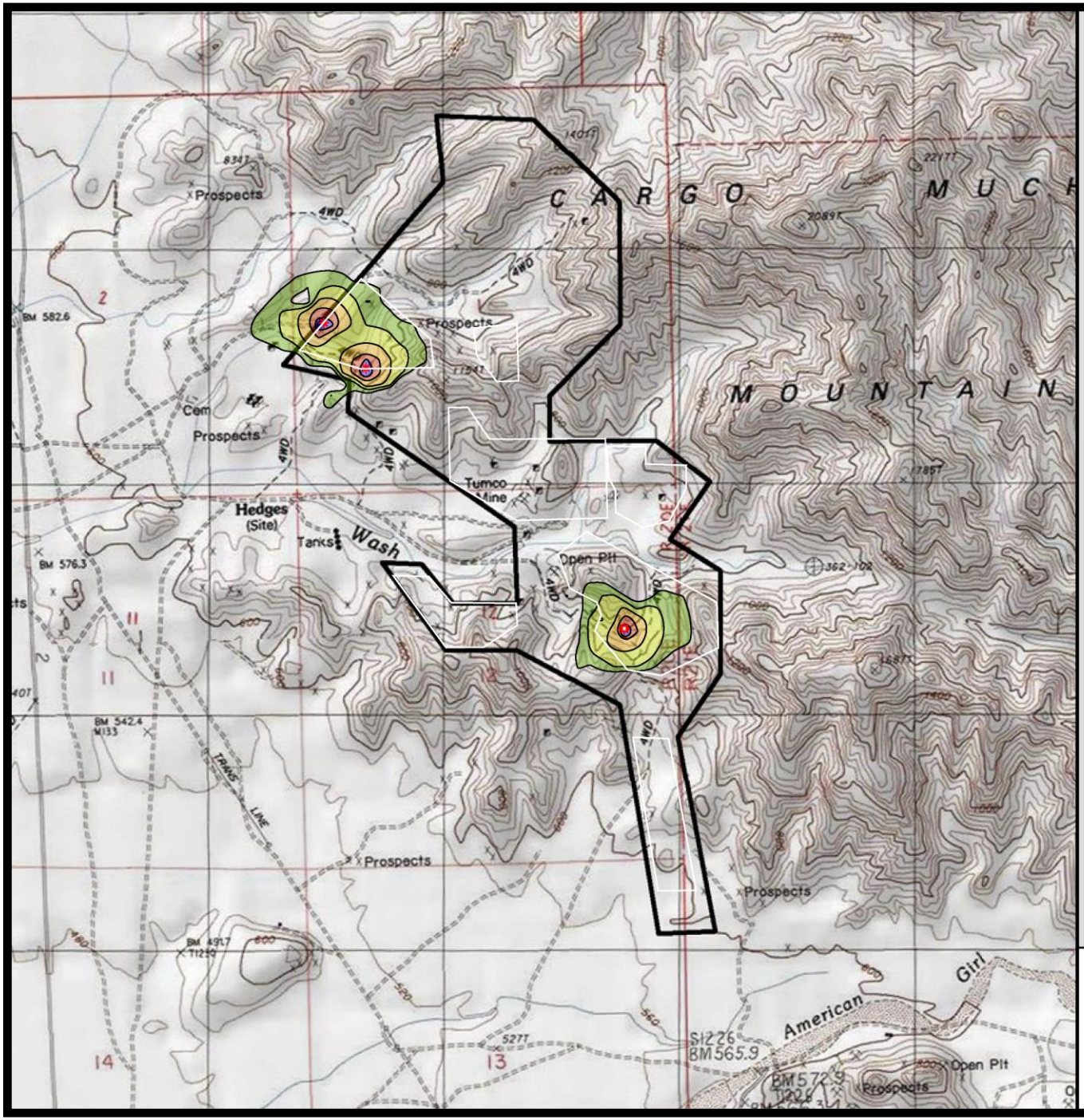
Acoustics · Noise · Vibration



Oro Cruz Exploration Drilling

Imperial County, California

Figure 2B

Project Noise Contours (dBA L_{dn}) –
2 Drills in Area 3 and Staging Area Equipment – Contours Down to US EPA Exterior 55 dBA Ldn Standard

Noise Level, dB(A)	
55 <	<= 60
60 <	<= 65
65 <	<= 70
70 <	<= 75
75 <	

Legend
- Point Source
- Drill Areas

Scale 1:2000

0 400 800 1600 2400 3200 feet

N

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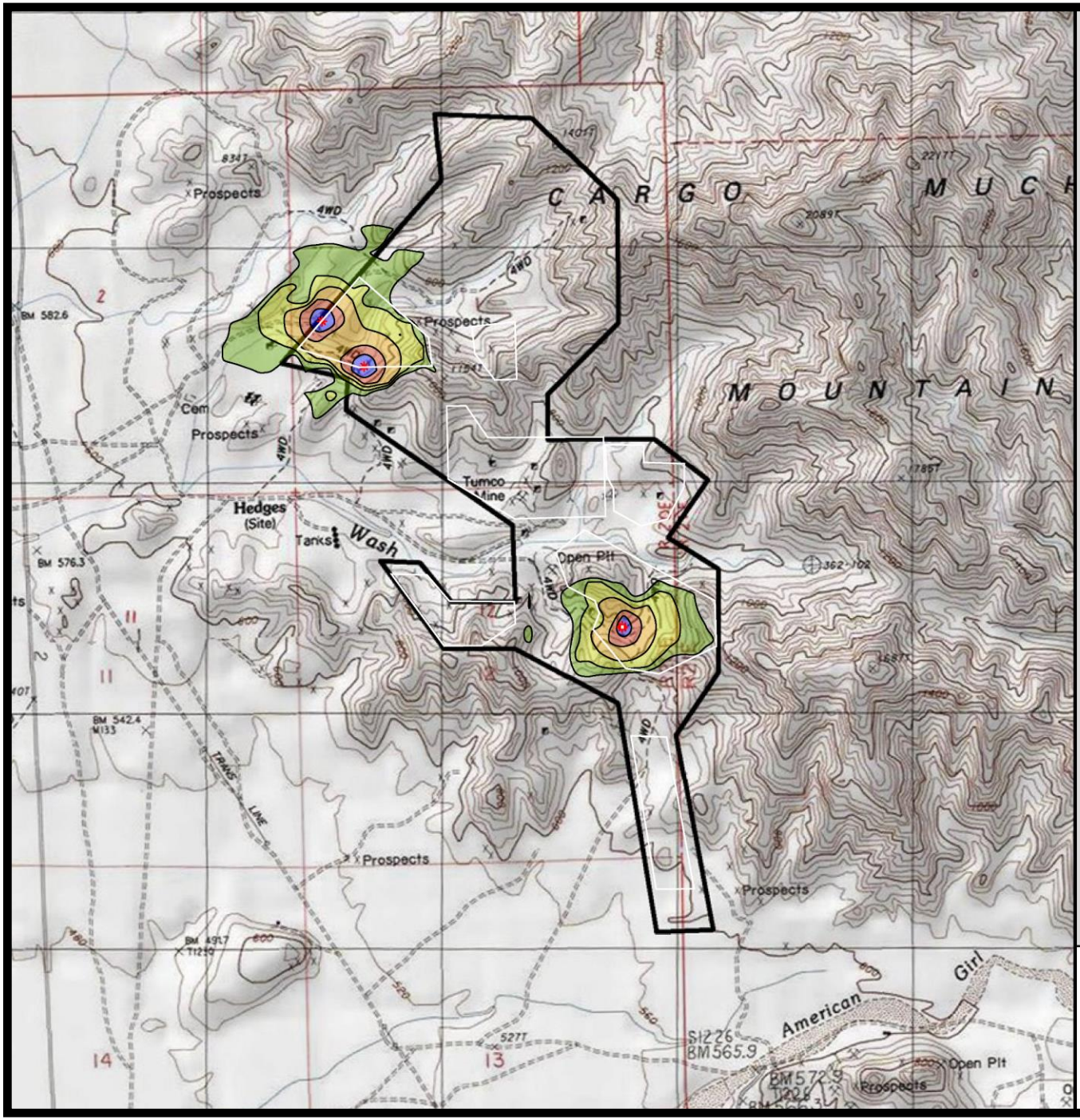
Acoustics · Noise · Vibration



Oro Cruz Exploration Drilling

Imperial County, California

Figure 2C

Project Noise Contours (dBA L_{eq}) –
2 Drills in Area 3 and Staging Area Equipment – Contours Down to Imperial County 45 dBA Leq Nighttime Standard

Noise Level, dB(A)	
45 <	<= 50
50 <	<= 55
55 <	<= 60
60 <	<= 65
65 <	

Legend
- Point Source
- Drill Areas

Scale 1:2000

0 400 800 1600 2400 3200 feet

N

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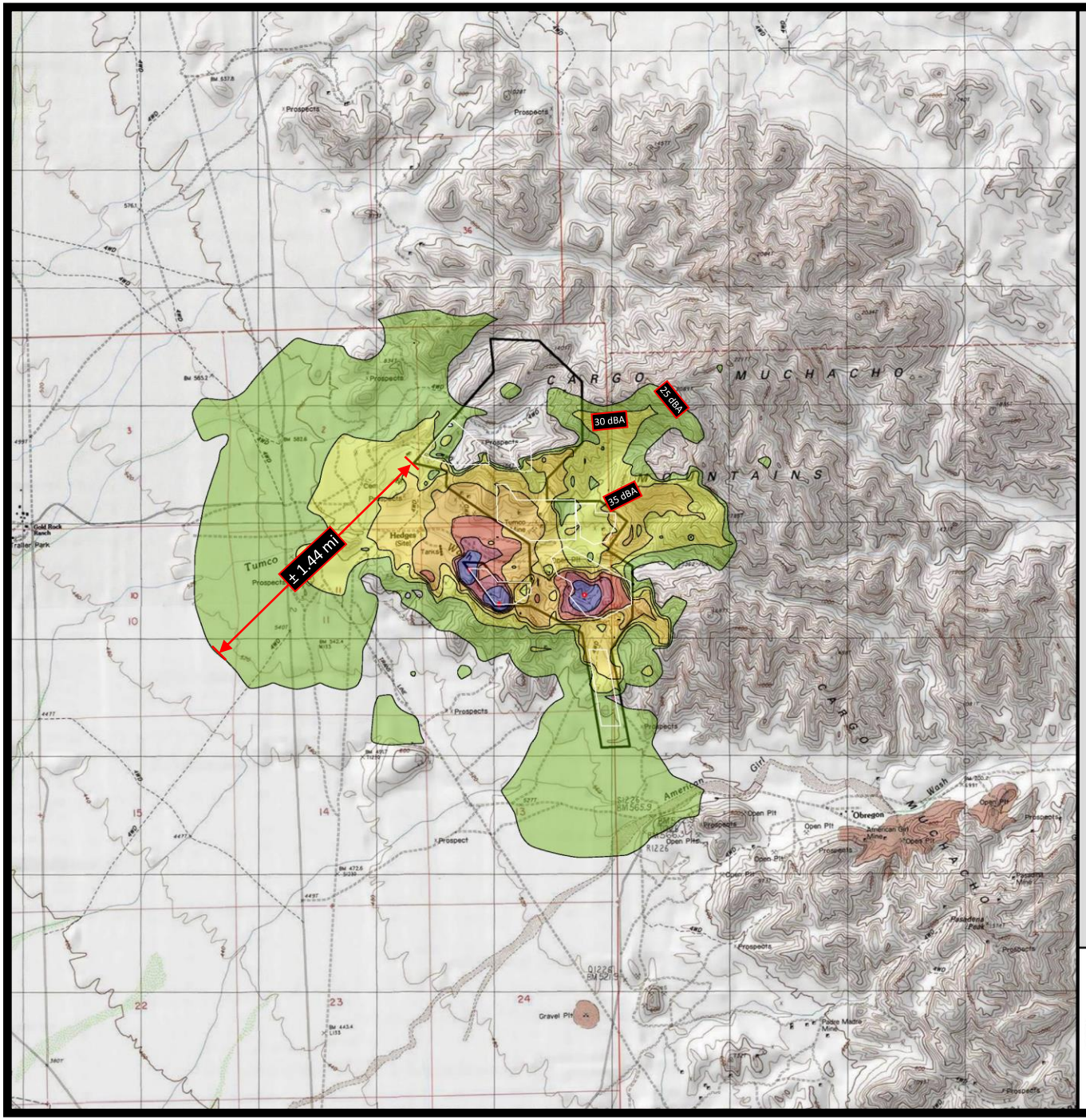

Oro Cruz Exploration Drilling

Imperial County, California

Figure 3A

Project Noise Contours (dBA L_{eq}) –
2 Drills in Area 4 and Staging Area Equipment – Contours Down to 25 dBA

Noise Level, dB(A)	
25 <	<= 30
30 <	<= 35
35 <	<= 40
40 <	<= 45
45 <	<= 50
50 <	<= 55
55 <	

Legend
- Point Source
- Drill Areas

Scale 1:4000
0 750 1500 3000 4500 6000 feet

SAXELBY ACOUSTICS
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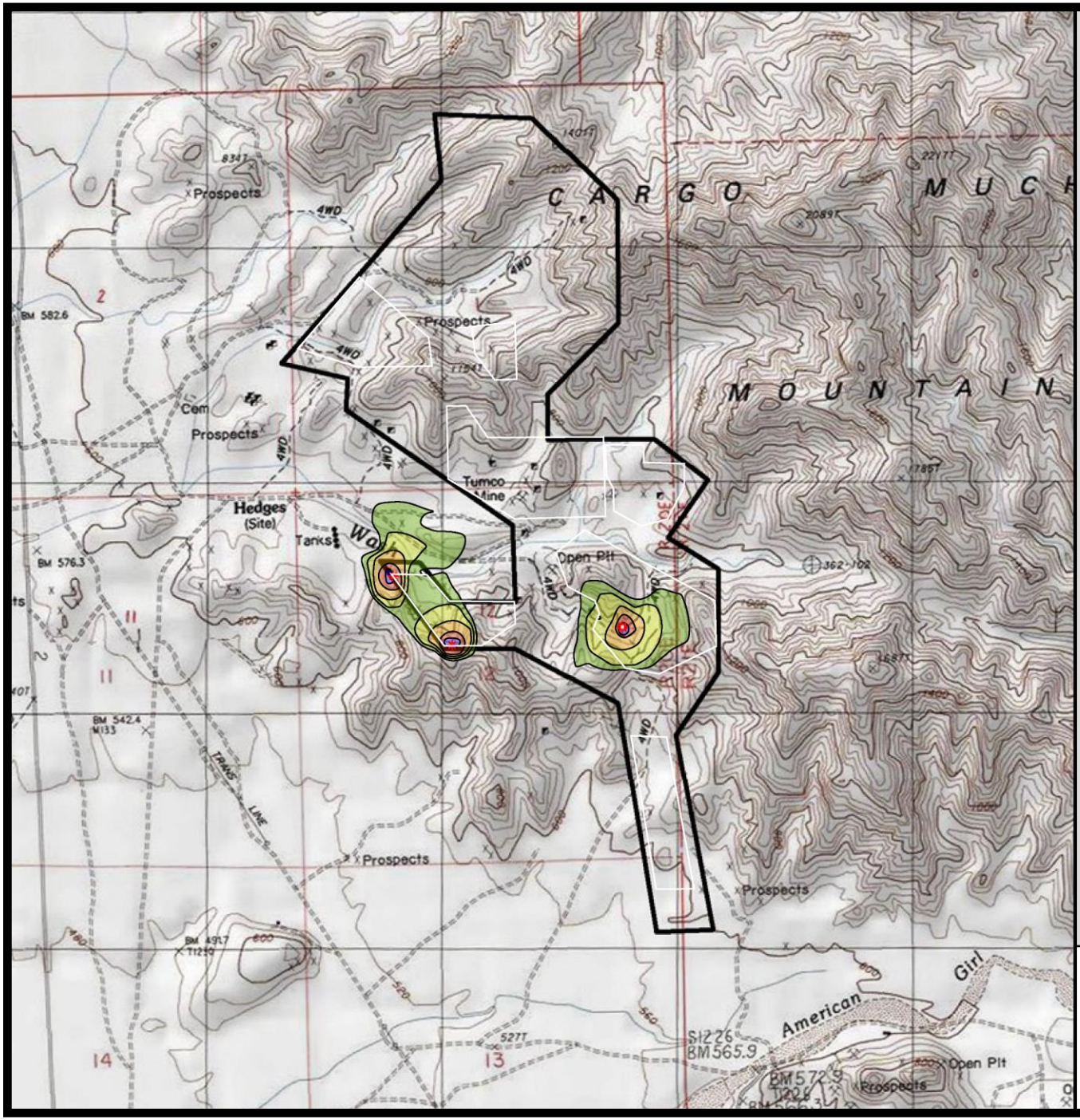


Oro Cruz Exploration Drilling

Imperial County, California

Figure 3B

Project Noise Contours (dBA L_{dn}) –
2 Drills in Area 4 and Staging Area Equipment – Contours Down to US EPA Exterior 55 dBA Ldn Standard

Noise Level, dB(A)	
55 <	<= 60
60 <	<= 65
65 <	<= 70
70 <	<= 75
75 <	

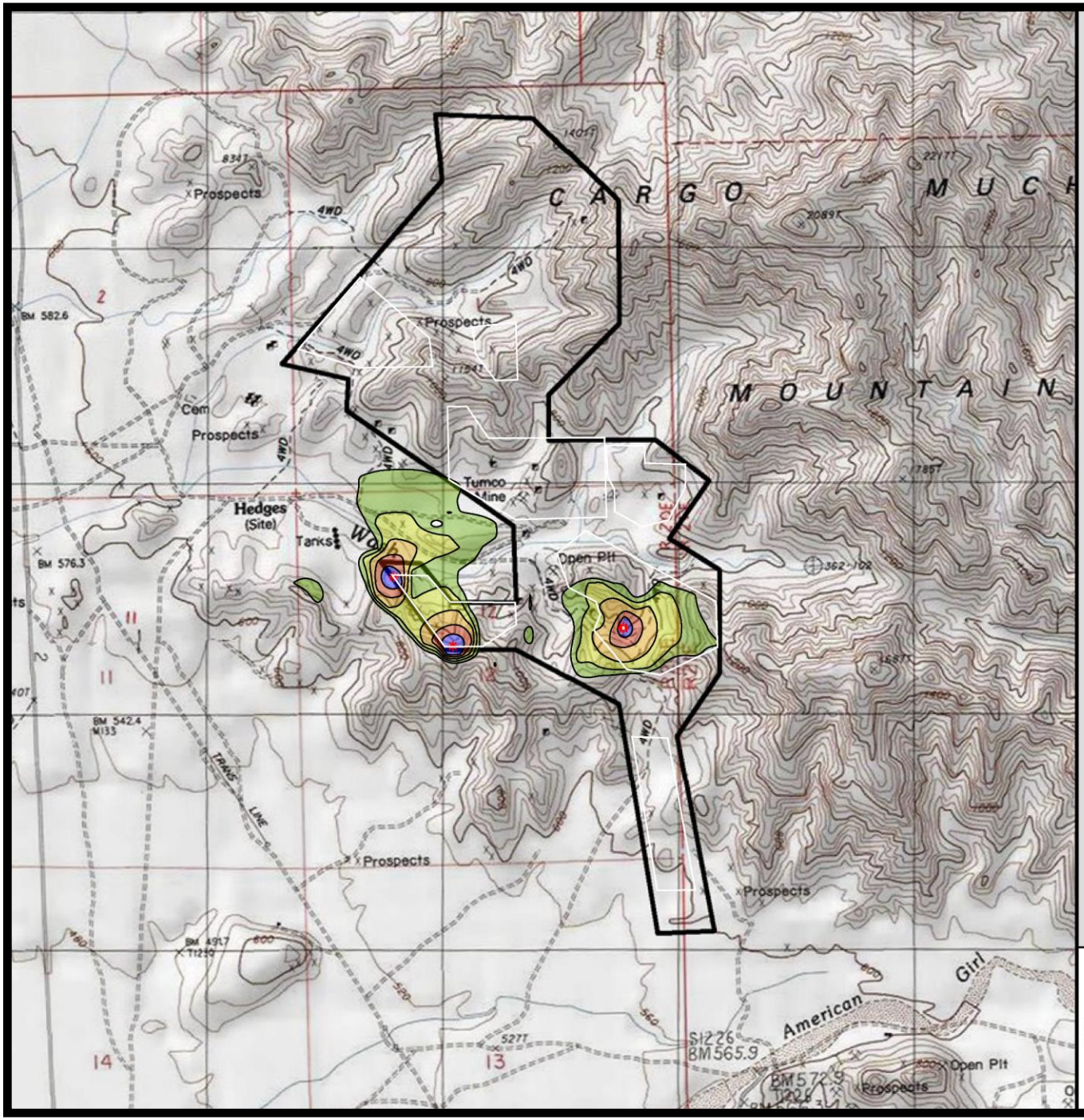
Legend
- Point Source
- Drill Areas

Scale 1:2000

0 400 800 1600 2400 3200 feet

N

SAXELBY ACOUSTICS
Acoustics · Noise · Vibration



Oro Cruz Exploration Drilling

Imperial County, California

Figure 3C

Project Noise Contours (dBA L_{eq}) –
2 Drills in Area 4 and Staging Area Equipment – Contours Down to Imperial County 45 dBA Leq Nighttime Standard

Noise Level, dB(A)	
45 <	<= 50
50 <	<= 55
55 <	<= 60
60 <	<= 65
65 <	

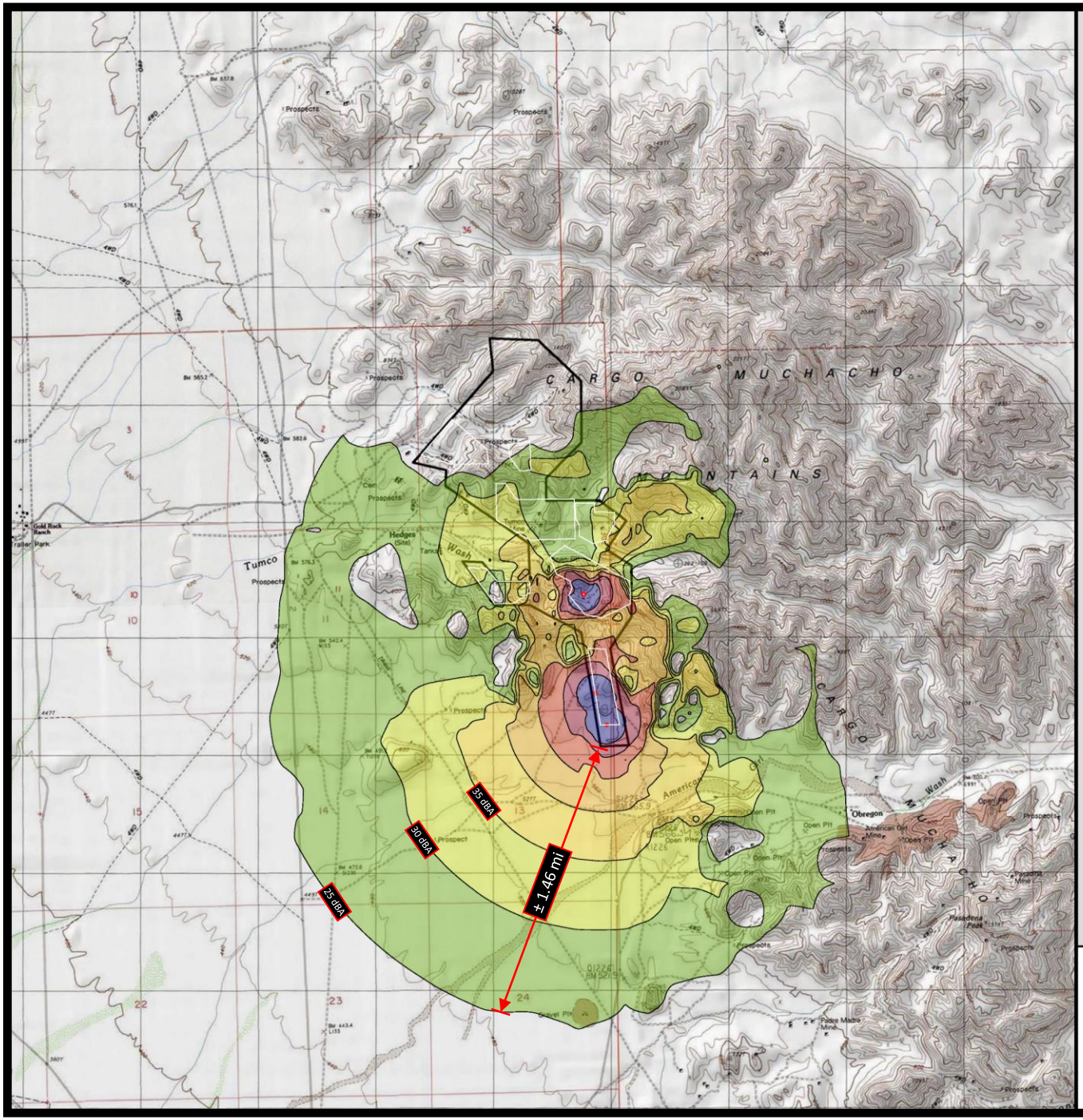
Legend
- Point Source
- Drill Areas

Scale 1:2000

0 400 800 1600 2400 3200 feet

N

SAXELBY ACOUSTICS
Acoustics · Noise · Vibration



Oro Cruz Exploration Drilling

Imperial County, California

Figure 4A

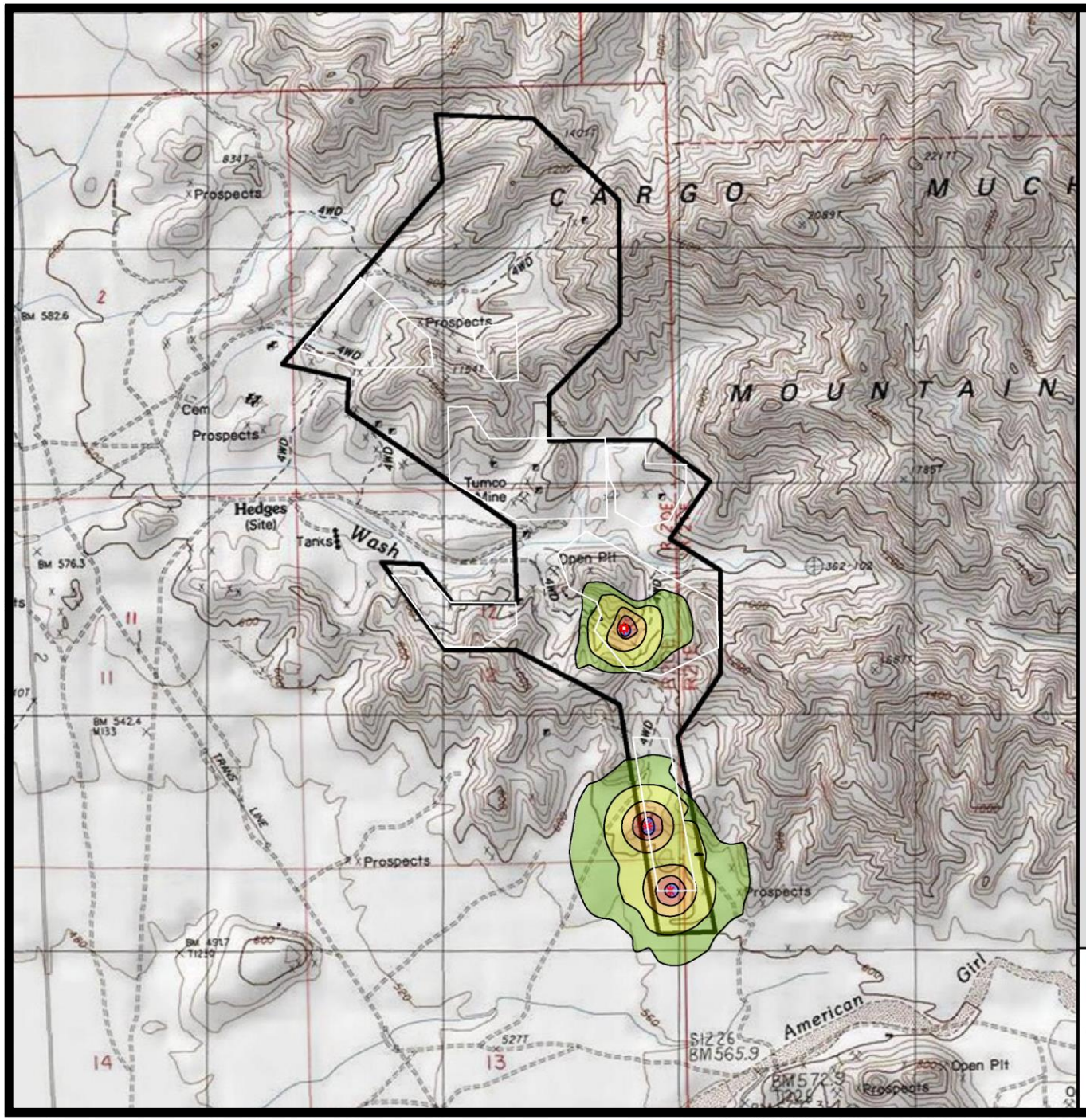
Project Noise Contours (dBA L_{eq}) –
2 Drills in Area 6 and Staging Area Equipment – Contours Down to 25 dBA

Noise Level, dB(A)	
25 <	<= 30
30 <	<= 35
35 <	<= 40
40 <	<= 45
45 <	<= 50
50 <	<= 55
55 <	

Legend
- Point Source
- Drill Areas

Scale 1:4000
0 750 1500 3000 4500 6000 feet

SAXELBY ACOUSTICS
Acoustics · Noise · Vibration



Oro Cruz Exploration Drilling

Imperial County, California

Figure 4B

Project Noise Contours (dBA L_{dn}) –
2 Drills in Area 6 and Staging Area Equipment – Contours Down to US EPA Exterior 55 dBA Ldn Standard

Noise Level, dB(A)	
55 <	<= 60
60 <	<= 65
65 <	<= 70
70 <	<= 75
75 <	

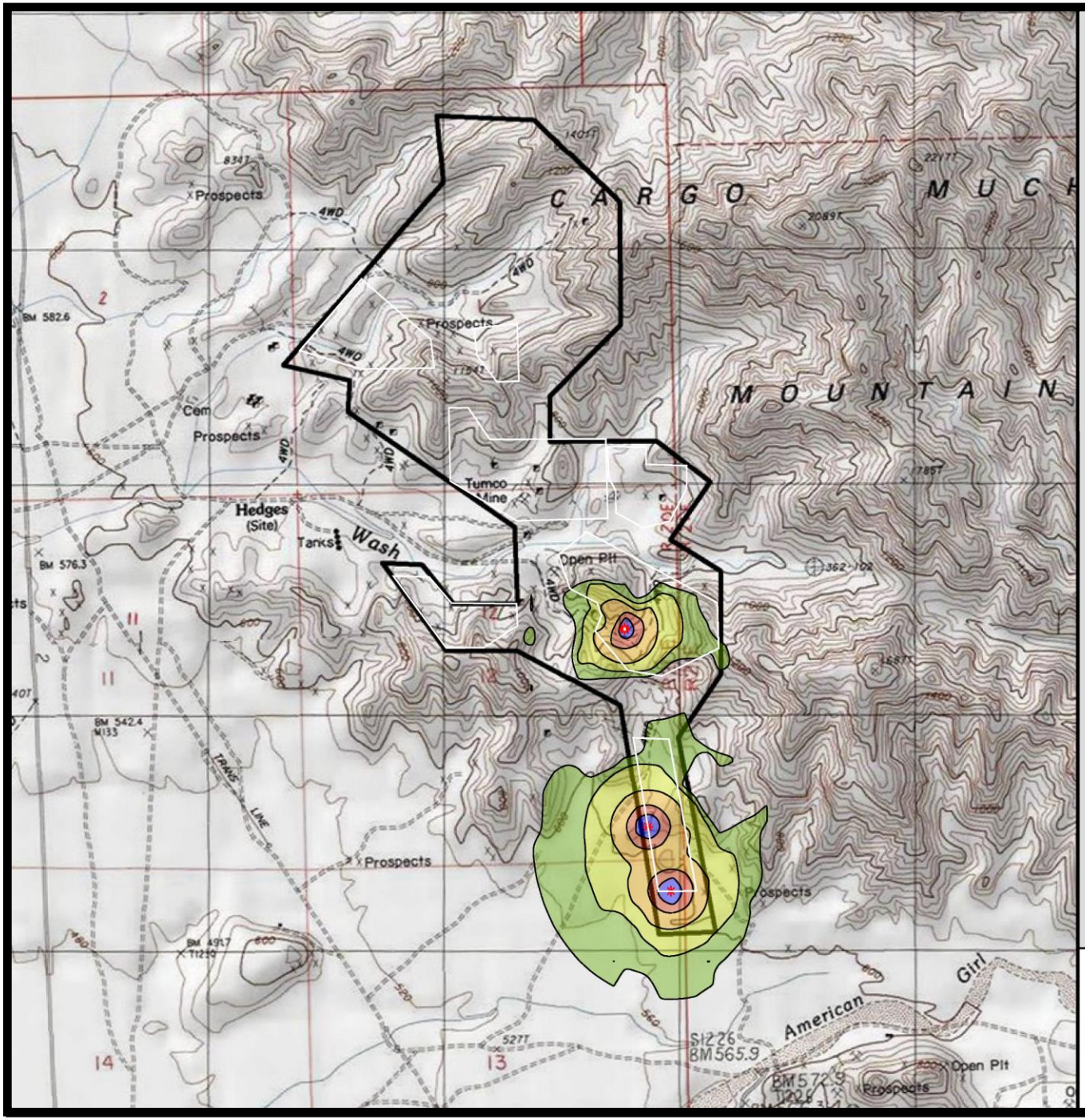
Legend
- Point Source
- Drill Areas

Scale 1:2000

0 400 800 1600 2400 3200 feet

N

SAXELBY ACOUSTICS
Acoustics · Noise · Vibration



Oro Cruz Exploration Drilling

Imperial County, California

Figure 4C

Project Noise Contours (dBA L_{eq}) –
2 Drills in Area 6 and Staging Area Equipment – Contours Down to Imperial County 45 dBA Leq Nighttime Standard

Noise Level, dB(A)	
45 <	<= 50
50 <	<= 55
55 <	<= 60
60 <	<= 65
65 <	

Legend
- Point Source
- Drill Areas

Scale 1:2000

0 400 800 1600 2400 3200 feet

N

SAXELBY ACOUSTICS
Acoustics · Noise · Vibration

Stantec Consulting Services Inc.
1165 East Jennings Way, Suite 101
Elko, NV 89801-7977

Memorandum

To:	Mayra Martinez, Bureau of Land Management
	Carrie Sahagun, Bureau of Land Management
	Grant Day, Bureau of Land Management
From:	Shelby Hockaday, Stantec Consulting Services Inc.
Date:	April 15, 2022
Project:	Oro Cruz Exploration Project Stantec Project Number 203722070
Subject:	Viewshed Analysis for Indirect Visual Area of Potential Effect

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This memorandum transmits the viewshed analysis results for the SMP Gold Corp.'s (SMP) Oro Cruz Exploration Project (Project).

INTRODUCTION

Stantec Consulting Services Inc. (Stantec) was contracted by SMP to conduct a viewshed analysis following conversations with the Bureau of Land Management (BLM) El Centro Field Office to determine an appropriate Indirect Visual Area of Potential Effect (Indirect Visual APE) for a cultural resources and visual resources analysis in the anticipated Environmental Assessment (EA) for the Project under the National Environmental Policy Act (NEPA). Scenic quality is a measure of the visual appeal of a parcel of land. Section 102(a)(8) of the Federal Land Policy and Management Act (FLPMA) placed an emphasis on the protection of the quality of scenic resources on public lands. Similarly, Section 101(b) of NEPA requires that measures be taken to ensure that aesthetically pleasing surroundings be retained for all Americans. Additionally, Section 106 of the National Historic Preservation Act (NHPA) of 1966 (54 United States Code 300101 et seq.), guides that an Indirect Visual APE should be delineated and should include all locations from which elements of the proposed Project may cause adverse visible effects to cultural or historic properties.

The Indirect Visual APE developed for the Project is anticipated to be included in the pending Class III Inventory report that is currently being prepared as required under Section 106 of the NHPA. The Indirect Visual APE would also be used for analysis of cultural and visual resources in the respective Affected Environment and Environmental Consequences sections of the anticipated EA.

The Project area would include a total of approximately 626 acres on public lands administered by the BLM El Centro Field Office with anticipated total surface disturbance from exploratory drilling activities of up to 20.54 acres. The Project proposes up to 65 temporary drilling locations within the Project area. The Project would have a life expectancy of up to two years, with drilling occurring over up to two weeks at each of the 65 proposed drill sites prior to moving to a new drill site location. There would only be two drill rigs in operation at a time within the Project area, that would operate on a 12- or 24-hour-per-day schedule, with potential for both drill rigs operating within one Drill Area (SMP, 2021).

VISUAL RESOURCES MANAGEMENT DESIGNATION

According to the BLM H-1601-1 Land Use Planning Handbook, the BLM manages resource uses and management activities consistent with the VRM objectives established in the land use plan (BLM, 2005) in compliance with the NEPA and FLPMA objectives for scenic quality. The VRM objectives designate classes for BLM-administered lands in order to identify and evaluate scenic values to determine the appropriate levels of management during land use planning. The BLM identifies four VRM Classes (I through IV) with specific management descriptions for each class. The Desert Renewable Energy Conservation Plan Proposed Land Use Plan Amendment and Final Environmental Impact Statement (BLM, 2015) assigned VRM classes ranging from Class I to Class IV to all BLM lands in the planning area based on BLM H-1601-1. The majority of the Project area falls within VRM Class III, with a small southern portion of Drill Area 6 being VRM Class IV (**Figure 1**). VRM Class III allows for moderate changes to the characteristic landscape to partially retain the existing character of the landscape, while VRM Class IV allows for major changes to the characteristic landscape to provide for management activities that require such.

METHODOLOGY

Stantec conducted the viewshed analysis through the use of topographic maps, aerial imagery, the geographic information system (GIS) ArcGIS software, publicly available Digital Elevation Model surface data, and the proposed Project's layout. The viewshed analysis was run using the ArcGIS Viewshed Tool from a total of seven points derived from the central locations of the Project's seven proposed drill areas (**Figure 1**). The analysis incorporated the views 40 feet high from the drill area centroids, which is the tallest height of drilling equipment proposed for use at the Project, to determine the overall visibility of the surrounding area where alternations in the character or use of historic properties may occur, facing all cardinal directions (north, south, east, and west).

Stantec created a six-mile buffer around the Project area to determine the visibility within such area where cultural and/or visual resources may be impacted by structures in the drill areas, based on the areas determined to be visible from all directions from the seven drill area centroids. Stantec then created digital elevation profiles in ArcGIS Pro at a distance of six miles utilizing one to two view directions from each drill area centroid, depending on the topography and the potential visibility. Stantec interpolated topography along the view directions using a 10-meter Digital Elevation Model (DEM) as the elevation grid to create a three-dimensional line output, which allowed for development of DEM elevation profiles, shown in **Attachment 1**.

The viewshed results from the elevation profiles were then used to delineate the Indirect Visual APE based on the potential visibility of the Project potentially indirectly affecting cultural/historic properties of concern. The proposed Indirect Visual APE took into account the scale and nature of the undertaking relative to cultural/historic properties of concern and accounted for site-specific variables such as topography and height of the equipment proposed for the Project.

RESULTS OF THE VIEWSHED ANALYSIS

The elevation profiles included in **Attachment 1** show the cross sections of topography from each drill area centroid from one to two directions, depending on topography and potential visibility in the area. Elevations are shown along the y-axis of the profile charts, wherein the height of the tallest proposed drilling equipment, 40 feet, may appear as a structure up to 40 feet above the surface elevation shown. The majority of the drilling areas would not be visible to the casual viewer; however, the southwestern view from Drill Area 2, the view from Drill Area 3, the northwestern view from Drill Area 4, the northwestern view from Drill Area 5, and the southwestern view from Drill Area 6 showed the potential for a structure 40 feet high to be visible from the base elevation.

Stantec used Google Earth imagery to analyze the three-dimensional view one mile away from the drill areas where the elevation profiles showed potential visibility. These images are included in **Attachment 2**. Based on the results of the viewshed analysis, the elevation profiles, and the desktop analysis of the aerial imagery ground views of the potentially visible drill areas, a 40-foot drill rig line against the existing landscape would have weak degree of contrast to form, color, line and texture elements of the existing background and would not be noticeable to the casual viewer. Based on BLM Manual 8400-Visual Resource Management, the drill pad area would be in the background distance zone where the texture and form of individual elements are no longer readily apparent in the landscape, appearing only in patterns or outlines (BLM, 1984). The proposed drill rigs may add additional form and lines in the background zone, but they would not result in a strong degree of contrast and would likely be a weak, indistinct line element in the viewshed. Impacts to the existing landscape and scenic quality as a result of exploratory drilling activities would be temporary in nature and would not be stationary throughout the one-to-two-year life of the Project or following reclamation given the nature of the proposed approximately two-week drilling campaign at each drill site.

The Indirect Visual APE is shown on **Figure 2**, which incorporates the viewshed within a one-mile buffer of the Project area. The one-mile buffer was determined to be an appropriate distance to assess indirect visual impacts to cultural and historic properties of concern in the area, including the Tumco Historic Mine (**Figure 2**), which has been identified as a cultural property of concern in relation to potential Project impacts. The Indirect Visual APE will also be used as the visual resources area of analysis in the Project's anticipated EA.

REFERENCES

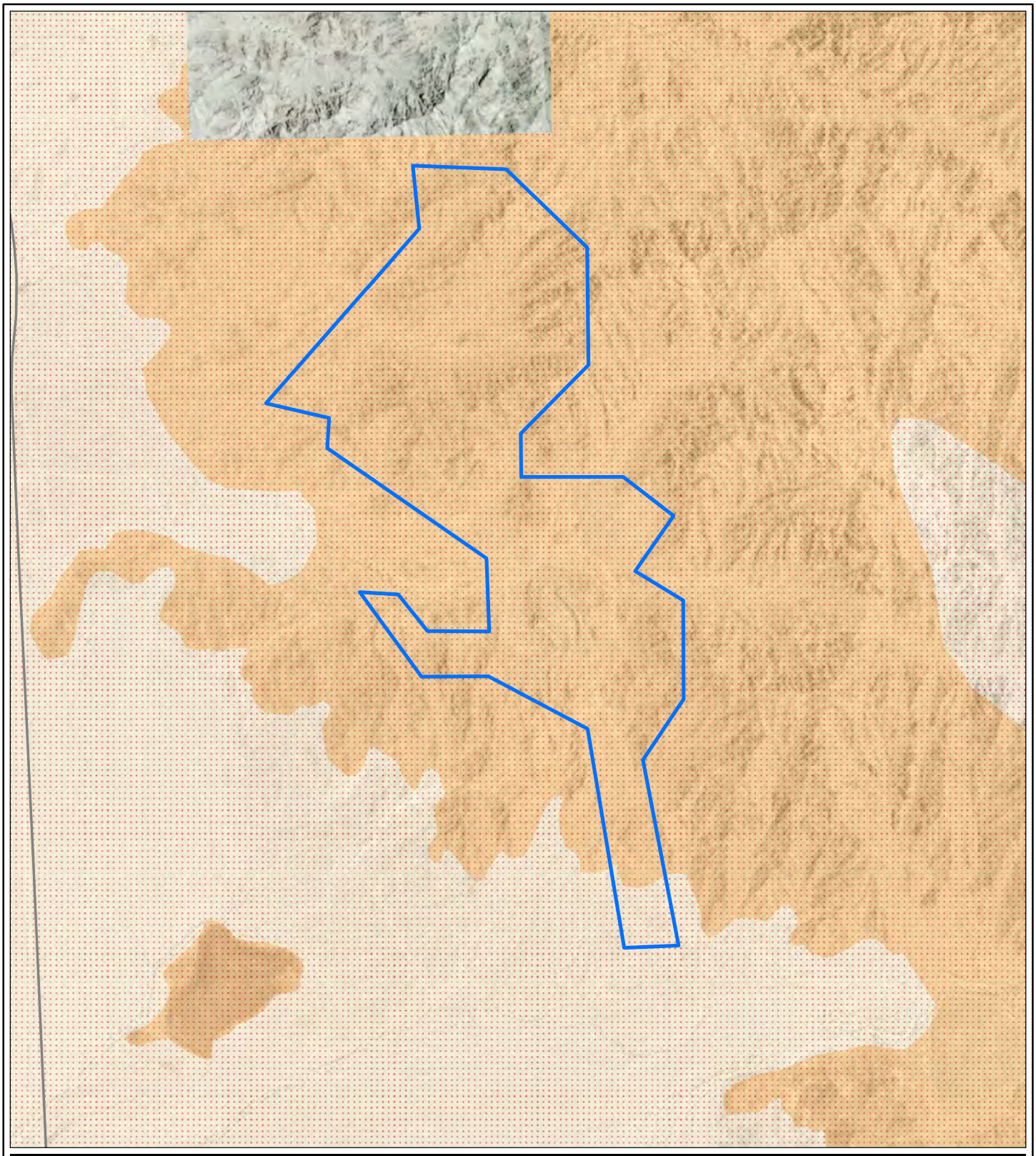
Bureau of Land Management (BLM). 1984. Manual 8400-Visual Resource Management. United States Department of the Interior, Bureau of Land Management, Washington, D.C. April 5, 1984.

Bureau of Land Management (BLM). 2005. Manual H-1601-1 Land Use Planning Handbook. United States Department of the Interior, Bureau of Land Management. March 11, 2005.

Bureau of Land Management (BLM). 2015. Desert Renewable Energy Conservation Plan Proposed Land Use Plan Amendment and Final Environmental Impact Statement. October 2015. Available at: https://eplanning.blm.gov/eplanning-ui/project/66459/570.

SMP Gold Corp. (SMP). 2021. Existing Oro Cruz Pit Area Exploration Plan of Operations. Submitted to the Bureau of Land Management, El Centro Field Office September 2020. BLM Case File Number CACA-059124. Revised December 2020. Revised August 2021. Revised September 2021. Revised October 2021.

FIGURES



Legend

Oro Cruz Plan Boundary

VRI Class Code

VRI Class III

VRI Class IV

N

Stantec

Feet

0 1,000 2,000

1 in = 2,000 feet

SMP GOLD CORP.
ORO CRUZ MINE

Imperial County, CA
NAD 1983 UTM Zone 11N

DRAWN BY: CJ	1ST REVIEW: JT	2ND REVIEW: JL
DATE: 3/3/2022	PROJECT NO: 203722070	

Figure 1
VRM Classes Within the Project Area

V:\203722070\03_data\gis_cad\gis\mxds\Viewshed_Revised\Figure_1_VRM_Classes.mxd Revised: 2022-03-03 By: chrjohnson

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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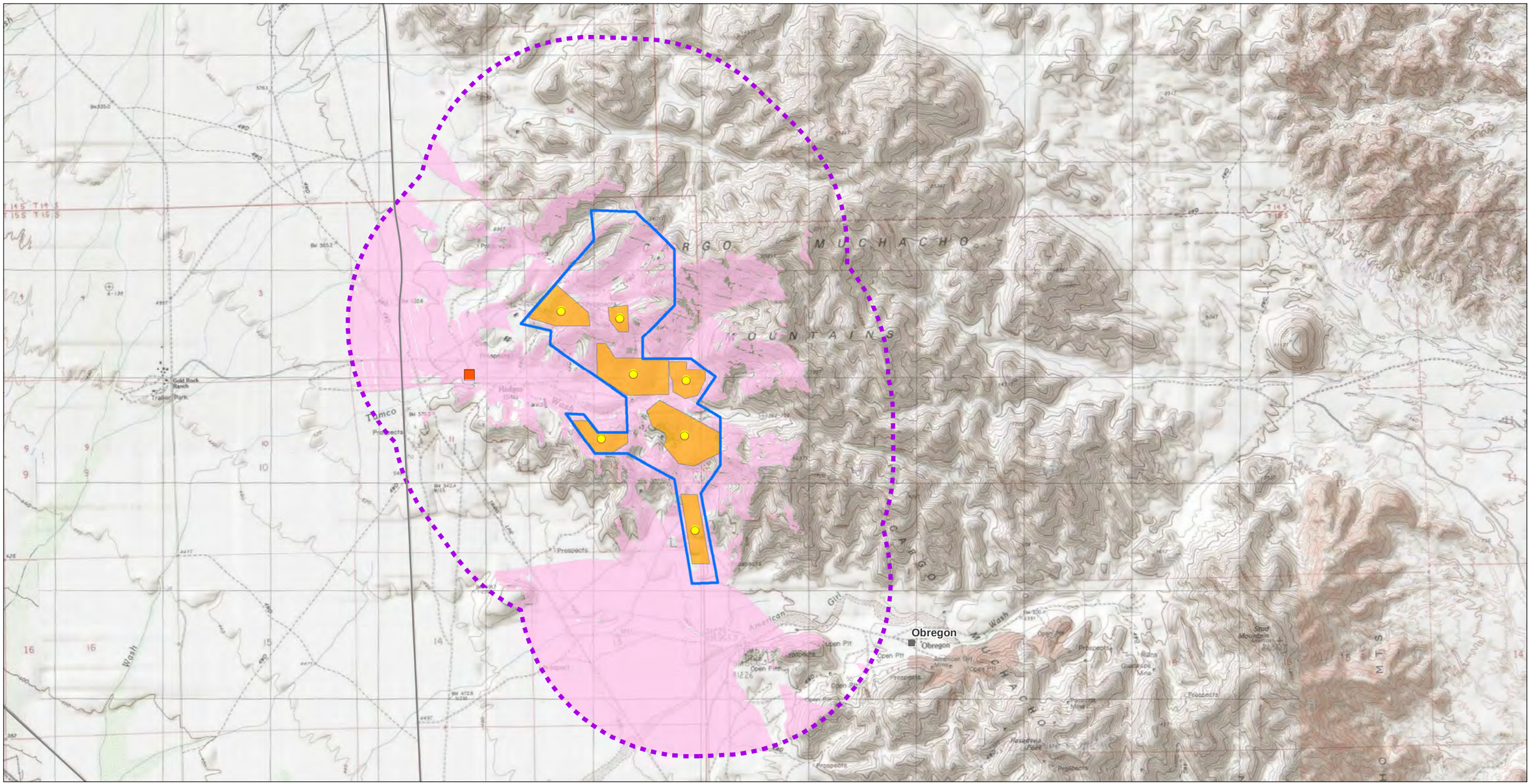

Legend

- Drill Hole Area Centroids
- Tumco Historic Mine
- Oro Cruz Plan Boundary
- 1-Mile Buffer
- Drill Hole Areas
- Indirect Visual APE

N

Stantec

Feet
0 1,500 3,000
1 in = 3,000 feet

SMP GOLD CORP.
ORO CRUZ MINE

Imperial County, CA
NAD 1983 UTM Zone 11N

DRAWN BY: CJ	1ST REVIEW: BT	2ND REVIEW: SH
DATE: 3/3/2022	PROJECT NO: 203722070	

Figure 2
Viewshed from All Drill Areas

V:\203\Active\203722070\03_data\gis_cad\gis\mxds\Viewshed_Revised\Figure_2_Viewshed.mxd Revised: 2022-03-03 By: chrjohnson

Service Layer Credits: Copyright © 2013 National Geographic Society, i-cubed
Sources: Esri, USGS, NOAA
Sources: Esri, Garmin, USGS, NPS

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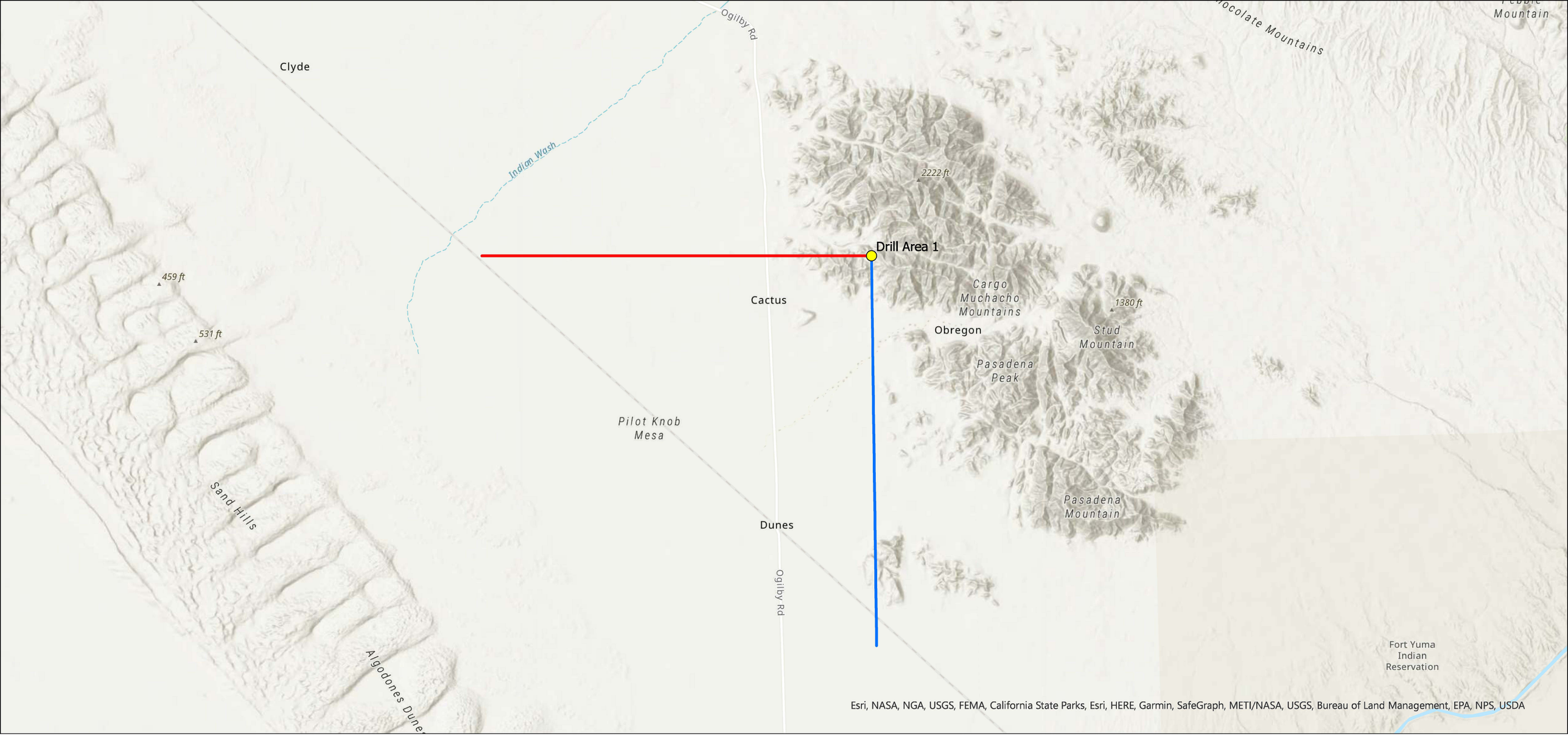
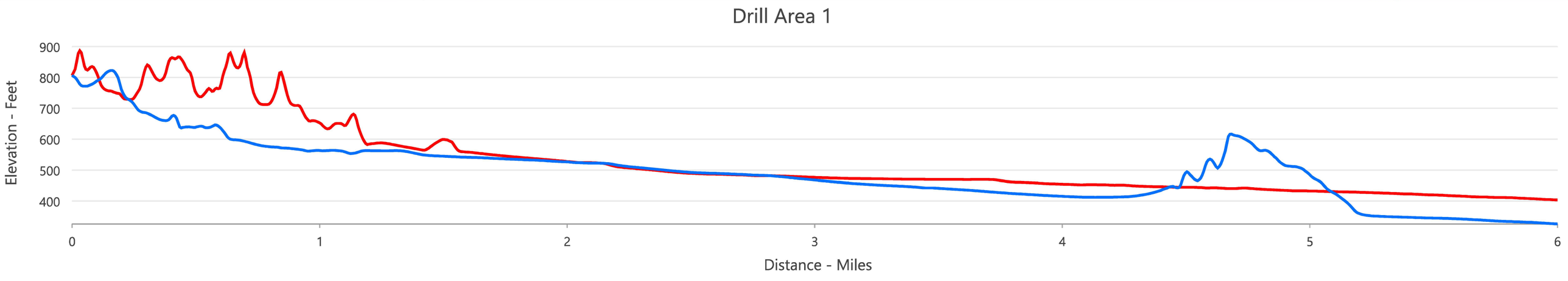
ATTACHMENT 1


Ogilby Rd
Clyde
Indian Wash
2222 ft
Drill Area 1
459 ft
531 ft
Cactus
Cargo Muchacho Mountains
1380 ft
Obregon
Stud Mountain
Pasadena Peak
Pilot Knob Mesa
Sand Hills
Pasadena Mountain
Dunes
Ogilby Rd
Fort Yuma Indian Reservation
Esri, NASA, NGA, USGS, FEMA, California State Parks, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA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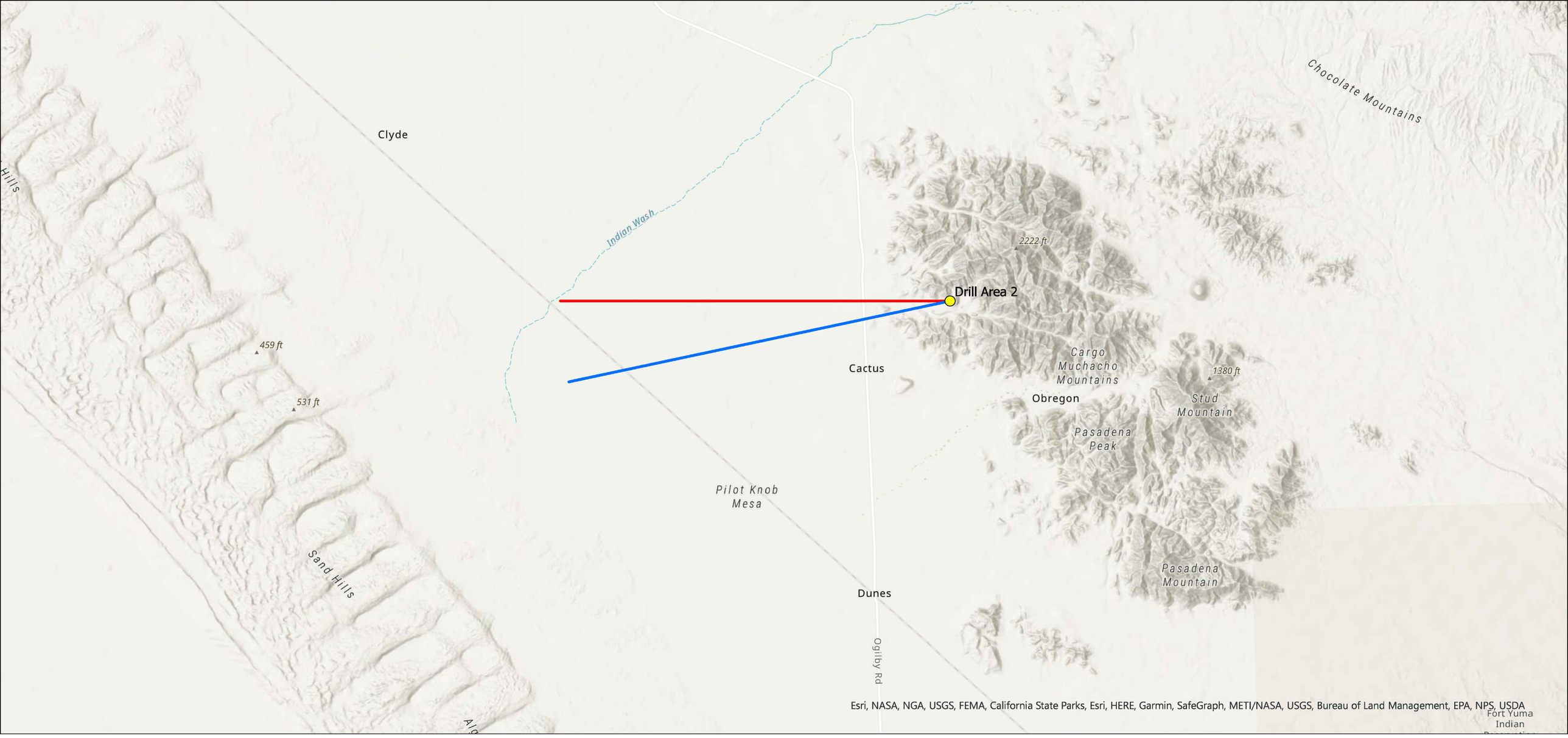
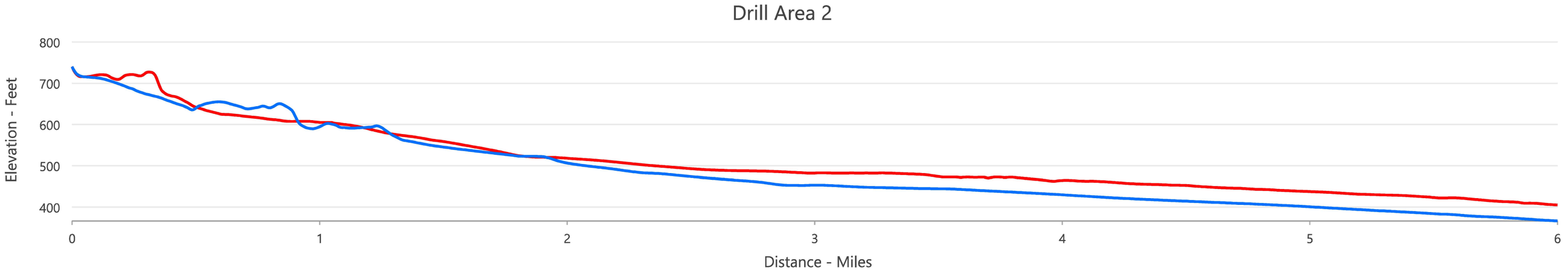
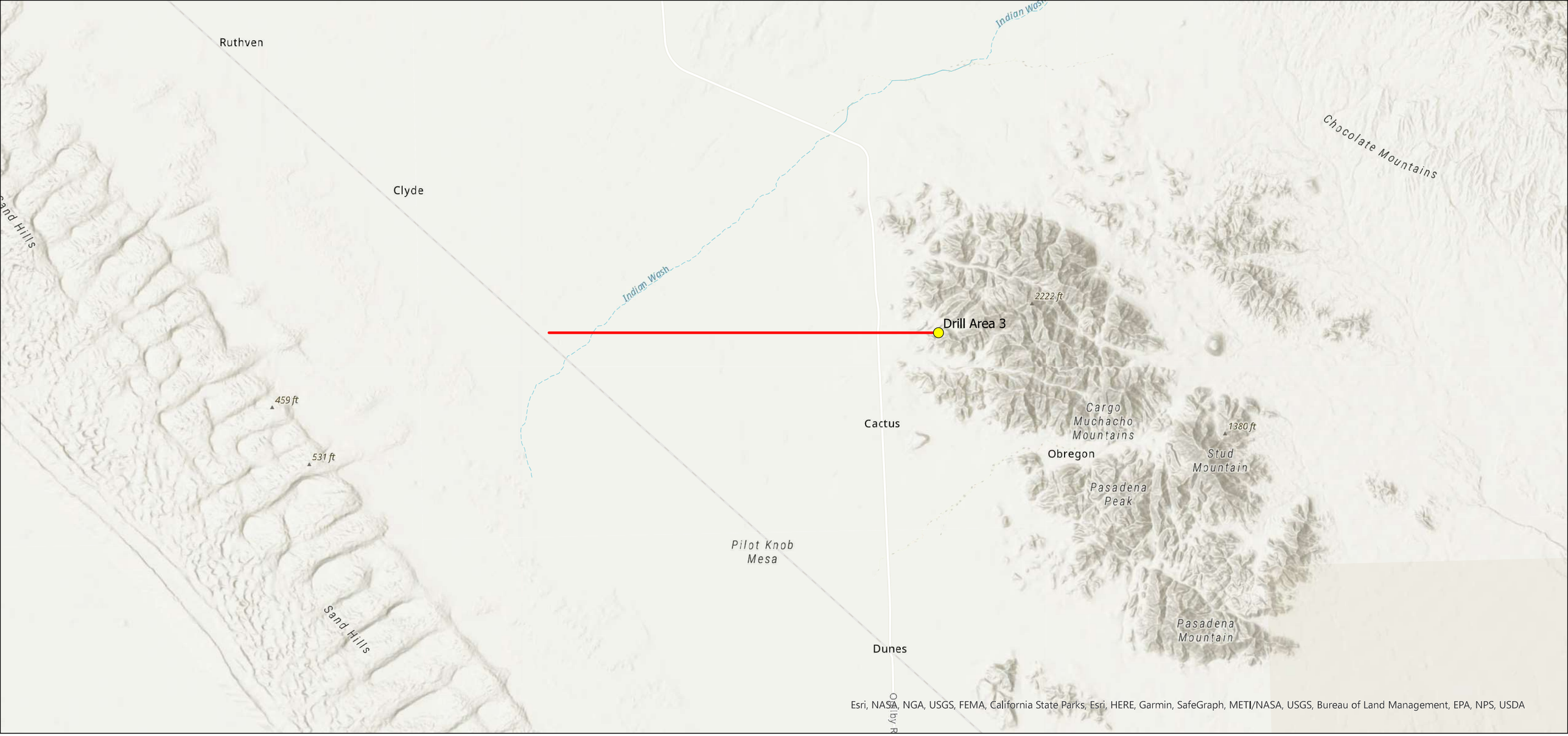
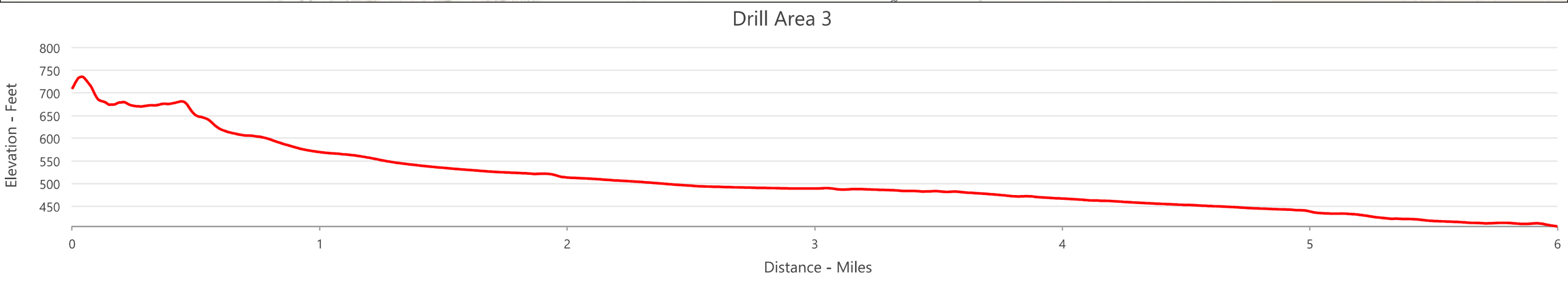
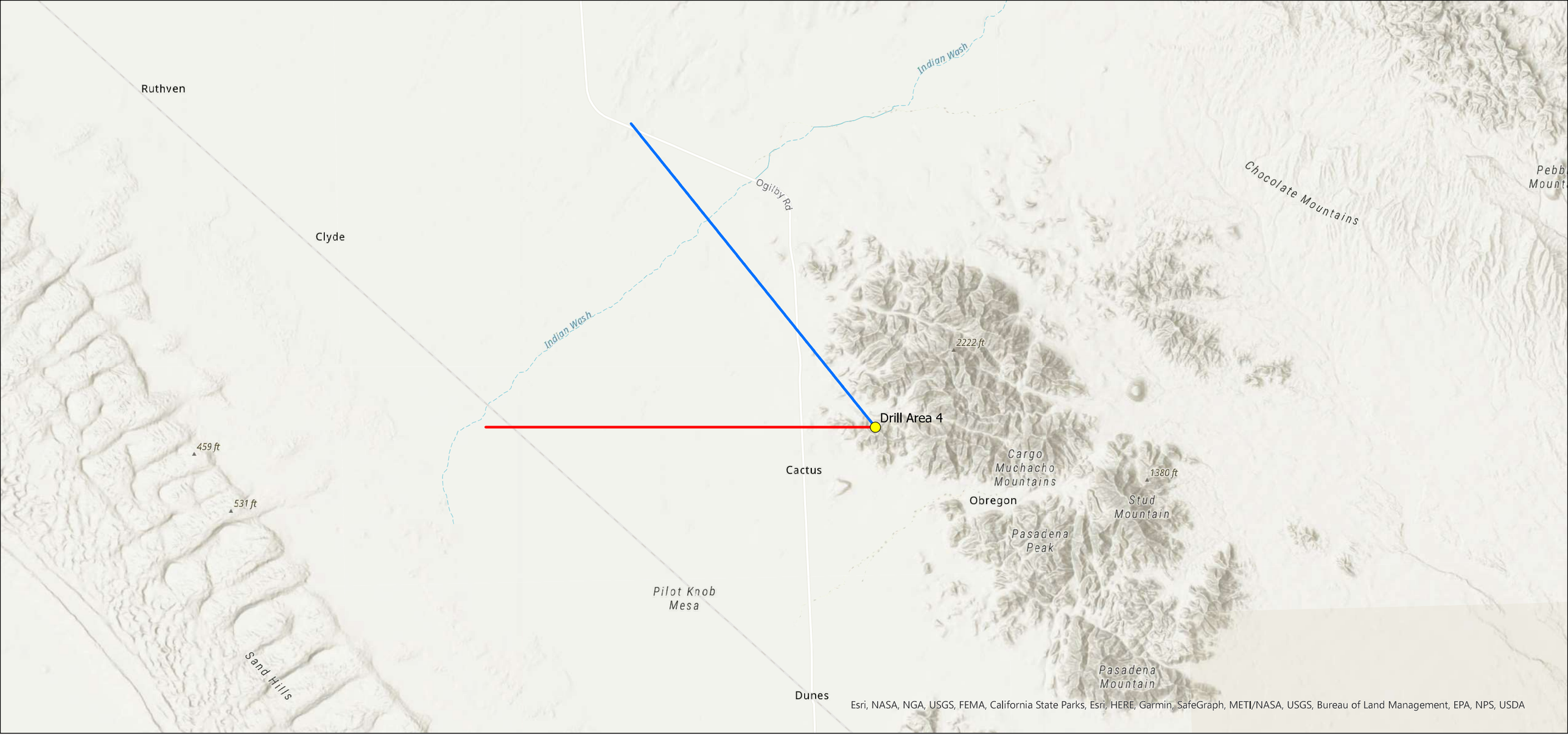
Elevation - Feet
900
800
700
600
500
400
0
1
2
3
4
5
6
Distance - Miles

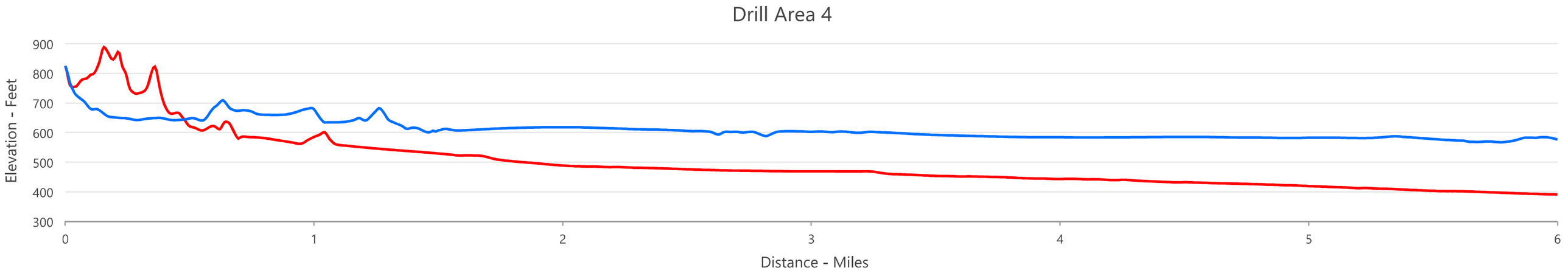

Clyde
Indian Wash
Drill Area 2
Cactus
Chocolate Mountains
2222 ft
Cargo Muchacho Mountains
1380 ft
Obregon
Stud Mountain
Pasadena Peak
Pasadena Mountain
459 ft
531 ft
Pilot Knob Mesa
Sand Hills
Dunes
Ogilby Rd
Esri, NASA, NGA, USGS, FEMA, California State Parks, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA
Fort Yuma Indian

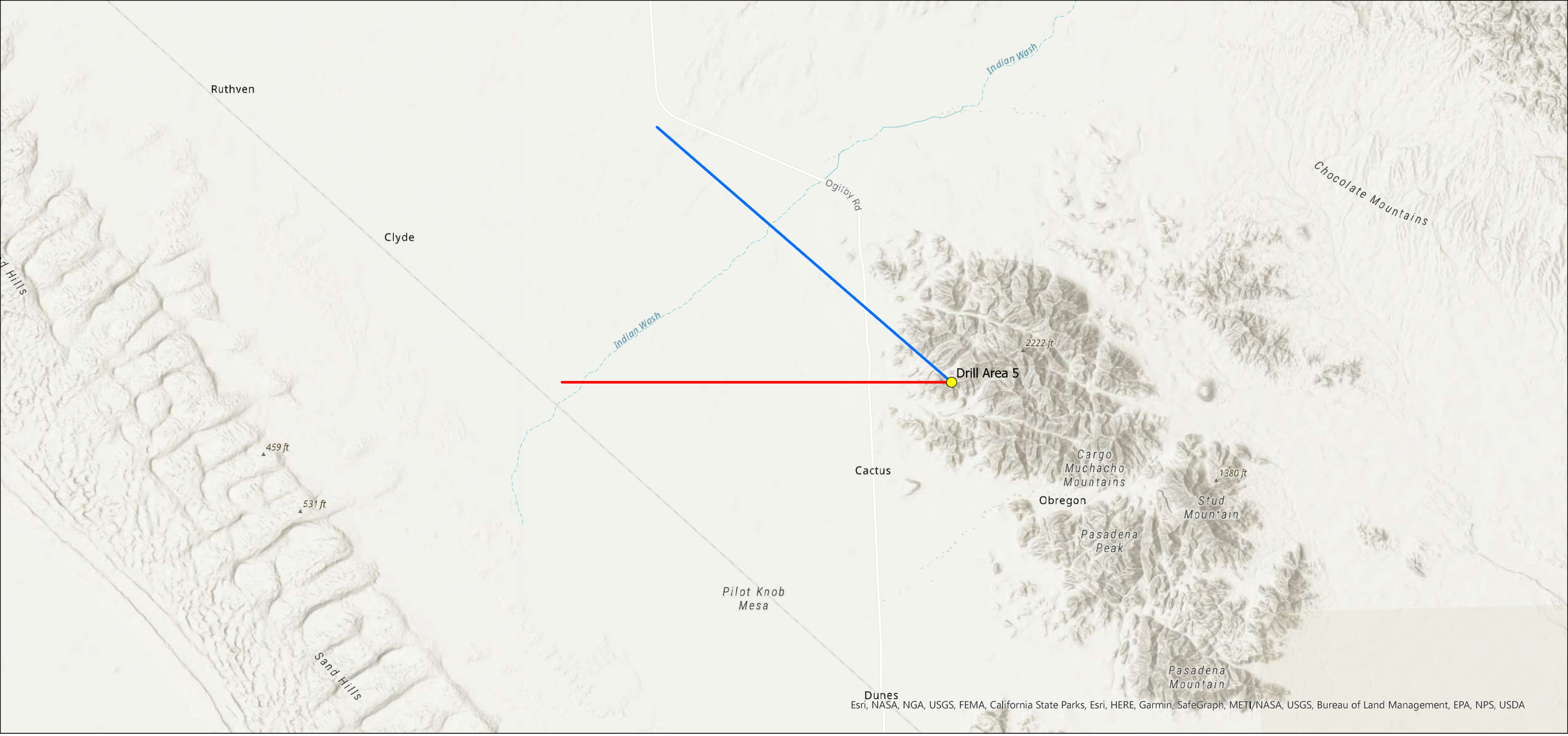

Drill Area 2
Elevation - Feet
800
700
600
500
400
0
1
2
3
4
5
6
Distance - Miles

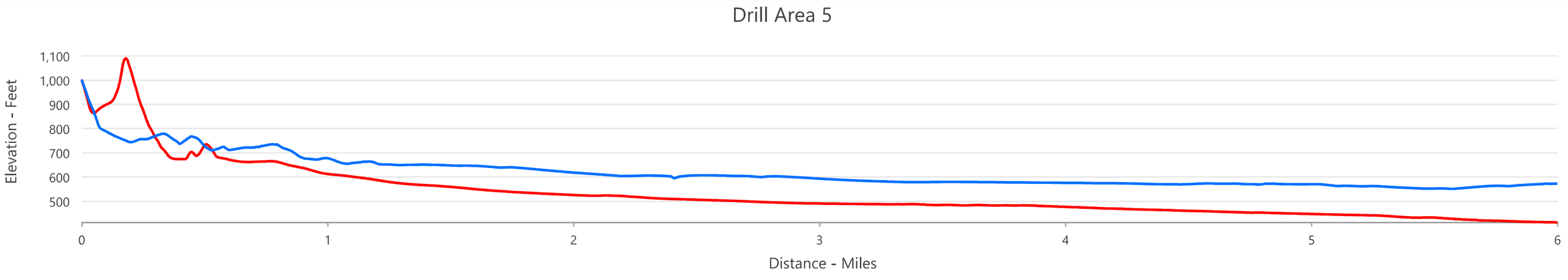

Ruthven
Clyde
Indian Wash
Indian Wash
Chocolate Mountains
Drill Area 3
2222 ft
Cargo Muchacho Mountains
1380 ft
Obregon
Stud Mountain
Pasadena Peak
Cactus
Pilot Knob Mesa
459 ft
531 ft
Sand Hills
Sand Hills
Pasadena Mountain
Dunes
Esri, NASA, NGA, USGS, FEMA, California State Parks, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA

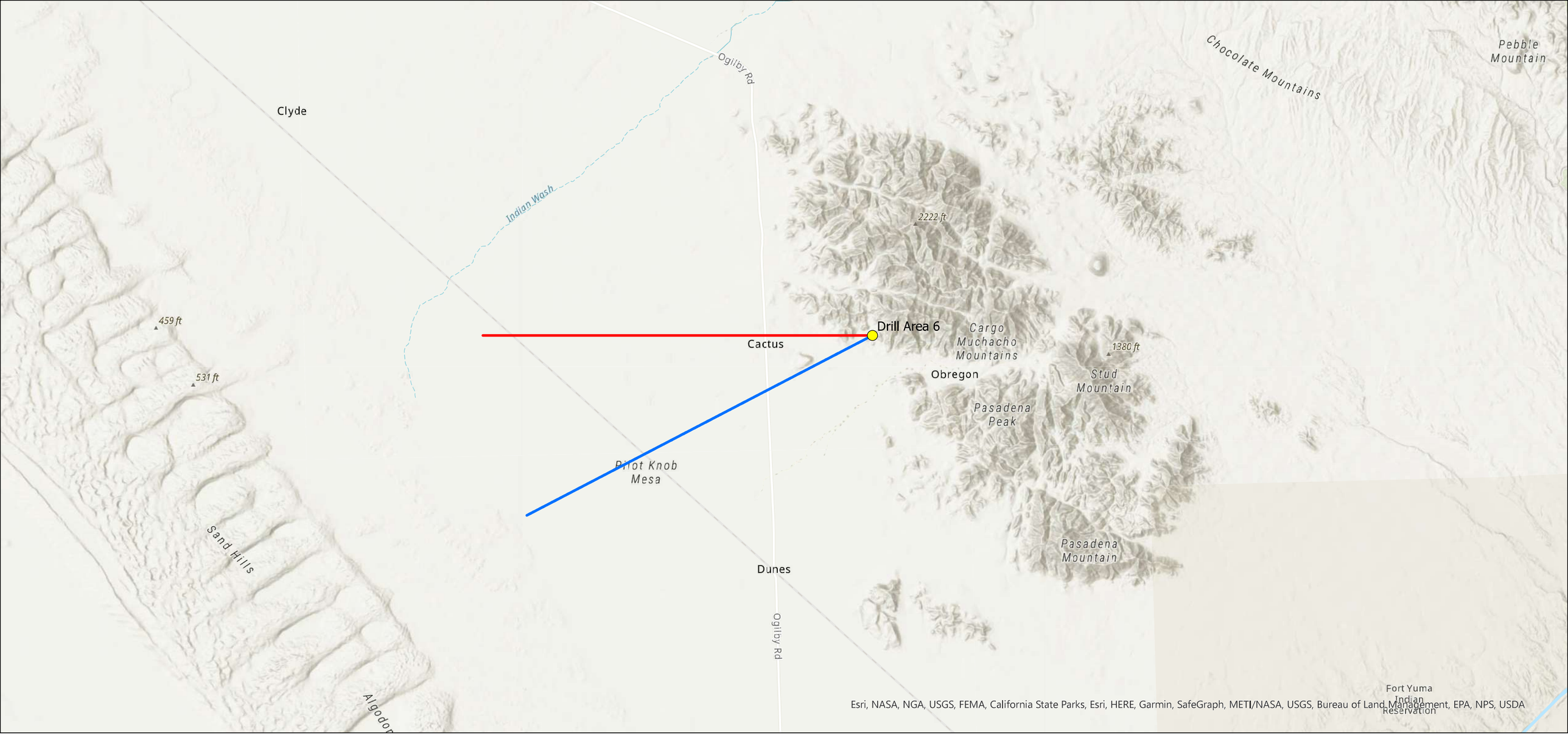

Drill Area 3
Elevation - Feet
800
750
700
650
600
550
500
450
0
1
2
3
4
5
6
Distance - Miles

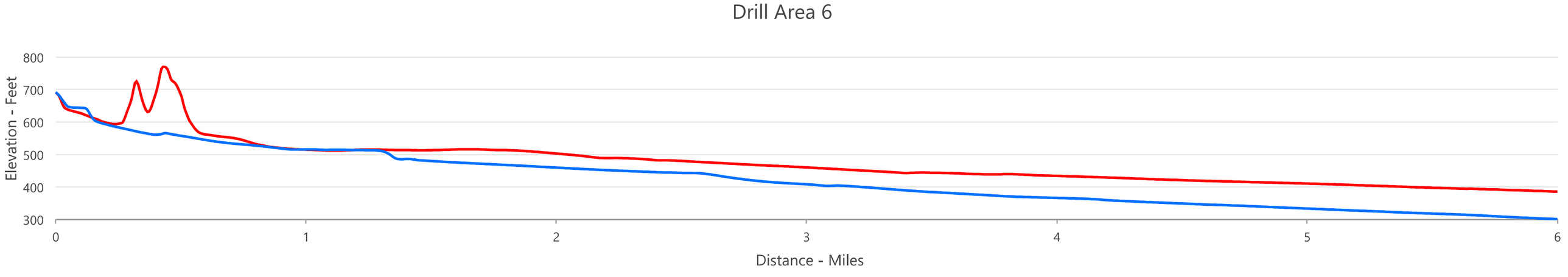

Ruthven
Clyde
Cactus
Obregon
Dunes
Indian Wash
Indian Wash
Ogilby Rd
Chocolate Mountains
Pebb
Mount
2222 ft
Drill Area 4
Cargo
Muchacho
Mountains
1380 ft
Stud
Mountain
Pasadena
Peak
Pasadena
Mountain
459 ft
531 ft
Pilot Knob
Mesa
Sand Hills
Esri, NASA, NGA, USGS, FEMA, California State Parks, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA

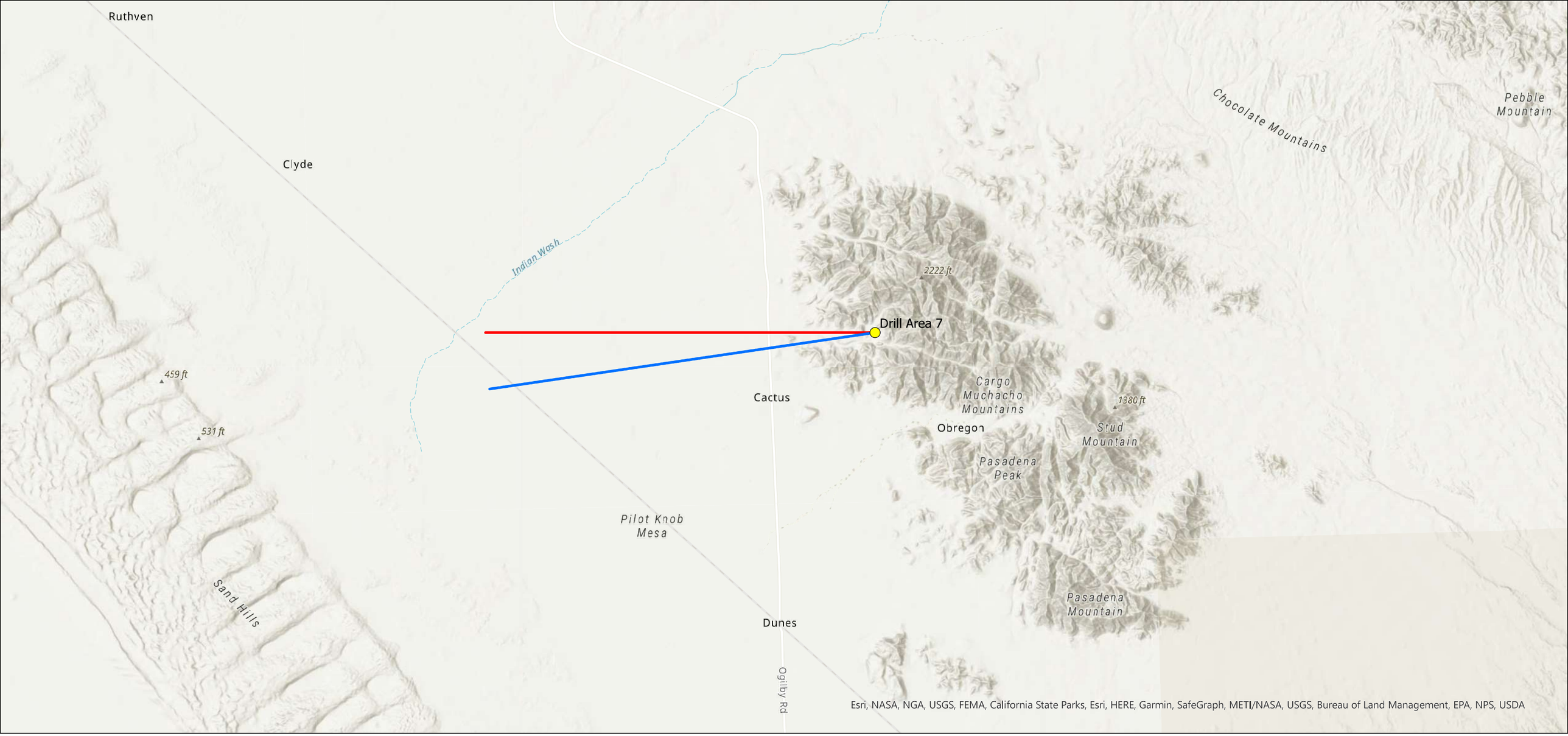

Drill Area 4
Elevation - Feet
900
800
700
600
500
400
300
0
1
2
3
4
5
6
Distance - Miles

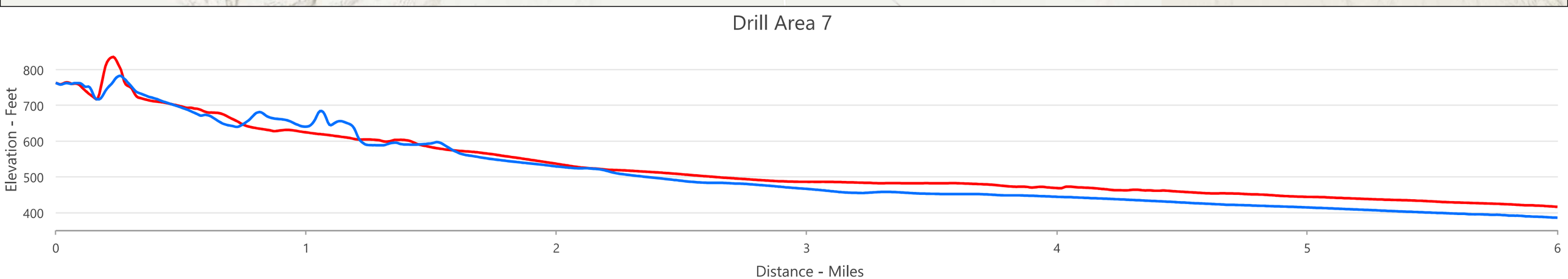

Ruthven
Clyde
Cactus
Obregon
Dunes
Indian Wash
Indian Wash
Ogilby Rd
Chocolate Mountains
Drill Area 5
2222 ft
Cargo Muchacho Mountains
1380 ft
Stud Mountain
Pasadena Peak
Pasadena Mountain
Pilot Knob Mesa
459 ft
531 ft
Sand Hills
Esri, NASA, NGA, USGS, FEMA, California State Parks, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA


Drill Area 5
Elevation - Feet
1,100
1,000
900
800
700
600
500
0
1
2
3
4
5
6
Distance - Miles


Clyde
Ogilby Rd
Indian Wash
Chocolate Mountains
Pebble Mountain
2222 ft
459 ft
531 ft
Drill Area 6
Cactus
Cargo Muchacho Mountains
1380 ft
Obregon
Stud Mountain
Pasadena Peak
Pilot Knob Mesa
Sand Hills
Pasadena Mountain
Dunes
Ogilby Rd
Fort Yuma Indian Reservation
Esri, NASA, NGA, USGS, FEMA, California State Parks, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA


Drill Area 6
Elevation - Feet
800
700
600
500
400
300
0
1
2
3
4
5
6
Distance - Miles


Ruthven
Clyde
Indian Wash
Chocolate Mountains
Pebble Mountain
2222 ft
Drill Area 7
459 ft
531 ft
Cactus
Cargo Muchacho Mountains
1380 ft
Obregon
Stud Mountain
Pasadena Peak
Pilot Knob Mesa
Sand Hills
Pasadena Mountain
Dunes
Ogilby Rd
Esri, NASA, NGA, USGS, FEMA, California State Parks, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA


Drill Area 7
Elevation - Feet
800
700
600
500
400
0
1
2
3
4
5
6
Distance - Miles

ATTACHMENT 2

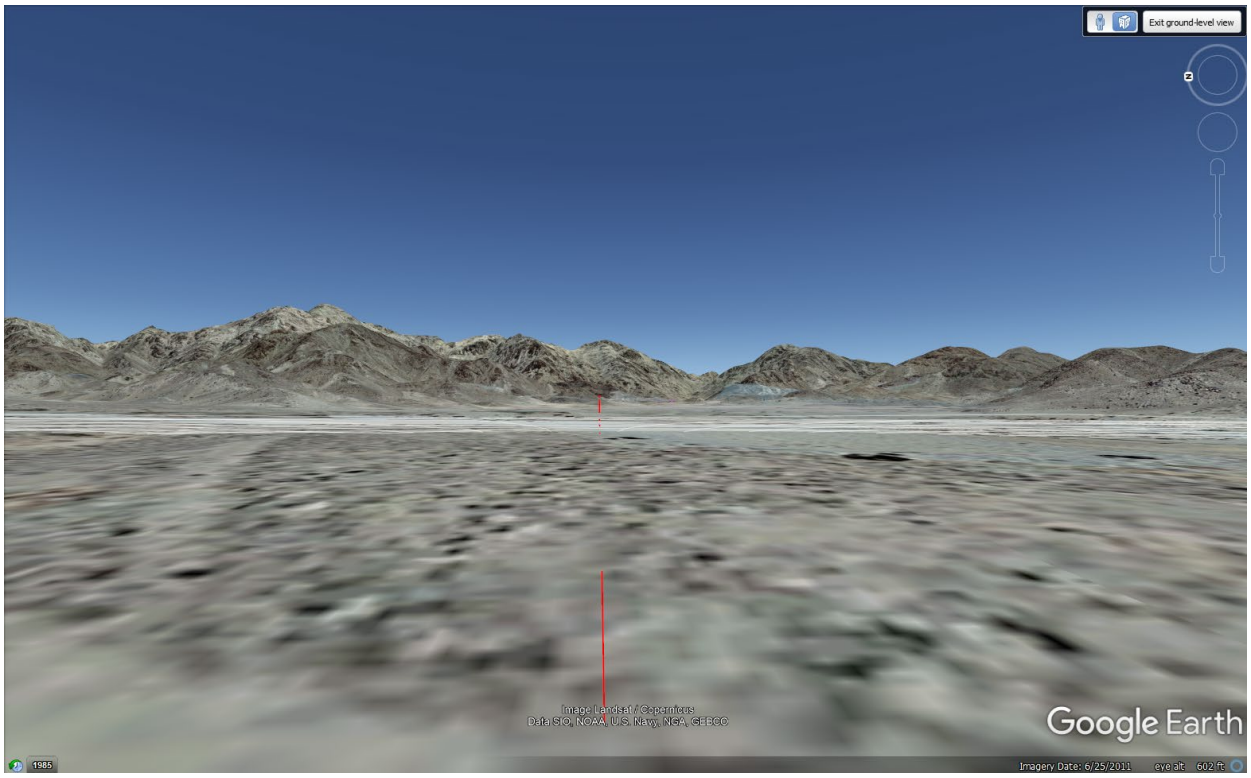
Attachment 2: Three-Dimensional Photos of Potentially Visible Drill Areas

Drill Area 2 2
Drill Area 3 2
Drill Area 4 3
Drill Area 5 3
Drill Area 6 4

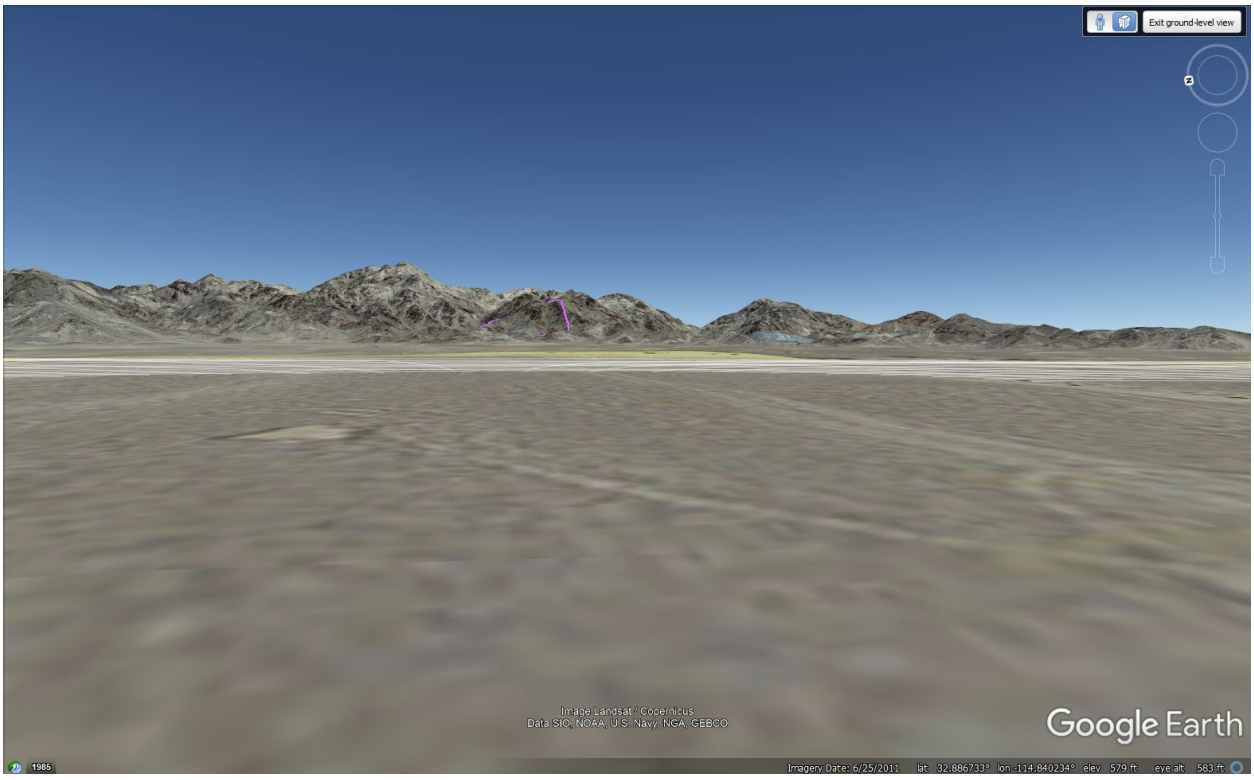
Photo Legend

Red, straight lines visible on the photos that follow represent the viewing line facing the Drill Areas from the direction in the elevation profiles noted in the photo captions. These lines are not visible in all photos due to variations in satellite imagery and topography of the area which may cut off the line layer used in Google Earth to capture these photos.

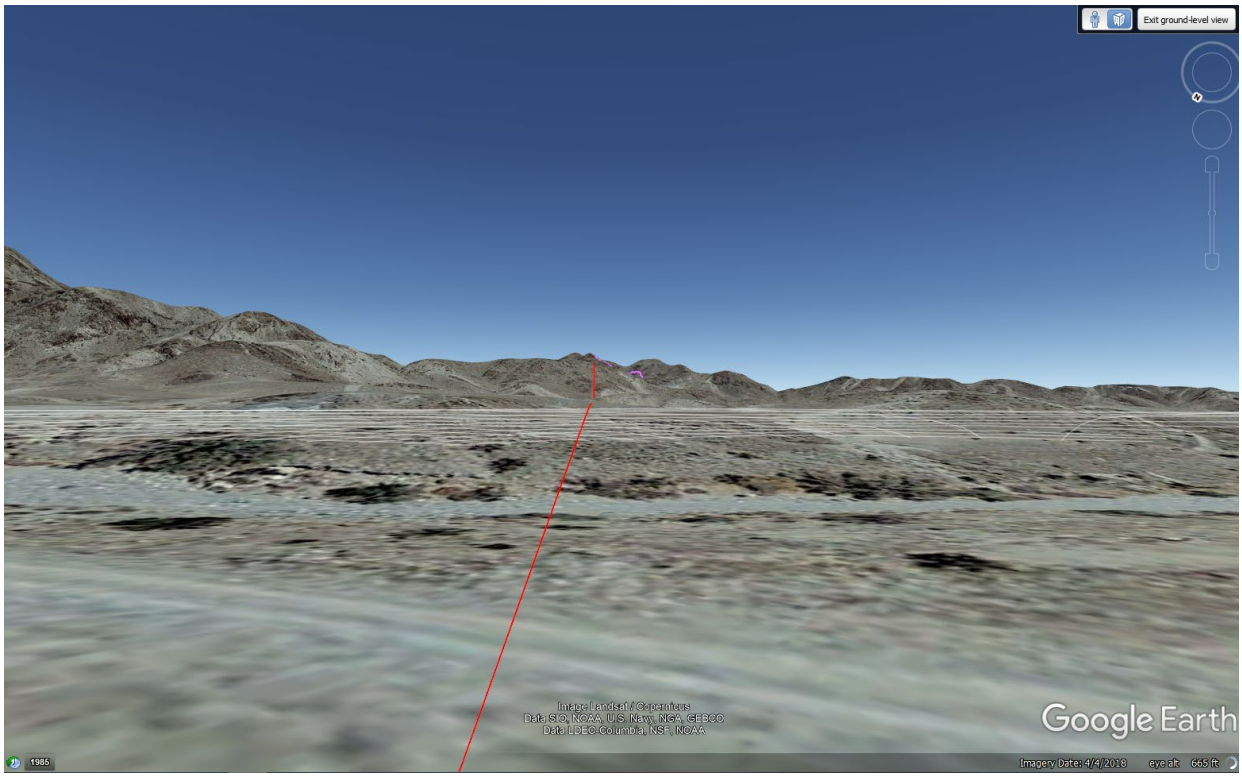
Purple, uneven lines visible on the photos that follow represent the portions of the Drill Area boundaries that are visible from the viewing point facing the Drill Areas. The Drill Area boundaries are not visible in all photos due to variations in the topography that exist in comparison with the Drill Area boundary layer used in Google Earth to capture these photos.



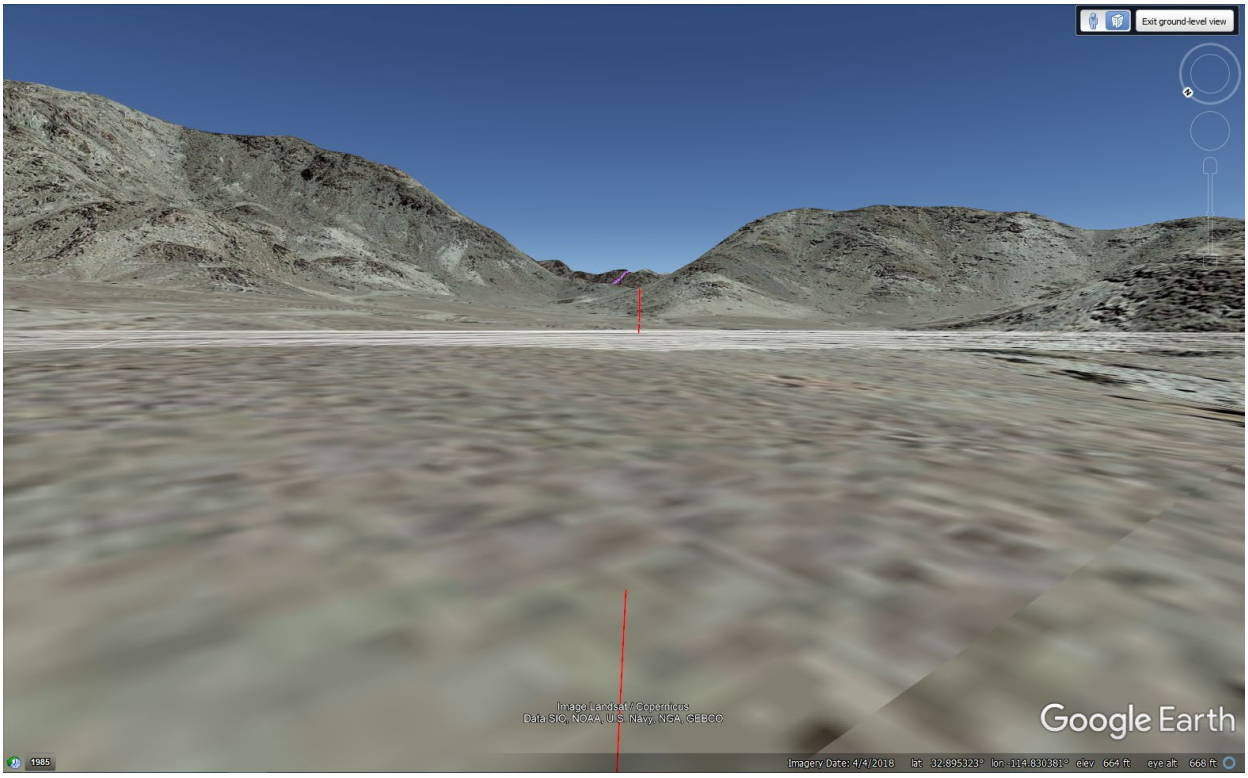
Drill Area 2
View from the southwest (blue line of the elevation profile in Attachment 1)



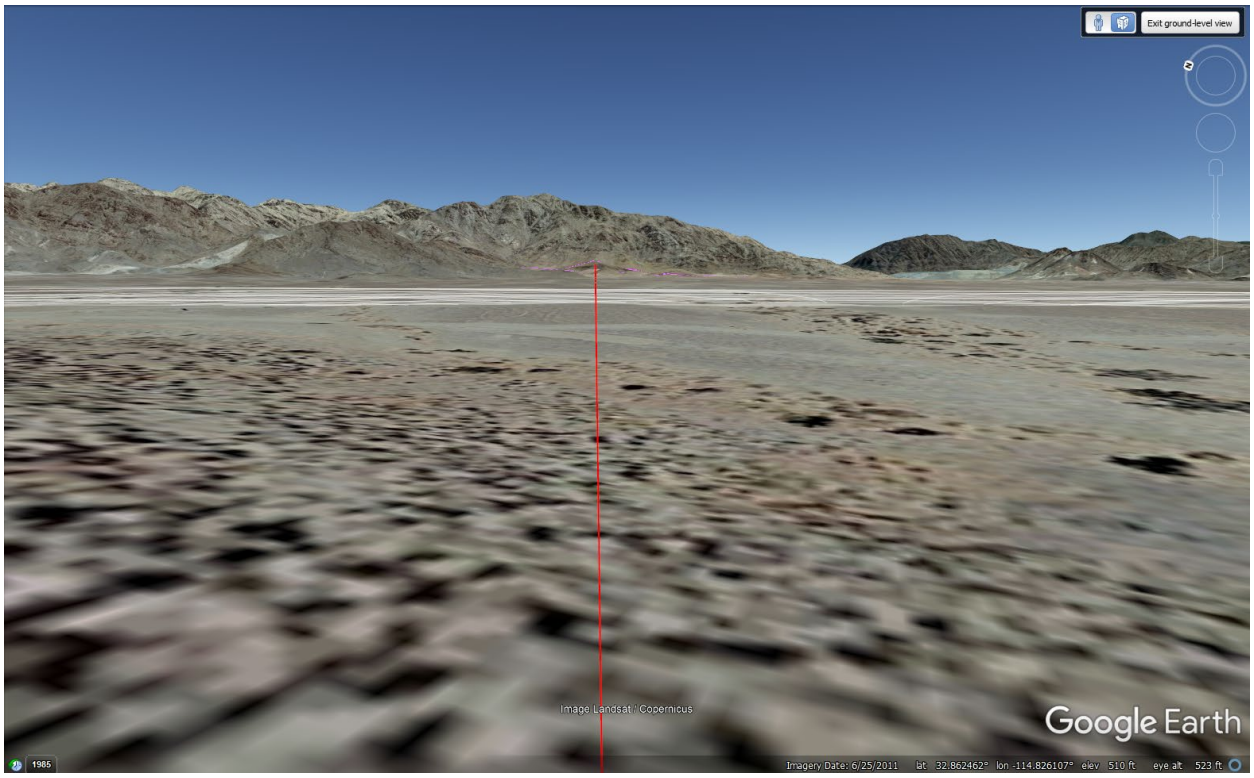
Drill Area 3
View from the west (red line of the elevation profile in Attachment 1)



Drill Area 4
View from the northwest (blue line of the elevation profile in Attachment 1)



Drill Area 5
View from the northwest (blue line of the elevation profile in Attachment 1)



Drill Area 6

View from the southwest (blue line of the elevation profile in Attachment 1)

BIOLOGICAL RESOURCE TECHNICAL REPORT AND ASSESSMENT
ORO CRUZ EXPLORATION PROJECT
SMP Gold Corp.

Prepared for:

Bureau of Land Management, El Centro Field Office

1661 S 4th St.

El Centro, CA 92243

Project Number: 2072.03

June 30, 2021

WestLand Resources

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EXECUTIVE SUMMARY

Southern Empire Resources Corp. (SMP) is proposing mineral exploration activities, the Oro Cruz Pit Area Exploration Project, on lands managed by the Bureau of Land Management (BLM) in the Cargo Muchacho Mountains of Imperial County in southeastern California (the Project) (**Figures 1 and 2**). The BLM Exploration Plan of Operations (EPO) consists of an approximately 600-acre area (**Figure 2**). Within the EPO the Project Area consists of seven drill pads and associated access roads, totaling 21.1 acres of surface disturbance (**Figure 2**). The Project Area occurs within the Picacho Area of Critical Environmental Concern (ACEC) as designated under the Desert Renewable Energy Conservation Plan, and thus requires a BLM Plan of Operations. The Project Area has been previously disturbed by mining activities. Current surrounding land uses include prospecting and recreation.

WestLand Resources, Inc. (WestLand) was retained to complete a combined BLM Biological Resource Technical Report (BRTR) to support environmental review of the Project by the BLM and a Biological Resource Assessment (BRA) to support environmental review by Imperial County under the California Environmental Quality Act (CEQA). This combined BRTR/BRA documents desktop and field studies and provides an assessment of the potential to occur for special-status species in the vicinity of the Project.

Existing Vegetation

Within the Analysis Area, vegetation is sparse in both the upland and xeroriparian habitats. The uplands consist of a very low-density shrub community dominated by creosote (*Larrea tridentata*) and brittlebush (*Encelia farinose)*. In addition, large portions of the Analysis Area consist of disturbed habitats dominated by non-native annual plants. The xeroriparian habitat generally consists of the same sparce shrub community and includes widely spaced upland trees and ocotillo (*Fouquieria splendens*). In summation, vegetation in the Analysis Area is uniformly sparce and consist of very low density shrublands, upland trees and highly disturbed habitats.

A total of 41 plant species were identified during field surveys within the Analysis Area in March 2021. Plant species observations do not represent a complete floristic survey. Three California Native Plant Society vegetation categories were identified during pedestrian surveys and thematically mapped using the Supervised Classification tool in ArcGIS Pro 2.7.

California Native Plant Society vegetation categories observed within the Analysis Area and Project Area (**Figure 5**). These vegetation categories include *Brassica* (*nigra*) and other mustards semi-natural stands (18 percent of the Analysis Area and 24 percent of the Project Area), *Parkinsonia florida—Olneya tesota* alliance (2 percent of the Analysis Area and 2 percent of the Project Area), and *Larrea tridentata — Encelia farinosa* alliance (79 percent of the Analysis Area and 4 percent of the Project Area).

Special-Status Plant Species

A screening analysis was conducted to determine the potential for special status plant species to occur in the Analysis Area. The following were analyzed:

1. Plant species designated by the U.S. Fish and Wildlife Service (USFWS) as Endangered, Threatened, Proposed for listing, or Candidate for listing under the Endangered Species Act (ESA), as identified by the Information, Planning and Consultation (IPaC) system.
2. Plant species designated as sensitive per the El Centro Field Office BLM list of California sensitive species.
3. Plant species identified for analysis under the California Environmental Quality Act (CEQA), including Plants designated as special-status by the California Native Plant Society (CNPS).

Three special status plant species, Munz cholla (*Cylindropuntia munzii*), Flat-seeded spurge (*Euphorbia platysperma*), and Pink fairy-duster (*Calliandra eriophylla*), were determined to have a possible presence or a high potential to occur in the Analysis Area.

Existing Wildlife Species

During field survey conducted in March 2021 a total of 26 wildlife species were observed.

A screening analysis was conducted to determine the potential for special status wildlife species to occur in the Analysis Area. The following were analyzed:

1. Species and critical habitat designated by the U.S. Fish and Wildlife Service (USFWS) as Endangered, Threatened, Proposed for listing, or Candidate for listing under the Endangered Species Act (ESA), as identified by the Information, Planning and Consultation (IPaC) system.
2. Species protected under the Bald and Golden Eagle Protection Act (BGEPA).
3. Species designated as sensitive per the El Centro Field Office BLM list of California sensitive species.
4. Species identified for analysis under the CEQA, including California Department of Fish and Wildlife (CDFW) Species of Special Concern; species designated as USFWS Birds of Conservation Concern; CDFW special-status invertebrates; and Species of bat listed as high and medium priority by the Western Bat Working Group.

One ESA listed species, the threatened Mohave Desert tortoise (*Gopherus agassizii*), was determined to be present the Analysis Area. No designated or proposed critical habitat occurs within the Project Area.

Three bats, pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), and greater western mastiff bat (*Eumops perotis californicus*), that are listed as BLM Sensitive and State-Ranked in the

California Natural Diversity Database (CNDDB) were determined to be present in the Analysis Area; and 2 bats, small-footed myotis (*Myotis ciliolabrum*) and cave myotis (*Myotis velifer*), that are also listed as BLM Sensitive and State-Ranked in the CNDDB were determined to have a possible presence in the Analysis Area.

Two birds, Prairie falcon (*Falco mexicanus*) and Black-tailed gnatcatcher (*Poliptila melanura*) that are State-Ranked in the CNDDB were determined to have a high potential to occur in the Analysis Area.

One lizard, Colorado Desert fringe-toed lizard (*Uma notata*), that is listed as BLM Sensitive and State-Ranked in the CNDDB was determined to be present in the Analysis Area.

1. INTRODUCTION

Southern Empire Resources Corp. (SMP) is proposing mineral exploration activities, the Oro Cruz Pit Area Exploration Project, on lands managed by the Bureau of Land Management (BLM) in the Cargo Muchacho Mountains of Imperial County in southeastern California (the Project) (**Figures 1 and 2**). The BLM Exploration Plan of Operations (EPO) consists of an approximately 600-acre area (**Figure 2**). Within the EPO the Project Area consists of seven drill pads and associated access roads, totaling 21.1 acres of surface disturbance (**Figure 2**). The Project Area occurs within the Picacho Area of Critical Environmental Concern (ACEC) as designated under the Desert Renewable Energy Conservation Plan, and thus requires a BLM Plan of Operations. The Project Area has been previously disturbed by mining activities. Current surrounding land uses include prospecting and recreation.

WestLand Resources, Inc. (WestLand) was retained to complete a combined BLM Biological Resource Technical Report (BRTR) to support environmental review of the Project by the BLM and a Biological Resource Assessment (BRA) to support environmental review by Imperial County under the California Environmental Quality Act (CEQA). This combined BRTR/BRA documents desktop and field studies and provides an assessment of the potential to occur for special-status species in the vicinity of the Project. An assessment of drainage features, including the potential for Waters of the U.S. and Waters of the State are being provided under separate cover.

For the purpose of this report, special-status species are defined as species designated by the U.S. Fish and Wildlife Service (USFWS) as Endangered, Threatened, Proposed for listing, or Candidate for listing under the Endangered Species Act (ESA), species listed under the Bald and Golden Eagle Protection Act (BGEPA), those species designated as sensitive by the BLM El Centro Field Office, and species reviewed to support Imperial County's CEQA process.

The following sections provide a Project description and location (**Section 2**), regulatory overview (**Section 3**), environmental setting (**Section 4**), methods (**Section 5**), results (**Section 6**), and references cited (**Section 7**).

2. PROJECT DESCRIPTION AND LOCATION

Within the Analysis Area, the disturbance occurs on seven drill areas and associated access roads (**Figure 2**). Within these areas, the Project entails 21.1 acres of surface disturbance. The Analysis Area is in Imperial County, California and occurs within portions of Township 15 South, Ranges 20 and 21 East. The Project Area is located approximately 7 miles north of Ogilby, California, eight miles northwest of Yuma, Arizona, 45 miles southeast of Blythe, California and 50 miles east of El Centro, California (**Figure 1**). To evaluate the special-status species potential to occur, a broader Analysis Area consisting of the drill exploration areas and access roads and a 500-foot buffer around these was established (**Figure 2**). Additionally, a 2-mile buffer around the drill areas and associated access roads where surface disturbance would occur was established as the Raptor Survey Area (**Figure 3**).

3. REGULATORY OVERVIEW

3.1. ENDANGERED SPECIES ACT

The USFWS and the National Marine Fisheries Service (NMFS) are the agencies responsible for implementing the federal Endangered Species Act (ESA) of 1973 (16 USC Section 1531 et seq.). Under the ESA, threatened and endangered species on the federal list and their habitats (50 CFR Subsection 17.11, 17.12) are protected from "take" (i.e., activities that harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect) as well as any attempt to engage in any such conduct, unless a Section 10 permit is granted to an individual or a Section 7 consultation and a Biological Opinion with incidental take provisions are provided to a lead federal agency. Pursuant to the requirements of the ESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federally listed species may be present within the study area and vicinity and determine whether the proposed project will have potential impacts upon such species.

3.2. BALD AND GOLDEN EAGLE PROTECTION ACT

The BGEPA (16 U.S.C. 668-668c), enacted in 1940, and amended several times since, prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald or golden eagles, including their parts, nests, or eggs. The Act provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle or any golden eagle, alive or dead, or any part, nest, or egg thereof." The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb."

3.3. MIGRATORY BIRD TREATY ACT

Most bird species, especially those that are breeding, migrating, or of limited distribution, are protected under federal and/or State regulations. Under the Migratory Bird Treaty Act (MBTA) of 1918 (16 USC Subsection 703-712) and USFWS regulations (50 CFR § 10.14), migratory bird species, their nests, and their eggs are protected from injury or death as a result of activities specifically directed at migratory birds. The USFWS recently proposed to revoke the existing regulations governing the implementation of the MBTA (86 FR 87: 24573-24581), effectively returning the interpretation of the prohibitions of the MBTA and enforcement discretion of the USFWS to the uncertainty associated with the split decisions among Federal Circuit Courts regarding the scope of the MBTA's take prohibition.

3.4. CALIFORNIA ENDANGERED SPECIES ACT

The California Endangered Species Act (CESA) prohibits the take of State-listed threatened and endangered species. Under the CESA, the California Department of Fish and Wildlife (CDFW) is responsible for maintaining a list of rare, threatened, and endangered species designated under State law (California Fish and Game Code 2070-2079). The CDFW also maintains lists of candidate species, species of special concern, and fully protected species. Candidate species are those taxa which have

been formally recognized by the CDFW and are under review for addition to the State threatened and endangered list. Species of special concern are those taxa, which are considered sensitive, and this list serves as a "watch list." Pursuant to the requirements of the CESA, agencies reviewing proposed projects within their jurisdictions must determine whether any State-listed species have the potential to occur within a proposed project site and if the proposed project would have potential impacts upon such species. Project-related impacts to species on the CESA's rare, threatened, and endangered list would be considered significant and require mitigation. The CDFW can authorize take if an incidental take permit is issued by the Secretary of the Interior or Commerce in compliance with the ESA, or if the director of the CDFW issues a permit under Section 2081 in those cases where it is demonstrated that the impacts are minimized and fully mitigated.

3.5. CALIFORNIA FISH AND GAME CODE

The California Fish and Game Code defines take (Section 86) and prohibits taking of a species listed as threatened or endangered under the CESA (California Fish and Game Code Section 2080), or otherwise fully protected (California Fish and Game Code Sections §3511, §4700, §5050, and §5515). Section 2081(b) and (c) of the CESA allows the CDFW to issue an incidental take permit for a State listed threatened and endangered species if specific criteria outlined in Title 14 California Code of Regulations (CCR), Sections 783.4(a), (b) and California Fish and Game Code Section 2081(b) are met. The California Fish and Game Code Section 3503 states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by the code. Section 3503.5 states that it is unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird. Section 3513 states that it is unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA. The CDFW protects plants designated as endangered or rare under Fish and Game Code Section 1900.

4. ENVIRONMENTAL SETTING

4.1. PHYSIOGRAPHIC, CLIMATE AND SURFACE WATER

The Analysis Area consists of rugged, eroding, rocky slopes composed of quartzites and schists that have been intruded by granitic rocks. In places there are andesite and dioritic dikes (Jennings et al. 1977). Climate within the Analysis Area is characterized by hot dry conditions in the summer months and dry mild winters. Average rainfall is 3.5 inches per year, occurring primarily during late winter (February and March) and the monsoon season (July to September). Average high temperature of the hottest (August) month is 105˚F and average low temperature of the coldest month (December) is 66˚F (Weather Underground 2021). No surface water features occur within the Analysis Area.

4.2. SOILS

Soils in the Analysis Area developed from weathered granitic rock and schistose rock substrates. The soils consist of extremely gravelly sands or gravelly loams with up to 90 percent coarse fragments. Soils within the Analysis Area are of two general types based on substrate and topographic position: residual soil material weathered in place on slopes and ridges; and deeper alluvial soils transported by water and gravity to toe slopes, washes, and outwash fans. Hill slopes in the Analysis Area are steep and almost entirely covered in large, weathered rock (BLM & P.M. De Dycker & Associates, Inc. 1994). The soils within the Analysis Area also contain large areas of disturbance from previous mining and reclamation activities.

4.3. VEGETATION

Vegetation in the Analysis Area is low desert scrub typical of the high temperature region of southeastern California. In general, vegetation is sparse in both the upland and xeroriparian habitats. The uplands consist of a very low-density shrub community dominated by creosote (*Larrea tridentata*) and brittlebush (*Encelia farinose)* (**Appendix E Photo 12**). In addition, large portions of the Analysis Area consist of disturbed habitats dominated by non-native annual plants (**Appendix E Photo 11)**. The xeroriparian habitat generally consists of the same sparce shrub community and includes widely spaced upland trees and ocotillo (*Fouquieria splendens*) (**Appendix E Photo 18**). In summation, vegetation in the Analysis area is uniformly sparce and consists of very low density shrublands, upland trees and highly disturbed habitats (**Appendix E Photos 11, 12 and 18**).

Three California Native Plant Society vegetation categories were identified during pedestrian surveys and thematically mapped using the Supervised Classification tool in ArcGIS Pro 2.7.

California Native Plant Society vegetation categories observed within the Analysis Area are described below:

Brassica (nigra) and other mustards semi-natural stands

Brassica (*nigra*) and other mustards semi-natural stands vegetation category occupies approximately 18 percent of the Analysis Area and 24 percent of the Project Area (**Figure 5**). This vegetation category corresponds with disturbed and barren areas. Although the named dominant species, black mustard (*Brassica nigra*), was not observed, Saharan mustard (*Brassica tourneforti*), a closely related non-native mustard was often present in both naturally disturbed areas including wash scour and human-disturbed areas such as roads, camp sites, and rock waste piles. This natural community is not classified as sensitive by the CDFW (2020).

Parkinsonia florida—Olneya tesota alliance

Parkinsonia florida—Olneya tesota alliance occupies approximately 2 percent of the Analysis Area and 2 percent of the Project Area (**Figure 5**). The vegetation category is primarily restricted to xeroriparian

areas including washes, drainages, and narrow canyons. Besides the named alliance's dominant plants, blue palo verde (*Parkinsonia florida*) and ironwood (*Olneya tesota*), other commonly occurring plants include sweetbush (*Bebbia juncea*), lance leaved ditaxis (*Ditaxis lanceolata*), desert lavender (*Hyptis emoryi*), ocotillo, and Anderson's desert thorn (*Lycium andersonii*). This natural community is classified as sensitive by the CDFW (2020).

Larrea tridentata — Encelia farinosa alliance

Larrea tridentata — Encelia farinosa alliance occupies approximately 79 percent of the Analysis Area and 74 percent of the Project Area and occurs in a variety of topographic settings (**Figure 5**). Besides the named alliance's dominant plants, creosote (*Larrea tridentata*) and brittlebush (*Encelia farinosa*), other commonly occurring plants include ocotillo, beavertail prickly pear (*Opuntia basilarus*), and burrobush (*Ambrosia dumosa*). This natural community is classified as sensitive by the CDFW (2020).

4.4. EXISTING CONDITIONS (OR LAND USE)

Off-road vehicle use, recreational vehicle camping, and other outdoor activities have added to the disturbances in the Analysis Area. Previous mining disturbance and underground mine features occur throughout the Analysis Area.

5. METHODS

In order to determine the potential to occur of special-status species two complementary methods were utilized: 1) Desktop screening and vegetation habitat mapping, and 2) Field survey.

5.1. DESKTOP SCREENING AND VEGETATION HABITAT MAPPING

5.1.1. Desktop Screening

A desktop screening analysis was completed to evaluate the potential for special-status species or their critical habitat to occur within the Analysis Area. For this assessment, special-status species are defined as:

1) Species and critical habitat designated by the U.S. Fish and Wildlife Service (USFWS) as Endangered, Threatened, Proposed for listing, or Candidate for listing under the Endangered Species Act (ESA), as identified by the Information, Planning and Consultation (IPaC) system (**Appendix B**).
2) Species protected under the Bald and Golden Eagle Protection Act (BGEPA) (**Appendix B**).
3) Species designated as sensitive per the El Centro Field Office BLM list of California sensitive species (**Appendix C**).
4) California Environmental Quality Act (CEQA) species including CDFW Species of Special Concern; Plants designated as special-status by the California Native Plant Society (CNPS); USFWS Birds of Conservation Concern; CDFW special-status invertebrates; and Species of bat listed as high and medium priority by the Western Bat Working Group (**Appendix D**).

Special-status species were identified for the Analysis Area using a series of online databases and review of previous permitting efforts in the Project Area (Bureau of Land Management 2011, 2018, BLM & P.M. De Dycker & Associates, Inc. 1994). The IPaC system was used to create a list of ESA species and critical habitat likely to occur in the vicinity of the Analysis Area (**Appendix B**). WestLand reviewed California-specific special-status species that are documented to occur in the vicinity of the Project Area from the CDFW and CNPS using the BIOS and Rarefind tools (**Appendix D**). The BLM El Centro Field Office sensitive species list was also included in this screening (**Appendix C**) Previous permitting efforts in the Project Area include the American Girl Final Environmental Impact Statement (EIS), and American Girl East Mine Asphalt Batch Plant Environmental Assessment (EA) (BLM 2011, Bureau of Land Management 2018, BLM & P.M. De Dycker & Associates, Inc. 1994, Tetra Tech 2011).

In order to accommodate both the BLM's BRTR and the California Environmental Protection Agency (CalEPA) BRA requirements, two discrete potential to occur methods were used. The first potential to occur method pertained to all ESA listed, BGEPA listed and BLM sensitive species. The second potential to occur pertained to the CEQA species only. Under the first method (ESA listed, BGEPA listed and BLM sensitive species) potential of occurrence were defined as follows:

> **Present:** The species has been observed to occur within the Analysis Area, the Analysis Area is within the known range and distribution of the species, and habitat characteristics required by the species are present.
>
> **Possible:** There are no known records of the species within the Analysis Area, but the known, current distribution of the species includes the Analysis Area and the required habitat characteristics of the species appear to be present in the Analysis Area. Given the uncertainty associated with species identification and accuracy of the location of observations from eBird and other citizen science databases, observations associated with citizen science databases are evidence that a species is possible within the Analysis Area.
>
> **Unlikely:** The known, current distribution of the species does not include the Analysis Area, but the distribution of the species is close enough such that the Analysis Area may be within the dispersal or foraging distance of the species, and they may show up as transients. The habitat characteristics required by the species may be present in the Analysis Area.
>
> **None:** The Analysis Area is outside of the known distribution of the species or the habitat characteristics required by the species are not present.

Under the second method species evaluated for the CEQA process potential to occur was evaluated using the categories below.

> **No potential of occurrence:** The Analysis Area is outside of the known distribution of the species or the habitat characteristics required by the species are not present.

Low potential of occurrence: The known, current distribution of the species does not include the Analysis Area, but the distribution of the species is close enough such that the Analysis Area may be within the dispersal or foraging distance of the species, and they may show up as transients. The habitat characteristics required by the species may be present in the Analysis Area.

Moderate potential of occurrence: There are no known records of the species within the Analysis Area, but the known, current distribution of the species includes the Analysis Area and the required habitat characteristics of the species appear to be present in the Analysis Area.

High potential of occurrence: The species has been observed to occur within the Analysis Area, the Analysis Area is within the known range and distribution of the species, and habitat characteristics required by the species are present.

5.1.2. Vegetation Habitat Mapping

Vegetation habitat mapping was conducted using the Supervised Classification tool in ArcGIS Pro 2.7 to provide site-specific vegetation mapping and to estimate the type and extent of vegetation habitat within the Analysis Area. Vegetation habitat mapping was then validated during the field survey and a total plant species list was created. Habitat mapping followed the recommended CNPS methods and nomenclature. In addition, mapping was used to identify California Sensitive Natural Communities (CDFW 2020).

Field surveys were conducted to provide an overview of the environmental conditions within the analysis Area. This overview consisted of: 1) Vegetation mapping validation; 2) Diurnal raptor surveys; 3) Habitat suitability assessments for Colorado desert fringe-toed lizard (*Uma notata*), western burrowing owl (*Athene cunicularia*), flat-tailed horned lizard (*Phyrnos omamcalii*), and bat species; and 4) creation of a vertebrate wildlife and plant species list. In addition, previous Mojave Desert tortoise (*Gopherus agassizii)* surveys conducted within the Project Area were utilized to assess habitat suitability for this species (**Appendix A**). Survey methods applied by Stantec followed protocol *Preparing For Any Action That May Occur Within the Range Of The Mojave Tortoise* as developed by USFWS (2017) which consisted of 100 percent coverage of proposed drill areas. Based on conversations with the BLM and input from the USFWS, tortoise surveys conducted for SMP by Stantec biologists in January 2021 fulfill the survey obligations for this species (**Appendix A**).

Diurnal raptor surveys followed the USFWS recommended golden eagle nest survey protocol and included the selection of appropriate observation points (**Appendix E Photos 4, 5, 6 and 7**). This survey followed the recommendations outlined in the USFWS Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations dated February 2010 (Pagel, Whittington, and Allen 2010). These methods relied on well-placed observation posts and walking transects which provided unobstructed viewing of any potential nest locations. Each observation point or walking transect included a broad panorama of the surrounding habitat and was established in locations distant

enough from any potential nest sites to effectively observe the behavior of the adults (if present) without disturbing nesting behavior.

Habitat assessments for Colorado desert fringe-toed lizard, western burrowing owl, and flat-tailed horned lizard consisted of onsite evaluation of suitable habitat within the Analysis Area. These three species are listed as BLM sensitive species and CEQA species and have ranges which overlap the Analysis Area.

Bat species habitat was evaluated by revisiting high value underground mine roosting habitat within the Analysis Area identified by the BLM in previous survey efforts. Previous survey efforts detected 20 high value bat roosts in underground mines within the Analysis Area (**Figure 4**). WestLand conducted external habitat assessments of these mines to evaluate the habitat potential of each mine feature (**Appendix E Photos 15 and 16**). In addition, the Analysis Area was evaluated for bat roosting habitat including cliff, crevice, and vegetation roosts and foraging habitat.

6. RESULTS

6.1. PLANT SPECIES

A total of 41 plant species were identified during field surveys within the Analysis Area (**Table 1**). Three CNPS vegetation categories were identified during pedestrian surveys and thematically mapped using the Supervised Classification tool in ArcGIS Pro 2.7 (**Figure 5**)(see discussion in Sec. 4.3). In general, plant cover in the Analysis Area is particularly sparse.

6.2. WILDLIFE SPECIES

During the field survey a total of 26 wildlife species were observed (**Table 2**). Five of these species were detected during the raptor surveys and two during evaluation of bat roosting habitat. These detections included two occupied prairie falcon (*Falco mexicanus*) eyries (nesting sites), a suspected red-tailed hawk (*Buteo jamaicensis*) nest, and an unoccupied stick nest (**Figure 3**). A single prairie falcon (*Falco mexicanus*) eyrie was located within the Project Area and the second within the Analysis Area (**Figure 3**). The suspected red-tailed hawk and unoccupied stick nest occurred outside of the Analysis Area but within the raptor survey area (**Figure 3**). Black-tailed gnatcatchers (*Polioptila melanura*) were observed in the Analysis Area.

Table 1. Plant species observed in the Analysis Area during the field survey. This list represents species observed during the field survey and does not represent a complete floristic survey.

Common Name	Scientific Name
PLANTS	
PERENNIALS	
burrobush	*Ambrosia dumosa*
burrobush	*Ambrosia salsola*
western milkweed	*Asclepias albicans*
sweetbush	*Bebbia juncea*
Paloverde	*Cercidium floridum*
pink fairyduster	*Cylindropuntia erophylla*
hairy prairie clover	*Dalea mollis*
narrowleaf silverbush	*Ditaxis lanceolata*
Inciensio	*Encelia farinose*
rough jointfir	*Ephedra aspera*
desert trumpet	*Eriogonum inflatum*
California fagonbush	*Fagonia laevis*
California barrel cactus	*Ferocactus cylindraceus*
ocotillo	*Fouquieria splendens*
paleface	*Hibiscus denudatus*
desert lavender	*Hyptis emoryi*
creosote	*Larrea tridentata*
water jacket	*Lycium andersonii*
Parry's false prairie-clover	*Marina parryi*
desert wishbone-bush	*Mirabilis laevis*
desert tobacco	*Nicotiana obtusifolia*

Common Name	Scientific Name
PLANTS	
ironwood	*Olneya tesota*
beavertail pricklypear	*Opuntia basilaris*
blue paloverde	*Parkinsonia florida*
Schott's pygmycedar	*Peucephyllum schottii*
velvet turtleback	*Psathyrotes ramosissima*
desert globemallow	*Sphaeralcea ambigua*
Mesquite	*Posopis juliflora*
Tamarisk*	*Tamarix pentandra*
American threefold	***Trixis californica***
ANNUALS	
sixweeks threeawn	*Aristida adscensionis*
Asian mustard*	*Brassica tournefortii*
brittle spineflower	*Chorizanthe brevicornu*
devil's spineflower	*Chorizanthe rigida*
pygmy poppy	*Eschscholzia minutiflora*
Arizona lupine	*Lupinus arizonicus*
Mojave desertstar	*Monoptilon bellioides*
desert palafox	*Palafoxia arida var. arida*
cleftleaf phacelia	*Phacelia crenulata*
desert Indianwheat	*Plantago ovata*
yellowdome	*Trichoptilium incisum*
*non-native	

Table 2. Wildlife species observed in the Analysis Area. This list represents the species observed during the field survey and does not represent a complete list of wildlife occurring within the Analysis Area.

Common Name	Scientific Name
Black-throated sparrow	*Amphispiza bilineata*
verdin	*Auriparus flaviceps*
great horned owl	*Bubo virginianus*
red-tailed hawk	*Buteo jamaicensis*
Costa's hummingbird	*Calypte costae*
turkey vulture	*Cathartes aura*
common raven	*Corvus corax*
ladder-backed woodpecker	*Dryobates scalaris*
burro	*Equus asinus*
prairie falcon	*Falco mexicanus*
house finch	*Haemorhous mexicancus*
loggerhead shrike	*Lanius ludovicianus*
California leaf-nosed bat	*Macrotus californicus*

Common Name	Scientific Name
canyon towhee	*Meloxone fusca*
northern mockingbird	*Mimus polyglottos*
Unknown Myotis	*Myotis spp.*
neotoma	*Neotoma* spp.
ground squirrel	*Osteospermophilus* spp.
Black-tailed gnatcatcher	*Poliptila melanura*
rock wren	*Salpinctes obsuoletus*
Say's phoebe	*Sayornis saya*
squirrel	*Scuridate* spp.
northern rough-winged swallow	*Stelgipdopteryx serripennis*
cottontail	*Sylvilagus spp.*
side-blotched lizard	*Uta* spp.
fox	*Vulpes* spp.

During the field survey the Analysis Area was evaluated for habitat suitability for Colorado Desert Fringed-toed lizard, Western burrowing owl, and flat-tailed horned lizard (**Figure 6**). No habitat suitable for flat-tailed horned lizard was observed within the Analysis Area. Several small areas on the western and southern extremes of the Analysis Area include isolated sandy patches that may provide marginal habitat for Colorado Desert fringe-toed lizard (**Figure 6 and Appendix E Photos 13 and 14**). Areas of flat topography on the southern and western edges of the Analysis Area provide potentially suitable western burrowing owl habitat (**Figure 6 and Appendix E Photos 11 and 12**).

6.2.1. Bats

Bat surveys consisted of an external evaluation of all the high value bat roost locations provided by BLM. The BLM did not provide species specific use or roost types within these mine features. Bat surveys within these mines conducted for previous permitting efforts in the Project Area indicate that these mine features were occupied by a suite of species including California leaf-nosed bat (*Macrotus californicus*), Townsend's big-eared bat (*Corynorhinus townsendii*), pallid bat (*Antrozous pallidus*) and an unknown Myotis species, likely cave myotis (*Myotis velifer)* (BLM 2011, Bureau of Land Management 2018, BLM & P.M. De Dycker & Associates, Inc. 1994, Tetra Tech 2011). Our external evaluation of these 20 mines detected bat guano and urine staining visible from the mine opening without entry. Guano and staining associated with California leaf-nosed bat activity was observed at five of the mine features. Identified California leaf-nosed bat guano consisted of 1 to 2 centimeter black to yellow streaking on the sides and roof of the mine (Mixan, Diamond, and Gwinn 2016). Two mine features contained guano and urine staining consistent with California leaf-nosed bat and an unknown Myotis species. Guano associated with an unknown Myotis species was observed at a single mine feature (**Figure 4**). Myotis guano consisted of pellets 1 to 3 millimeters long (Adams 2003). Myotis guano was most often detected at the mine openings on the angle-iron bat compatible gates. Bat activity could not be ascertained from external evaluations alone in the remaining 12 mine features and bat activity is unknown (**Figure 4**).

6.3. SPECIES HISTORICAL OCCURRENCE WITHIN THE ANALYSIS AREA

Historical occurrence data indicate that six special-status species have been detected within or adjacent to the Analysis Area (**Figure 7**). Two of these species were observed during the field survey (California leaf-nosed bat and pink fairy duster [*Cylindropuntia erophylla*]) (**Tables 1 and 2**). Suitable habitat was detected for three species (Townsend's big-eared bat, pallid bat, and western mastiff bat [*Eumops perotis*]). The Mojave Desert tortoise has been documented within and adjacent to the Analysis Area (BLM 2011, 2018, BLM & P.M. De Dycker & Associates, Inc. 1994) (**Appendix A**). Stantec conducted Mohave Desert tortoise surveys in the Project Area from January 8 to 15, 2021. Within the Project Area a total of eight suitable tortoise burrows were detected (**Appendix A**). Of these eight burrows all but one was in good condition. Scat or recent tracks were observed at three of the detected tortoise burrows and a single scat was detected not associated with a burrow (**Figure 7**).

6.4. POTENTIAL FOR SPECIAL-STATUS SPECIES TO OCCUR

WestLand identified special-status species using the sources described above and evaluated the potential for these special-status species to occur in the Analysis Area. The results of the desktop screening, vegetation mapping, and field survey were utilized to assess each special-status species potential to occur (**Tables 3, 4, 5, and 6**). The following sections provide potential to occur for ESA listed species (**Section 6.5**); BGEPA listed species (**Section 6.6**); BLM sensitive species (**Section 6.7**); and CEQA species (**Section 6.8**).

6.5. ESA LISTED SPECIES

One ESA listed species, the threatened Mohave Desert tortoise, has a potential to occur of **Present** within the Analysis Area (**Table 3**). No designated or proposed critical habitat occurs within the Analysis Area (**Appendix B**).

6.6. BGEPA LISTED SPECIES

The bald eagle has a potential to occur of **None** and golden eagle (*Aquila chrysaetos*) has an **Unlikely** potential to occur as the habitat within the Analysis Area is unsuitable and the habitat within the 2-mile raptor survey buffer (**Figure 3**) was marginal.

6.7. BLM SENSITIVE SPECIES

The potential to occur for BLM Sensitive Species for the El Centro Field Office was evaluated through the desktop screening, field survey, and vegetation mapping. Species with a potential to occur of **None** are summarized in **Appendix F** and all others are in **Table 5**. This approach was utilized to reduce table volume. In total, the potential to occur was evaluated for 55 BLM sensitive species. Of those 55, 35 had a potential to occur of **None** (**Appendix F**). Of the remaining 20 species (**Table 5**); ten species had a potential to occur of **Unlikely**, five **Possible** and only five species had a potential to occur of **Present**. Four of the five species with a potential to occur of **Present** were bat species and the fifth was the Mojave Desert tortoise (**Table 5**).

6.8. SPECIES EVALUATED FOR THE CEQA PROCESS POTENTIAL

In total, the potential to occur within the Analysis Area was evaluated for 31 species for the CEQA process (**Table 6**). Of the 31 species evaluated nine had **No Potential of Occurrence**. Of the remaining 22 species, ten had a **Low Potential of Occurrence**, four had a **Moderate Potential of Occurrence** and eight had a **High Potential of Occurrence**. The species with a High Potential of Occurrence consisted of a single plant, two birds, four bats, and the Mojave Desert tortoise.

Table 3. ESA Listed Species

Species Name	Federal Status	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Gopherus agassizii Mojave Desert Tortoise	Threatened, populations north and west of the Colorado River (USFWS 1980, USFWS 1990), critical habitat (USFWS 1980, USFWS 1994); Similarity of appearance (threatened) (USFWS 1990).	Inhabits valleys, bajadas and hills with sandy loam or rocky soils in Mojave desertscrub and Lower Colorado River Valley subdivision of the Sonoran Desert. To escape extreme temperatures, excavates burrows under vegetation or rocks. Will also use natural or manmade caves. Typically associated with areas of creosote bush, areas with other sclerophyll shrubs and with small cacti or areas with Joshua trees. Forages on grasses, forbs and succulents (AGFD 2010a). In the contact zone between the species (i.e., the Black Mountains), *G. morafkai* generally is found in foothills, hillside slopes and more mountainous terrain than *G. agassizii* that is typically found on alluvial fans and valley bottoms (Edwards et al. 2015). Elevation: Range-wide, from below sea level in Death Valley to 5,000 ft in elevation (AGFD 2010a).	Occurs in the Mojave Desert of Arizona, California, Nevada and Utah (Edwards et al. 2015, Murphy et al. 2011).	This species occurs through the Mojave Desert in Southeastern California (Boarman 2002)	**Present.** The Analysis Area is within the range and contains potentially appropriate habitat. Surveys were conducted for the desert tortoise for the Project Area by Stantec in 2020 and detected tortoise use (**Appendix A**).

Table 4. BGEPA Listed Species

Species Name	Federal Status	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Aquila chrysaetos Golden eagle	Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c)	Range-wide, breeds in a wide variety of open habitats, with nests typically on cliffs, and avoids heavily forested areas (Katzner et al. 2020). In Arizona, prefers pinyon-juniper woodlands and Sonoran desertscrub (Driscoll 2005). Constructs large nests on cliff ledges, rock outcrops, tall trees or, rarely, transmission towers (Driscoll 2005). Golden eagles are known to forage within 4.4 miles of the nest (Tesky 1994a), generally in open habitats where prey is available (Katzner et al. 2020). Primarily feeds on small mammals (greater than 80 percent of prey items) but also consumes birds, reptiles and fish (Katzner et al. 2020). In the western U.S. average territory size ranges from 22 to 55 square miles (AGFD 2002b). In California, typically occupy rolling foothills, mountain areas, sage-juniper flats and deserts (CDFW 1990). Elevation: In California, near sea level up to 11,500 ft (CDFW 1990).	This species is a short to medium-distance partial migrant with a Holarctic distribution (Katzner et al. 2020). In North America, primarily breeds in western portion of the continent from Alaska to central Mexico. Northern most populations are typically migratory. Year-round and non-breeding populations occur from central Saskatchewan to British Columbia, Canada and south throughout its range and sparsely in the eastern U.S. (Katzner et al. 2020).	Uncommon permanent resident and migrant throughout California, except center of Central Valley (CDFW 1990). Perhaps more common in northern and southern California (CDFW 1990).	**Unlikely.** The Analysis Area occurs within the know range of the species, however, no historical records for this species occur within the Analysis Area and the habitat within the Raptor survey area was searched and no evidence of Golden Eagle nesting was detected. No golden eagle nests are known to occur within 4.4 miles of the Analysis Area (Diamond 2016) and thus it is unlikely this species would utilize the Analysis Area as foraging habitat. No historical records of this species occur within or adjacent to the Analysis Area (**Figure 7 and Appendix D**).

Species Name	Federal Status	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Haliaeetus leucocephalus Bald Eagle	Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c)	Breeding is concentrated in coastal areas, along rivers, lakes or reservoirs. Typically breeds in forested areas with edge habitat within 1.3 miles of aquatic habitats suitable for foraging. Prefers areas of shallow water and shorelines for fishing and hunting wide variety of waterfowl, and small aquatic and terrestrial mammals. Fish are preferred prey, but carrion is used extensively whenever encountered. Nests away from human disturbance in large trees and rarely on cliff ledges or on the ground when trees are absent. Winters primarily in coastal areas or along major river systems with adequate prey availability and large trees for perching (Buehler 2020). In California, more common at lower elevations (CDFW 1999). Elevation: In California, nesting most commonly found about 1,000 to 6,000 ft but can occur from near seal level to over 7,000 ft (Jurek 1988).	Migratory behavior varies among populations and age groups (Buehler 2020). Breeds south of the tundra throughout Canada and the U.S., excluding Hawaii. Additionally, small breeding populations occur in Baja California, Sonora and Chihuahua, Mexico (Buehler 2020). Winter range appears to be expanding as populations increase in size. Most populations are year-round residents with only the northern most populations in Alaska, U.S. and Canada withdrawing southward or to coastal areas (Fink 2018).	Permanent resident, and uncommon winter migrant, now restricted to breeding mostly in Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, and Trinity counties (CDFW 1999). Half of the wintering population is in the Klamath Basin (CDFW 1999). Not found in the high Sierra Nevada (CDFW 1999). Largest numbers found in Big Bear Lake, Cachuma Lake, Lake Mathews, Nacimiento Reservoir, San Antonio Reservoir, and along the Colorado River (CDFW 1999). Local winter migrant at a few inland waters in southern California (CDFW 1999).	**None. The Analysis Area occurs greater than the known foraging distance (1.3 miles from aquatic habitats) for this species. In addition, no suitable large nesting trees or cliffs occur within the Analysis Area.** No historical records of this species occur within or adjacent to the Analysis Area (**Figure 7 and Appendix D**).

Table 5. BLM El Centro Field Office Sensitive species

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
AMPHIBIANS				
Scaphiopus couchii Couch's spadefoot toad	Occurs in arid and semi-arid habitats of the southwest, along desert washes, desert riparian, palm oasis, desert succulent shrub, and desert scrub habitats (CDFW 2000). Can also be found in cultivated croplands. Requires friable soils for burrowing often beneath desert plants, logs, and other debris. Reproduces in temporary pools and potholes with water present for at least 10-12 days (CDFW 2000). Elevation: In California, from 690 to 1,120 ft (CDFW 2000).	Found in southeastern California along the Arizona border in Imperial, Riverside, and San Bernadino counties (CDFW 2000).	Southeastern California along the Arizona border (CDFW 2000).	**Unlikely.** The Analysis is within the known range of the species. However, there are no occurrence records for this species within the California Natural Diversity Database in these quadrangles (CDFW 2021).

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
BIRDS				
Athene cunicularia hypugaea Western burrowing owl	This species inhabits flat or gently-sloping treeless and sparsely vegetated areas in deserts and grasslands (Poulin et al. 2011). In California, open, dry grassland and desert habitats, and in grass, forb and open shrub states of pinyon-juniper and ponderosa pine habitats. Areas with burrows and unobstructed perches are favored (Martin 2005). Largely reliant on burrows dug by mammals but, on rare occasion, will dig their own holes (Klute et al. 2003, Poulin et al. 2011). Northern populations are migratory, and habitat used migratory and winter period is similar to that used for breeding but with some evidence of increased reliance on agricultural areas (Klute et al. 2003, Poulin et al. 2011). Elevation: In California, up to 5,300 ft (CDFW 1999).	This species is a partial migrant, with northern populations being primarily migratory (Poulin et al. 2011). In southwestern states, individuals appear to make yearly decisions to remain on their breeding grounds or migrate, likely based on environmental conditions (Ogonowski and Conway 2009, Poulin et al. 2011). The hypugaea subspecies breeds in Alberta, British Columbia, Manitoba and Saskatchewan, Canada and 19 U.S. states including Arizona, California, Colorado, Idaho, Iowa, Kansas, Minnesota, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington and Wyoming (Klute et al. 2003). The breeding range extends southward into the Mexican states of Aguascalientes, Baja California, Baja California Sur, Chihuahua, Coahuila, Durango, Nuevo Leon, San Luis Potosí, Sinaloa, Sonora, Tamaulipas and Zacatecas (Poulin et al. 2011). Winters primarily in Arizona, California, Louisiana, New Mexico and Texas U.S., and southward through Mexico, excluding the Yucatan Peninsula, to Guatemala and Honduras, with rare reports as far south as Panama (Klute et al. 2003, Poulin et al. 2011).	In California, year-round resident throughout much of the state and on larger offshore islands (CDFW 1999).	**Unlikely.** The Analysis Area is within the known range of this species and potentially suitable habitat is present. No historical occurrence records are known from the Analysis Area (Appendix D). In addition, no Ebird observations have been made for this species within or adjacent to the Analysis Area (eBird 2021). No observation of this species or potential burrows were recorded during the field survey. However, potentially suitable habitat occurs on the western and southern ends of the Analysis Area outside of the Project Area (**Figure 6 and Appendix E Photos 11 and 12**).

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Melanerpes uropygialis Gila woodpecker	This species utilizes desert riparian and desert wash habitats, and orchard-vineyard and urban areas particularly in shade trees and date palm groves County (CDFW 1990). Utilizes areas with cottonwood and other desert riparian trees, shade trees, and date palms in California County (CDFW 1990). Also uses saguaros where available (CDFW 1990).	Found in southeast California, southwest Nevada, southern Arizona, southwest New Mexico and south into Mexico (Corman 2005a).	Resident in southern California along the Colorado River, and locally near Brawley, Imperial County (CDFW 1990).	**Unlikely.** Low potential of occurrence. because the majority of the Analysis Area does not contain appropriate habitat. We assessed all washes within the Analysis Area for woodpecker suitability and all washes were characterized by sparse ironwood, ocotillo, and low density of blue palo verde. There is one occurrence record for this species within the California Natural Diversity Database in these quadrangles (CDFW 2020) in an unnamed wash south of Indian Wash about 2.25 miles West of the Cargo Mountains from March 2002. We inspected this wash (**Appendix E Photo 17**) and the washes within the Analysis Area varied widely from the occurrence site. The washes in the Analysis Area are dissimilar to the occurrence site as represented in **Appendix E Photo 18**.

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Oreothlypis luciae Lucy's warbler	Frequents open to dense thickets of mesquite and other trees and shrubs in desert wash and desert riparian habitat (Corman 2005b). Cover includes mesquite, salt cedar, palo verde, ironwood, and other riparian trees and shrubs (CDFW 1990). Nest in hidden areas including natural cavity, woodpecker holes, and behind lose bark, in old verdin nest or in a bank (CDFW 1990c).	Mainly breeds in the southwest U.S. and migrates to the Pacific slope of Mexico for the winter (Corman 2005b). Recently arrived in New Mexico. Winters almost exclusively in Mexico (Shuford and Gardali 2008a).	Currently numerous locally along the Lower Colorado River and small populations west to the Borrego Valley in San Diego County and north through the Mojave Desert to Furnace Creek Ranch in Death Valley National Park in Inyo County (Shuford and Gardali 2008a). Rare fall (August-February) migrant and winter visitor in California away from breeding habitats (Shuford and Gardali 2008a). In Lower Colorado River valley, occur in mesquite and other woodland in washes including Milpitas Wash in Imperial County, McCoy and Big washes in Riverside County, and Vidal and Chemehuevi washes in San Bernardino County (Shuford and Gardali 2008a).	**Unlikely.** While the Analysis Area occurs within the known range of this species the low density xeroriparian washes within the analysis area provide marginal habitat.
MAMMALS				
Antrozous pallidus Pallid bat	Inhabits a wide variety of habitats including grasslands, shrublands, woodlands, and forest from sea level to mixed conifer forests (CDFW 1990c). Most common in open, dry habitats with rocky areas for roosting. Day roosts in caves, crevices, mines, and occasionally in hollow trees and buildings (CDFW 1990c). Night roots may be in more open sites including porches and buildings (CDFW 1990c). Elevation: 1,900 to 6,560 ft (NatureServe 2021a).	Ranges throughout western North America, from British Columbia's southern interior, south to Queretaro and Jalisco, and east to Texas. Isolated population in Cuba (WBWG 2018). Most abundant in xeric ecosystems, including the Great Basin, Mojave, and Sonoran Deserts (WBWG 2018).	Locally common at low elevations in California. Occurs throughout California except for the high Sierra Nevada to Kern Count and the northwestern corner of the state from Del Norte and western Siskiyou counties to northern Mendocino County (CDFW 1990c).	**Present.** Historical records for this species occur within the analysis Area and suitable roosting and foraging habitat exists within the Analysis Area.

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Corynorhinus townsendii Townsend's big-eared bat	Forages in edge habitats along streams and adjacent to or within a variety of wooded habitats. Roosts in cliffs, caves, mines, tunnels, and buildings. Has a large home range and foraging distances (up to 93 miles) (Sherwin and Piaggio 2005). Elevation: Below 10,830 ft (Hammerson 2014).	Occurs from southern British Columbia, Canada and south through all western U.S. states eastward to the Black Hills of South Dakota and the Edwards Plateau in Texas. Isolated populations also exist in Oklahoma, Kansas, Arkansas, Missouri, Illinois, Indiana, Ohio, Kentucky, Virginia, and West Virginia. Range extends to the Isthmus of Tehuantepec, Mexico (Hammerson 2014).	Found throughout California but details of its distribution are not well known (CDFW 2000b).	**Present.** Historical records for this species occur within the analysis Area and suitable roosting and foraging habitat exists within the Analysis Area.
Eumops perotis californicus Greater western mastiff bat	This species is found in areas with cliffs, which are used for roosting, in desert scrub, chaparral, oak woodland, ponderosa pine belt, mixed conifer forests and high elevation meadows (Siders and Pierson 2005). Maternity roosts occur in exfoliating rock slabs, crevices in boulders and buildings (Siders and Pierson 2005). The morphology of this species prevents it from drinking from water sources less than 98 ft in length and the availability of water limits its distribution across the landscape (AGFD 2014b). In Arizona, this species is a year-round resident that occurs in rocky canyons with abundant roosting crevices. Forages widely from roost sites in lower and upper Sonoran desertscrub near cliffs (AGFD 2014b) and has been captured more than 18 miles from roost sites (Siders and Pierson 2005). Elevation: In Arizona, 240–8,475 ft (AGFD 2014b). Foraging up to 10,000 ft in California (WBWG 2018).	Occurs in Arizona, California, Nevada, New Mexico, Texas and Utah, U.S. and the Mexican states of Baja California, Chihuahua, Coahuila, Durango, Sinaloa, Sonora and Zacatecas (AGFD 2014b, Hammerson 1994, Siders and Pierson 2005).	Found in southeastern San Joaquin Valley and Coastal Ranges from Monterey County southward through southern California, from the coast eastward to the Colorado Desert (CDFW 1990).	**Present.** Historical records for this species occur within the analysis Area and suitable roosting and foraging habitat exists within the Analysis Area.

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Macrotus californicus California leaf-nosed bat	Typically forages along washes within 6.2 miles of their roost sites (Brown 2005). Primarily consumes insects but also consumes fruits (AGFD 2014a, Brown 2005). In Arizona, this species is a year-round resident of Sonoran Desertscrub. Consumes primarily insects taken on the wing or gleaned from vegetation, but have also been reported to feed on fruits, including those of cacti. Roost sites have large areas of ceiling and flying space, and include abandoned underground mines, caves, and rock shelters (AGFD 2014a). Elevation: In Arizona, below 4,000 ft (AGFD 2014a). In California, records are below 2,000 ft (CDFW 1990a).	Occurs in Arizona, California, Nevada and Utah, U.S. and the Mexican states of Baja California, Baja California Sur, Chihuahua, Sinaloa, Sonora and Tamaulipas (AGFD 2014a, Hammerson 2015a). (CDFW 1990a).	Found from Riverside, Imperial, San Diego, and San Bernardino counties. Historically occurred from Los Angles to Sand Diego. Fairly common in some areas along the Colorado River (CDFW 1990a).	**Present.** Historical records for this species occur within the analysis Area and suitable roosting and foraging habitat exists within the Analysis Area. In addition, sign associated with this species was detected within the Analysis Area.
Myotis ciliolabrum Small-footed myotis	Occur in a variety of habitat but primarily found in relatively arid wooded and brushy uplands near water (CDFW 1990d), chaparral, riparian zones, and western coniferous forests (WBWG 2018). Roost caves, buildings, mines, crevices, and occasionally under bridges or bark. Night roost in buildings and caves (CDFW 1990d). Elevation: In California, sea level to at least 8,900 ft (CDFW 1990d).	Found across the western half of North American from British Columbia, Alberta, and Saskatchewan in Canada, throughout most of the U.S. west of the 100th Meridian, and into central Mexico (WBWG 2018).	Common in arid uplands in California and occurs from Contra Costa County south to the Mexican border in the coastal region. Also found on the west and east sides of the Sierra Nevada, and in the Great Basin and desert habitats from Modoc to Kern and San Bernardino counties (CDFW 1990d).	**Possible.** The analysis Area occurs within the range of this species and suitable roosting and foraging habitat exists within the Analysis Area.

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Myotis velifer Cave myotis	Forages in desertscrub vegetation and is tolerant of high temperatures and low humidity. Roosts in caves, tunnels, abandoned underground mines, buildings and under bridges within a few miles of water. In Arizona, hibernation roosts are in wet mine tunnels above 6,000 ft (AGFD 2002a). In California, utilize desert scrub, desert succulent shrub, desert wash, and desert riparian.(CDFW 1990b). Elevation: 300–8,800 ft (AGFD 2002a).	Occurs in Arizona, California, Kansas, Nevada, New Mexico, Oklahoma, Texas and Utah, U.S. Range extends southward through Mexico to Honduras (AGFD 2002a, Hammerson 2015b).	Restricted in California to lowlands of the Colorado River and adjacent mountain ranges, in San Bernardino, Riverside and Imperial counties, although more common farther east (CFDW 1990b).	**Possible.** An observation record for this species occurs adjacent to the Analysis Area and the Analysis Area contains suitable mine roosting habitat.
Myotis yumanensis Yuma myotis	Inhabits riparian, scrublands, desert, forest near permanent sources of water including rivers, and streams but also uses tinajas (WBWG 2018). Optimal habitats in California in areas with open forest and woodland with sources of water (CDFW 1990e). Roosts in bridges, buildings, cliff crevices, caves, mines, and trees (WBWG 2018). Have been observed roosting in abandoned swallow nests (CDFW 1990e). Elevation: In California, seal level to 11,000 ft considered uncommon to rare above 8,000 ft (CDFW 1990e).	Found across the western third of North America from British Columbia, Canada, to Baja California and southern Mexico. In the U.S. it occurs in all the Pacific coastal states, as far east as western Montana to the north, and as far east as western Oklahoma south (WBWG 2018).	Common and widespread in California but uncommon in the Mojave and Colorado desert regions, except for the mountain ranges bordering the Colorado River Valley (CDFW 1990e).	**Unlikely.** No permanent water sources occur within or adjacent to the analysis Area.

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Ovis canadensis nelsoni Desert bighorn sheep (aka. Nelson bighorn sheep)	Inhabits alpine dwarf-shrub, low sage, sagebrush, bitterbrush, pinyon-juniper, palm oasis, desert riparian, desert succulent shrub, desert scrub, subalpine conifer, perennial grassland, montane chaparral, and montane riparian (CDFW 1990). Uses rocky, steep terrain for reproduction and escape, prefers open areas of low-growing vegetation for feeding and requires adequate sources of water (CDFW 1990).	Historica range extended from northeastern California, Oregon, northern Nevada, and southwestern Idaho southward through the deserts of the southwestern U.S. to southern Baja California, northwestern Sonora Mexico, southern Arizona, southern New Mexico, Chihuahua Mexico and western Texas (Hammerson 2011).	Uncommon in California. There are three subspecies: California bighorn sheep (*O. c. californiana*), peninsular bighorn sheep (*O. c. cremnobates*), and Nelson bighorn sheep aka. desert bighorn sheep (*O. c. nelsoni*) (CDFW 1990). The desert bighorn sheep occur in desert mountain ranges from White Mountains of Mono and Inyo counties south to the San Bernardino Mountains and southeastward to the Mexican border with an isolated population occurs in the San Gabriel Mountains (CDFW 1990).	**Unlikely**. No historical occurrence records exist within the Analysis Area and no evidence of this species was observed during the field survey.
PLANTS				
Croton wigginsii Wiggin's croton	Perennial shrub that blooms March through May. Inhabits desert dunes and Sonoran desert scrub in sandy areas (CNPS 2021g). Elevation: 165 to 330 ft (CNPS 2021g).	Occurs in California, Arizona, Baja California and Sonora Mexico (CNPS 2021g).	Found in Imperial County (CNPS 2021g).	**Unlikely.** While no records of this species occur within the Analysis Area a small area of suitable sandy habitat in Sonoran desert scrub vegetation occurs on the western edge of the Analysis Area outside of the Project Area (**Appendix E Photos 13 and 14**).
Cylindropuntia munzii Munz cholla	Perennial stem succulent that blooms in May. Occurs on sandy or gravelly soils in Sonoran desert scrub (CNPS 2021d). Elevation: 500 to 1,970 ft (CNPS 2021d).	Found in California and Baja California (CNPS 2021d).	Located in Imperial and Riverside counties (CNPS 2021d).	**Possible.** A small area of potential suitable sandy substrate occurs at the western edge of the Analysis Area outside of the Project Area (**Appendix E Photos 13 and 14**). .
Euphorbia platysperma Flat-seeded spurge	Annual herb that blooms February through September. Occurs in desert dunes and sandy areas in Sonoran desert scrub (CNPS 2021a). Elevation: 215 to 330 ft (CNPS 2021a).	Located in California, Arizona, Baja California and Sonora Mexico (CNPS 2021a).	Found in Imperial, Riverside, San Diego counties and possibly in San Bernardino County (CNPS 2021a).	**Possible.** A small area of potential suitable sandy substrate occurs at the western edge of the Analysis Area outside of the Project Area (**Appendix E Photos 13 and 14**).

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Lupinus excubitus* var. *medius Mountain Springs bush lupine	Perennial shrub that blooms March through May. Inhabits Pinyon and juniper woodland and Sonoran desert scrub (CNPS 2021c). Elevation: 1,395 to 4,495 ft (CNPS 2021c).	Occurs in California and Baja California (CNPS 2021c).	Found in Imperial and San Diego counties (CNPS 2021c).	**Unlikely.** While the Analysis Area includes Sonoran desert scrub habitats no historical records for this species exist within the analysis Area.
Pholisma sonorae Sand food	Perennial herb (parasitic) that blooms April through June (CNPS 2021f). Inhabits sandy soils, sand dunes and other sandy areas. It is a root parasite of desert shrubs (Arizona Rare Plant Committee 2001, CNPS 2021f). Known hosts include *Ambrosia dumosa, Eriogonum deserticola, Pluchea sericea, Tiquilia palmeri* and *T. plicata* (Yatskievych 1994). Elevation: In California, below 656 ft (CNPS 2021f). In Arizona, below 1,345 ft (AGFD 2004).	Occurs in Arizona and California, U.S. and the Mexican states of Baja California and Sonora (AGFD 2004, CNPS 2021f).	Known only from Imperial County (CNPS 2021f).	**Unlikely.** Small pockets of suitable sandy soils occur in the western extent of the Analysis Area and the suitable host plant (*Ambrosia dumosa*) occurs within the Analysis Area (**Appendix E Photos 13 and 14**).
Xylorhiza orcuttii Orcutt's woody-aster	Perennial herb that blooms March through April. Inhabits Sonoran desert scrub (CNPS 2021e). Elevation: 0 to 2,000 ft (CNPS 2021e).	Occurs in California and Baja California (CNPS 2021e).	Found in Imperial and San Diego counties (CNPS 2021e).	**Unlikely.** No historical records exist for this species within the Analysis Area. However, suitable Sonoran desert scrub occurs within the analysis Area.

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
REPTILES				
Gopherus agassizii [1] Mojave Desert Tortoise	Inhabits valleys, bajadas and hills with sandy loam or rocky soils in Mojave desertscrub and Lower Colorado River Valley subdivision of the Sonoran Desert. To escape extreme temperatures, excavates burrows under vegetation or rocks. Will also use natural or manmade caves. Typically associated with areas of creosote bush, areas with other sclerophyll shrubs and with small cacti or areas with Joshua trees. Forages on grasses, forbs and succulents (AGFD 2010a). In the contact zone between the species (i.e., the Black Mountains), *G. morafkai* generally is found in foothills, hillside slopes and more mountainous terrain than *G. agassizii* that is typically found on alluvial fans and valley bottoms (Edwards et al. 2015). In California, found in arid sandy or gravelly locations along riverbanks, washes, sandy dunes, alluvial fans, canyon bottoms, desert oases, rocky hillsides, creosote flats, and hillsides (CHS 2021b) Elevation: Range-wide, from below sea level in Death Valley to 5,000 ft in elevation (AGFD 2010a). Possibly up to 7,200 ft (CDFW 2000)	Occurs in the Mojave desert of Arizona, California, Nevada and Utah (Edwards et al. 2015, Murphy et al. 2011).	Throughout the Mojave Desert and south along the Colorado River along the east side of the Salton Basin in the Sonoran Desert but absent from the Coachella Valley except from the Boyd Deep Canyon Research Center area (CHS 2021b). Introduced population in Anza-Borrego State Park in San Diego County (CHS 2021b).	**Present.** Active Tortoise burrows and scat have been detected within the Analysis Area. Records of this species occur within the Analysis Area (**Appendix A**).

[1] Threatened, populations north and west of the Colorado River (USFWS 1980, USFWS 1990), critical habitat (USFWS 1980, USFWS 1994); Similarity of appearance (threatened) (USFWS 1990).

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Uma notata Colorado Desert fringe-toed lizard	Occupies fine, loose, wind-blown sand dunes, dry lakebeds, sandy beaches or riverbanks, desert washes, and sparse desert scrub in the Colorado and Sonoran desert (CDFW 2000). Utilize sparsely-vegetated arid areas and burrows as refugia (CHS 2021a). Elevation: sea level to 1,600 ft (CHS 2021a).	Occurs in California and Baja California (CHS 2021a).	Found in extreme southeast California in the Colorado Desert from the Salton Sea and Imperial sand hills east to the Colorado River, south to the Colorado River delta and on into northeastern Baja California, and east to Borrego Mountain (CHS 2021a).	**Possible.** A small area of potential suitable sandy substrate occurs at the western edge of the analysis Area outside of the Project Area (**Appendix E Photos 13 and 14**).

Table 6. CEQA Special-Status Species

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
BIRDS				
Melanerpes uropygialis Gila woodpecker	This species utilizes desert riparian and desert wash habitats, and orchard-vineyard and urban areas particularly in shade trees and date palm groves County (CDFW 1990). Utilizes areas with cottonwood and other desert riparian trees, shade trees, and date palms in California County (CDFW 1990). Also uses saguaros where available (CDFW 1990). Elevation: near sea level to 3,940 ft (NatureServe 2021e).	Found in southeast California, southwest Nevada, southern Arizona, southwest New Mexico and south into Mexico (Corman 2005a).	Resident in southern California along the Colorado River, and locally near Brawley, Imperial County (CDFW 1990).	**Low potential of occurrence.** because the majority of the Analysis Area does not contain appropriate habitat. We assessed all washes within the Analysis Area for woodpecker suitability and all washes were characterized by sparse ironwood, ocotillo, and low density of blue palo verde. There is one occurrence record for this species within the California Natural Diversity Database in these quadrangles (CDFW 2021) in an unnamed wash south of Indian Wash about 2.25 miles West of the Cargo Mountains from March 2002. We inspected this wash (**Appendix E Photo 17**) and the washes within the Analysis Area varied widely from the occurrence site. The washes in the Analysis Area are dissimilar to the occurrence site as represented in **Appendix E Photo 18**.
Taxostoma crissale Crissal thrasher	Inhabits dense sagebrush and other shrubs in desert washes and desert riparian areas with juniper and pinyon-juniper. Frequently found in habitats with mesquite, screwbean mesquite, ironwood, catclaw acacia, and arrowweed willow (CDFW 1990). Elevation: up to 5,900 ft (CDFW 1990).	Found throughout southwestern portions of the U.S. from southeastern California east through southern Nevada, southwestern Utah, norther Arizona, and southwestern New Mexico to western Texas and south to south-central Mexico and northeast Baja California (Shuford and Gardali 2008b).	Eastern Mojave Desert of Sand Bernardino and southeaster Inyo counties also resident in Imperial, Coachella, and Borrego valleys (CDFW 1990).	**Moderate potential of occurrence** due to range, appropriate habitat, but no occurrence record or observation during field investigation.

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Taxostoma lecontei Le Conte's thrasher	Utilize open desert wash, desert scrub, alkali desert scrub, desert succulent shrub habitats, and in Joshua tree habitat with scattered shrubs. Frequently use saltbush and cholla (CDFW 2005). Rarely occurs in habitats consisting entirely of creosotebush (NatureServe 2021f). Elevation: below sea level to 5,250 ft, mostly between 0 to 492 ft(NatureServe 2021f).	Occur throughout southwestern U.S. and northwestern Mexico (NatureServe 2021f, Sheppard 2019).	Found in southern California deserts from southern Mono County south to the Mexican border, and in western and southern San Joaquin Valley. Formerly found north to Fresno County and Kern County (CDFW 2005).	**Low potential of occurrence.** The low density cholla and creosotebush habitat dominance within the Analysis Area provides marginal habitat.
Falco mexicanus Prairie falcon	Breeds in open habitats, including shrub-step desert, grasslands with or without shrubs, and alpine tundra when cliffs or bluffs are present to provide nesting sites (Steenhof 2013). In Arizona, this species is found nesting in Sonoran desertscrub, in areas with mixed grassland and cold-temperate desertscrub, and pinyon pine-juniper or Madrean evergreen oak woodlands. Occasionally nest in areas of alpine grassland and mixed conifer forests. Open areas for foraging and the availability of nest sites are the primary determinants of the species distribution during the breeding season (Moors 2005). Nests primarily on cliff ledges but also use trees, buildings, electrical towers, and cliffs created by mines or quarries (Steenhof 2013). When food is plentiful, this raptor travels the least possible distance necessary to secure required food supplies but have been known to forage up to 15 miles from the nest (Tesky 1994b). During the fall and winter, increased numbers of individuals occur in open grasslands, creosote-bursage habitats, and agricultural areas (Moors 2005, Steenhof 2013). Elevation: Breeds 500–9,000 ft (Moors 2005). Elsewhere, up to 11,000 ft (Steenhof 2013).	Not considered a true migrant but undertakes seasonal movements in response to food availability and typically has widely separated nesting, post-nesting and wintering areas (Steenhof 2013). However, populations in California are resident. Breeds from south-central British Columbia and southern Alberta, through the western U.S., including western Texas, and into central Baja California, Chihuahua, Coahuila, central Durango, and San Luis Potosí. Winter range extends west to the Pacific Coast and eastward to Minnesota, northwest Iowa, east-central Missouri, central Oklahoma, and most of Texas. Mexican range expands slightly southward to include Baja California Sur, Zacatecas and possibly even to Oaxaca (Steenhof 2013).	Occurs throughout the state (Moors 2005).	**High potential of occurrence.** The Analysis Area occurs within suitable habitat in the range of this species and 2 occupied eyries were detected within the analysis Area (**Appendix E Photos 8 and 9**).

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Athene cunicularia hypugaea Western burrowing owl	This species inhabits flat or gently-sloping treeless and sparsely vegetated areas in deserts and grasslands (Poulin et al. 2011). In Arizona, this species most commonly breeds in grazed grasslands and open disturbed areas such as the edges of agricultural fields, fallow fields, bladed areas, irrigation embankments, airports and golf courses. This species additionally breeds in sparsely vegetated Sonoran or cold-temperate desertscrub (Martin 2005). Areas with burrows and unobstructed perches are favored (Martin 2005). Largely reliant on burrows dug by mammals but, on rare occasion, will dig their own holes (Klute et al. 2003, Poulin et al. 2011). Northern populations are migratory, and habitat used migratory and winter period is similar to that used for breeding but with some evidence of increased reliance on agricultural areas (Klute et al. 2003, Poulin et al. 2011). Elevation: In Arizona, 650–6,140 ft (AGFD 2001).	This species is a partial migrant, with northern populations being primarily migratory (Poulin et al. 2011). In southwestern states, individuals appear to make yearly decisions to remain on their breeding grounds or migrate, likely based on environmental conditions (Ogonowski and Conway 2009, Poulin et al. 2011). The hypugaea subspecies breeds in Alberta, British Columbia, Manitoba and Saskatchewan, Canada and 19 U.S. states including Arizona, California, Colorado, Idaho, Iowa, Kansas, Minnesota, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington and Wyoming (Klute et al. 2003). The breeding range extends southward into the Mexican states of Aguascalientes, Baja California, Baja California Sur, Chihuahua, Coahuila, Durango, Nuevo Leon, San Luis Potosí, Sinaloa, Sonora, Tamaulipas and Zacatecas (Poulin et al. 2011). Winters primarily in Arizona, California, Louisiana, New Mexico and Texas U.S., and southward through Mexico, excluding the Yucatan Peninsula, to Guatemala and Honduras, with rare reports as far south as Panama (Klute et al. 2003, Poulin et al. 2011).	Found nesting throughout the state where favorable habitat is present. Southern populations are primarily resident whereas northern populations are migratory and are on their breeding grounds mid-March through as late as mid-October (Martin 2005).	**Low potential of occurrence** due to range, appropriate habitat, but no historical occurrence records (Appendix D). In addition, no Ebird observations have been made for this species within or adjacent to the Analysis Area (eBird 2021). No observation of this species or potential burrows were recorded during the field survey. However, potentially suitable habitat occurs on the western and southern ends of the Analysis Area outside of the Project Area (**Figure 6 and Appendix E Photos 11 and 12**).
Poliptila melanura Black-tailed gnatcatcher	This species is associated with Mojave and Sonoroan desert scrub habitats. These habitats include mesquite, creosotebush, ocotillo and various cactus species (Tinant 2006).	Black-tailed gnatcatchers range from southern Nevada to northern Mexico and from southeastern California to southwestern New Mexico (Tinant 2006).	In California this species occurs only in southeastern California within suitable Mojavian and Sonoroan desert scrub habitats (Tinant 2006).	**High potential of occurrence.** The analysis Area occurs within suitable habitat within the range of this species and individuals were detected during the field survey.

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
INSECTS				
Anomala hardyorum Hardy's dune beetle	Member of the family Scarabaeidae. Most often found on north or east facing dune slip faces (UFWS 2006b).	Endemic to Algodones Dunes in North America (UFWS 2006b).	Known from two populations identified in Algodones Dune system in Imperial County (UFWS 2006b).	**No potential of occurrence.** No appropriate dune slip faces occur within the analysis Area.
Apiocera warneri Glamis sand fly	Member of the family Apioceridae. Flower-loving flies that are most common in dry, sandy habitats (Yeates and Irwin 1996) .	Family is known in the deserts of North America, South America, and Australia (Yeates and Irwin 1996).	Known from southern California (NatureServe 2021b).	**Low potential of occurrence.** A small area of sandy habitat occurs within the western edge of the Analysis Area outside of the Project Area.
Cyclocephala wandae Wandae dune beetle	Member of the family Scarabaeidae. Habitat information is lacking (UFWS 2006b).	Endemic to Algodones Dunes in North America (UFWS 2006b).	Known only from collections in the Algodones Dunes in Imperial County (UFWS 2006b).	**No potential of occurrence.** The Analysis Area occurs outside of the known range and suitable dune habitat.
Efferia macroxipha Glamis robberfly	In the genus *Efferia*. High diversity in arid or semi-arid ecosystems. Tend to perch close to the ground and often remain immobile.	Genus occur throughout the New World.	Known from southern California (Forbes 1988, NatureServe 2021c).	**Moderate Potential of occurrence.** The Analysis Area occurs within the known range**.**
Euparagia unidentata Algodones euparagia	In the family Vespidae. Inhabits desert regions (Bohart 1989). Limited habitat information available.	Endemic to Algodones Dunes in North America (Nature Serve 2021d, UFWS 2006b).	Endemic to Algodones Dunes in Imperial County (Nature Serve 2021d, UFWS 2006b).	**No potential of occurrence.** The Analysis Area occurs outside of the known range and suitable habitat.
Microbembex elegans Algodones elegant sand wasp	In the family Sphecidae. Small sized. Inhabits active slip faces within sand dune systems often found at the base of shrubs where detritus collects (UFWS 2006b).	Species in genus *Microbembix* are found in North and South America. Endemic to Algodones Dunes in North America (UFWS 2006b).	Known from two populations identified in Algodones Dune system in Imperial County (UFWS 2006b).	**No potential of occurrence.** The Analysis Area occurs outside of the known range and suitable habitat.
Perdita algodones Algodones perdita	Dune habitats (UFWS 2006b) Limited habitat information available.	Endemic to Algodones Dunes in North America (UFWS 2006b).	Known in the vicinity of Glamis, in Imperial County (UFWS 2006b).	**No potential of occurrence.** The Analysis Area occurs outside of the known range and suitable habitat.
Perdita frontalis Imperial perdita	All species in Perdita genus nest in sandy or partially sandy soil. Specialize on a variety plant families (Portman, Griswold, and Nell 2016).	Southwestern U.S. and Mexico (Portman, Griswold, and Nell 2016).	Southern California	**Low potential of occurrence.** A small area of sandy habitat occurs within the western edge of the Analysis Area outside of the Project Area.

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Perdita stephanomeriae A miner bee	All species in Perdita genus nest in sandy or partially sandy soil. Specialize on a variety plant families (Portman and Griswold 2017, Portman, Griswold, and Nell 2016).	Southwestern U.S. and Mexico (Portman, Griswold, and Nell 2016).	Southern California	**Low potential of occurrence.** A small area of sandy habitat occurs within the western edge of the Analysis Area outside of the Project Area.
Pseudocotalpa andrewsi Andrew's dune scrab beetle	In the family Scarabaeidae. Shining leaf chafer that inhabits drifting sand between dunes (USFW 2006a)	Endemic to Algodones Dunes in North America (UFWS 2006b).	Known from two populations identified in Algodones Dune system in Imperial County (UFWS 2006b).	**No potential of occurrence.** The Analysis Area occurs outside of suitable dune habitat.
MAMMALS				
Antrozous pallidus Pallid bat	Inhabits a wide variety of habitats including grasslands, shrublands, woodlands, and forest from sea level to mixed conifer forests (CDFW 1990c). Most common in open, dry habitats with rocky areas for roosting. Day roosts in caves, crevices, mines, and occasionally in hollow trees and buildings (CDFW 1990c). Night roots may be in more open sites including porches and buildings (CDFW 1990c). Elevation: 1,900 to 6,560 ft (NatureServe 2021a).	Ranges throughout western North America, from British Columbia's southern interior, south to Queretaro and Jalisco, and east to Texas. Isolated population in Cuba (WBWG 2018). Most abundant in xeric ecosystems, including the Great Basin, Mojave, and Sonoran Deserts (WBWG 2018).	Locally common at low elevations in California. Occurs throughout California except for the high Sierra Nevada to Kern Count and the northwestern corner of the state from Del Norte and western Siskiyou counties to northern Mendocino County (CDFW 1990c).	**High potential of occurrence.** This species has been observed within the Analysis Area (**Figure 7**) and suitable crevice and mine roosting habitat occurs within the Analysis Area (**Appendix E Photos 15 and 16**).
Corynorhinus townsendii Townsend's big-eared bat	Forages in edge habitats along streams and adjacent to or within a variety of wooded habitats. Roosts in cliffs, caves, mines, tunnels, and buildings (Diamond and Diamond 2014). Has a large home range and foraging distances (up to 93 miles) (Sherwin and Piaggio 2005). Elevation: Below 10,830 ft (Hammerson 2014).	Occurs from southern British Columbia, Canada and south through all western U.S. states eastward to the Black Hills of South Dakota and the Edwards Plateau in Texas. Isolated populations also exist in Oklahoma, Kansas, Arkansas, Missouri, Illinois, Indiana, Ohio, Kentucky, Virginia, and West Virginia. Range extends to the Isthmus of Tehuantepec, Mexico (Hammerson 2014).	Found throughout California but details of its distribution are not well known (CDFW 2000b).	**High potential of occurrence.** This species has been observed within the Analysis Area (**Figure 7**) and suitable mine roosting habitat occurs within the Analysis Area (**Appendix E Photos 15 and 16**).

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Eumops perotis californicus Greater western mastiff bat	This species is found in areas with cliffs, which are used for roosting, in desert scrub, chaparral, oak woodland, ponderosa pine belt, mixed conifer forests and high elevation meadows (Siders and Pierson 2005). Maternity roosts occur in exfoliating rock slabs, crevices in boulders and buildings (Siders and Pierson 2005). The morphology of this species prevents it from drinking from water sources less than 98 ft in length and the availability of water limits its distribution across the landscape (AGFD 2014b). In Arizona, this species is a year-round resident that occurs in rocky canyons with abundant roosting crevices. Forages widely from roost sites in lower and upper Sonoran desertscrub near cliffs (AGFD 2014b) and has been captured more than 18 miles from roost sites (Siders and Pierson 2005). Elevation: In Arizona, 240–8,475 ft (AGFD 2014b). Foraging up to 10,000 ft in California (WBWG 2018).	Occurs in Arizona, California, Nevada, New Mexico, Texas and Utah, U.S. and the Mexican states of Baja California, Chihuahua, Coahuila, Durango, Sinaloa, Sonora and Zacatecas (AGFD 2014b, Hammerson 1994, Siders and Pierson 2005).	Found in southeastern San Joaquin Valley and Coastal Ranges from Monterey County southward through southern California, from the coast eastward to the Colorado Desert (CDFW 1990).	**High potential of occurrence.** This species has been observed within the Analysis Area (**Figure 7**) and suitable rock slabs and crevice roosting habitat occurs within the Analysis Area.

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Macrotus californicus California leaf-nosed bat	Typically forages along washes within 6.2 miles of their roost sites (Brown 2005). Primarily consumes insects but also consumes fruits (AGFD 2014a, Brown 2005). In Arizona, this species is a year-round resident of Sonoran Desertscrub. Consumes primarily insects taken on the wing or gleaned from vegetation, but have also been reported to feed on fruits, including those of cacti. Roost sites have large areas of ceiling and flying space, and include abandoned underground mines, caves, and rock shelters (AGFD 2014a). Elevation: In Arizona, below 4,000 ft (AGFD 2014a). In California, records are below 2,000 ft (CDFW 1990a).	Occurs in Arizona, California, Nevada and Utah, U.S. and the Mexican states of Baja California, Baja California Sur, Chihuahua, Sinaloa, Sonora and Tamaulipas (AGFD 2014a, Hammerson 2015a). (CDFW 1990a).	Found from Riverside, Imperial, San Diego, and San Bernardino counties. Historically occurred from Los Angles to Sand Diego. Fairly common in some areas along the Colorado River (CDFW 1990a).	**High potential of occurrence.** This species has been previously observed within the Analysis Area, and suitable mine roosting habitat occurs within the Analysis Area (**Figure 7 and Appendix E Photos 15 and 16**). In Addition, during the habitat assessment visit, stringy black guano and urine staining was detected on the sides of mines within the Analysis Area indicating that this species is present.
Myotis velifer Cave myotis	Forages in desertscrub vegetation and is tolerant of high temperatures and low humidity. Roosts in caves, tunnels, abandoned underground mines, buildings and under bridges within a few miles of water. In Arizona, hibernation roosts are in wet mine tunnels above 6,000 ft (AGFD 2002a). In California, utilize desert scrub, desert succulent shrub, desert wash, and desert riparian.(CDFW 1990b). Elevation: 300–8,800 ft (AGFD 2002a).	Occurs in Arizona, California, Kansas, Nevada, New Mexico, Oklahoma, Texas and Utah, U.S. Range extends southward through Mexico to Honduras (AGFD 2002a, Hammerson 2015b).	Restricted in California to lowlands of the Colorado River and adjacent mountain ranges, in San Bernardino, Riverside and Imperial counties, although more common farther east (CFDW 1990b).	**Moderate potential of occurrence**. An observation record for this species occurs adjacent to the Analysis Area and the Analysis Area contains suitable mine roosting habitat **Figure 7 and Appendix E Photos 15 and 16**).
Nyctinomops femorosaccus Pocketed free-tailed bat	Inhabits pinyon-juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, and palm oasis. Roosts in rock crevices, caverns, or buildings. Drinks water from sources with open access and large surface areas (CDFW 2000a). Elevation: near sea level to about 7,300 ft (WBWG 2018).	Occurs in western North America from southern California, central Arizona, southern New Mexico, and western Texas, south into Mexico including Baja California (WBWG 2018).	Found in Riverside, San Diego, and Imperial counties. Rare in California (CDFW 2000a).	**Moderate potential of occurrence.** The Analysis Area occurs within the range of this species and suitable rock crevice roosting habitat occurs within the Analysis Area.

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
PLANTS				
Astragalus insularis* var. *harwoodii Harwood's milk-vetch	Annual herb that blooms January through May. Inhabits sandy or gravely soils in desert dunes and Mohavean desert scrub (CNPS 2021i). Elevation: 0 to 2,330 ft (CNPS 2021i).	Occurs in Arizona, California, Baja California, Nevada, and Sonora Mexico (CNPS 2021i).	Found in Imperial, Riverside, San Bernardino, and San Diego counties (CNPS 2021i).	**No potential of occurrence.** No suitable dune habitat in Mohavean desert scrub occurs within the analysis Area and no records for this species occur within the Analysis Area.
Calliandra erophylla Pink fairy-duster	Perennial deciduous shrub that blooms January through March. Inhabits sandy or rocky soils in Sonoran desert scrub (CNPS 2021j). Elevations: 393 to 4,925 ft (CNPS 2021j).	Occurs in Arizona, California, Baja California, New Mexico, Texas, Utah, and Sonora Mexico (CNPS 2021j).	Found in Imperial, Riverside, and San Diego counties (CNPS 2021j).	**High probability of occurrence.** An occurrence record for this species exists within the Analysis Area and the species was observed in very low densities within the Analysis Area (**Figure 7**).
Croton wigginsii Wiggin's croton	Perennial shrub that blooms March through May. Inhabits desert dunes and Sonoran desert scrub in sandy areas (CNPS 2021g). Elevation: 165 to 330 ft (CNPS 2021g).	Occurs in California, Arizona, Baja California and Sonora Mexico (CNPS 2021g).	Found in Imperial County (CNPS 2021g).	**Low probability of occurrence.** While no records of this species occur within the Analysis Area a small area of suitable sandy habitat in Sonoran desert scrub vegetation occurs on the western edge of the analysis Area outside of the Project Area.
Ditaxis claryana Glandular ditaxis	Perennial herb that blooms October, December, January, February, and March. Inhabits sandy areas in Mojavean desert scrub and Sonoran desert scrub (CNPS 2021h). Elevation: 0 to 1,525 ft (CNPS 2021h).	Occurs in Arizona, California, and Sonora Mexico (CNPS 2021h).	Found in Imperial, Riverside, and San Bernardino counties (CNPS 2021h).	**Low probability of occurrence.** While no records of this species occur within the Analysis Area a small area of suitable sandy area in Sonoran desert scrub vegetation occurs on the western edge of the analysis Area outside of the Project Area.
Palafoxia arida* var. *gigantea Giant Spanish needle	Annual/perennial herb that blooms January through May. Inhabits desert dunes (CNPS 2021b). Elevation: 50 to 330 ft (CNPS 2021b).	Occurs in California and Sonora Mexico (CNPS 2021b).	Known only from Imperial County (CNPS 2021b).	**No potential of occurrence.** No suitable dune habitats exist within the Analysis Area and no records of the species occur within the Analysis Area.

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Pholisma sonorae Sand food	Perennial herb (parasitic) that blooms April through June (CNPS 2021f). Inhabits sandy soils, sand dunes and other sandy areas. It is a root parasite of desert shrubs (Arizona Rare Plant Committee 2001, CNPS 2021f). Known hosts include *Ambrosia dumosa, Eriogonum deserticola, Pluchea sericea, Tiquilia palmeri* and *T. plicata* (Yatskievych 1994). Elevation: In California, below 656 ft (CNPS 2021f). In Arizona, below 1,345 ft (AGFD 2004).	Occurs in Arizona and California, U.S. and the Mexican states of Baja California and Sonora (AGFD 2004, CNPS 2021f).	Known only from Imperial County (CNPS 2021f).	**Low potential of occurrence**. Small pockets of suitable sandy soils occur in the western extent of the Analysis Area and the suitable host plant (*Ambrosia dumosa*) occurs within the Analysis Area.
REPTILES				
Gopherus agassizii [2] Mojave Desert Tortoise	Inhabits valleys, bajadas and hills with sandy loam or rocky soils in Mojave desertscrub and Lower Colorado River Valley subdivision of the Sonoran Desert. To escape extreme temperatures, excavates burrows under vegetation or rocks. Will also use natural or manmade caves. Typically associated with areas of creosote bush, areas with other sclerophyll shrubs and with small cacti or areas with Joshua trees. Forages on grasses, forbs and succulents (AGFD 2010a). In the contact zone between the species (i.e., the Black Mountains), G. morafkai generally is found in foothills, hillside slopes and more mountainous terrain than G. agassizii that is typically found on alluvial fans and valley bottoms (Edwards et al. 2015). Elevation: Range-wide, from below sea level in Death Valley to 5,000 ft in elevation (AGFD 2010a).	Occurs in the Mojave desert of Arizona, California, Nevada and Utah (Edwards et al. 2015, Murphy et al. 2011).	More common in southern, central and the extreme northeast portion of state, but occurs throughout the state where suitable habitat exists (AGFD 2011).	**High potential of occurrence**. Active Tortoise burrows and scat have been detected within the Analysis Area. Records of this species occur within the Analysis Area (**Appendices A and E Photo 19**).

[2] Threatened, populations north and west of the Colorado River (USFWS 1980, USFWS 1990), critical habitat (USFWS 1980, USFWS 1994); Similarity of appearance (threatened) (USFWS 1990).

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Phrynosoma mcallii Flat-tailed horned lizard	Inhabits hard packed sandy flats and low dunes in Lower Colorado River desertscrub community, particularly in areas with creosote-white bursage vegetation (USFWS Brennan 2008, 2011). Elevation: Below 820 ft (AGFD 2010b).	Occurs in Arizona and California, U.S. and the Mexican states of Baja California and Sonora (USFWS 2011).	Found in the extreme southwestern portion of the state in the Yuma Desert (AGFD 2010b, USFWS 2011).	**No potential of occurrence**. No suitable hard packed sandy flats or low dunes occur within the Analysis Area. No records for this species occur within the Analysis Area.
Uma notata Colorado desert fringe-toed lizard	Occupies fine, loose, wind-blown sand dunes, dry lakebeds, sandy beaches or riverbanks, desert washes, and sparse desert scrub in the Colorado and Sonoran desert (CDFW 2000). Utilize sparsely-vegetated arid areas and burrows as refugia (CHS 2021a). Elevation: sea level to 1,600 ft (CHS 2021a).	Occurs in California and Baja California (CHS 2021a).	Found in extreme southeast California in the Colorado Desert from the Salton Sea and Imperial sand hills east to the Colorado River, south to the Colorado River delta and on into northeastern Baja California, and east to Borrego Mountain (CHS 2021a).	**Low potential of occurrence.** A small area of potential suitable sandy substrate occurs at the western edge of the Analysis Area outside of the Project Area (**Figure 6 and Appendix E Photos 13 and 14**).

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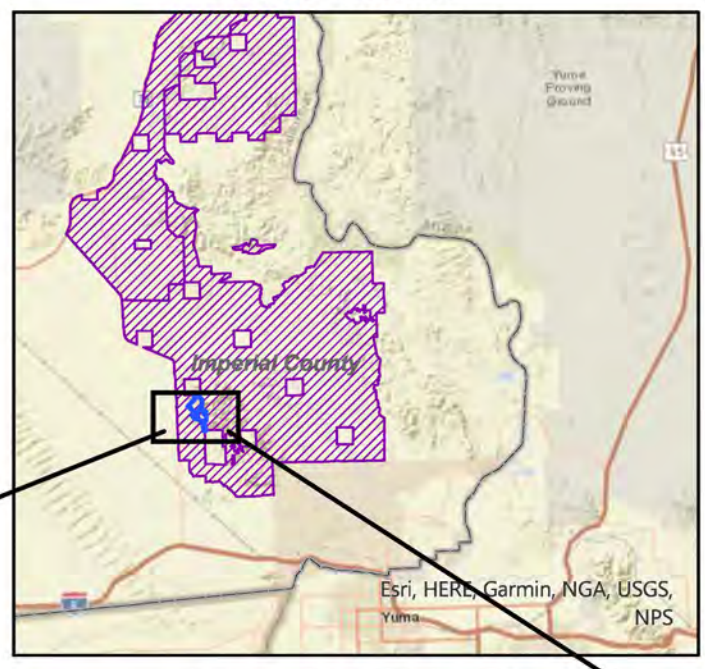
FIGURES

Path: M:\Jobs\2000's\2072.03\ENV\Biological\Assmt\ArcGISpro\OroCruzBA_2072_03\OroCruzBA_2072_03.aprx Date: 4/6/2021 User: cpowell

CALIFORNIA

PROJECT VICINITY



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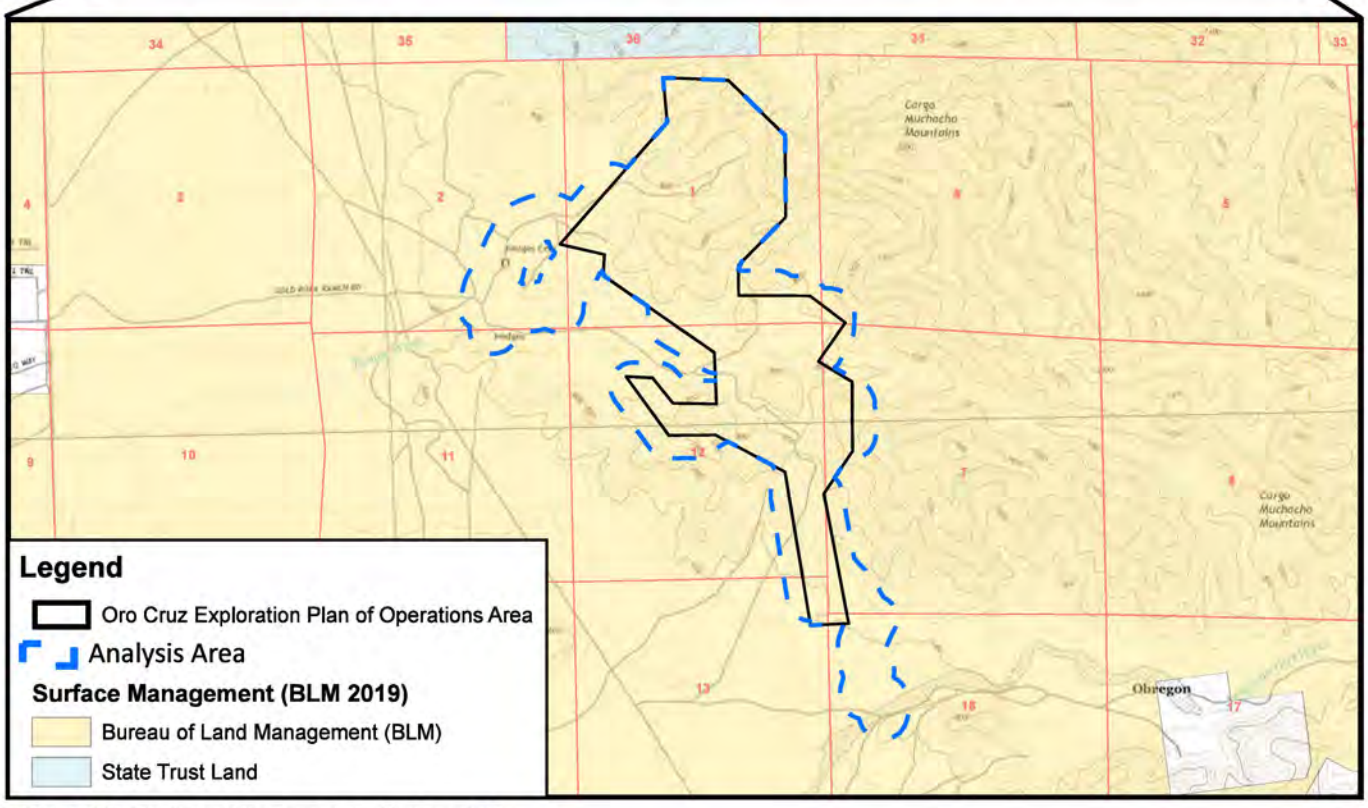


T15S, R20E, Portions of Sections 1, 2, 11, 12 and 13,
T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California,
Ogilby and Hedges USGS 7.5' Quadrangles (2018)
Data Source: SMP
Image Source: ArcGIS Online, World Street Map

WestLand Resources

N

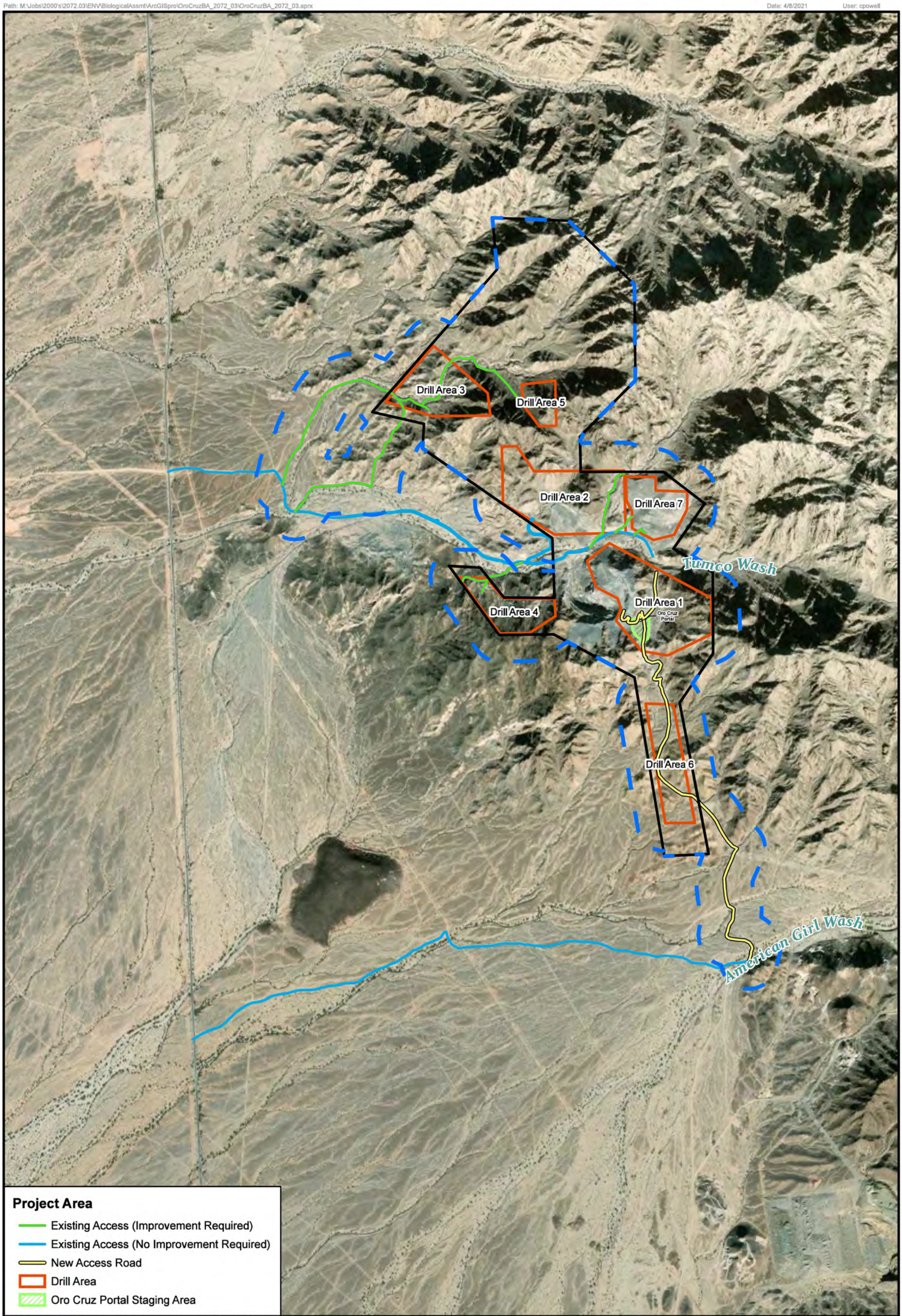
0 1,500 3,000 Feet

0 500 1,000 Meters

Oro Cruz Pit Area Exploration Project
Biological Resource Technical Report and Assessment

VICINITY MAP

Figure 1



T15S, R20E, Portions of Sections 1, 2, 11, 12 and 13,
T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California,
Data Source: SMP
Image Source: ArcGIS Online, World Imagery, 2018

WestLand Resources

Legend

Oro Cruz Exploration Plan of Operations Area

Analysis Area

N

0 800 1,600 Feet

0 400 800 Meters

Oro Cruz Pit Area Exploration Project
Biological Resource Technical Report and Assessment

ANALYSIS AREA

Figure 2

T14S, R20E, Portions of Sections 24-27, and 34-36,
T14S, R21E, Portions of Sections 19, and 29-32,
T15S, R20E, Portions of Sections 1-3, 10-15, 23-26, 35, and 36,
T15S, R21E, Portions of Sections 4-9, 16-21, and 28-32,
Imperial County, California,
Data Source: SMP
Image Source: ArcGIS Online, World Imagery, 2019

Legend

- Oro Cruz Raptor Survey Area
- Analysis Area

Sightings

Type

- Eyrie
- Likely nest

N

0 1,900 3,800 Feet

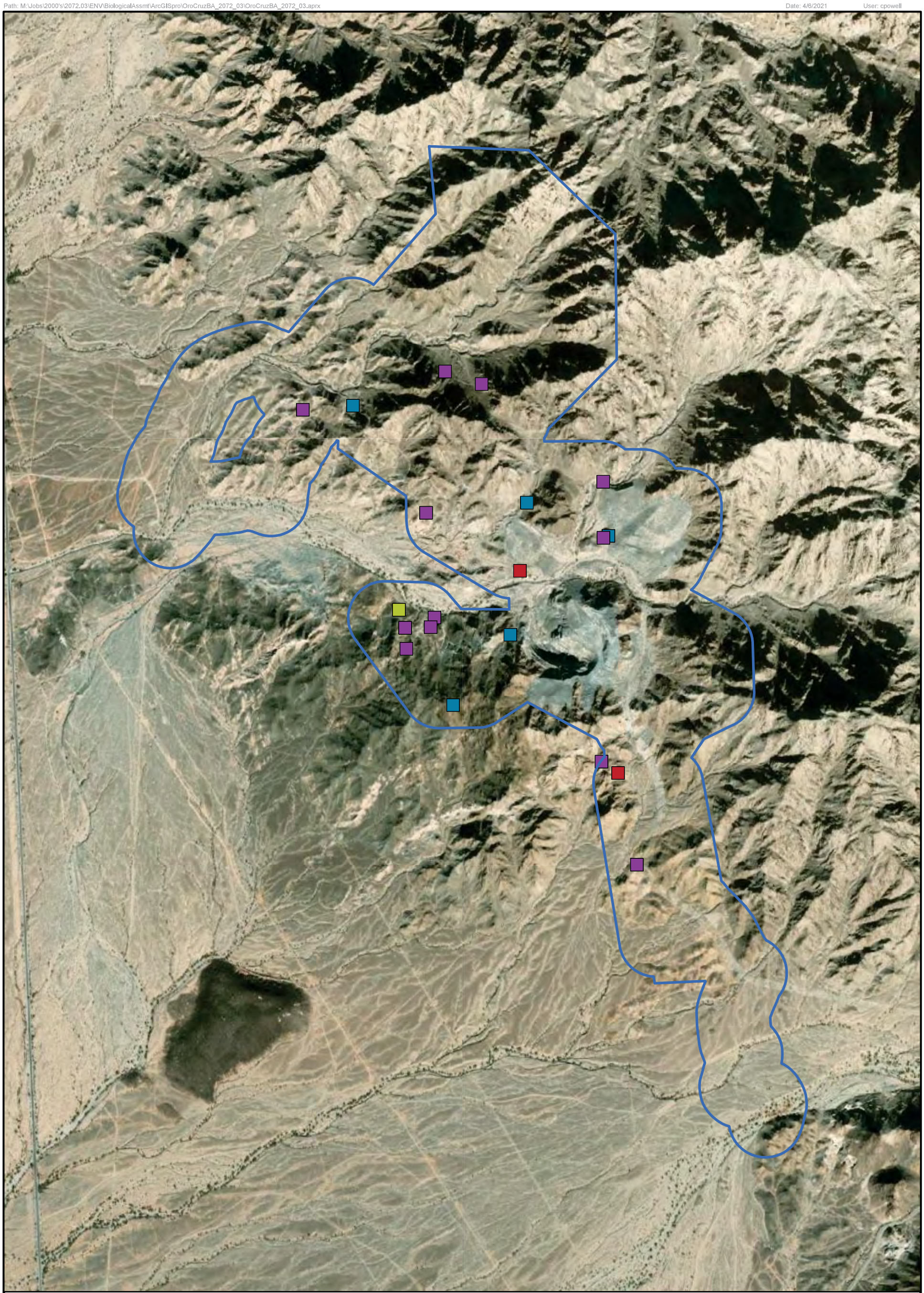
0 950 1,900 Meters

WestLand Resources

Oro Cruz Pit Area Exploration Project
Biological Resource Technical Report and Assessment

RAPTOR SURVEY AREA

Figure 3



T15S, R20E, Portions of Sections 1, 2, 11, 12 and 13,
T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California,
Data Source: SMP
Image Source: ArcGIS Online, World Imagery, 2019

Legend

Analysis Area

Bat Species Observed

- California leaf-nosed bat
- Myotis species
- Myotis species/California leaf-nosed bat
- unknown

WestLand Resources

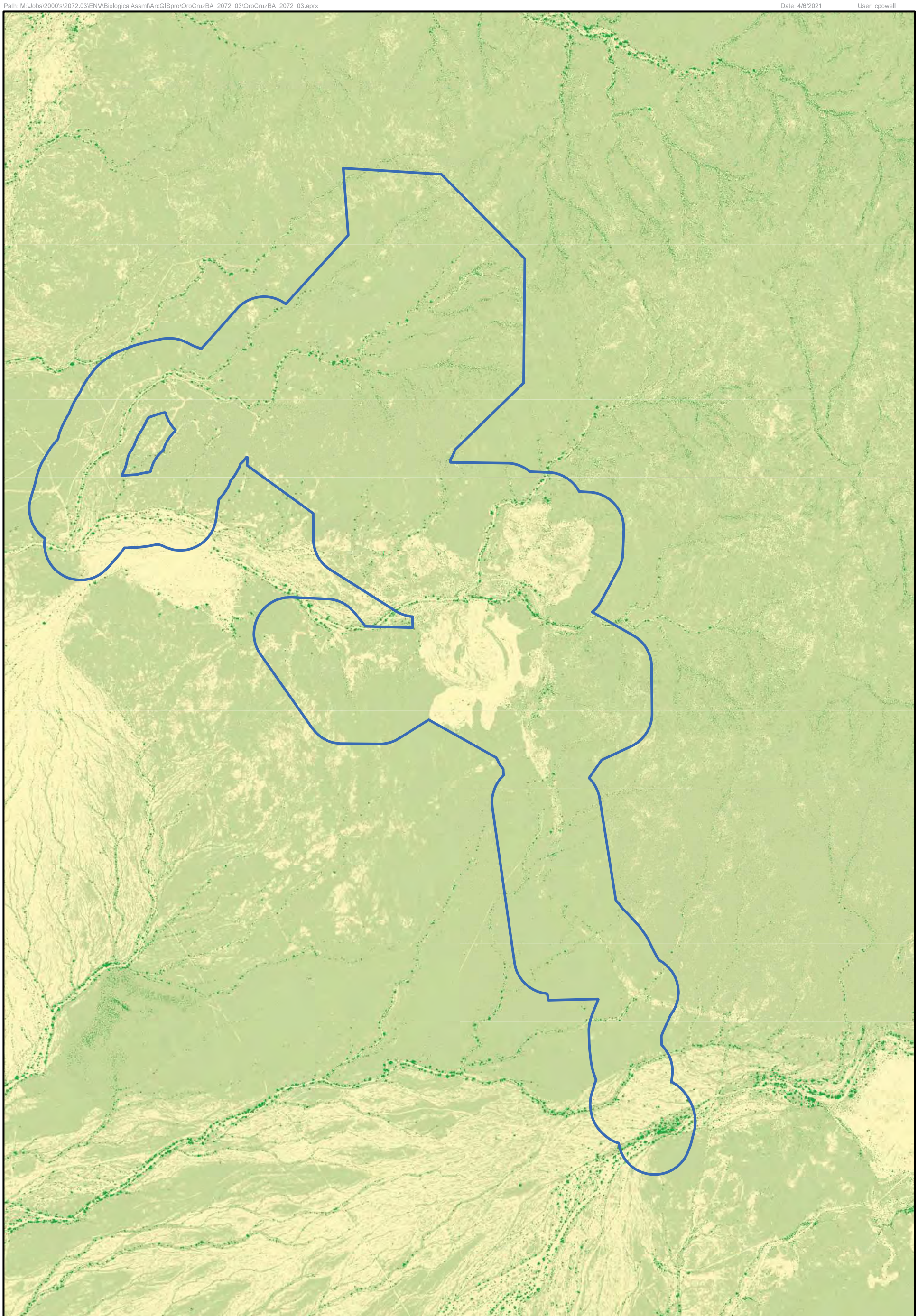
N

0 750 1,500 Feet

0 250 500 Meters

Oro Cruz Pit Area Exploration Project
Biological Resource Technical Report
and Assessment

BAT HABITAT ASSESSMENT
Figure 4



T15S, R20E, Portions of Sections 1, 2, 11, 12 and 13,
T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California,
Imperial County, California,
Data Source: SMP
Image Source: Supervised Classification from NAIP 2020

Legend

- Analysis Area
- Brassica (nigra) and other mustards semi-natural stands
- Parkinsonia florida—Olneya tesota alliance
- Larrea tridentata — Encelia farinosa alliance

N

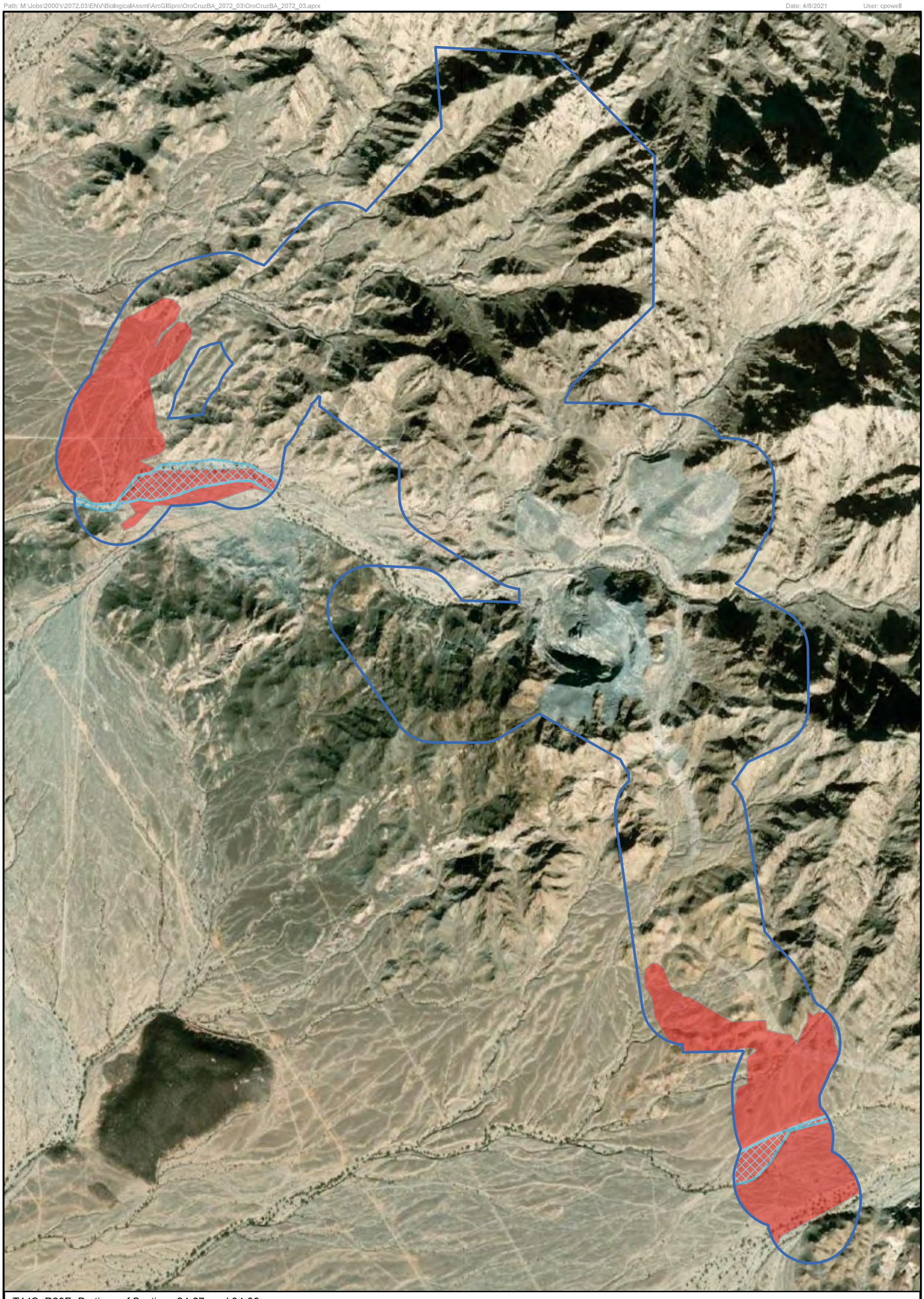
0 750 1,500 Feet

0 250 500 Meters

WestLand Resources

Oro Cruz Pit Area Exploration Project
Biological Resource Technical Report and Assessment

VEGETATION CLASSIFICATION
Figure 5



T14S, R20E, Portions of Sections 24-27, and 34-36,
T14S, R21E, Portions of Sections 19, and 29-32,
T15S, R20E, Portions of Sections 1-3, 10-15, 23-26, 35, and 36,
T15S, R21E, Portions of Sections 4-9, 16-21, and 28-32,
Imperial County, California,
Data Source: SMP
Image Source: ArcGIS Online, World Imagery, 2019

Legend

Analysis Area

Species

Fringe-toed lizard habitat

Burrowing owl habitat

WestLand Resources

N

0 750 1,500 Feet

0 250 500 Meters

Oro Cruz Pit Area Exploration Project
Biological Resource Technical Report and Assessment

WESTERN BURROWING OWL AND COLORADO DESERT FRINGE-TOED LIZARD HABITAT ASSESSMENT Figure 6

Path: M:\Jobs\2000's\2072.03\ENV\BiologicalAssmt\ArcGISpro\OroCruzBA_2072_03\OroCruzBA_2072_03.aprx Date: 4/8/2021 User: cpowell

T15S, R20E, Portions of Sections 1, 2, 11, 12 and 13,
T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California,
Ogilby and Hedges USGS 7.5' Quadrangles (2018)
Data Source: SMP & Stantec
CDFW (https://apps.wildlife.ca.gov/)
CNPS (https://apps.wildlife.ca.gov/)
Image Source: ArcGIS Online, World Imagery, 2019

Legend

Analysis Area

Occurrences

- California leaf-nosed bat
- Pallid bat
- Tortoise Burrow
- Tortoise Scat
- Townsend's big-eared bat
- pink fairy-duster
- western mastiff bat

N

0 750 1,500 Feet

0 250 500 Meters

WestLand Resources

Oro Cruz Pit Area Exploration Project
Biological Resource Technical Report and Assessment

SPECIAL-STATUS SPECIES HISTORICAL OCCURRENCE WITHIN THE ANALYSIS AREA

Figure 7

APPENDIX A

Tortoise Survey

DESERT TORTOISE SURVEY REPORT
ORO CRUZ PROJECT

Prepared for:

Southern Empire Resources Corp. / SMP Gold Corp.
789 West Pender Street, Suite 420
Vancouver, British Columbia V6C 1H2

Prepared by:

Stantec Consulting Services Inc.
321 North Mall Drive, Suite I-202
St. George, Utah 84790

And

6995 Sierra Center Parkway
Reno, Nevada 89511

Stantec Project Number 203722086

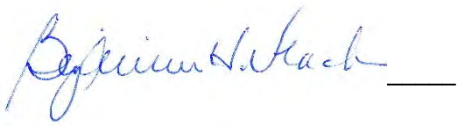
February 16, 2021

Sign-off Sheet and Signatures of Environmental Professionals

This document entitled Desert Tortoise Survey Report, Oro Cruz Project was prepared by Stantec Consulting Services Inc. (Stantec) for the account of Southern Empire Resources Corp/SMP Gold Corp. The material in it reflects Stantec's best judgment in light of the information available to it at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Stantec accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

All information, conclusions, and recommendations provided by Stantec in this document regarding the Desert Tortoise Report have been prepared by and/or under the supervision of and reviewed by the professionals whose signatures appear below.

Prepared by: _____ _____
Greg Sharp
Environmental Scientist

Approved by: _____  ____
Benjamin H. Veach,
Principal

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2.2 Personnel Qualifications 2

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ACRONYMS AND ABBREVIATIONS

BLM	Bureau of Land Management
GIS	Geographic Information System
GPS	Global Positioning System
NEPA	National Environmental Policy Act
Project	Oro Cruz Drilling Plan Project
Stantec	Stantec Consulting Services Inc.
USFWS	United States Fish and Wildlife Service

1.0 SUMMARY

Stantec Consulting Services Inc. (Stantec) completed a desert tortoise survey of the Oro Cruz Drilling Plan Project (Project), located in Imperial County, California in the historic mining area of Tumco (**Figure 1**). The survey was conducted January 8 through 15, 2021.

The Project consists of seven planned drill exploration areas and associated access roads (Action Area, **Figure 2**). The total acres of surveys conducted in the drill exploration areas was 119.74 and the total miles of access road surveyed was 9.75. Areas of vertical, solid rock; highly-disturbed ground; or mine pits, within the drill areas, were considered unsuitable habitat for desert tortoise and not surveyed. Unsuitable habitat totaled 98.59 acres.

The following items of note were identified during this survey:

Drill Area 1 and associated access
No tortoise or tortoise sign was found in the drill area or associated accesses.

Drill Area 2 and associated access
Two tortoise burrows were found, one with scat at the entrance, indicating this is likely an active borrow. Both burrows were in good condition.

Drill Area 3 and associated access
Four tortoise burrows and a piece of scat were found in the drill area. One burrow had tortoise tracks in the front of it and another had scat. All of the burrows are considered active or good condition.

Drill Area 4 and associated access
No tortoise or tortoise sign was found in the drill area or associated accesses.

Drill Area 5 and associated access
One piece of tortoise scat was found in the drill area; however, no burrows were located.

Drill Area 6 and associated access
Two tortoise burrows were found in the drill area. One was in good condition; the other was deteriorated but had the correct shape.

Drill Area 7 and associated access
This drill area was highly disturbed and consisted of unsuitable habitat. Access roads were surveyed, and no tortoise or tortoise sign was found.

The preceding summary is intended for informational purposes only. Reading of the full body of this report is recommended.

2.0 INTRODUCTION

2.1 ACTION AREA DESCRIPTION

Stantec Consulting Services Inc. (Stantec) completed a desert tortoise survey of the Oro Cruz Drilling Plan Project (Project), located in Imperial County, California in the historic mining area of Tumco (**Figure 1**). The survey was conducted January 8 through 15, 2021.

The Project consists of seven planned drill exploration areas (218.33 acres) and associated access roads (9.75 miles) (Action Area, **Figure 2**). The Action Area is located within the Cargo Muchacho Mountains which consists of very rugged, eroding, rocky slopes. Mining has occurred in this area since the early 1800s. The most recent mining activity was in the mid to late 1990s. As such, much of the area has been disturbed from mining activities. Off-road vehicle use, recreational vehicle camping, and other outdoor activities have added to the disturbances in the area. Vegetation in the Project is low desert scrub typical of the high temperature region of southeast California.

The Action Area is within Bureau of Land Management (BLM) classified Category 3 desert tortoise habitat, lower quality habitat, and on the edge of tortoise's general distribution in southern California (BLM, 1994). In these areas, the tortoises occur in relatively low numbers. The Action Area is approximately 6.8 miles from United States Fish and Wildlife Service (USFWS)-designated critical habitat and is 2,750 feet south of the designated Colorado Desert Recovery unit (**Figure 1**).

A total of 119.74 acres were surveyed in the seven drill areas and 9.75 miles of access roads were surveyed. There were 98.59 acres within the seven drill areas that were determined to be unsuitable habitat and were not surveyed. These areas consisted of steep vertical cliffs; highly disturbed ground; or mine pits.

2.2 PERSONNEL QUALIFICATIONS

Greg Sharp – B.S. Degree, Fisheries and Wildlife Biology
Mr. Sharp has utilized numerous survey techniques to assess the presence of Threatened, Endangered, Candidate, and Sensitive plant and animal species throughout the western states on private, BLM, and United States Forest Service lands. Mr. Sharp is a certified desert tortoise biologist and has been doing biological surveys in Utah, Nevada, and California for over 20 years. Mr. Sharp has completed tortoise surveys in conjunction with the National Environmental Policy Act (NEPA) process for many large projects in the southwest and in the greater southwestern Utah area.

Seth Topham – B.S. Degree, Natural Resources
Mr. Topham has more than 15 years of experience working as a natural resource biologist/certified desert tortoise biologist in many areas of the western United States. He also has more than 10 years of experience in providing Geographical Information System (GIS) support for various natural resource projects. Mr. Topham has utilized many survey techniques to assess the presence and/or monitor the status of plant and animal species, including many listed as Threatened, Endangered, Candidate, or otherwise considered Sensitive. Mr. Topham has completed numerous tortoise surveys in conjunction with the NEPA process for many large projects in the southwest and in the greater southwestern Utah area.

3.0 METHODS

3.1 TORTOISE SURVEYS

Stantec biologists conducted desert tortoise surveys in the Action Area following the USFWS protocol *Preparing For Any Action That May Occur Within The Range Of The Mojave Desert Tortoise (Gopherus agassizii*) (USFWS, 2019). As required by the protocol, biologists walked parallel transects spaced 10 meters apart to achieve 100 percent coverage of the areas surveyed. The Action Area transects were mapped in GIS and uploaded to Collector, a global positioning system (GPS) application for field data collection, prior to the survey. The Collector application was used to locate and follow the established transect lines in the field. During the survey, special attention was given to the identification of desert tortoise and desert tortoise sign (e.g., burrows, scat, carcasses, etc.). Vegetation and other wildlife species were also identified during the survey. Survey information was recorded on established data sheets.

4.0 RESULTS

4.1 HABITAT

The Action Area is located within the Cargo Muchacho Mountains which consists of very rugged, eroding, rocky slopes. The Action Area is located along the western side of the mountains at an elevation ranging from 500 to 800 feet. Mining has occurred in this area since the early 1800s. The most recent mining activity was in the mid to late 1990s. As such, much of the area has been disturbed from mining activities. Other significant human activity in the area consists of off-road vehicle driving, recreational vehicle camping, and other outdoor activities. Vegetation in the Action Area is typical low desert scrub found in southeast California. Habitat in the Action Area consists of four types: steep slopes, bajadas, desert pavement areas and washes.

Vegetation cover is low but varies from almost zero on the steep rocky slopes and desert pavement to fairly dense in some of the washes and bajadas. Vegetation on the slopes and uplands consists of scattered creosote bush (*Larrea tridentata*), ocotillo (*Fouquieria splendens*), Inciensio (*Encelia farinose*) and scattered native grasses. Areas at the beginning of the bajadas and base of steep slopes offered foraging, shade and burrowing areas for desert tortoises. The deep cut washes concentrate rain fall and allow a greater variety of larger shrubs, trees, and ground cover. Dominant vegetation in these washes consisted of ironwood (*Olneya tesota*), mesquite (*Posopis juliflora*), palo verde (*Cercidium floridum*), and tamarisk (*Tamarix pentandra*). The washes in the area would supply needed forage and shade for the desert tortoise. The wash banks supply areas for caliche caves and burrows. Dominant vegetation in these washes consisted of ironwood, creosote bush, mesquite, palo verde, and tamarisk. A complete list of plants found in the survey area is included in **Appendix A**.

Soils in the Action Area developed from weathered granitic rock and schistose rock substrates. The soils consist of gravelly sands with large amounts of cobble, rock, and boulders. Hill slopes in the Action Area are steep and almost entirely covered in large, weathered rock. Alluvial fans and washes in the area contained the deeper soils and would be considered suitable for tortoise burrowing.

4.1.1 Physical and Biological Features of Critical Desert Tortoise Habitat Described for the Action Area

Although the Action Area is within BLM category III habitat, the area is outside of USFWS designated Critical Habitat (**Figure 1**) but per protocol, the habitat is described below using the physical and biological features for Designated Desert Tortoise Critical Habitat (USFWS 2019).

1. The Action Area provides areas of sufficient space for movement and for tortoise to reside in the area. However, large sections of the Action Area are made up of steep rocky slopes, past mining disturbances and mining pits that would preclude the tortoise from using these areas.

2. The washes, bajadas, and upland areas do support native plant forage for the desert tortoise. Most of the forage species would be found in the washes or bajadas, were soils are better and water would promote plant growth.

3. Suitable burrowing, nesting, and overwintering substrate is restricted in the Action Area to the deep cut washes where soils are deeper and consist of a sandy gravel mixture. Caliche

caves and other shelter sites are also found in these washes. Other deep shelter sites can be found at the base of the rocky steep slopes.

4. Vegetation density is generally low in the Action Area. Shrubs grow large enough to provide shade and shelter but are sparse. The washes in the Action Area do supply a denser tree and shrub cover that provides shade and shelter.

5. The Action Area is being disturbed from an increase in human activities related to recreational use of the area. Also, past mining activities have disturbed much of the Action Area.

4.2 TORTOISE SURVEY

The Action Area is located within 2,750 feet of the Colorado Desert Recovery Unit for the desert tortoise (**Figure 1**). Stantec completed desert tortoise surveys following the USFWS protocol- *Preparing For Any Action That May Occur Within The Range Of The Mojave Desert Tortoise (Gopherus agassizii*) (USFWS 2019). The survey was conducted January 8 through 15, 2021. The survey methods for small projects and linear projects were followed as the Action Area size was less than 500 acres and had linear access routes. The primary purpose of these surveys was to provide information on whether desert tortoises are likely to be present. Small project and linear project surveys can be completed any time of year as they are used to determine if desert tortoises are present in the area based on sign rather than live animals.

As required by the protocol, biologists walked parallel transects spaced 10 meters apart to achieve 100 percent coverage of the area surveyed. Stantec used the datasheet included in the protocol to record all evidence that indicates desert tortoises may be present (e.g., scat, burrows, carcasses, courtship rings, drinking depressions, etc. in addition to live tortoises) (**Appendix B**). The Action Area transects were mapped in GIS and uploaded to the Collector application using a handheld GPS device. The application was used to locate and follow the established transect lines in the field. Temperatures ranged from the mid 40's in the mornings, with afternoon highs ranging in the 70's. Below are the survey findings in the Action Area:

<u>Drill Area 1 and associated access</u>
Drill Area 1 (**Figure 2**) was located almost entirely in the rocky steep slope habitat with approximately half of the area being an open pit (Photos 1-2, 27-28, **Appendix C**). The area was 57.74 acres with 18.28 acres being surveyed as tortoise habitat.

No tortoise or tortoise sign was found in the drill area or associated accesses.

<u>Drill Area 2 and associated access</u>
Drill Area 2 (**Figure 2**) was located with approximately half of the area being tortoise habitat and the other half was steep and solid rock. (Photos 3-4, 23, 25, 29, **Appendix C**). The area was 54.84 acres with 34.03 acres being surveyed as tortoise habitat.

Two tortoise burrows were found, one had scat at the entrance (Photos 5, 24, **Appendix C**). All burrows were in good condition (Datasheets, **Appendix B**).

Drill Area 3 and associated access

Drill Area 3 (**Figure 2**) had a large wash that went down the middle of the area with the eastern portion of the area having steep and solid rock. (Photo 6, **Appendix C**). The area was 30.98 acres with 25.90 acres being surveyed as tortoise habitat.

Four tortoise burrows and a piece of scat were found in the drill area (Photos 7-10, **Appendix C**). One burrow had tortoise tracks in the front of it and another had scat. All are considered active or good condition (Datasheets, **Appendix B**).

Drill Area 4 and associated access

Drill Area 4 (**Figure 2**) was located almost entirely in the rocky steep slope habitat (Photos 11-12, 26, **Appendix C**). The area was 20.07 acres with 13.12 acres being surveyed as tortoise habitat.

No tortoise or tortoise sign was found in the drill area or associated accesses.

Drill Area 5 and associated access

Drill Area 5 (**Figure 2**) was located almost entirely in the rocky steep slope habitat (Photo 13, **Appendix C**). The area was 9.24 acres with 3.44 acres being surveyed as tortoise habitat.

One piece of tortoise scat was found in the drill area (Datasheets, **Appendix B**, Photo 14, **Appendix C**).

Drill Area 6 and associated access

Drill Area 6 (**Figure 2**) was located in an old, reclaimed haul route and included some rocky hills and bajada areas (Photo 15, **Appendix C**). The area was 24.98 acres with 100 percent being surveyed as tortoise habitat.

Two tortoise burrows were found in this drill area (Photo 16-17, **Appendix C)**. One was in good condition the other was deteriorated but had the correct shape (datasheets, **Appendix B**).

Drill Area 7 and associated access

Drill Area 7 (**Figure 2**) was located entirely in a mine waste dump area and was not surveyed as tortoise habitat. Access roads were surveyed (Photos 30-31, **Appendix C**).

No tortoise or tortoise sign was found in the associated accesses.

4.3 GENERAL WILDLIFE OBSERVATIONS

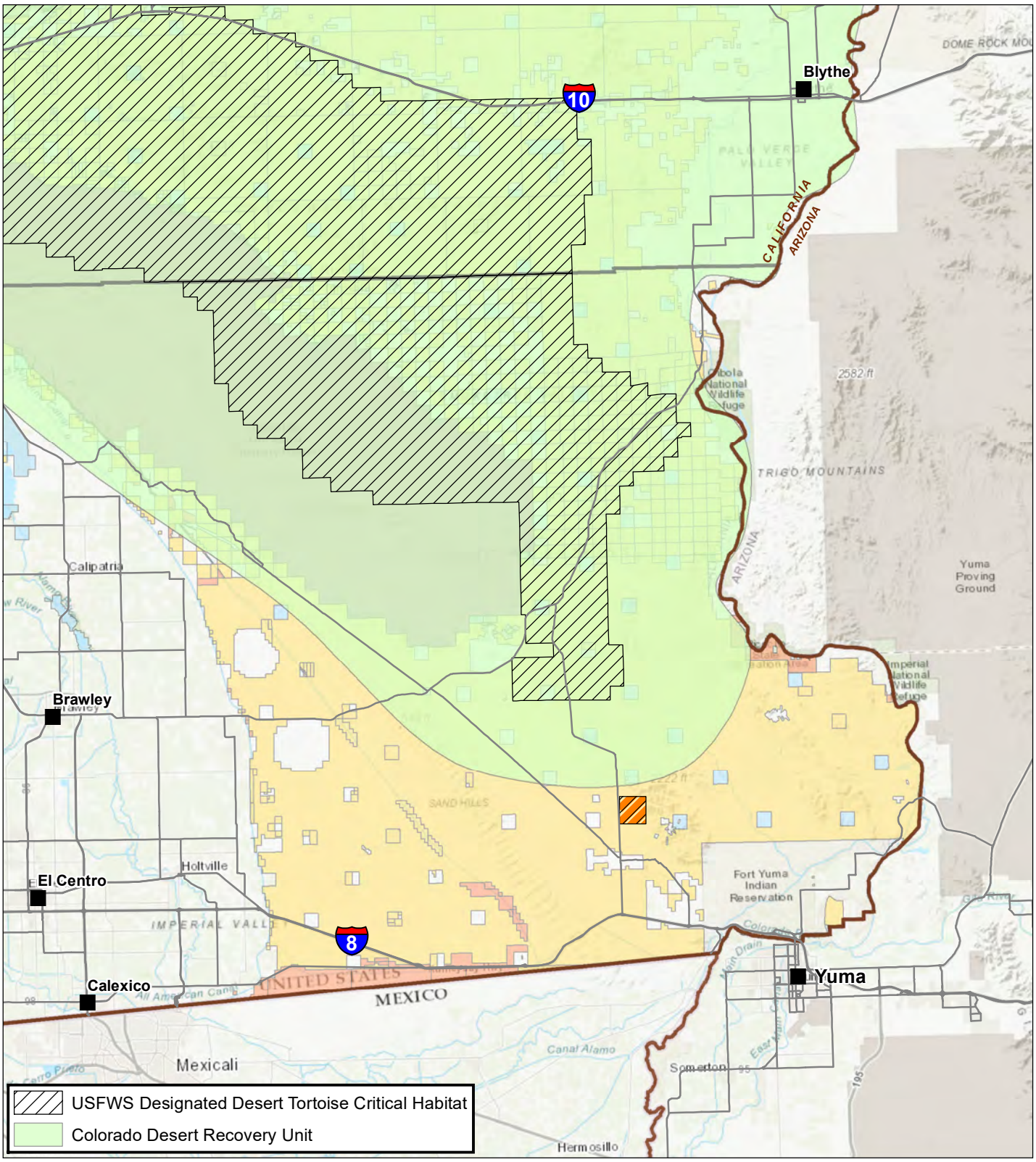
During the survey, observations were made of other wildlife species found or their sign (scat or tracks) and included many typical desert species of birds, reptiles, and mammals. A complete list is located in **Appendix A**

5.0 REFERENCES

Bureau of Land Management (BLM). 1994. Oro Cruz Operation of the American Girl Mining Project: Environmental Impact Statement. El Centro Resource Area. El Centro, California.

United States Fish and Wildlife Service (USFWS). 2019. Preparing For Any Action That May Occur Within The Range Of The Mojave Desert Tortoise (*Gopherus agassizii*). Ventura Office. Ventura, California.

FIGURES



Legend

Project Location

Land Status

- Bureau of Land Management
- Private
- State Lands
- Bureau of Reclamation
- Department of Defense

N

Stantec

0 5 10 Miles

1 in = 10 miles

Imperial County, CA
NAD 1983 UTM Zone 11N

DRAWN BY: JT	1ST REVIEW: CJ	2ND REVIEW: BV
DATE: 2/1/2021	PROJECT NO: 203722086	

Southern Empire Resources
SMP Gold Corp.
Oro Cruz Project Tortoise Survey

Figure 1
Project Location

V:\2037\Active\203722086\03_data\gis_cad\gis\mxds\Figure_1_Project_Location_v2_8x11P.mxd Revised: 2021-02-01 By: chrjohnson

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

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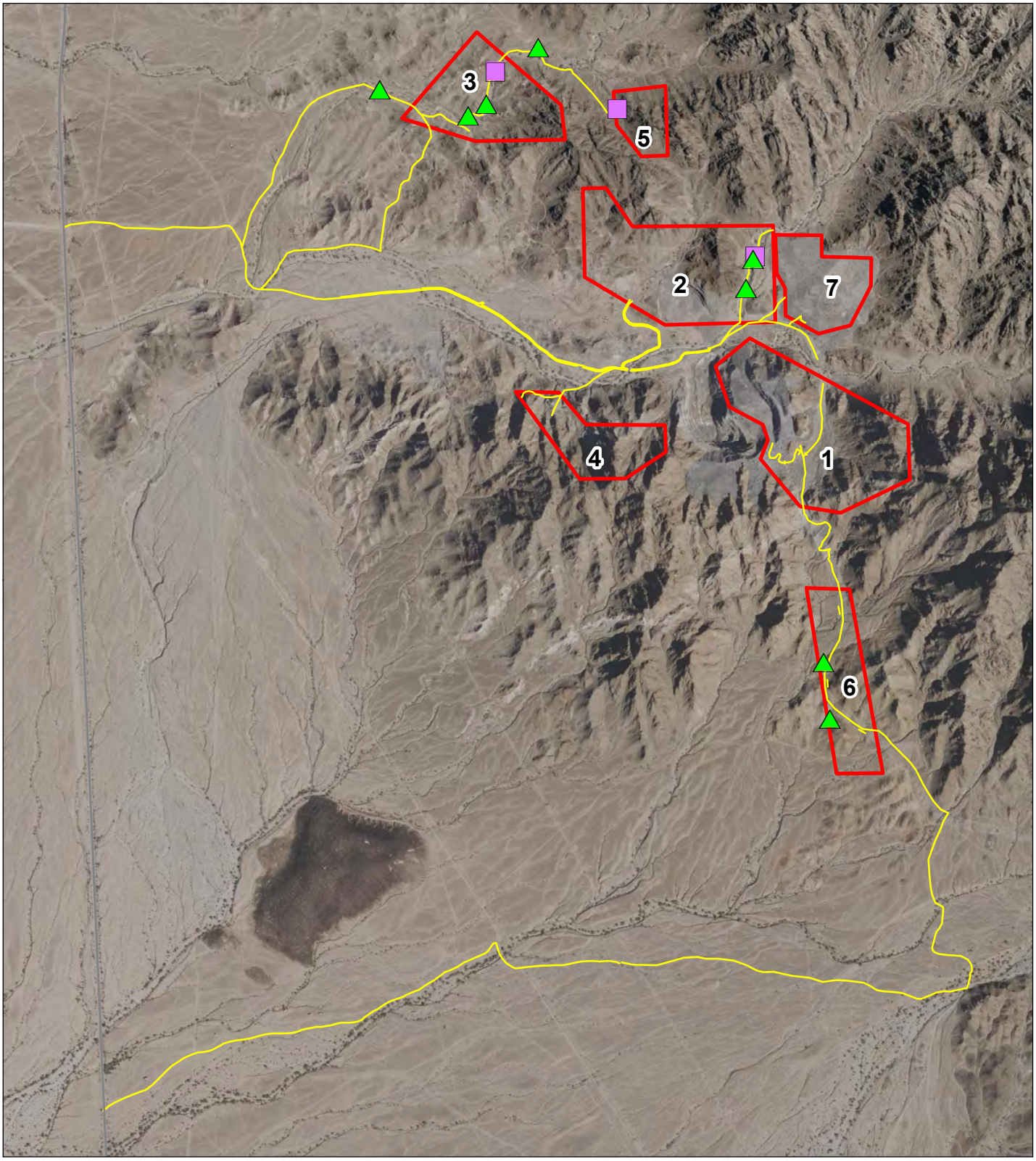

Legend

- Drill Areas
- Access Roads
- Tortoise Burrow
- Tortoise Scat

N

Stantec

Feet

0 800 1,600

1 in = 1,600 feet

Imperial County, CA
NAD 1983 UTM Zone 11N

DRAWN BY: JT | 1ST REVIEW: CJ | 2ND REVIEW: BV

DATE: 2/1/2021 | PROJECT NO: 203722086

Southern Empire Resources
SMP Gold Corp.
Oro Cruz Project Tortoise Survey

Figure 2
Survey Results

V:\2037\Active\203722086\03_data\gis_cad\gis\mxds\Figure_2_Survey_Results_Map_8x11P.mxd Revised: 2021-02-01 By: chrjohnson

Service Layer Credits: Esri, USDA Farm Service Agency

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The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

APPENDIX A

Plants and Wildlife

Common Name	Genus	Species
Plants		
catclaw	*Acacia*	*greggii*
Burrow bush	*Ambrosia*	*dumosa*
devil's lettuce	*Amsinckia*	*tessellata*
palo verde	*Cercidium*	*floridum*
devil's spine flower	*Chorizanthe*	*rigida*
wingnut cryptantha	*Cryptantha*	*pterocarya*
inciensio	*Encelia*	*farinosa*
desert trumpet	*Eriogonum*	*Inflatum*
buckwheat	*Eriogonum*	*deflexum*
barrel cactus	*Ferocactus*	*acanthodes*
ocotillo	*Fouquieria*	*splendens*
hopsage	*Grayia*	*spinosa*
range ratany	*Krameria*	*grayi*
creosote	*Larrea*	*tridentata*
desert pepperweed	*Lepidium*	*fremontii*
beaver tail cactus	*Opuntia*	*basilaris*
golden cholla	*Opuntia*	*acanthocarpa*
desert plantain	*Plantago*	*insularis*
mesquite	*Prosopis*	*juliflora*
nipple cactus	*Mammillaria*	*acanthocarpa*
clump grass	*Shismus*	*arabicus*
globemallow	*Sphaeralcea*	*emoryi*
Birds		
black-tailed gnatcatcher	*Polioptila*	*melanura*
black-throated sparrow	*Amphispiza*	*bilineata*
Costa's hummingbird	*Calypte*	*costae*
Gambel's quail	*Callipepla*	*gambelii*
ladder-backed woodpecker	*Picoides*	*scalaris*
loggerhead shrike	*Lanius*	*ludovicianus*
mourning dove	*Zenaida*	*macroura*
peregrine falcon	*Falco*	*peregrinus*
phainopepla	*Phainopepla*	*nitens*
red-tailed hawk	*Buteo*	*jamaicensis*
rock wren	*Salpinctes*	*obsoletus*
Say's phoebe	*Sayornis*	*saya*
turkey vulture	*Cathartes*	*aura*
Mammals		
antelope ground squirrel	*Ammospermophilus*	*leucurus*
mule deer	*Odocoileus*	*hemionus*
Reptiles		
desert tortoise	*Gopherus*	agassizii
Side-blotched lizard	*Uta*	*stansburiana*

APPENDIX B

Datasheets

Drill Area 2

Version: October 26, 2018

Date of survey: 11/01/2021 (day, month, year) Survey biologist(s): Seth.topham@stantec.com, 435-668-9723 - Greg.sharp2@stantec.com (name, email, and phone number)

Site description: Oro Cruz, 198 Acres, Southwest end of the Cargo Muchacho Mountains (project name and size; general location)

County: Imperial County, CA Quad: OGILBY/HEDGES Location: 704285, 3604260 NAD 83 Z11 (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: 37Ac Transect #: ORC-N3-113 Transect length: 114

GPS Start-point: 704546, 3640367 231 m (easting, northing, elevation in meters) Start time: 9:12 am/pm

GPS End-point: 704510, 3640370 (easting, northing, elevation in meters) End time: 9:20 am/pm

Start Temp: 65 °C End Temp: 65 °C

Live Tortoises

Detection number	GPS location Easting	GPS location Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL ≥180 mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1	704557	3640260	SCAT S3	2 PIECES
2				
3				
4				
5				
6				
7				
8				

Drill Area 2

Version: October 26, 2018

Date of survey: 14/01/2021 (day, month, year) Survey biologist(s): Seth.topham@stantec.com, 435-668-9723 - Greg.sharp2@stantec.com (name, email, and phone number)

Site description: Oro Cruz, 198 Acres, Southwest end of the Cargo Muchacho Mountains (project name and size; general location)

County: Imperial County, CA Quad: Gilby / Heroes Location: 704255, 3640260 NAD83 Z11 (UTM coordinates, lat-long, and/or TRS, map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: 54.84 Transect #: 02 Transect length: _____

GPS Start-point: 704615, 3640340 230m (easting, northing, elevation in meters) Start time: 10:06 am/pm

GPS End-point: 704394, 3639937, 215m (easting, northing, elevation in meters) End time: 10:33 am/pm

Start Temp: 76 °C End Temp: 70 °C

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow: all of tortoise beneath plane of burrow opening, or not in burrow*)	Approx MCL ≥180 mm? (Yes, No or Unknown)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1	704545	3640252	Burrow	SCAT (S2)
2	704522	3640141 7	Burrow	NO OTHER SIGN.
3				
4				
5				
6				
7				
8				

DA2 - EAST - ACCESS - SOUTH SIDE

PHOTOS say EAST Tr.

Drill Area 3

Version: October 26, 2018

Date of survey: 10/01/2021 (day, month, year) Survey biologist(s): Seth.topham@stantec.com, 435-668-9723 - Greg.sharp2@stantec.com (name, email, and phone number)

Site description: Oro Cruz, 198 Acres, Southwest end of the Cargo Muchacho Mountains (project name and size; general location)

County: Imperial County, CA Quad: Hodges Location: 703328 3640758 (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: Rd. width Transect #: Jumpo -5 Transect length: _____

GPS Start-point: 702152 3640376 176m (easting, northing, elevation in meters) Start time: 0845 am/pm

GPS End-point: 704075 3640752 233m (easting, northing, elevation in meters) End time: 1000 am/pm

Start Temp: 55 °C End Temp: hot °C

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL ≥180 mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3						
4						
5			none			
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1	703647	3640908	scat	1 piece, S2 cond.
2				
3				
4				
5				
6				
7				
8				

Drill Area 3

Version: October 26, 2018

Date of survey: 10 /01/2021 (day, month, year) Survey biologist(s): Seth.topham@stantec.com 435-668-9723 - Greg.sharp2@stantec.com (name, email, and phone number)

Site description: Oro Cruz, 198 Acres, Southwest end of the Cargo Muchacho Mountains (project name and size; general location)

County: Imperial County, CA Quad: HODGES Location: 702152, 3640376 NAD83 Z11 (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage/or Sampling Area size to be surveyed: 2000 w.OTLH Transect #: TUMO N Transect length: _____

GPS Start-point: 704075, 3640752 233 m (easting, northing, elevation in meters) Start time: 8:53 am/pm

GPS End-point: 702152, 3640376 176 m (easting, northing, elevation in meters) End time: 10:30 am/pm

Start Temp: 55 °F End Temp: 60 °C

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL ≥180 mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1	703793	3640944	BURROW	TRACKS
2	703612	3640793	BURROW	SCAT
3	703548	3640754	BURROW	SCAT
4	703238	3640854	BURROW	GOOD CONDITION
5				
6				
7				
8				

Drill Area 5

Version: October 26, 2018

Date of survey: 11/01/2021 (day, month, year) Survey biologist(s): Seth.topham@stantec.com, 435-668-9723 - Greg.sharp2@stantec.com (name, email, and phone number)

Site description: Oro Cruz, 198 Acres, Southwest end of the Cargo Muchacho Mountains (project name and size; general location)

County: Imperial County, CA Quad: Hodges Location: 703328 3640758 (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: 31 Transect #: DH5-EW-17 Transect length: ____

GPS Start-point: 704077 3640834 (easting, northing, elevation in meters) Start time: 1444 am/pm

GPS End-point: 704075 3640715 (easting, northing, elevation in meters) End time: 1700 am/pm

Start Temp: 55 °C End Temp: 75 °C

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL ≥180 mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1	704077	3640776	Scat	S2 Cond., 1piece
2				
3				
4				
5				
6				
7				
8				

Drill Area 6

Version: October 26, 2018

Date of survey: 11/01/2021 (day, month, year) Survey biologist(s): Seth.topham@stantec.com, 435-668-9723 - Greg.sharp2@stantec.com (name, email, and phone number)

Site description: Oro Cruz, 198 Acres, Southwest end of the Cargo Muchacho Mountains (project name and size; general location)

County: Imperial County, CA Quad: Gilbert Location: 704864 3638784 (UTM coordinates, lat-long, and/or TRS, map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: 25 Transect #: D1b-NS-84 Transect length: 1658

GPS Start-point: 704817 3638601 (easting, northing, elevation in meters) Start time: 1355 am/pm

GPS End-point: 704817 3639092 (easting, northing, elevation in meters) End time: 1420 am/pm

Start Temp: 70 °C End Temp: 70 °C

Live Tortoises

Detection number	GPS location Easting	GPS location Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening; *or not in burrow*)	Approx MCL ≥180 mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3						
4						
5			JUNE			
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1	704816	3638604	Burrow	NO OTHER SIGN
2				
3				
4				
5				
6				
7				
8				

Drill Area 6

Version: October 26, 2018

Date of survey: 11 /01/2021 (day, month, year) Survey biologist(s): Seth.topham@stantec.com, 435-668-9723 - Greg.sharp2@stantec.com (name, email, and phone number)

Site description: Oro Cruz, 198 Acres, Southwest end of the Cargo Muchacho Mountains (project name and size; general location)

County: Imperial County, CA Quad: OG Ilay Location: 704804, 3638754 NAD 83-2 (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: 25 Ac Transect #: DH6-NS-86 Transect length: 384

GPS Start-point: 704797, 3639095 203 m (easting, northing, elevation in meters) Start time: 2:23 am/pm

GPS End-point: 704795, 3638724 193 m (easting, northing, elevation in meters) End time: 253 am/pm

Start Temp: 70 °C End Temp: 70 °C

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (in burrow: all of tortoise beneath plane of burrow opening, or not in burrow)	Approx MCL ≥180 mm? (Yes, No or Unknown)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (burrows, scats, carcass, etc)	Description and comments
1	704793	3638839	BURROW	SCAT PRESENT
2				
3				
4				
5				
6				
7				
8				

APPENDIX C

Photographs

Photo 1: Drill Area 1, general view of suitable desert tortoise habitat surveyed.

Photo 2: Drill Area 1, general view of un-suitable desert tortoise habitat not surveyed.

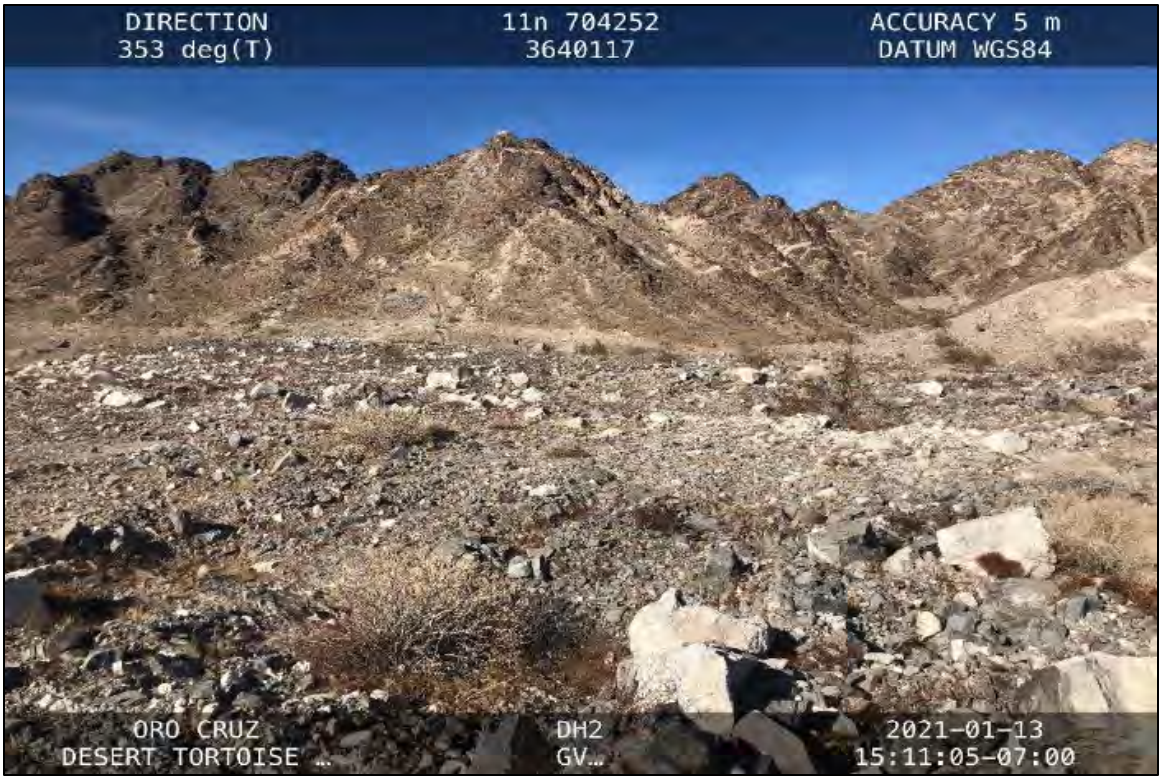

Photo 3: Drill Area 2, general view of suitable desert tortoise habitat surveyed.

Photo 4: Drill Area 2, general view of un-suitable desert tortoise habitat not surveyed.

Photo 5: Drill Area 2, desert tortoise scat.

Photo 6: Drill Area 3, general view of suitable desert tortoise habitat surveyed.

Photo 7: Drill Area 3, desert tortoise burrow with old desert tortoise scat and old tracks.

Photo 8: Drill Area 3, desert tortoise burrow with desert tortoise scat.

Photo 9: Drill Area 3, desert tortoise burrow.

Photo 10: Drill Area 3, desert tortoise scat.

Photo 11: Drill Area 4, general view of suitable desert tortoise habitat surveyed.

Photo 12: Drill Area 4, general view of unsuitable desert tortoise habitat not surveyed.

Photo 13: Drill Area 5, general view of suitable desert tortoise habitat surveyed.

Photo 14: Drill Area 5, desert tortoise scat.

Photo 15: Drill Area 6, general view of suitable desert tortoise habitat surveyed.

Photo 16: Drill Area 6, desert tortoise burrow.

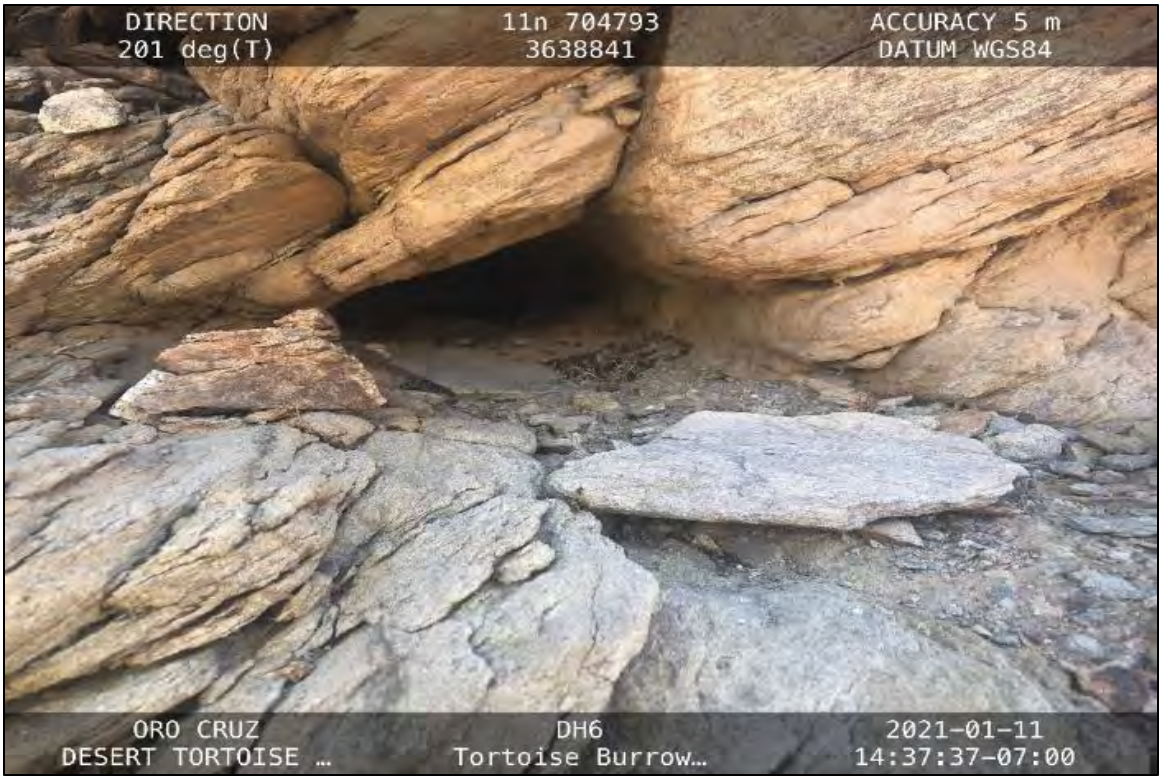

Photo 17: Drill Area 6, desert tortoise burrow (desert tortoise scat was present).

Photo 18: Portion of Access Tumco, general view of suitable desert tortoise habitat surveyed.

Photo 19: Access Road Tumco, desert tortoise burrow.

Photo 20: Portion of Access Tumco Gate Fork, general view of suitable desert tortoise habitat surveyed.

Photo 21: Portion of Access Tumco Main, general view of suitable desert tortoise habitat surveyed.

Photo 22: Portion of Access DH6 Main, general view of suitable desert tortoise habitat surveyed.

Photo 23: Portion of Access DH2, general view of suitable desert tortoise habitat surveyed.

Photo 24: Access DH2, desert tortoise burrow with desert tortoise scat.

Photo 25: Access DH2, desert tortoise burrow.

Photo 26: Portion of Access DH4, general view of suitable desert tortoise habitat surveyed.

Photo 27: Portion of Access DH1, general view of suitable desert tortoise habitat surveyed.

Photo 28: Portion of Access DH1 Access Spur, un-suitable desert tortoise habitat.

Photo 29: Portion of Access DH2 Alt Access, general view of suitable desert tortoise habitat surveyed.

Photo 30: Portion of Access DH7 Access East 1, general view.

Photo 31: Portion of Access DH7 East 2, general view of suitable desert tortoise habitat surveyed.

APPENDIX B

IPaC Screening

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Carlsbad Fish And Wildlife Office
2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385
Phone: (760) 431-9440 Fax: (760) 431-5901
http://www.fws.gov/carlsbad/

In Reply Refer To: March 05, 2021
Consultation Code: 08ECAR00-2021-SLI-0703
Event Code: 08ECAR00-2021-E-01567
Project Name: Oro Cruz

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Carlsbad Fish And Wildlife Office
2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385
(760) 431-9440

Project Summary

Consultation Code: 08ECAR00-2021-SLI-0703
Event Code: 08ECAR00-2021-E-01567
Project Name: Oro Cruz
Project Type: MINING
Project Description: Mine
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@32.8735665,-114.81136953158614,14z

Counties: Imperial County, California

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Reptiles

NAME	STATUS
Desert Tortoise *Gopherus agassizii*	Threatened

Population: Wherever found, except AZ south and east of Colorado R., and Mexico
There is **final** critical habitat for this species. The location of the critical habitat is not available.
Species profile: https://ecos.fws.gov/ecp/species/4481

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

APPENDIX C

BLM El Centro Sensitive Species

All BLM CALIFORNIA SPECIAL STATUS PLANTS

Thursday, May 28, 2015
11:00:38 AM

SCIENTIFIC NAME	COMMON NAME	TYPE OF PLANT	FAMILY	FED STATUS	CA STATUS	BLM STATUS	CA RARE PLANT RANK	NNPS STATUS	GLOBAL RANK	STATE RANK	NV STATUS	RECOVERY PLAN?	DATE UPDATED	COMMENTS	ALTURAS	ARCATA	BAKERSFIELD	BARSTOW	BISHOP	EAGLE LAKE	EL CENTRO	HOLLISTER	MOTHER LODE	NEEDLES	PALM SPRINGS	REDDING	RIDGECREST	SURPRISE	UKIAH
Abronia umbellata var. breviflora	pink sand-verbena	VASC	Nyctaginaceae			BLMS	1B.1		G4G5T2	S1		No	29-Apr-13	Formerly subsp. *breviflora* (Standl.) Munz.		K													
Abronia villosa var. aurita	chaparral sand-verbena	VASC	Nyctaginaceae			BLMS	1B.1		G5T3T4	S2		No	06-Aug-13	CNDDB occurrences 2 and 91 are on BLM lands in the Palm Springs Field Office.							S				K				
Acanthomintha ilicifolia	San Diego thornmint	VASC	Lamiaceae	FT	SE		1B.1		G1	S2		No	12-Mar-15	Status changed from "K" to "S" on 8/6/2013. Naomi Fraga was unable to find the species on BLM lands when trying to collect seeds in 2012. Although there are several CNDDB occurences close to BLM lands, none of these actually intersect with BLM lands.											S				
Acanthoscyphus parishii var. goodmaniana	Cushenberry oxytheca	VASC	Polygonaceae	FE			1B.1		G4?T1	S1		No	06-Aug-13	Formerly *Oxytheca parishii* var. *goodmaniana*. Name change based on Reveal, J.L. 2004. Nomenclatural summary of Polygonaceae subfamily Eriogonoideae. Harvard Papers in Botany 9(1):144. A draft Recovery Plan was issued in 1997 but as of 8/6/2013 was not final. Some of the recovery actions in the draft plan have been started and partially implemented.				K									
Acmispon argyraeus var. multicaulis	scrub lotus	VASC	Fabaceae			BLMS	1B.3		G4?T2	S2		No	13-Sep-12	Formerly *Lotus argyraeus* (Greene) Greene var. *multicaulis* (Ottley) Isely. Occurs on BLM lands in vicinity of Dinosaur Trackway ACEC. Occurrence there discovered in 2008 acc. Jim Weigand.										K				
Acmispon rubriflorus	red-flowered lotus	VASC	Fabaceae			BLMS	1B.1		G1	S1		No	16-Nov-10	Formerly *Lotus rubriflorus* H.K. Sharsm.											S				

SCIENTIFIC NAME	COMMON NAME	TYPE OF PLANT	FAMILY	FED STATUS	CA STATUS	BLM STATUS	CA RARE PLANT RANK	NNPS STATUS	GLOBAL RANK	STATE RANK	NV STATUS	RECOVERY PLAN?	DATE UPDATED	COMMENTS	ALTURAS	ARCATA	BAKERSFIELD	BARSTOW	BISHOP	EAGLE LAKE	EL CENTRO	HOLLISTER	MOTHER LODE	NEEDLES	PALM SPRINGS	REDDING	RIDGECREST	SURPRISE	UKIAH
Agave utahensis var. eborispina	ivory-spined agave	VASC	Agavaceae			BLMS	1B.3		G4T3Q	S2		No	08-Dec-10	Added to list on 12/8/2010. Species documented in April 2010 as part of CNPS Rare Plant Treasure Hunt on limestone outcrops in Chicago Canyon, Nopah Range, at a location where is was first discovered in 1978 (CNDDB Occurrence No. 4). Other older locations are also on BLM lands.				K												
Agrostis blasdalei	Blasdale's bent grass	VASC	Poaceae			BLMS	1B.2		G2	S2		No	29-Apr-13	On Shell Island off of Sea Ranch, Sonoma County, part of the California Coastal National Monument (source: Jim Weigand). Also suspected on the Stornetta Unit because it is known from closeby at Manchester State Beach (Jim Weigand, 2/3/2015).																K
Agrostis hooveri	Hoover's bent grass	VASC	Poaceae			BLMS	1B.2		G2	S2		No	29-Apr-13				K												
Agrostis lacuna-vernalis	vernal pool bent grass	VASC	Poaceae			BLMS	1B.1		G1	S1		No	18-Sep-12	New species added as California Rare Plant Rank 1B.1 on 6-14-2012. Known only from Butterfly Valley and Machine Gun Flats in the Fort Ord National Monument and adjacent Army lands.								K								
Albatrellus caeruleoporus	blue-pored polypore	FUNG	Albatrellaceae			BLMS			G3?	S1		No	16-Nov-10	G and S Heritage Rankings are from Oregon Natural Heritage Information Center 2007.		S													
Albatrellus ellisii	greening goat's foot	FUNG	Albatrellaceae			BLMS			G4	S2S3		No	16-Nov-10	G and S Heritage Rankings are from Oregon Natural Heritage Information Center 2007.		S													
Albatrellus flettii	blue-capped polypore	FUNG	Albatrellaceae			BLMS			None	None		No	16-Nov-10			S													
Allium hickmanii	Hickman's onion	VASC	Alliaceae			BLMS	1B.2		G2	S2		No	29-Apr-13	Fort Ord. Added based on 9/9/08 email from Bruce Delgado								K							
Allium jepsonii	Jepson's onion	VASC	Alliaceae			BLMS	1B.2		G1	S1		No	15-Nov-10										K			S			
Allium munzii	Munz's onion	VASC	Alliaceae	FE	ST		1B.1		G1	S1		No	13-Sep-12												S				
Allium shevockii	Spanish Needle onion	VASC	Alliaceae			BLMS	1B.3		G2	S2		No	15-Nov-10	Southern Sierra Nevada.			K										K		

SCIENTIFIC NAME	COMMON NAME	TYPE OF PLANT	FAMILY	FED STATUS	CA STATUS	BLM STATUS	CA RARE PLANT RANK	NNPS STATUS	GLOBAL RANK	STATE RANK	NV STATUS	RECOVERY PLAN?	DATE UPDATED	COMMENTS	ALTURAS	ARCATA	BAKERSFIELD	BARSTOW	BISHOP	EAGLE LAKE	EL CENTRO	HOLLISTER	MOTHER LODE	NEEDLES	PALM SPRINGS	REDDING	RIDGECREST	SURPRISE	UKIAH
Allium tuolumnense	Rawhide Hill onion	VASC	Alliaceae			BLMS	1B.2		G2	S2		No	13-Sep-12										K							
Ambrosia pumila	San Diego ambrosia	VASC	Asteraceae	FE			1B.1		G1	S1		No	06-Aug-13	CNDDB Occurrence 54 is based on a 2005 collection by Salvato (UCR167870). CNDDB shows BLM as the land owner and most of the mapped 2/5 mile radius circle is BLM. On the basis of this occurrence the status was changed from "S" to "K" on 8/6/2013.											K					
Amsinckia lunaris	bent-flowered fiddleneck	VASC	Boraginaceae			BLMS	1B.2		G2?	S2?		No	13-Sep-12	Walker Ridge/Bear Creek (Source: Jim Weigand). Documented within the proposed right-of-way, as well as within the area of potential effect, of the AltaGas/Greenwing Energy proposed Walker Ridge wind farm (Vollmar Consulting, 2010 Sensitive Botanical Resources Survey Report, Walker Ridge Project Site, Lake and Colusa Counties, California, October 2010).											S				K
Ancistrocarphus keilii	Santa Ynez groundstar	VASC	Asteraceace			BLMS	1B.1		G1	S1		No	15-Nov-10				S												
Anisocarpus scabridus	scabrid alpine tarplant	VASC	Asteraceae			BLMS	1B.3		G2G3	S2S3		No	15-Nov-10													S			
Arabis mcdonaldiana	McDonald's rock-cress	VASC	Brassicaceae	FE	SE		1B.1		G2	S2		Yes	13-Sep-12	Name change from *Arabis macdonaldiana* to *Arabis mcdonaldiana* as of March 3, 2011.		K														
Arctostaphylos bakeri subsp. sublaevis	The Cedars manzanita	VASC	Ericaceae			BLMS	1B.2		G2T2	S2		No	23-Oct-12	CNDDB occurrence 1 on BLM and pvt lands at The Cedars. Headwaters of Big Austin Creek and East Austin Creek. 10,000's of plants according to CNDDB.																	K

SCIENTIFIC NAME	COMMON NAME	TYPE OF PLANT	FAMILY	FED STATUS	CA STATUS	BLM STATUS	CA RARE PLANT RANK	NNPS STATUS	GLOBAL RANK	STATE RANK	NV STATUS	RECOVERY PLAN?	DATE UPDATED	COMMENTS	ALTURAS	ARCATA	BAKERSFIELD	BARSTOW	BISHOP	EAGLE LAKE	EL CENTRO	HOLLISTER	MOTHER LODE	NEEDLES	PALM SPRINGS	REDDING	RIDGECREST	SURPRISE	UKIAH
Arctostaphylos cansecens subsp. sonomensis	Sonoma canescent manzanita	VASC	Ericaceae			BLMS	1B.2		G3G4T2	S2		No	31-Mar-15	Walker Ridge/Bear Creek (Source: Jim Weigand). Documented within the proposed right-of-way, as well as within the area of potential effect, of the AltaGas/Greenwing Energy proposed Walker Ridge wind farm (Vollmar Consulting, 2010 Sensitive Botanical Resources Survey Report, Walker Ridge Project Site, Lake and Colusa Counties, California, October 2010).																K
Arctostaphylos cruzensis	Arroya de La Cruz manzanita	VASC	Ericaceae			BLMS	1B.2		G3	S3		No	31-Mar-15									S							
Arctostaphylos glandulosa ssp. gabrielensis	Gabilan Mountains manzanita	VASC	Ericaceae			BLMS	1B.2		G5T2	S2		No	13-Sep-12	Name change from *Arctostaphylos gabrielensis* to *Arctostaphylos glandulosa* ssp. *gabrielensis* as of August 23, 2010								S							
Arctostaphylos hookeri subsp. hookeri	Hooker's manzanita	VASC	Ericaceae			BLMS	1B.2		G3T2	S2		No	31-Mar-15									K							
Arctostaphylos klamathensis	Klamath manzanita	VASC	Ericaceae			BLMS	1B.2		G3	S3		No	31-Mar-15													S			
Arctostaphylos montereyensis	Monterey manzanita	VASC	Ericaceae			BLMS	1B.2		G2?	S2?		No	31-Mar-15	Fort Ord.								K							
Arctostaphylos morroensis	Morro manzanita	VASC	Ericaceae	FT			1B.1		G2	S2		Yes	13-Sep-12				K												
Arctostaphylos myrtifolia	Ione manzanita	VASC	Ericaceae	FT			1B.2		G2	S2		No	13-Sep-12										K						
Arctostaphylos nissenana	Nissenan manzanita	VASC	Ericaceae			BLMS	1B.2		G1	S1		No	31-Mar-15										K						
Arctostaphylos otayensis	Otay manzanita	VASC	Ericaceae			BLMS	1B.2		G2	S2		No	31-Mar-15												K				
Arctostaphylos pajaroensis	Pajaro manzanita	VASC	Ericaceae			BLMS	1B.1		G1	S1		No	31-Mar-15	Fort Ord. Added based on 9/9/08 email from Bruce Delgado.								K							
Arctostaphylos pilosula	Santa Margarita manzanita	VASC	Ericaceae			BLMS	1B.2		G3	S3		No	13-Sep-12				K												
Arctostaphylos pumila	sandmat manzanita	VASC	Ericaceae			BLMS	1B.2		G1	S1		No	31-Mar-15									K							

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Arctostaphylos rainbowensis	rainbow manzanita	VASC	Ericaceae			BLMS	1B.1		G2	S2		No	31-Mar-15	CNDDB Occurrence 43 is on BLM lands in Riverside County. Occurrence 56, is based on a 2005 collection by Woelfel and Woelfel, who claim it was collected on BLM lands in San Diego County, but CNDDB maps it as a 1/5 mile radius circle, some of which is BLM and some of which is private. Some other occurrences are close to but not on BLM lands.											K				
Arctostaphylos rudis	sand mesa manzanita	VASC	Ericaceae			BLMS	1B.2		G2	S2		No	31-Mar-15				K												
Aristocapsa insignis	Indian Valley spineflower	VASC	Polygonaceae			BLMS	1B.2		G2?	S2?		No	31-Mar-15				S												
Astragalus agnicidus	Humboldt milk-vetch	VASC	Fabaceae		SE	BLMS	1B.1		G3	S3		No	13-Sep-12			S													
Astragalus agrestis	field milk-vetch	VASC	Fabaceae			BLMS	2.B2		G5	S2?		No	31-Mar-15	This species is rather widespread elsewhere, so the primary value of this population is its disjunct location in CA, and maintaining the genetic viability of the species across its range.	K					K										
Astragalus albens	Cushenberry milk-vetch	VASC	Fabaceae	FE			1B.1		G1	S1		No	06-Aug-13	A draft Recovery Plan was issued in 1997 but as of 8/6/2013 was not final. Some of the recovery actions in the draft plan have been started and partially implemented.				K												
Astragalus anxius	Ash Valley milk-vetch	VASC	Fabaceae			BLMS	1B.3		G1	S1		No		In Ash Valley ACEC/RNA.	K														
Astragalus argophyllus var. argophyllus	silverleaf milk-vetch	VASC	Fabaceae			BLMS	2B.2		G5T4	S1		No	31-Mar-15						K	K									
Astragalus atratus var. mensanus	Darwin Mesa milk-vetch	VASC	Fabaceae			BLMS	1B.1		G4G5T1	S1		No	13-Sep-12	On Darwin Mesa.														K	
Astragalus bernardinus	San Bernardino Milk-Vetch	VASC	Fabaceae			BLMS	1B.2		G2G3	S2S3		No	06-Aug-13	Currently shown in Little San Bernardino Mountains, Little San Bernardino Mountains, New York Mountains, and Big Horn Mountains. There are 33 known occurrences in CNDDB, 12 between 1992 and 2011.				K							K				

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Astragalus brauntonii	Braunton's milk-vetch	VASC	Fabaceae	FE			1B.1		G2	S2		Yes	13-Sep-12												S				
Astragalus cimae var. sufflatus	inflated Cima milk-vetch	VASC	Fabaceae			BLMS	1B.3		G3T3	S3		No	31-Mar-15	CNDDB Occurrence number 2 is on BLM lands within the new boundary of the Cerro Gordo/Conglomerate Mesa ACEC.													K		
Astragalus deanei	Deane's milk-vetch	VASC	Fabaceae			BLMS	1B.1		G1	S1		No	31-Mar-15												K				
Astragalus douglasii var. perstrictus	Jacumba milk-vetch	VASC	Fabaceae			BLMS	1B.2		G5T2?	S2?		No	31-Mar-15												K				
Astragalus ertterae	Walker Pass milk-vetch	VASC	Fabaceae			BLMS	1B.3		G2	S2		No					K										K		
Astragalus funereus	black milk-vetch	VASC	Fabaceae			BLMS	1B.2		G2	S2.2		No						K											
Astragalus hornii var. hornii	Horn's milk-vetch	VASC	Fabaceae			BLMS	1B.1		G4G5T2T3	S1		No	13-Sep-12				K												
Astragalus jaegerianus	Lane Mtn. milk-vetch	VASC	Fabaceae	FE			1B.1		G1	S1		No	13-Sep-12					K											
Astragalus johannis-howellii	Long Valley milkvetch	VASC	Fabaceae		SR	BLMS	1B.2		G2	S2		No	31-Mar-15						K										
Astragalus lemmonii	Lemmon's milk-vetch	VASC	Fabaceae			BLMS	1B.2	W	G2	S2		No	13-Sep-12						S										
Astragalus lentiformis	lens-pod milk-vetch	VASC	Fabaceae			BLMS	1B.2		G2	S2		No							K										
Astragalus lentiginosus var. coachellae	Coachella Valley milk-vetch	VASC	Fabaceae	FE			1B.2		G5T1	S1		No	31-Mar-15												K				
Astragalus lentiginosus var. piscinensis	Fish Slough milk-vetch	VASC	Fabaceae	FT			1B.1		G5T1	S1		Yes	13-Sep-12						K										
Astragalus magdalenae var. peirsonii	Peirson's milk-vetch	VASC	Fabaceae	FT	SE		1B.2		G3G4T2	S2		No	13-Sep-12							K									
Astragalus mojavensis var. hemigyrus	curved-pod milkvetch	VASC	Fabaceae			BLMS	1B.1		G3G4T2T3	S1		No	15-Nov-10	Formerly on List 1A. Rediscovered on Darwin Mesa by Dana York in 2001 and verified in 2009.													K		
Astragalus monoensis	Mono milk-vetch	VASC	Fabaceae		SR	BLMS	1B.2		G2	S2		No	31-Mar-15	Was *A. monoensis* var. *monoensis* until the former *A. m.* var. *ravenii* was elevated to its own species (*A. ravenii Barneby).*					K										

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Astragalus nyensis	Nye milk-vetch	VASC	Fabaceae			BLMS	1B.1		G3	S1		No	18-Sep-12	CNDDB mapped 19 specific occurrences of this species found during surveys for a private solar development project in 2011. Specific occurrence number 2 is mapped on BLM lands (occurrence rating poor, only 1 plant found). Although the records in RareFind for occurrences 9 and 13 state that those occurrences occupy both private and BLM lands, both occurrences are mapped only on private lands.				K											
Astragalus oocarpus	San Diego rattleweed	VASC	Fabaceae			BLMS	1B.2		G3	S3		No	31-Mar-15												K				
Astragalus oophorus var. lavinii	Lavin's milk-vetch	VASC	Fabaceae			BLMS	1B.2		G4T2	S1		No	15-Nov-10	Bodie Hills.					K										
Astragalus pachypus var. jaegeri	Jaeger's bush milk-vetch	VASC	Fabaceae			BLMS	1B.1		G4T1	S1		No	30-Jul-13	CNDDB Occurrence 43, in Riverside County, is nonspecific, mapped in a 1 mile radius circle that includes BLM, State, and private lands; it is based on old (1880 and 1881) collections. Nonspecific Occurrence 6, also in Riverside County, has some BLM lands mapped inside a 1 mile radius circle, but most lands in the circle are private.											S				
Astragalus pseudiodanthus	Tonopah milk-vetch	VASC	Fabaceae			BLMS	1B.2		G3Q	S2		No	31-Mar-15						K										
Astragalus pulsiferae var. pulsiferae	Pulsifer's milk-vetch	VASC	Fabaceae			BLMS	1B.2	W	G4T2	S2 in CA; S1 in NV		No								K									

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Astragalus pulsiferae var. suksdorfii	Suksdorf's milk-vetch	VASC	Fabaceae			BLMS	1B.2		G4T2	S2		No	28-Apr-15	Occurrences formerly attributed to this species in the northern part of its range (formerly K in Alturas and Eagle Lake) are now *A. pulsiferae* var. *coronensis* [Welsh, S.L., R. Ondricek, and G. Clifton 2002. Varieties of *Astragalus pulsiferae* (Leguminosae). Rhodora 104:271-279]. Suspected in the Eagle Lake Field Office on conifer sites near Lake Almanor.						S										
Astragalus pycnostachyus var. pycnostachyus	coastal marsh milk-vetch	VASC	Fabaceae			BLMS	1B.2		G2T2	S2		No	28-Apr-15			K													
Astragalus rattanii var. jepsonianus	Jepson's milk-vetch	VASC	Fabaceae			BLMS	1B.2		G4T3	S3		No	13-Sep-12	Documented within the proposed right-of-way of the AltaGas/Greenwing Energy proposed Walker Ridge wind farm (Vollmar Consulting, 2010 Sensitive Botanical Resources Survey Report, Walker Ridge Project Site, Lake and Colusa Counties, California, October 2010).											S			K
Astragalus shevockii	Shevock's milk-vetch	VASC	Fabaceae			BLMS	1B.3		G3	S3		No	28-Apr-15				K												
Astragalus tener var. ferrisiae	Ferris's milk-vetch	VASC	Fabaceae			BLMS	1B.1		G1T1	S1		No	13-Sep-12													S			
Astragalus tiehmii	Tiehm's milk-vetch	VASC	Fabaceae			BLMS		W	G3	S2		No	28-Apr-15	Entire distribution of this plant is on public lands administered by the Surprise FO. Nevada only.															K	
Astragalus tricarinatus	triple-ribbed milk-vetch	VASC	Fabaceae	FE			1B.2		G1	S1		No	13-Sep-12												K				
Astragalus webberi	Webber's milk-vetch	VASC	Fabaceae			BLMS	1B.2		G1	S1		No							S										

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Atriplex argentea var. longitrichoma	Pahrump orache	VASC	Chenopodiaceae			BLMS	1B.1		G5T2	S2		No	03-Oct-11	The only two occurrences in CA are mapped by CNDDB on BLM lands in CA near the NV border. The occurrences are based on a 1983 collection by Mary DeDecker and on a 1991 collection by Stutz. Added to BLM SS plant list on 10/3/2011. Not sure why this species had not previously been on our list.				K												
Atriplex cordulata var. cordulata	heart-leaved saltbush	VASC	Chenopodiaceae			BLMS	1B.2		G3T2	S2		No	28-Apr-15	Occurrence number 82 in the CNDDB is on BLM lands in the Carrizo Plain. Other occurrences in the San Joaquin Valley are proximate to BLM lands.			K													
Atriplex cordulata var. erecticaulis	Earlimart orache	VASC	Chenopodaceae			BLMS	1B.2		G3T1	S1		No	28-Apr-15	Formerly *A. erecticaluis* Stutz, Chu & Sanderson.			S													
Atriplex coronata var. notatior	San Jacinto Valley crownscale	VASC	Chenopodiaceae	FE			1B.1		G4T1	S1		No	26-Aug-09	This plant had been considered K for many years but review of CNDDB on 8-26-09 shows no occurrences on BLM lands.											S					
Atriplex coronata var. vallicola	Lost Hills crownscale	VASC	Chenopodiaceae			BLMS	1B.2		G4T2	S2		No	15-Nov-10	Formerly *A. vallicola Hoover.*			K													
Atriplex subtilis	subtle orache	VASC	Chenopodaceae			BLMS	1B.2		G1	S1		No	28-Apr-15				S													
Baccharis vanessae	Encinitas coyotebrush	VASC	Asteraceae	FT	SE		1B.1		G1	S1		No	06-Aug-13	CNDDB Occurrence 30 is on BLM lands--11 plants observed in 2000 on south side of Otay Mountains in wilderness.											K					
Balsamorhiza lanata	woolly balsamroot	VASC	Asteraceae			BLMS	1B.2		G3	S3		No	13-Sep-12	Elevated to *B. lanata* from *B. hookeri* Nutt. var. *lanata Sharp.*												K				

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Balsamorhiza macrolepis	big-scale balsamroot	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	13-Sep-12	Formerly *B. macrolepis* Sharp var. *macrolepis*. Jepson Manual 2nd edition submerges *B. m.* var. *platylepis* (Sharp) Ferris, which was the only variety, into *B. hookeri* Nutt. Documented in the Ukiah Field Office within the proposed right-of-way of the AltaGas/Greenwing Energy proposed Walker Ridge wind farm (Vollmar Consulting, 2010 Sensitive Botanical Resources Survey Report, Walker Ridge Project Site, Lake and Colusa Counties, California, October 2010).									K			K			K
Balsamorhiza sericea	silky balsamroot	VASC	Asteraceae			BLMS	1B.3		G4Q	S3		No	28-Apr-15													S			
Berberis harrisoniana	Kofa Mountain barberry	VASC	Berberidaceae			BLMS	1B.2		G1G2	S1		No	28-Apr-15	In Whipple Wash										K						
Berberis nevinii	Nevin's barberry	VASC	Berberidaceae	FE	SE		1B.1		G1	S1		No	13-Sep-12	Formerly *Mahonia nevinii* (Gray) Fedde											K					
Bloomeria clevelandii	San Diego goldenstar	VASC	Themidaceae			BLMS	1B.1		G2	S2		No	06-Aug-13	Formerly *Muilla clevelandii* (S. Watson) Hoover. See discussion at: http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=121293. CNDDB specific Occurrence 19 is on both BLM and private lands. Occurrence 41 appears to be partially on BLM lands as well. Status changed from "S" to "K" on 8/6/2013.											K				
Boechera bodiensis	Bodie Hills rock cress	VASC	Brassicaceae			BLMS	1B.3		G2	S2		No	15-Nov-10	Formerly *Arabis bodiensis* Roll.					K											
Boechera lincolnensis	Lincoln rock cress	VASC	Brassicaeae			BLMS	2B.3		G4?	S2		No	28-Apr-15	Formerly *Arabis pulchra* S. Watson var. *munciensis* M.E. Jones. On Darwin Mesa. Formerly known as Darwin rock cress.														K		
Boechera serpenticola	Serpentine Rockcress	VASC	Brassicaceae			BLMS	1B.2		G1	S1		No	13-Sep-12	CNDDB maps nonspecific areas immediately adjacent to BLM lands near summit of Bully Choop Mountain. North-facing slopes on serpentine talus.												S			

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Boletus haematinus	red-pored bolete	FUNG	Boletaceae			BLMS			G2G3	S2?		Yes	28-Apr-15			S													
Brodiaea filifolia	thread-leaved brodiaea	VASC	Themidaceae	FT	SE		1B.1		G1	S1		No	06-Aug-13	CNDDB specific Occurrence 25 is partly on BLM lands. Status changed from "S" to "K" on 8/6/2013.											K				
Brodiaea insignis	Kaweah brodiaea	VASC	Themidaceae		SE	BLMS	1B.2		G1	S1		No	13-Sep-12				S												
Brodiaea orcuttii	Orcutt's brodiaea	VASC	Themidaceae			BLMS	1B.1		G2	S2		No	28-Apr-15												K				
Brodiaea rosea	Indian Valley brodiaea	VASC	Themidaceae		SE	BLMS	1B.1		G2	S2		No	28-Apr-15	Formerly *Brodiaea coronaria* (Salisb.) Engler subsp. *rosea* (Greene) Niehaus. Jepson Manual 2nd edition elevates to species.												S			K
Bryoria pseudocapillaris	horsehair lichen	LICH	Parmeliaceae			BLMS	3.2		G3	S2		No	28-Apr-15			K													
Bryoria spiralifera	twisted horsehair lichen	LICH	Parmeliaceae			BLMS	1B.1		G3	S1S2		No	26-Jan-15	Added to CDFW/CNPS list on 2/1/2010. Previously already on list as BLMS.		K													
Bryoria tortuosa	yellow-twist horsehair	LICH	Parmeliaceae			BLMS			G5	S2		No	28-Apr-15	S5 in OR; S3 in WA.		K										K			
Buxbaumia viridis	green bug moss	BRYO	Buxbaumiaceae			BLMS	2.2		G4G5	S2		No	03-Jun-13			K										S			
California macrophylla	round-leaved filaree	VASC	Geraniaceae			BLMS	1B.1		G2	S2		No	28-May-15	Nine CNDDB occurrences on the Payne Ranch, Colusa and Lake counties, Ukiah Field Office. CNDDB Occurrence 67 is on BLM lands in Riverside County, within the Palm Springs Field Office. Documented occurrences on BLM lands in the Carrizo Plain and on BLM lands in Hollister.			K					K			K				K
Calochortus clavatus var. avius	Pleasant Valley mariposa lily	VASC	Liliaceae			BLMS	1B.2		G4T2	S2		No	13-Sep-12										S						
Calochortus clavatus var. gracilis	slender mariposa lily	VASC	Liliaceae			BLMS	1B.2		G4T2T3	S2S3		No	28-Apr-15	The large polgon for nonspecific CNDDB Occurrence 18 in Los Angeles County overlaps some BLM lands and other occurrences are close to BLM lands in Los Angeles County.											S				

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Calochortus dunnii	Dunn's mariposa	VASC	Liliaceae		SR	BLMS	1B.2		G2?	S2?		No	28-Apr-15												K				
Calochortus excavatus	Inyo mariposa	VASC	Liliaceae			BLMS	1B.1		G2	S2		No	13-Sep-12						K										
Calochortus fimbriatus	late-flowered mariposa lily	VASC	Liliaceae			BLMS	1B.3		G3	S3		No	28-Apr-15	CNDDB Occurrence 41 on the Los Padres National Forest is within 800m of BLM lands in Ventura County. Added to the CNPS/CDFG lists as RPR 1B.3 on 10-26-2012.			S													
Calochortus greenei	Greene's mariposa	VASC	Liliaceae			BLMS	1B.2		G3	S3		No	13-Sep-12													K				
Calochortus longebarbatus var. longebarbatus	long-haired star-tulip	VASC	Liliaceae			BLMS	1B.2		G4T3	S3		No			S											S				
Calochortus monanthus	Shasta River mariposa	VASC	Liliaceae			BLMS	1A		GH	SH		No														S				
Calochortus obispoensis	San Luis mariposa lily	VASC	Liliaceae			BLMS	1B.2		G2	S2		No	28-Apr-15				S													
Calochortus palmeri var. palmeri	Palmer's mariposa lily	VASC	Liliaceae			BLMS	1B.2		G3T3?	s3?		No	28-Apr-15	CNDDB occurrence number 66 is located on Ridgecrest Field Office parcels. CNDDB occurrence 18 and 20 are located on scattered Bakersfield Field Office parcels.			K											K			
Calochortus persistens	Siskiyou mariposa lily	VASC	Liliaceae	FC	SR	BLMS	1B.2		G1	S1		No	28-Apr-15													S				
Calochortus raichei	The Cedars fairy-lantern	VASC	Liliaceae			BLMS	1B.2		G2	S2		No	23-Oct-12	CNDDB occurences 4 and 8 are definitely on BLM land at The Cedars; occurrence 7 is mapped as occurring partly on BLM land but RareFind account says it occurs on private land.																	K
Calochortus simulans	San Luis Obispo mariposa lily	VASC	Liliaceae			BLMS	1B.3		G2	S2		No	28-Apr-15				S													
Calochortus striatus	alkali mariposa lily	VASC	Liliaceae			BLMS	1B.2		G3	S3		No	28-Apr-15				K	S									K			
Calochortus westonii	Shirley Meadows star-tulip	VASC	Liliaceae			BLMS	1B.2		G2	S2		No	28-Apr-15				K													
Calycadenia hooveri	Hoover's calycadenia	VASC	Asteraceae			BLMS	1B.3		G3	S3		No	28-Apr-15				S													
Calycadenia micrantha	small-flowered calycadenia	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	28-Apr-15																	S

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Calycadenia villosa	dwarf calycadenia	VASC	Asteraceae			BLMS	1B.1		G3	S3		No	28-Apr-15				S												
Calyptridium parryi var. hesseae	Santa Cruz Mountains pussypaws	VASC	Montiaceae			BLMS	1B.1		G3G4T2	S2		No	27-Jun-13	The Jepson Manual 2nd edition retains the genus *Calyptridium* as well as the combination *C. parryi* var. *hesseae*. Flora North America moves *Calyptridium* to *Cistanthe* and reduces this var. to a synonym of *Cistanthe parryi*. There are two collections by C. Matt Guilliams and Michael G. Simpson (SDSU17444/17445) on BLM near Big and Little Spanish Lakes in Clear Creek Rec. Area. There is another collection by Griffin (JEPS77709) on BLM in N. Clear Creek Canyon. None of these yet mapped in CNDDB (as of 6/27/2013).								K							
Calyptridium pulchellum	Mariposa pussypaws	VASC	Montiaceae	FT			1B.1		G1	S1		No	15-Nov-10	This is the treatment in the Jepson Manual 2nd edition. Flora North America puts this species into the genus *Cistanthe*.			S												
Calystegia collina subsp. tridactylosa	three-fingered morning-glory	VASC	Convolvulaceae			BLMS	1B.2		G4T1	S1		No	22-Nov-10	Known to occur on BLM Toney Creek holding, Eden Valley. Documented in the Ukiah Field Office within the proposed right-of-way, as well as within the area of potential effect, of the AltaGas/Greenwing Energy proposed Walker Ridge wind farm (Vollmar Consulting, 2010 Sensitive Botanical Resources Survey Report, Walker Ridge Project Site, Lake and Colusa Counties, California, October 2010).		K												K
Calystegia purpurata subsp. saxicola	coastal bluff morning-glory	VASC	Convolvulaceae			BLMS	1B.2		G4T2T3	S2S3		No	26-Feb-15	Known form the Stornetta Unit, per the following collections: CAS263828, 1937, and RSA7999419, 2013.																K

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Calystegia stebbinsii	Stebbins' morning glory	VASC	Convolvulaceae	FE	SE		1B.1		G1	S1		Yes	13-Sep-12										K						
Calystegia vanzuukiae	Van Zuuk's morning-glory	VASC	Convolvulaceae			BLMS	1B.3		G2Q	S2		No	20-Jan-15	First described by Brummitt, R.K. and S.M. Namoff. 2013. Calystegia vanzuukiae (Convolvulaceae), a remarkable new species from Central California. Aliso 31(1): 15-18. Added as 1B.3 on July 16, 2014. On serpentine and gabbro soils in the Sierra Nevada foothills of Placer and El Dorado counties. On BLM lands according to Graciela Hinshaw (email dated June 11, 2014).									K						
Camissonia benitensis	San Benito evening-primrose	VASC	Onagraceae	FT			1B.1		G2	S2		Yes	13-Sep-12									K							
Camissonia integrifolia	Kern River evening-primrose	VASC	Onagraceae			BLMS	1B.3		G2	S2		No	13-Sep-12				S												
Camissoniopsis hardhamiae	Hardham's evening-primrose	VASC	Onagraceae			BLMS	1B.2		G1Q	S1		No	17-Mar-15	Formerly *Camissonia hardhamiae* P.H. Raven. Slightly less than half of CNDDB specific occurrence 8 is mapped on BLM lands. Occurrence record reports lands as private, but this likely the result of not knowing where boundary with BLM was. Record from 4/10/1987.			K					S						
Campanula californica	swamp harebell	VASC	Campanulaceae			BLMS	1B.2		G3	S3		No	26-Feb-15	Known form the Stornetta Unit, per the following collection: SBBG124996, 1967.															K
Campanula exigua	chaparral harebell	VASC	Campanulaceae			BLMS	1B.2		G2	S2		No	28-Apr-15	CNDDB maps a nonspecific occurrence based on two Griffin collections along Clear Creek Rd; also a collection in the area by C. & P. McMillan (JEPS3010) has not yet been mapped by CNDDB (as of 6-27-2013).								K							
Campanula sharsmithiae	Sharsmith's harebell	VASC	Campanulaceae			BLMS	1B.2		G1	S1		No										S							
Campanula shetleri	Castle Crags harebell	VASC	Campanulaceae			BLMS	1B.3		G2	S2		No	28-Apr-15													S			

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Carex klamathensis	Klamath sedge	VASC	Cyperaceae			BLMS	1B.2		G2	S2		No	15-Nov-10	CNDDB maps (Occurrence 3) within 1/2 mile of BLM lands in Tehama Co. BLM lands appear to have same serpentine substrate as Occurrence 3 in CNDDB.												S			
Carex obispoensis	San Luis Obispo sedge	VASC	Cyperaceae			BLMS	1B.2		G2G3	S2S3		No	28-Apr-15				K												
Carex saliniformis	deceiving sedge	VASC	Cyperaceae			BLMS	1B.2		G2	S2		No	17-Mar-15	Known from Alder Creek near Stornetta Unit, according to Jim Weigand (2/3/2015).															S
Carlquistia muirii	Muir's raillardella	VASC	Asteraceae			BLMS	1B.3		G2	S2		No	28-Apr-15	Formerly *Raillardiopsis muirii* (Gray) Rydb.			K										K		
Carpenteria californica	tree-anemone	VASC	Hydrangeaceae		ST	BLMS	1B.2		G1?	S1?		No	28-Apr-15				S												
Castilleja ambigua subsp. humboldtiensis	Humboldt Bay owl's-clover	VASC	Orobanchaceae			BLMS	1B.2		G4T2	S2		No	28-Apr-15			K													
Castilleja ambigua subsp. Insalutata	pink Johnny-nip	VASC	Orobanchaceae			BLMS	1B.1		G4T1	S1		No	26-Jan-15	Added to CDFW/CNPS list as 1B.1 on 3/1/2010. Occurrence Number 13 (nonspecific 4/5 mile) is on Fort Ord in vicinity of Henneken Flats, "Mima Mound Area." The mapped circle spans BLM and Army lands (the latter of which may be transferred to BLM in the future).							S						
Castilleja campestris subsp. succulenta	succulent owl's clover	VASC	Orobanchaceae	FT	SE		1B.2		G4?T2	S2		No	28-Apr-15	Formerly designated as "K" in the Hollister FO (see Occurrence #35 in the CNDDB), but this is a holdover from the time the Hollister FO managed some of the public lands now in the Bakersfield FO.			K												
Castilleja densiflora subsp. obispoensis	Obispo Indian paintbrush	VASC	Orobanchaceae			BLMS	1B.2		G5T2	S2		No	28-Apr-15				S												
Castilleja gleasoni	Mt. Gleason Indian paintbrush	VASC	Orobanchaceae		SR	BLMS	1B.2		G2	S2		No	28-Apr-15	Name change from *Castilleja gleasonii* to *Castilleja gleasoni* as of March 3, 2011.											S				

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Castilleja mendocinensis	Mendocino Coast paintbrush	VASC	Orobanchaceae			BLMS	1B.2		G2	S2		No	28-Apr-15	Now known from the Stornetta Unit, as well as CCNM rocks at Mendocino. Stornetta collection: SBBG21322, 1964. Info from Jim Weigand, 2/3/2015.		S															K
Castilleja rubicundula subsp. rubicundula	pink creamsacs	VASC	Orobanchaceae			BLMS	1B.2		G5T2	S2		No	13-Sep-12	On BLM lands in Bear Creek Watershed acc to 12/10/08 email from Jim Weigand. Documented within the proposed right-of-way, as well as within the area of potential effect, of the AltaGas/Greenwing Energy proposed Walker Ridge wind farm (Vollmar Consulting, 2010 Sensitive Botanical Resources Survey Report, Walker Ridge Project Site, Lake and Colusa Counties, California, October 2010).												S				K
Caulanthus californicus	California jewelflower	VASC	Brassicaceae	FE	SE		1B.1		G1	S1		Yes	13-Sep-12				K					K							
Caulanthus lemmonii	Lemmon's jewelflower	VASC	Brassicaceae			BLMS	1B.2		G3	S3		No	28-Apr-15	Formerly *C. coulteri* Wats. var. *lemmonii* (Wats.) Munz.			K													
Ceanothus confusus	Rincon Ridge ceanothus	VASC	Rhamnaceae			BLMS	1B.1		G1	S1		No	28-Apr-15																	S
Ceanothus cyaneus	Lakeside ceanothus	VASC	Rhamnaceae			BLMS	1B.2		G2	S2		No	28-Apr-15													K				
Ceanothus divergens	Calistoga ceanothus	VASC	Rhamnaceae			BLMS	1B.2		G2	S2		No	28-Apr-15																	S
Ceanothus ferrisiae	coyote ceanothus	VASC	Rhamnaceae	FE			1B.1		G2	S2		Yes	13-Sep-12									S								
Ceanothus hearstiorum	Hearst's ceanothus	VASC	Rhamnaceae		SR	BLMS	1B.2		G1	S1		No										S								

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Ceanothus otayensis	Otay Mountain ceanothus	VASC	Rhamnaceae			BLMS	1B.2		G1	S1		No	30-Jul-13	CNDDB Occurrence 4 is clearly on BLM lands on the south slope of Otay Mountain, based on a 2001 field survey form from Julie Evens. Nonspecific Occurrence 1, on the northeast face of Otay Mountain, has its entire mapped 1-mile radius circle on BLM lands, as does the nonspecific 2/5 mile radius circle of Occurrence 2.										K					
Ceanothus roderickii	Pine Hill ceanothus	VASC	Rhamnaceae	FE	SR		1B.2		G1	S1		Yes	13-Sep-12										K						
Centromadia parryi subsp. congdonii	Congdon's tarplant	VASC	Asteraceae			BLMS	1B.1		G3T2	S2		No	28-Apr-15	Formerly *Hemizonia parryi* Greene subsp. *congdonii* (Rob. & Greenm.) Keck; Fort Ord. Rare Plant Rank changed from 1B.2 to 1B.1 by CNPS/CDFW on 11-5-2012.								K								
Centromadia parryi subsp. parryi	pappose tarplant	VASC	Asteraceae			BLMS	1B.2		G3T1	S1		No	28-Apr-15	Formerly *Hemizonia parryi* Greene. Known in Bear Creek watershed acc. 12/10/2008 email from Jim Weigand.																K
Chaenactis glabriuscula var. orcuttiana	Orcutt's pincushion	VASC	Asteraceae			BLMS	1B.1		G5T1	S1		No	18-Sep-12	CNDDB historic, nonspecific occurrence 12 on land slated for wind energy. There are BLM lands inside the 1 mile radius circle, but most of the lands inside the circle are private.							S									
Chaenactis suffrutescens	Shasta chaenactis	VASC	Asteraceae			BLMS	1B.3		G3	S3		No														K			
Chamaesyce hooveri	Hoover's spurge	VASC	Euphorbiaceae	FT			1B.2		G2	S2		Yes	13-Sep-12	Formerly *Chamaesyce hooveri* (Wheeler) Koutnik.												S			
Chlorogalum grandiflorum	Red Hills soaproot	VASC	Agavaceae			BLMS	1B.2		G3	S3		No	13-Sep-12										K						
Chlorogalum pomeridianum var. minus	dwarf soaproot	VASC	Agavaceae			BLMS	1B.2		G5T2	S2		No	13-Sep-12													K			K
Chlorogalum purpureum var. purpureum	purple amole	VASC	Agavaceae	FT			1B.1		G2T2	S2		No	13-Sep-12	Critical Habitat, known habitat in Bakersfield Field Office (Mineral Estate).			S					S							

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Chloropyron maritimum subsp. palustre	Pt. Reyes birds-beak	VASC	Orobanchaceae			BLMS	1B.2		G4?T2	S2		No	28-Apr-15	Name change from *Cordylanthus maritimus* subsp. *palustris* to *Chloropyron maritimum* subsp. *palustre* as of March 3, 2011.		K														
Chloropyron molle subsp. hispidum	hispid bird's-beak	VASC	Orobanchaceae			BLMS	1B.1		G2T2	S2		No	28-Apr-15	Name change from *Cordylanthus mollis* subsp. *hispidus* to *Chloropyron molle* subsp. *hispidum* as of March 3, 2011.			S					S									
Chloropyron tecopense	Tecopa bird's-beak	VASC	Orobanchaceae			BLMS	1B.2		G2	S1		No	03-Oct-11	Name change from *Cordylanthus tecopensis* to *Chloropyron tecopense* as of March 3, 2011.				K												
Choiromyces venosus	hypogeous truffle	FUNG	Tuberaceae			BLMS			G4G5	S1		No	28-Apr-15	Also S1 in OR.		K														
Chorizanthe biloba var. immemora	Hernandez spineflower	VASC	Polygonaceae			BLMS	1B.2		G3T1?	S1?		No	13-Sep-12	Near mouth of Clear Creek.								K								
Chorizanthe breweri	Brewer's spineflower	VASC	Polygonaceae			BLMS	1B.3		G2	S2		No	28-Apr-15				S													
Chorizanthe parryi var. parryi	Parry's spineflower	VASC	Polygonaceae			BLMS	1B.1		G3T3	S3		No	28-Apr-15	Occurrences 74 and 79 in CNDDB defintely on BLM lands; Occurrence 43 may be on BLM lands.												K					
Chorizanthe polygonoides var. longispina	long-spined spineflower	VASC	Polygonaceae			BLMS	1B.2		G5T3	S3		No	18-Sep-12	Specific CNDDB occurrences on BLM lands in Palm Springs, nonspecific CNDDB occurrence number 133 in El Centro includes BLM lands slated for renewable energy within the 1 mile radius mapped circle.							S					K					
Chorizanthe pungens var. pungens	Monterey spineflower	VASC	Polygonaceae	FT			1B.2		G2T2	S2		Yes	13-Sep-12									K								
Chorizanthe rectispina	straight-awned spineflower	VASC	Polygonaceae			BLMS	1B.3		G1	S1		No					K					K								
Chorizanthe robusta var. robusta	robust spineflower	VASC	Polygonaceae	FE			1B.1		G2T1	S1		Yes	15-Nov-10									S								

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Chorizanthe xanti var. leucotheca	white-bracted spineflower	VASC	Polygonaceae			BLMS	1B.2		G4T3	S3		No	28-Apr-15	CNDDB nonspecific Occurrence 33 near Old Woman Springs has BLM lands within the mapped 1-mile radius circle in the Barstow Field Office. Several specific and nonspecific occurrences are on BLM lands in the Palm Springs Field Office in and near Whitewater Canyon.				S							K				
Cirsium ciliolatum	Ashland thistle	VASC	Asteraceae		SE	BLMS	2B.1		G3	S1		No	28-Apr-15													S			
Cirsium crassicaule	slough thistle	VASC	Asteraceae			BLMS	1B.1		G2	S2		No	28-Apr-15				S												
Cirsium fontinale var. campylon	Mt. Hamilton thistle	VASC	Asteraceae			BLMS	1B.2		G2T2	S2		No	13-Sep-12									S							
Cirsium fontinale var. obispoense	Chorro Creek bog thistle	VASC	Asteraceae	FE	SE		1B.2		G2T2	S2		Yes	13-Sep-12				S												
Cirsium occidentale var. lucianum	Cuesta Ridge thistle	VASC	Asteraceae			BLMS	1B.2		G3G4T2	S2		No	13-Sep-12	CNDDB maps about a mile from BLM lands near Santa Margarita Lake.			S												
Cirsium rhothophilum	surf thistle	VASC	Asteraceae		ST	BLMS	1B.2		G1	S1		No	13-Sep-12	On BLM lands at the Point Sal ACEC.			K												
Cirsium scariosum var. loncholepis	La Graciosa thistle	VASC	Asteraceae	FE	ST		1B.1		G5T1	S1		No	13-Sep-12	Critical Habitat, potential habitat in the Bakersfield Field Office (Mineral Estate). Name change from *Cirsium loncholepis* to *Cirsium scariosum* var. *loncholepis* as of March 3, 2011.			S												
Clarkia australis	small southern clarkia	VASC	Onagraceae			BLMS	1B.2		G2	S2		No	28-Apr-15				S												
Clarkia biloba subsp. australis	Mariposa clarkia	VASC	Onagraceae			BLMS	1B.2		G4G5T2T3	S2S3		No	28-Apr-15										K						
Clarkia biloba subsp. brandegeae	Brandegee's clarkia	VASC	Onagraceae			BLMS	1B.2		G4G5T4	S2S3		No	28-Apr-15										K			K			
Clarkia borealis subsp. arida	Shasta clarkia	VASC	Onagraceae			BLMS	1B.1		G3T2	S2		No	18-Apr-13													K			
Clarkia borealis subsp. borealis	northern clarkia	VASC	Onagraceae			BLMS	1B.3		G3T3	S3		No	28-Apr-15													S			

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Clarkia delicata	delicate clarkia	VASC	Onagraceae			BLMS	1B.2		G3	S3		No	28-Apr-15	Collections by Mark Elvin 3365 (UC Irvine IRVC27200), April 24, 2004, and Jon P. Rebman et al. 8824 (UC Irvince IRVC27254), May 4, 2003, are both on BLM lands on Otay Mountain. Nonspecific CNDDB Occurrence 12 has some BLM lands within the mapped 1-mile radius circle.											K				
Clarkia gracilis subsp. albicaulis	white-stemmed clarkia	VASC	Onagraceae			BLMS	1B.2		G5T2	S2		No	28-Apr-15													K				
Clarkia mildrediae subsp. mildrediae	Mildred's clarkia	VASC	Onagraceae			BLMS	1B.3		G3T3	S3		No	13-Sep-12													S				
Clarkia mosquinii	Mosquin's clarkia	VASC	Onagraceae			BLMS	1B.1		G2	S2		No	15-Nov-10	Formerly *Clarkia mosquinii* subsp. *mosquinii* and *C. m.* subsp. *xerophila*.													K				
Clarkia rostrata	beaked clarkia	VASC	Onagraceae			BLMS	1B.3		G3	S3		No	28-Apr-15											K						
Clarkia springvillensis	Springville clarkia	VASC	Onagraceae	FT	SE		1B.2		G2	S2		No	13-Sep-12				S													
Clarkia tembloriensis subsp. calientensis	Vasek's clarkia	VASC	Onagraceae			BLMS	1B.1		G3T1	S1		No	18-Apr-13				S													
Clavariadelphus ligula	strap coral	FUNG	Gomphaceae			BLMS			None	None		No	16-Nov-10			S														
Clavulina castanopes var. lignicola	'hairy-stemmed coral'	FUNG	Clavulinaceae			BLMS			None	None		No	16-Nov-10			S														
Clinopodium chandleri	San Miguel savory	VASC	Lamiaceae			BLMS	1B.2		G2	S2		No	30-Jul-13	CNDDB occurrences 1, 2, and 3 are all on BLM lands north of Otay Mountain. Entire 1-mile radius circle of Occurrence 23 is on BLM lands on Otay Mountain.												K				
Clitocybe subditopoda	'little brown mushroom'	FUNG	Tricholomataceae			BLMS			G3G4	S1S3		No	28-Apr-15			K														
Collinsia antonina	San Antonio collinsia	VASC	Plantaginaceae			BLMS	1B.2		G1	S1		No	18-Apr-13									S								

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Comarostaphylis diversifolia subsp. diversifolia	summer holly	VASC	Rhamnaceae			BLMS	1B.2		G3T2	S2		No	30-Jul-13	CNDDB Occurrences 10, 83, and 88 are on BLM lands in the Otay Mountain area. Collection SD191122 by Jonathon K. Snapp-Cook and others, April 28, 2006, is on BLM lands on the west side of Otay Mountain.											K				
Cordyceps ophioglossoides	truffle eater	FUNG	Clavicipitaceae			BLMS			G3G4	S3S4		No	28-Apr-15			S													
Cordylanthus nidularius	Mt. Diablo bird's-beak	VASC	Orobanchaceae		SR	BLMS	1B.1		G1	S1		No	18-Apr-13								S								
Cordylanthus rigidus subsp. littoralis	seaside bird's-beak	VASC	Orobanchaceae		SE	BLMS	1B.1		G5T2	S2		No	13-Sep-12				K				K								
Cordylanthus tenuis subsp. pallescens	pallid bird's-beak	VASC	Orobanchaceae			BLMS	1B.2		G4G5T1	S1		No	13-Sep-12													S			
Croton wigginsii	Wiggins' croton	VASC	Euphorbiaceae		SR	BLMS	2B.2		G2G3	S2		No	28-Apr-15							K									
Cryptantha clokeyi	Clokey's cryptantha	VASC	Boraginaceae			BLMS	1B.2		G2	S2		No	13-Sep-12	SE Red Mt.													S		
Cryptantha crinita	silky cryptantha	VASC	Boraginaceae			BLMS	1B.2		G2	S2		No	13-Sep-12													K			
Cryptantha dissita	serpentine cryptantha	VASC	Boraginaceae			BLMS	1B.2		G2	S2		No	13-Sep-12	Suspected to occur at Eden Valley, Arcata Field Office. Name change from *Cryptantha clevelandii* var. *dissita* to *Cryptantha dissita* as of March 3, 2011. Species found on Walker Ridge (Ukiah Field Office) as part of rare plant inventory for proposed wind energy development. Re-ranked from rare plant rank 1B.1 to 1B.2 on 10-25-2012.		S											K
Cryptantha excavata	deep-scarred cryptantha	VASC	Boraginaceae			BLMS	1B.3		G1	S1		No	28-Apr-15	Known from Walker Ridge/Bear Creek acc. Jim Weigand. Old, nonspecific CNDDB occurrences mapped near BLM lands in Colusa County.																K
Cryptantha ganderi	Gander's cryptantha	VASC	Boraginaceae			BLMS	1B.1		G1G2	S1		No	13-Sep-12												S				

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Cryptantha mariposae	Mariposa cryptantha	VASC	Boraginaceae			BLMS	1B.3		G3	S3		No	28-Apr-15	Two collections by Vern Yadon, one in Clear Creek at 3307 ft elevation and the other at Santa Rita Peak, just below east side. CNDDB doesn't yet show these occurrences (as of 6/27/2013) but this is because they didn't know about them at last update (pers. comm. Nick Jensen, May 2009). This is a significant range extension. The Yadon collections were still not mapped in CDDB as of 4/28/2015.								K	K							
Cryptantha roosiorum	bristlecone cryptantha	VASC	Boraginaceae		SR	BLMS	1B.2		G2	S2		No	18-Apr-13						S								K		
Cryptantha schoolcraftii	Schoolcraft's cryptantha	VASC	Boraginaceae			BLMS	2B.2	W	G3	S1 (CA); S3 (NV)		No	28-Apr-15	Common name "ash cryptantha" used in Jepson Manual 2nd edition. Nevada Heritage Program uses "Schoolcraft catseye."															K	
Cusickiella quadricostata	Bodie Hills cusickiella	VASC	Brassicaceae			BLMS	1B.2		G3	S2		No	28-Apr-15						K										
Cylindropuntia fosbergii	pink teddy-bear cholla	VASC	Cactaceae			BLMS	1B.3		G2	S2		No	18-Sep-12	Treated as a hybrid, *C. xfosbergii* in the Jepson Manual, Second Edition, but based on a recent paper by Mayer et al. (*Madrono* 58: 106-112), CDFG and CNPS have elevated to specific level and assigned a California Rare Plant Rank of 1.3 (on 5-7-2012). Several occurrencs on BLM lands in the Monument Peak Quadrangle.							K									
Cylindropuntia munzii	Munz cholla	VASC	Cactaceae			BLMS	1B.3		G3	S1		No	18-Apr-13	Formerly *Opuntia munzii* C.B. Wolf.							K				K				
Cymopterus deserticola	desert cymopterus	VASC	Apiaceae			BLMS	1B.2		G2	S2		No	13-Sep-12	East of Cuddeback Lake and north of Edwards AFB.				K									K		
Cymopterus ripleyi var. saniculoides	Ripley's cymopterus	VASC	Apiaceae			BLMS	1B.2		G3G4T3Q	S1		No	18-Apr-13	NE Haiwee Reservoir.													K		
Cypripedium fasciculatum	clustered lady's slipper	VASC	Orchidaceae			BLMS	4.2		G4	S4		No	28-Apr-15													K			
Cypripedium montanum	mountain lady's slipper	VASC	Orchidaceae			BLMS	4.2		G4	S4		No	28-Apr-15													K			

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Dalea ornata	ornate dalea	VASC	Fabaceae			BLMS	2B.1		G4G5	S2		No	28-Apr-15	Only six closely associated occurrences are known of this plant in CA, and they are disjunct from the others in western NV. Known from the Snake and Columbia valleys in E. WA, OR, and SW ID. Occurrences in CA are grazed and subject to invasion form medusahead and cheatgrass.						K										
Dedeckera eurekensis	July gold	VASC	Polygonaceae		SR	BLMS	1B.3		G3	S3		No	28-Apr-15						K							K		
Deinandra arida	Red Rock tarplant	VASC	Asteraceae			BLMS	1B.2		G1	S1		No	18-Apr-13	Formerly *Hemizonia arida* Keck. Known to occur in Red Rock State Park.													S		
Deinandra conjugens	Otay tarplant	VASC	Asteraceae	FT	SE		1B.1		G1	S1		Yes	13-Sep-12	Formerly *Hemizonia conjugens* Keck. Review of CNDDB does not show any occurences on BLM land, though some are close.											S				
Deinandra floribunda	Tecate tarplant	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	28-Apr-15	Formerly *Hemizonia floribunda* A. Gray.											K				
Deinandra halliana	Hall's tarplant	VASC	Asteraceae			BLMS	1B.1		G2	S2		No	13-Sep-12	Formerly *Hemizonia halliana* Keck.			S					K							
Deinandra increscens subsp. villosa	Gaviota tarplant	VASC	Asteraceae	FE	SE		1B.1		G4G5T2	S2		No	13-Sep-12	Formerly *Hemizonia increscens* Keck subsp. *villosa* Tanowitz. Proposed Critical Habitat, mineral estate.			S												
Deinandra minthornii	Santa Suzana tarplant	VASC	Asteraceae		SR	BLMS	1B.2		G2	S2		No	28-Apr-15	Formerly *Hemizonia minthornii* Jeps.											S				

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Deinandra mohavensis	Mojave tarplant	VASC	Asteraceae		SE	BLMS	1B.3		G2G3	S2S3		No	30-Jul-13	Formerly *Hemizonia mohavensis* Keck. Already K for Ridgecrest and S for the Barstow Field Office. Added as S for the Bakersfield Field Office and K for the Palm Springs Field Office on 7/30/2013. CNDDB occurrences 34, 66, and 67 are entirely on BLM lands in the Ridgecrest Field Office, inside the DRECP planning area, but outside DFAs under any alternative. Occurrence 68 is non-specific; a small part of the mapped 1/5 mi radius circle has BLM lands and is outside of DFAs under any alternative. Occurrences 69 and 33 are in the Bakersfield Field Office, outside of the DRECP boundary; both are nonspecific occurrences with some BLM land inside polygons, but the species may not actually occur on BLM lands. Occurrence 15 in the Palm Springs Field Office is on BLM lands in San Diego County. Occurrences 56 and 64 are both nonspecific occurrences in Palm Springs with some BLM land inside polygons. Occurrence 1 is a nonspecific, 1-mile radius occurrence; the circle straddles the DRECP boundary and a small part of the circle is on BLM lands in Barstow (within DRECP boundary); the rest is military, Forest Service, and private.			S	S							K		K		
Delphinium hesperium subsp. cuyamaceae	Cuyamaca larkspur	VASC	Ranunculaceae		SR	BLMS	1B.2		G4T2	S2		No	28-Apr-15												S				
Delphinium parryi subsp. blochmaniae	dune larkspur	VASC	Ranunculaceae			BLMS	1B.2		G4T2	S2		No	28-Apr-15				S												

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Delphinium purpusii	Kern County Larkspur	VASC	Ranunculaceae			BLMS	1B.3		G2	S2		No	13-Sep-12	Known only from rocky areas in Kern and Tulare counties with 15-20 occurrences known. Very localized with several occurrences on road cuts.			K													
Delphinium recurvatum	recurved larkspur	VASC	Ranunculaceae			BLMS	1B.2		G3	S3		No	13-Sep-12				K					K								
Delphinium umbraculorum	umbrella larkspur	VASC	Ranunculaceae			BLMS	1B.3		G3	S3		No	28-Apr-15				S													
Dendriscocaulon intricatulum	northern moon shrub	LICH	Lobariaceae			BLMS			G3G4Q	S1		No	28-Apr-15			S										K				
Dendrocollybia racemosa	no common name	FUNG	Tricholomataceae			BLMS			G4	None		No	16-Nov-10	Formerly *Collybia racemosa* (Pers.) Quélet.		K										S				
Dermocybe humboldtensis	'little green mushroom'	FUNG	Cortinariaceae			BLMS			G1G2	S1?		No	28-Apr-15			K														
Dieteria asteroides var. lagunensis	Mount Laguna aster	VASC	Asteraceae		SR	BLMS	2B.1		G5T2T3Q	S1		No	28-Apr-15	Formerly *Machaeranthera asteroides* (Torr.) Greene var. *lagunensis* (Keck) Turner.							K									
Dithyrea maritima	beach spectaclepod	VASC	Brassicaceae		ST	BLMS	1B.1		G2	S1		No	28-Apr-15	Removed from the "S" list for the Palm Springs Field Office on 8/6/2013 because no known occurrences are near BLM lands. Still considered "S" for the Bakersfield Field Office based on CNDDB nonspecific Occurrence 29, the mapped 3/5 mile radius circle of which includes BLM lands at Point Sal.			S													
Dodecahema leptoceras	slender-horned spineflower	VASC	Polygonaceae	FE	SE		1B.1		G1	S1		No		Formerly *Centrostegia leptoceras* Gray.											K					
Dudleya abramsii subsp. murina	mouse-gray dudleya	VASC	Crassulaceae			BLMS	1B.3		G3T2	S2		No	28-Apr-15				S													
Dudleya multicaulis	many-stemmed dudleya	VASC	Crassulaceae			BLMS	1B.2		G2	S2		No	06-Aug-13	Status changed from "K" to "S" on 8/6/2013. Although nonspecific CNDDB Occurrence 9 has BLM lands within it (as well as private lands), the observers cite the lands as private.											S					

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Dudleya saxosa subsp. saxosa	Panamint dudleya	VASC	Crassulaceae			BLMS	1B.3		G4T3	S3		No	13-Sep-12	Panamint Mts: on BLM lands in Surprise Canyon--see 2005 Surprise Canyon ADEIS.													K		
Dudleya variegata	variegated dudleya	VASC	Crassulaceae			BLMS	1B.2		G2	S2		No	28-Apr-15												K				
Echinocereus engelmannii var. howei	Howe's hedgehog cactus	VASC	Cactaceae			BLMS	1B.1		G5T1	S1		No	18-Apr-13	*E. e.* var. *howei* not recognized in Jepson Manual 1st or 2nd edition or in Flora North America. It is recognized in the USDA Plants database. Original description is in the Cactus and Succulent Journal 46:80 (1974).										K					
Enceliopsis covillei	Panamint daisy	VASC	Asteraceae			BLMS	1B.2		G2?	S2?		No	28-Apr-15	Panamint Mts.													K		
Entoloma nitidum	'indigo entoloma'	FUNG	Entolomataceae			BLMS			G5	S1S3		No	28-Apr-15			K													
Epilobium oreganum	Oregon fireweed	VASC	Onagraceae			BLMS	1B.2		G2	S2		No	28-Apr-15													S			
Epilobium siskiyouense	Siskiyou fireweed	VASC	Onagraceae			BLMS	1B.3		G3	S3		No	28-Apr-15													S			
Eremalche kernensis	Kern mallow	VASC	Malvaceae	FE			1B.1		G3?T2Q	S2		Yes	18-Apr-13				K												
Eriastrum brandegeeae	Brandegee's eriastrum	VASC	Polemoniaceae			BLMS	1B.1		G1Q	S1		No	18-Apr-13	Reranked from California Rare Plant Rank 1B.2 to 1B.1 on 8-23-2012.												K			K
Eriastrum densifolium subsp. sanctorum	Santa Ana River woolystar	VASC	Polemoniaceae	FE	SE		1B.1		G4T1	S1		No	13-Sep-12												K				
Eriastrum harwoodii	Harwood's eriastrum	VASC	Polemoniaceae			BLMS	1B.2		G2	S2		No	28-Apr-15	CNDDB maps at least 3 occurrences on BLM lands in the Needles Field Office. Several new occurrences added in 2009 and 2010 as a result of solar power plant surveys and CNPS Rare Plant Treasure Hunt.										K	K				
Eriastrum luteum	yellow-flowered eriastrum	VASC	Polemoniaceae			BLMS	1B.2		G2	S2		No	28-Apr-15				K												
Ericameria fasciculata	Eastwood's goldenbush	VASC	Asteraceae			BLMS	1B.1		G2	S2		No	28-Apr-15									K							
Ericameria gilmanii	Gilman's goldenbush	VASC	Asteraceae			BLMS	1B.3		G1	S1		No	13-Sep-12	Owens Peak.													S		
Ericameria palmeri var. palmeri	Palmer's goldernbush	VASC	Asteraceae			BLMS	1B.1		G4T2T3	S1		No	15-Nov-10	Moved from CNPS list 2.2 to 1B.1 on 8/12/09. CNDDB Occurrence 2, anon-specific 1-mile radius circle, includes BLM lands within it.											S				

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Erigeron aequifolius	Hall's daisy	VASC	Asteraceae			BLMS	1B.3		G3	S3		No	28-Apr-15	S. Sierra.													K		
Erigeron blochmaniae	Blochman's leafy daisy	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	28-Apr-15				K												
Erigeron calvus	bald daisy	VASC	Asteraceae			BLMS	1B.1		G1Q	S1		No	18-Apr-13	This occurrence is based on a single collection by Olmstead in 1891. It is mapped as a best guess "just north of Swansea," and has a 1-mile radius circle to indicate a nonspecific occurrence. Most of the lands within that circle are BLM lands, so we should at least have the species on our list as suspected to occur. Although the Rarefind report states that there are taxonomic questions (and the Global Natureserve rank of G1Q also indicates this), the species is included in both Jepson Manual 2 and the Flora of North America.					S									
Erigeron multiceps	Kern River daisy	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	28-Apr-15				S												
Erigeron parishii	Parish's daisy	VASC	Asteraceae	FT			1B.1		G2	S2		No	06-Aug-13	A draft Recovery Plan was issued in 1997 but as of 8/6/2013 was not final. Some of the recovery actions in the draft plan have been started and partially implemented. Until 8/6/2013 this was considered "K" in the Palm Springs Field Office, but a review of CNDDB records shows that although there are many occurrences within the boundaries of the Palm Springs Field Office, none of these are near BLM lands.				K									
Erigeron serpentinus	serpentine daisy	VASC	Asteraceae			BLMS	1B.3		G2	S2		No	23-Oct-12	CNDDB Occurrence 3 is on BLM land at The Cedars.																K
Erigeron supplex	supple daisy	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	17-Mar-15	Old records from the Garcia River just east of the Stornetta Unit, according to Jim Weigand (2/3/2015).																S

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Erigeron uncialis var. uncialis	limestone daisy	VASC	Asteraceae			BLMS	1B.2		G3G4T2	S2		No	31-Mar-15	On private land within the new boundary of the Cerro Gordo/Conglomerate Mesa ACEC													S		
Eriodictyon altissimum	Indian Knob mountainbalm	VASC	Boraginaceae	FE	SE		1B.1		G1	S1		Yes	13-Sep-12				S												
Eriogonum alexanderae	Alexander's buckwheat	VASC	Polygonaceae			BLMS	1B.1		G2G3	S1		No	07-Jul-12	Name changed from *Eriogonum ochrocephalum* var. *alexanderae* to *Eriogonum alexanderae* and rare plant rank changed from Rank 2.2 to 1B.1 on 11/29/2011. Located in Mono County on Bodie Mountain. Likely on BLM lands there.					S										
Eriogonum apricum var. apricum	Ione buckwheat	VASC	Polygonaceae	FE	SE		1B.1		G1T1	S1		No	13-Sep-12										K						
Eriogonum bifurcatum	forked buckwheat	VASC	Polygonaceae			BLMS	1B.2		G3	S3		No	18-Apr-13					K											
Eriogonum cedrorum	The Cedars buckwheat	VASC	Polygonaceae			BLMS	1B.3		G1	S1		No	23-Oct-12	Specific CNDDB Occurrence 1 is mapped on BLM land at The Cedars.															K
Eriogonum contiguum	Reveal's buckwheat	VASC	Polygonaceae			BLMS	2B.3		G2	S2		No	28-Apr-15	CNDDB Occurrences 14, 15, and 18 are on BLM lands.													K		
Eriogonum crosbyae	Crosby's buckwheat	VASC	Polygonaceae			BLMS		W	G3	S3		No		S3 in NV. This plant is threatened by gold mining activity on the Nevada portion of the Surprise Field Office. 82% of this plants' total numbers are within the mining claim area. A few populations also occur in Oregon.														K	
Eriogonum eremicola	Wildrose Canyon buckwheat	VASC	Polygonaceae			BLMS	1B.3		G1	S1		No	13-Sep-12						S								K		
Eriogonum hoffmannii var. hoffmannii	Hoffmann's buckwheat	VASC	Polygonaceae			BLMS	1B.3		G3T2	S2		No	28-Apr-15	Panamint Mts.; Found in Surprise Canyon on BLM lands--see 2005 ADEIS.													K		
Eriogonum kelloggii	Red Mountain buckwheat	VASC	Polygonaceae		SE	BLMS	1B.2		G2	S2		No	28-Apr-15	Formerly a Federal candidate for listing. Removed from candidate list, Federal Register 29: 56029, September 18, 2014.		K													
Eriogonum kennedyi var. pinicola	Kern buckwheat	VASC	Polygonaceae			BLMS	1B.1		G4T1	S1		No	18-Apr-13				S										K		

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Eriogonum mensicola	Pinyon Mesa buckwheat	VASC	Polygonaceae			BLMS	1B.3		G2G3	S2		No	31-Mar-15	CNDDB occurrences 6 and 8 on BLM, perhaps within the boundary of the new Cerro Gordo/Conglomerate Mesa ACEC (the occurrences straddle the boundary). Other occurrences on Death Valley NP, China Lake NWS.													K		
Eriogonum microthecum var. panamintense	Panamint Mountains buckwheat	VASC	Polygonaceae			BLMS	1B.3		G5T3	S3		No	28-Apr-15	CNDDB occurrence number 7 is within the boundary of the new Cerro Gordo/Conglomerate Mesa ACEC. Other occurrences on BLM lands in the Ridgecrest and Bishop Field Offices.					K								K		
Eriogonum microthecum var. schoolcraftii	Schoolcraft's wild buckwheat	VASC	Polygonaceae			BLMS	1B.2	W	G5T3 in CA; G5T2 in NV	S3 (CA); S1 (NV)		No	28-Apr-15	Taxon described by: Reveal, J. L. 2004. New entities in *Eriogonum* (Polygonaceae: Eriogonoideae). Phytologia 86(3):121-159.						K								S	
Eriogonum nervulosum	Snow Mtn. buckwheat	VASC	Polygonaceae			BLMS	1B.2		G2	S2		No	13-Sep-12																K
Eriogonum nudum var. murinum	mouse buckwheat	VASC	Polygonaceae			BLMS	1B.2		G5T2	S2		No	28-Apr-15				K					K							
Eriogonum ovalifolium var. vineum	Cushenberry buckwheat	VASC	Polygonaceae	FE			1B.1		G5T1	S1		No	06-Aug-13	A draft Recovery Plan was issued in 1997 but as of 8/6/2013 was not final. Some of the recovery actions in the draft plan have been started and partially implemented.				K											
Eriogonum prociduum	prostrate buckwheat	VASC	Polygonaceae			BLMS	1B.2	W	G3	S3 (CA); S1 (NV)		No	28-Apr-15	Found in the Ash Valley RNA/ACEC.	K													K	
Eriogonum temblorense	Temblor buckwheat	VASC	Polygonaceae			BLMS	1B.2		G2	S2.2		No		Known only from eastern Monterey Co., eastern San Luis Obispo Co., and western Kern Co. Within the Bakersfield Field Office it occurs on shaly/barren soils in the Temblor Range and Elkhorn Plain. This habitat type appears to by very scattered and limited.			K												
Eriogonum thornei	Thorne's buckwheat	VASC	Polygonaceae		SE	BLMS	1B.2		G1	S1		No	13-Sep-12	Formerly *E. ericifolium* var. *thornei*, now elevated to species.										K					

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Eriogonum umbellatum var. ahartii	Ahart's buckwheat	VASC	Polygonaceae			BLMS	1B.2		G5T2	S2		No	03-Oct-11	Currently shown in 5 locations close to BLM lands. Rarefind shows that locations are near West Branch of Feather River, De Sabla, South of Paradise Lake, and near Magalia Reservoir on scattered parcels.												S				
Eriogonum umbellatum var. glaberrimum	green buckwheat	VASC	Polygonaceae			BLMS	1B.3		G5T2?	S2		No	18-Apr-13		S													S	
Eriogonum ursinum var. erubescens	blushing wild buckwheat	VASC	Polygonaceae			BLMS	1B.3		G3G4T2	S2		No	28-Apr-15	CNDDB maps very close to BLM lands, especially Occurrence 1.												S				
Eriophyllum mohavense	Barstow woolly-sunflower	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	13-Sep-12					K									K		
Erysimum ammophilum	coast wallflower	VASC	Brassicaceae			BLMS	1B.2		G2	S2		No	28-Apr-15									K							
Erysimum concinnum	bluff wallflower	VASC	Brassicaceae			BLMS	1B.2		G3	S3		No	26-Feb-15	Added to list as 1B.2 on 12/3/2012. Originally proposed to be added as 4.2, but final decision 1B.2 based on comments from field botanists. Substantial population on the north end of the King Range acc. Jennifer Wheeler. Biosystematic study of this plant and closely related congeners is currently underway.		K													
Erysimum menziesii	Menzies' wallflower	VASC	Brassicaceae	FE	SE		1B.1		G1	S1		No	28-Apr-15	Formerly *Erysimum menziesii* (Hook.) Wettst. subsp. *eurekense* R. Price, but that combination, along with the two other subspecies that were formerly recognized by CNPS and CDFW, was never validly published. All three subspecies, including subsp. *eurekense*, are now submerged into *E. menziesii* in the Jepson Manual II and by CNPS/CDFW per decision on 12-11-2012. The common name for the invalid combination, *E. m.* subsp. *eurekense*, Humboldt Bay wallflower, has also been dropped in favor of Menzies' wallflower.		K													

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Erythranthe calcicola	limestone monkeyflower	VASC	Phrymaceae			BLMS	1B.3		G2	S2		No	25-Jun-13	This species was newly described in 2012 by Naomi Fraga and added to RPR 1B.3 on on 6/24/2013. There are three occurrences on BLM lands in the Ridgecrest Field Office, according to Naomi.													K		
Erythranthe rhodopetra	Red Rock Canyon monkeyflower	VASC	Phrymaceae			BLMS	1B.1		G1	S1		No	30-Oct-13	This species was newly described in 2012 by Naomi Fraga. The discussion in the CNPS Rare Plant Forum (http://cnps.org/forums/showthread.php?t=1792) states that there are 2 (and possibly 3) occurrences on BLM lands in CA in the El Paso Mts of the Ridgecrest FO. More recent occurrences are all in Red Rock SP. Added to CDFW/CNPS list as 1B.1 on Jul 8, 2013. As of 10/30/2013 not yet mapped in CNDDB.													K		
Erythronium citrinum var. roderickii	Scott Mtn. fawn lily	VASC	Liliaceae			BLMS	1B.3		G4T3	S3		No	15-Nov-10													S			
Erythronium tuolumnense	Tuolumne fawn-lily	VASC	Liliaceae			BLMS	1B.2		G2	S2		No	13-Sep-12										K						
Eschscholzia minutiflora subsp. twisselmannii	Red Rock poppy	VASC	Papaveraceae			BLMS	1B.2		G5T2	S2		No	28-Apr-15	El Paso Mts.													K		
Eschscholzia rhombipetala	diamond-petaled California poppy	VASC	Papaveraceae			BLMS	1B.1		G1	S1		No	18-Apr-13				S												
Etriplex joaquinana	San Joaquin spearscale	VASC	Chenopodiaceae			BLMS	1B.2		G2	S2		No	28-Apr-15	Found by Craig Thomsen and Ellen Dean in Bear Creek Unit (Payne Ranch). Formerly Atriplex joaquinana A. Nelson.																K

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Euphorbia jaegeri	Orocopia Mountains spurge	VASC	Euphorbiaceae			BLMS	1B.1		G1	S1		No	30-Jul-13	Newly described in 2012 (*Aliso* 30: 1-4). There are only four known occurrences. CNDDB Occurrence 2 (Marble Mountains) and occurrences 3 and 4 (Bristol Mountains) are all on BLM lands in the Needles Field Office. Occurrence 4 is within the boundaries of a proposed wind farm. Occurrence 1, the type locality, is in the Orocopia Mountains (Palm Springs Field Office), where the nonspecific mapped 2/5 mile radius circle has both BLM and private lands within it. Added to the CNPS/CDFW lists on 1-17-2013.										K	S				
Euphorbia ocellata subsp. rattanii	Stony Creek spurge	VASC	Euphorbiaceae			BLMS	1B.2		G4T1T2	S1S2		No	13-Sep-12	Formerly *Chamaesyce ocellata* (Dur. & Hilg.) Millsp. subsp. rattanii (S. Watson) Koutnik.												K			
Euphorbia platysperma	flat-seeded spurge	VASC	Euphorbiaceae			BLMS	1B.2		G3	S1		No	28-Apr-15	Formerly *Chamaesyce platysperma* (Engelm.) Shinners. Until 8/6/2013 was considered "S" in Palm Springs, but a review of the CNDDB reveals no occurrences close to BLM lands in that Field Office. Still considered "S" in El Centro and added as "S" (on 8/6/2013) to Barstow based on the mapped polygon for CNDDB nonspecific Occurrence 3, which has BLM lands (as well as private lands) within it. Nonspecific Occurrence 4 in El Centro has BLM lands within the mapped 1-mile radius circle.				S			S							
Fremontodendron decumbens	Pine Hill flannelbush	VASC	Malvaceae	FE	SR		1B.2		G1	S1		Yes	13-Sep-12										K						
Fremontodendron mexicanum	Mexican flannelbush	VASC	Malvaceae	FE	SR		1B.1		G1	S1		No	13-Sep-12								K				K				
Fritillaria falcata	talus fritillary	VASC	Liliaceae			BLMS	1B.2		G2	S2		No	28-Apr-15									K							

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Fritillaria gentneri	Gentner's fritillaria	VASC	Liliaceae	FE			1B.1		G1	S1		Yes	13-Sep-12													K			
Fritillaria ojaiensis	Ojai fritillary	VASC	Liliaceae			BLMS	1B.2		G2	S2		No	13-Sep-12				S												
Fritillaria pluriflora	adobe-lily	VASC	Liliaceae			BLMS	1B.2		G3	S3		No	22-Nov-10	Documented in the Ukiah Field Office within the proposed right-of-way of the AltaGas/Greenwing Energy proposed Walker Ridge wind farm (Vollmar Consulting, 2010 Sensitive Botanical Resources Survey Report, Walker Ridge Project Site, Lake and Colusa Counties, California, October 2010). Also occurs elsewhere in the Ukiah Field Office.													S			K
Fritillaria striata	striped adobe-lily	VASC	Liliaceae		ST	BLMS	1B.1		G2	S2		No	13-Sep-12				S												
Fritillaria viridea	San Benito fritillary	VASC	Liliaceae			BLMS	1B.2		G2	S2		No	13-Sep-12									K							
Galium angustifolium subsp. onycense	Onyx peak bedstraw	VASC	Rubiaceae			BLMS	1B.3		G5T3	S3		No	28-Apr-15				K												
Galium californicum subsp. primum	Alvin Meadow bedstraw	VASC	Rubiaceae			BLMS	1B.2		G5T1Q	S1		No	13-Sep-12												S				
Galium californicum subsp. sierrae	El Dorado bedstraw	VASC	Rubiaceae	FE	SR		1B.2		G5T1	S1		Yes	13-Sep-12										K						
Galium glabrescens subsp. modocense	Modoc bedstraw	VASC	Rubiaceae			BLMS	1B.2		G4T3	S3		No	18-Apr-13		S													K	
Galium grande	San Gabriel bedstraw	VASC	Rubiaceae			BLMS	1B.2		G2	S2		No	28-Apr-15												S				
Galium hardhamiae	Hardham's bedstraw	VASC	Rubiaceae			BLMS	1B.3		G3	S3		No	28-Apr-15				K												
Galium hilendiae subsp. kingstonense	Kingston bedstraw	VASC	Rubiaceae			BLMS	1B.3		G4T2	S2		No	18-Apr-13					K						K					
Galium serpenticum subsp. scotticum	Scott Mtn. bedstraw	VASC	Rubiaceae			BLMS	1B.2		G4G5T2	S2.2		No														K			
Galium serpenticum subsp. warnerense	Warner Mtns. bedstraw	VASC	Rubiaceae			BLMS	1B.2		G4G5T2	S2		No	18-Apr-13		S													S	
Gentiana setigera	Mendocino gentian	VASC	Gentianaceae			BLMS	1B.2		G2	S1		No				K													

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Gilia capitata subsp. pacifica	Pacific gilia	VASC	Polemoniaceae			BLMS	1B.2		G5T3T4	S2		No	17-Mar-15	To be suspected on the Stornetta Unit according to Jim Weigand (2/3/2015).															S
Gilia millefoliata	dark-eyed gilia	VASC	Polemoniaceae			BLMS	1B.2		G2	S2		No	28-Apr-15			K													
Gilia tenuiflora subsp. arenaria	sand gilia	VASC	Polemoniaceae	FE	ST		1B.2		G3G4T2	S2		Yes										K							
Glossopetalon pungens	pungent glossopetalon	VASC	Crossosomataceae			BLMS	1B.2		G2G3	S1		No	18-Apr-13											K					
Gratiola heterosepala	Boggs Lake hedge-hyssop	VASC	Plantaginaceae		SE	BLMS	1B.2		G2	S2		No		This is a vernal pool plant. Can be found in man-made reservoirs.	K		K			K		K				K			
Grindelia fraxinipratensis	Ash Meadows gum-plant	VASC	Asteraceae	FT			1B.2		G2	S1	CE	Yes	13-Sep-12					K											
Grindelia hallii	San Diego gumplant	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	28-Apr-15	Although CNDDB occurrence 13 is nonspecific, the record states that the species was found on BLM lands.							K								
Gymnopilus punctifolius	'blue-green gymnopilus'	FUNG	Cortinariaceae			BLMS			G3G4	S2?		No	16-Nov-10			K													
Harmonia doris-nilesiae	Niles's harmonia	VASC	Asteraceae			BLMS	1B.1		G2	S2		No	28-Apr-15	Formerly *Madia doris-nilesiae* T.W. Nelson & J.P. Nelson.												S			
Harmonia hallii	Hall's harmonia	VASC	Asteraceae			BLMS	1B.2		G2	S2?		No	13-Sep-12	Formerly *Madia hallii* Keck. Documented in the Ukiah Field Office within the proposed right-of-way, as well as within the area of potential effect, of the AltaGas/Greenwing Energy proposed Walker Ridge wind farm (Vollmar Consulting, 2010 Sensitive Botanical Resources Survey Report, Walker Ridge Project Site, Lake and Colusa Counties, California, October 2010). Also elsewhere in the Ukiah Field Office.														K
Harmonia stebbinsii	Stebbins's harmonia	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	28-Apr-15	Formerly *Madia stebbinsi*i T.W. Nelson & J.P. Nelson.												K			
Helianthella castanea	Diablo rock-rose	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	13-Sep-12									S							

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Helianthus niveus subsp. tephrodes	Algodones Dunes sunflower	VASC	Asteraceae		SE	BLMS	1B.2		G4T2T3	S2		No	28-Apr-15								K								
Helianthus winteri	Winter's sunflower	VASC	Asteraceae			BLMS	1B.2		G1G2	S1S2		No	20-Jan-15	First described by Stebbins, J.C., C.J. Winchell, and J.V.H. Constable. 2013. Helianthus winteri (Asteraceae), a new perennial species from the southern Sierra Nevada foothills, California. Aliso 31: 19-24. Added to CDFW/CNPS list on 10/15/2014. Occurrence Number 2 (80m accuracy) is within 200m of isolated BLM 40-acre parcel centered at approximately -119.253672 36.592978 Decimal Degrees (NAD 83, UTM Zone 11N)			K											
Hesperevax sparsiflora subsp. brevifolia	short-leaved evax	VASC	Asteraceae			BLMS	1B.2		G4T2T3	S2S3		No	17-Mar-15	On BLM at Mattole Beach (in great numbers acc. Jennifer Wheeler) and at Samoa.		K														K
Hesperidanthus jaegeri	Jaeger's hesperidanthus	VASC	Brassicaceae			BLMS	1B.2		G2	S2		No	31-Mar-15	Formerly *Caulostramina jaegeri* . CNDDB Occurrence number 4 is definitely on BLM lands within the boundary of the new Cerro Gordo/Congolmerate Mesa ACEC. Occurrence number 2 is likely on BLM lands with the ACEC. Occurrence number 6, Keynot Peak near head of Keynot Canyon is on BLM lands but not clear whether in the Bishop or Ridgecrest Field Office (occurrence as mapped straddles the border between the two field offices).					S							K		
Hesperidanthus jaegeri	Jaeger's hesperidanthus	VASC	Brassicaceae			BLMS	1B.2		G2	S2		No	03-Jun-13	Formerly *Caulostramina jaegeri* (Roll.) Roll.					S								K		

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Hesperocyparis forbesii	Tecate cypress	VASC	Cupressaceae			BLMS	1B.1		G2	S2		No	03-Jun-13	Formerly *Cupressus forbesii*. The taxon was then moved to *Callitropsis forbesii* by Little (2006) Syst. Bot. 31(3):461-480. The Jepson Manual second edition uses *Hesperocyparis forbesii* in accordance with Adams et al. 2009. A new genus, *Hesperocyparis*, for the cypresses of the western hemisphere (Cupressaceae). Phytologia 91: 160-185.											K				
Hesperocyparis nevadensis	Piute cypress	VASC	Cupressaceae			BLMS	1B.2		G2	S2		No	28-Apr-15	Formerly *Cupressus nevadensis*. The taxon was then moved to *Callitropsis nevadensis* by Little (2006) Syst. Bot. 31(3):461-480. The Jepson Manual second edition uses *Hesperocyparis nevadensis* in accordance with Adams et al. 2009. A new genus, *Hesperocyparis*, for the cypresses of the western hemisphere (Cupressaceae). Phytologia 91: 160-185.			K										
Hesperolinon adenophyllum	glandular western flax	VASC	Linaceae			BLMS	1B.2		G3	S3		No	28-Apr-15																K
Hesperolinon breweri	Brewer's dwarf flax	VASC	Linaceae			BLMS	1B.2		G2	S2		No	13-Sep-12																S
Hesperolinon didymocarpum	Lake County dwarf flax	VASC	Linaceae		SE	BLMS	1B.2		G1	S1		No	13-Sep-12																S
Hesperolinon drymarioides	drymaria-like western flax	VASC	Linaceae			BLMS	1B.2		G2	S2		No	13-Sep-12	Documented in the Ukiah Field Office within the proposed right-of-way, as well as within the area of potential effect, of the AltaGas/Greenwing Energy proposed Walker Ridge wind farm (Volmar Consulting, 2010 Sensitive Botanical Resources Survey Report, Walker Ridge Project Site, Lake and Colusa Counties, California, October 2010). Also occurs elsewhere in the Ukiah Field Office.													K

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Hesperolinon sharsmithiae	Sharsmith's western flax	VASC	Linaceae			BLMS	1B.2		G2Q	S2		No	28-Mar-13	CNDDB Occurrence 53 is currently mapped by CNDDB as *H. tehamense* but CNPS/ CDFW now consider that occurrence to be *H. sharsmithiae* (http://cnps.org/forums/showthread.php?t=1723&highlight=Hesperolinon+sharsmithiae). *H. sharsmithiae* was added to the CNPS and CDFW lists on 12-14-2012.																K
Hesperolinon tehamense	Tehama County western flax	VASC	Linaceae			BLMS	1B.3		G2	S2		No	28-Mar-13	Added K for Ukiah on 3-28-2013 (was previously K for Redding only). CNDDB occurrences 18, 20, and 40 are all on BLM lands in the Ukiah FO. CNDDB Occurrence 53 is also currently mapped on BLM lands, but this occurrence is now considered by CNPS/CDFW to represent *H. sharsmithiae* (http://cnps.org/forums/showthread.php?t=1723&highlight=Hesperolinon+sharsmithiae).											K			K
Heterodermia leucomelos	ciliate strap-lichen	LICH	Physciaceae			BLMS			G4	None		No	16-Nov-10			K													
Heterotheca shevockii	Shevock's golden-aster	VASC	Asteraceae			BLMS	1B.3		G2	S2		No	03-Jun-13				S												
Heuchera brevistaminea	Laguna Mountains alumroot	VASC	Saxifragaceae			BLMS	1B.3		G3	S3		No	28-Apr-15	CNDDB Occurrence 5 is located on BLM lands.											K				
Horkelia bolanderi	Bolander's horkelia	VASC	Rosaceae			BLMS	1B.2		G1	S1		No	03-Jun-13	Very non-specific occurrence, CNDDB occurrence 9, encompasses BLM lands. Vollmar (Vollmar Consulting, 2010 Sensitive Botanical Resources Survey Report, Walker Ridge Project Site, Lake and Colusa Counties, California, October 2010) reported that suitable habitat is present on BLM lands.																S
Horkelia hendersonii	Henderson's horkelia	VASC	Rosaceae			BLMS	1B.1		G1G2	S1		No	28-Apr-15													S			
Horkelia parryi	Parry's horkelia	VASC	Rosaceae			BLMS	1B.2		G2	S2		No	28-Apr-15										K						

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Horkelia tenuiloba	thin-lobed horkelia	VASC	Rosaceae			BLMS	1B.2		G2	S2		No	28-Apr-15	Suspected to occur on BLM lands on and near Willis Ridge, acc. Jennifer Wheeler.		S														
Hosackia crassifolia var. otayensis	Otay Mountain lotus	VASC	Fabaceae			BLMS	1B.1		G5T1	S1		No	06-Aug-13	CNDDB occurrences 1, 2, and 3 are all on BLM lands on Otay Mountain.											K				
Hulsea californica	San Diego sunflower	VASC	Asteraceae			BLMS	1B.3		G2	S2		No	28-Apr-15	CNDDB occurrences 2 and 24 are located on BLM lands in the El Centro Field Office portion of San Diego County. Occurrences 10, 14, 22, 23, 26 are non-specific CNDDB occurrences that are located next to BLM lands in the El Centro Field Office part of San Diego County. Nonspecific Occurrence 29 in the Palm Springs Field Office portion of San Diego County has some BLM lands within the mapped 1-mile radius circle.							K					S				
Hydropus marginellus	'little brown mushroom'	FUNG	Tricholomataceae			BLMS			G3	S1S2		No	16-Nov-10			K													
Iris hartwegii subsp. columbiana	Tuolumne iris	VASC	Iridaceae			BLMS	1B.2		G4T1	S2		No	28-Apr-15										K						
Iris munzii	Munz's iris	VASC	Iridaceae			BLMS	1B.3		G2	S2		No	28-Apr-15				S												
Ivesia aperta var. aperta	Sierra Valley ivesia	VASC	Rosaceae			BLMS	1B.2	T	G2T2	S2 (CA); S1 (NV)		No	28-Apr-15							K									
Ivesia jaegeri	Jaeger's ivesia	VASC	Rosaceae			BLMS	1B.3		G2G3	S1		No	03-Jun-13											K					
Ivesia kingii var. kingii	alkali ivesia	VASC	Rosaceae			BLMS	2B.2		G4T3Q	S2		No	19-Aug-09	Moved from CNPS 1B.2 to 2.2 on 11/23/08 because more common in NV.					K										
Ivesia longibracteata	Castle Crags ivesia	VASC	Rosaceae			BLMS	1B.3		G1	S1		No	03-Jun-13													S			
Ivesia paniculata	Ash Creek ivesia	VASC	Rosaceae			BLMS	1B.2		G2	S2		No	03-Jun-13	Found in the Ash Valley RNA/ACEC.	K														
Ivesia patellifera	Kingston Mtns. ivesia	VASC	Rosaceae			BLMS	1B.3		G1	S2		No	03-Jun-13					K						K					
Ivesia pickeringii	Pickering's ivesia	VASC	Rosaceae			BLMS	1B.2		G2	S2.2		No													S				

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Ivesia rhypara var. rhypara	grimy ivesia	VASC	Rosaceae			BLMS		W	G2T2	S2 (NV)		No	28-Apr-15	This plant has 5 small occurrences in the Surprise Field Office within one mile of each other in NV. Listed as Endangered by the State of Oregon.															K	
Ivesia sericoleuca	Plumas ivesia	VASC	Rosaceae			BLMS	1B.2		G2	S2		No	28-Apr-15							S										
Ivesia webberi	Webber's ivesia	VASC	Rosaceae	FT			1B.1	T	G1	S2 (CA); S1 (NV)	CE	No	28-Apr-15	Listed as Threatened by the U.S. Fish and Wildlife Service on June 3, 2014 (79 Federal Register 106: 31878-31883). Critical Habitat designated on June 3, 2014 (79 Federal Register 106: 32126-32155). On BLM lands in Sierra Valley. Specific occurrence 1 as mapped by CNDDB does not include BLM lands within it, but 50 plants were found on BLM lands in the vicinity in 1992.						K										
Juncus leiospermus var. leiospermus	Red Bluff dwarf rush	VASC	Juncaceae			BLMS	1B.1		G2T2	S2		No	28-Apr-15													K			
Kaernefeltia californica	seaside thornbush	LICH	Parmeliaceae			BLMS			G3	None		No	16-Nov-10			K													
Lagophylla diabolensis	Diablo Range hare-leaf	VASC	Asteraceae			BLMS	1B.2		G2G3	S2S3		No	20-Jan-15	Recently described by Baldwin, B.G. 2013. Lagophylla diabolensis (Compositae-Madiinae), a new hare-leaf from the southern Diablo Range, California. Madroño 60(3): 249-254. Final decision to add to list 1B.2 made on 1/17/2014. At least 5 occurrences on BLM lands in Hollister FO.								K						
Lasthenia californica subsp. macrantha	perennial goldfields	VASC	Asteraceae			BLMS	1B.2		G3T2	S2		No	17-Mar-15	Known form the Stornetta Unit, per the following collections: JEPS21849, 1958, and CAS514082, 1967.																K
Lasthenia conjugens	Contra Costa goldfields	VASC	Asteraceae	FE			1B.1		G1	S1		Yes	13-Sep-12	Fort Ord.								K								
Lasthenia glabrata subsp. coulteri	Coulter's goldfields	VASC	Asteraceae			BLMS	1B.1		G4T2	S2		No	28-Apr-15				K												
Layia carnosa	beach layia	VASC	Asteraceae	FE	SE		1B.1		G2	S2		Yes	13-Sep-12			K													

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Layia discoidea	rayless tidytips	VASC	Asteraceae			BLMS	1B.1		G1	S1		No	28-Apr-15									K							
Layia heterotricha	pale-yellow layia	VASC	Asteraceae			BLMS	1B.1		G2	S2		No	13-Sep-12				K					K							
Layia jonesii	Jones' layia	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	28-Apr-15				S												
Layia leucopappa	Comanche Point layia	VASC	Asteraceae			BLMS	1B.1		G1	S1		No	03-Jun-13				S												
Layia munzii	Munz's tidy-tips	VASC	Asteraceae			BLMS	1B.2		G1	S1		No	03-Jun-13				K												
Layia septentrionalis	Colusa layia	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	28-Apr-15													S			S
Legenere limosa	legenere	VASC	Campanulaceae			BLMS	1B.1		G2	S2		No	28-Apr-15													K			
Lepechinia ganderi	Gander's pitcher-sage	VASC	Lamiaceae			BLMS	1B.3		G3?	S3		No	28-Apr-15												K				
Lepidium flavum var. felipense	Borrego Valley pepper-grass	VASC	Brassicaceae			BLMS	1B.2		G5T1	S1		No	06-Aug-13	This var. is not recognized by the Jepson Manual 2nd edition or by Flora North America. Changed from "S" in Palm Springs to "S" in El Centro on 8/6/2013 because CNDDB Occurrence 1, which has some BLM lands within the nonspecific 1-mile radius circle, is in the El Centro Field Office, not the Palm Springs Field Office. No occurrences are currently reported within the boundaries of the Palm Springs Field Office.							S									
Lepidium jaredii subsp. album	Panoche pepper-grass	VASC	Brassicaceae			BLMS	1B.2		G2T2	S2		No	03-Jun-13	This subsp. not recognized by Jepson Manual 1st or 2nd editions or by Flora North America.								K								
Lepidium jaredii subsp. jaredii	Jared's pepper-grass	VASC	Brassicaceae			BLMS	1B.2		G2T1T2	S1S2		No	28-Apr-15	Subspecies of *L. jaredii* are not recognized in Jepson Manual 1st or 2nd editions or by Flora North America.			K													
Leptosiphon nuttallii subsp. howellii	Mt. Tedoc linanthus	VASC	Polemoniaceae			BLMS	1B.3		G5T2	S2		No	13-Sep-12	Formerly *Linanthus nuttallii* Mlkn. Subsp. *howellii* Nelson & Patterson.												S				
Leptosyne hamiltonii	Mt. Hamilton coreopsis	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	28-Apr-15	Formerly *Coreopsis hamiltonii* (Elmer) H.K. Sharsm.								K								
Leucogaster citrinus	'yellow false truffle'	FUNG	Leucogastraceae			BLMS			G3G4	S1S2		No	28-Apr-15			K														
Lewisia cantelovii	Cantelow's lewisia	VASC	Portulacaceae			BLMS	1B.2		G3	S3		No	13-Sep-12										K			S				

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Lewisia cotyledon var. heckneri	Heckner's lewisia	VASC	Portulacaeae			BLMS	1B.2		G4T3	S3?		No	28-Apr-15													K			
Lilium maritimum	coast lily	VASC	Liliaceae			BLMS	1B.1		G2	S2		No	17-Mar-15	Known form the Stornetta Unit, per the following collection: CAS51392, 1967. Also seen by Jim Weigand in 2014 on Stornetta lands.																K
Lilium occidentale	western lily	VASC	Liliaceae	FE	SE		1B.1		G1	S1		Yes	13-Sep-12			S													
Limnanthes alba subsp. parishii	Cuyamaca meadowfoam	VASC	Limnanthaceae		SE	BLMS	1B.2		G3T2T3	S2S3		No	13-Sep-12	Formerly *L. gracilis* J.T. Howell subsp. *parishii* (Jeps.) C. Mason											S				
Limnanthes bakeri	Baker's meadowfoam	VASC	Limnanthaceae		SR	BLMS	1B.1		G1	S1		No	03-Jun-13			S													
Limnanthes floccosa subsp. bellingeriana	Bellinger's meadowfoam	VASC	Limnanthaceae			BLMS	1B.2		G4T3	S1		No	03-Jun-13		S											S			
Limnanthes floccosa subsp. californica	Butte County meadowfoam	VASC	Limnanthaceae	FE	SE		1B.1		G4T1	S1		Yes	13-Sep-12													S			
Linanthus bernardinus	Pioneertown linanthus	VASC	Polemoniacaeae			BLMS	1B.2		G2	G2		No	30-Oct-13	This species was newly described in 2012 by Naomi Fraga and D. Bell (Fraga, N. S. and D. S.Bell 2012. A new species of Linanthus (Polemoniaceae) from San Bernardino County, California. Aliso 30:97-102. The discussion in the CNPS Rare Plant Forum (http://cnps.org/forums/showthread.php?t=1813) states that there is potential habitat on BLM lands in the eastern Sawtooth Range. Added by CDFW and CNPS as 1B.2 on Sep 13, 2013. Several occurrences are mapped near BLM lands in the Barstow Field Office.				S											
Linanthus maculatus	Little San Bernardino Mtns. linanthus	VASC	Polemoniaceae			BLMS	1B.2		G2	S2		No	13-Sep-12	Formerly *Gilia maculata* Parrish.				K							K				
Linanthus orcuttii	Orcutt's linanthus	VASC	Polemoniaceae			BLMS	1B.3		G4	S2		No	13-Sep-12												S				
Lobaria oregana	Oregon lettuce lung	LICH	Lobariaceae			BLMS			None	None		No	16-Nov-10			K													

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Loeflingia squarrosa var. artemisiarum	Sagebrush loeflingia	VASC	Caryophyllaceae			BLMS	2B.2		G5T2T3	S2		No	28-Apr-15	Known to CA from only Lassen County (6 occ), Inyo County (5 occ), and two occurrences from Kern and Los Angeles counties. Three occurrences are on BLM lands within the Eagle Lake Field Office, 3 on private, and disjunct. Threatened by livestock trampling.					K	K									S	
Lomatium congdonii	Congdon's lomatium	VASC	Apiaceae			BLMS	1B.2		G2	S2		No	28-Apr-15	On BLM lands in the Red Hills, Tuolumne County.									K							
Lomatium roseanum	adobe lomatium	VASC	Apiaceae			BLMS	1B.2	W	G2G3	S2 (CA); S2 (NV)		No	03-Jun-13	Mike Dolan found ca. 500 plants on Likely Tablelands, in low sage infested with medusahead. Lat: 41.271339 degrees N, Long: -120.493347 degrees W; above and to south of Romero Creek, 4,640', clay loam soil.	K														S	
Lomatium shevockii	Owens Peak lomatium	VASC	Apiaceae			BLMS	1B.3		G2	S2		No	03-Jun-13				K										K		
Lupinus citrinus var. citrinus	orange lupine	VASC	Fabaceae			BLMS	1B.2		G2T2	S2		No	28-Apr-15				S												
Lupinus citrinus var. deflexus	Mariposa lupine	VASC	Fabaceae		ST	BLMS	1B.2		G2T1	S1		No	13-Sep-12	Previously shown as S in the Hollister Field Office, a holdover from the time that Hollister managed BLM lands in Mariposa County. Removed as S from Hollister and put as S in the Mother Lode Field Office. There are occurrences within 550 m from isolated BLM lands in T6S,R 19E, S6, MDM.									S						
Lupinus duranii	Mono Lake lupine	VASC	Fabaceae			BLMS	1B.2		G2	S2		No	28-Apr-15						K										
Lupinus excubitus var. medius	Mountain Springs bush lupine	VASC	Fabaceae			BLMS	1B.3		G4T2T3	S2		No									K				K				
Lupinus ludovicianus	San Luis Obispo County lupine	VASC	Fabaceae			BLMS	1B.2		G1	S1		No	28-Apr-15				S												

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Lupinus magnificus var. hesperius	McGee Meadows lupine	VASC	Fabaceae			BLMS	1B.3		G3T2Q	S2		No	28-Apr-15	Jepson Manual 2nd edition, equivocal about whether to recognize this variety, states: "If recognized taxonomically, straight-keeled pls from SNE assignable to *Lupinus magnificus* var. *hesperius* (A. Heller) C.P. Sm., McGee Meadows lupine." After review, CNPS and CNDDB kept as 1B.3 by decision dated Feb. 8, 2012. Occurs on Mt. Tom.					K											
Lupinus magnificus var. magnificus	Panamint Mtns. lupine	VASC	Fabaceae			BLMS	1B.2		G3T2Q	S2		No	03-Jun-13						S								K		
Lupinus sericatus	Cobb Mountain lupine	VASC	Fabaceae			BLMS	1B.2		G2	S2		No	28-Apr-15	Walker Ridge/Bear Creek, Sulphur Creek sub-watershed (Source: Jim Weigand).																K
Lupinus spectabilis	shaggyhair lupine	VASC	Fabaceae			BLMS	1B.2		G2	S2		No	28-Apr-15										K							
Lupinus uncialis	lilliput lupine	VASC	Fabaceae			BLMS	2B.2		G4	S2		No	28-Apr-15	Five occurrences known in Alturas Field Office. Twenty total occurences in CA, most on private lands, and some converted to homesites. Disjunct in CA. CA occurrences important for maintaining genetic viability of the species. Threats include grazing.	K															
Madia radiata	showy golden madia	VASC	Asteraceae			BLMS	1B.1		G2	S2		No					S					K							
Malacothamnus aboriginum	Indian Valley bush mallow	VASC	Malvaceae			BLMS	1B.2		G2	S2		No	13-Sep-12									K							
Malacothamnus hallii	Hall's bush-mallow	VASC	Malvaceae			BLMS	1B.2		G2Q	S2		No	18-Sep-12	CNDDB Occurrence 38, population found on BLM lands on 6/2011.																K
Malacothamnus palmeri var. involucratus	Carmel Valley bush-mallow	VASC	Malvaceae			BLMS	1B.2		G3T3Q	S3		No	28-Apr-15									K								
Malacothamnus palmeri var. lucianus	Arroyo Seco bush-mallow	VASC	Malvaceae			BLMS	1B.2		G3T1Q	S1		No	28-Apr-15									K								
Malacothrix saxatilis var. arachnoidea	Carmel Valley malacothrix	VASC	Asteraceae			BLMS	1B.2		G5T2	S2		No	28-Apr-15									S								

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Menodora spinescens var. mohavensis	Mojave menodora	VASC	Oleaceae			BLMS	1B.2		G4T2T3	S2S3		No	18-Sep-12	CNDDB mapped occurrences on BLM lands. One, Occurrence 10, on BLM lands slated for renewable energy.				K											
Mentzelia inyoensis	Inyo blazing star	VASC	Loasaceae			BLMS	1B.3	W	G3	S3		No	28-Apr-15	According to Anne Halford we have occurrences in Fish Slough and Travertine Hot Springs, and there's a very large population on the Inyo National Forest near Black Point (Mono Lake).					K										
Mentzelia polita	polished blazing star	VASC	Loasaceae			BLMS	1B.2		G2	S2		No	03-Jun-13	CNDDB maps one nonspecific occurrence on BLM land just north of the Eastern Mojave National Preserve on the Clark Mountain quad. CNPS Rare Plant Treasure Hunt found a new occurrence (CNDDB Occurrence No. 3) on the Ivanpah Lake quad.										K					
Mentzelia tridentata	creamy blazing star	VASC	Loasaceae			BLMS	1B.3		G3	S3		No	28-Apr-15	E. of Cuddeback Lake.													S		
Microseris paludosa	marsh microseris	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	17-Mar-15	Known form the Stornetta Unit, per the following collection: CAS514442, 1968.															K
Mimulus evanescens	ephemeral monkeyflower	VASC	Phrymaceae			BLMS	1B.2		G3	S2		No	28-Apr-15		K					S						S			
Mimulus filicaulis	slender-stemmed monkeyflower	VASC	Phrymaceae			BLMS	1B.2		G2	S2		No	28-Apr-15										K						
Mimulus gracilipes	slender-stalked monkerflower	VASC	Phrymaceae			BLMS	1B.2		G2G3	S2S3		No	16-Nov-10				S												
Mimulus mohavensis	Mojave monkeyflower	VASC	Phrymaceae			BLMS	1B.2		G2	S2		No	13-Sep-12					K											
Mimulus norrisii	Kaweah monkeyflower	VASC	Phrymaceae			BLMS	1B.3		G2	S2		No	28-Apr-15				K												
Mimulus pictus	Calico monkeyflower	VASC	Phrymaceae			BLMS	1B.2		G2	S2		No	28-Apr-15				K												
Mimulus pulchellus	pansy monkeyflower	VASC	Phrymaceae			BLMS	1B.2		G2G3	S2S3		No	13-Sep-12										K						
Mimulus shevockii	Kelso Creek monkeyflower	VASC	Phrymaceae			BLMS	1B.2		G2	S2		No	13-Sep-12				K										K		
Minuartia howellii	Howell's sandwort	VASC	Caryophyllaceae			BLMS	1B.3		G4	S2		No	13-Sep-12													S			
Minuartia stolonifera	Scott Mtn. sandwort	VASC	Caryophyllaceae			BLMS	1B.3		G2	S2		No	03-Jun-13													S			

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Monardella beneolens	sweet-smelling monardella	VASC	Lamiaceae			BLMS	1B.3		G1	S1		No	03-Jun-13	S. Sierra Nevada.													K		
Monardella boydii	Boyd's monardella	VASC	Lamiaceae			BLMS	1B.2		G2Q	S2		No	13-Sep-12	Specific CNDDB occurrences on BLM lands in Rodman Mtn Wilderness and Ord Mtn.				K												
Monardella eremicola	Clark Mountain monardella	VASC	Lamiaceae			BLMS	1B.3		G2G3Q	S2S3		No	18-Sep-12	This species was added as California Rare Plant Rank 1B.3 on 12-16-2011. The CNDDB maps three occurrences on BLM lands in the Kingston Mountains, all of which list BLM as the landowner.										K						
Monardella hypoleuca subsp. lanata	felt-leaved monardella	VASC	Lamiaceae			BLMS	1B.2		G4T3	S3		No	28-Apr-15	CNDDB Occurrence 2 is on BLM lands on Otay Mountain.											K				
Monardella linoides subsp. oblonga	Tehachapi monardella	VASC	Lamiaceae			BLMS	1B.3		G5T2	S2		No	28-Apr-15	CNDDB maps specific occurrences on BLM in the Tehachapi Mountains.													K		
Monardella nana subsp. leptosiphon	San Felipe monardella	VASC	Lamiaceae			BLMS	1B.2		G4G5T2Q	S2		No	03-Jun-13	Kevin Doran of the Palm Springs Field Office received a comment from the BLM Washington Office inquiring why the draft South Coast RMP did not list this as a SS plant. Review of RareFind information on 1-13-2011 shows that the plant is not very close to public lands in Palm Springs (it mostly occurs on higher elevation Forest Service lands), but that Occurrence 12 is close to public lands in El Centro (Banner Canyon area). CNPS and CNDDB originally considered dropping the species from its lists because The Jepson Manual, Second Edition, does not recognize any of the subspecies of *M. nana*. However, following a review on the CNPS Forum, the decision was made on 9-4-2012 to retain the taxon as a California Rare Plant Rank 1B.2 plant.							S								
Monardella robisonii	Robison monardella	VASC	Lamiaceae			BLMS	1B.3		G3	S3		No	13-Sep-12					K						K	S				

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Monardella sinuata subsp. nigrescens	northern curly-leaved monardella	VASC	Lamiaceae			BLMS	1B.2		G3T2	S2		No	26-Jan-15	Described by Elvin, M.A. and A.C. Sanders. 2009. Nomenclatural changes for Monardella (Lamiaceae) in California. Novon 19(3): 315-345. Added to CDFW/CNPS list as 1B.2 on 12-31-2013. At Fort Ord. Mapped mostly on Army lands but certainly to be expected on BLM (and the Army lands may be transferred to BLM in the future).								S							

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Monardella stoneana	Jennifer's monardella	VASC	Lamiaceae			BLMS	1B.2		G2	S1		No	28-Apr-15	CNDDB maps this species on BLM lands in the Otay Mt. Area. This species was formerly ascribed to *M. linoides* var. *viminea*, until the treatment by Elvin and Sanders in 2003 (Novon 13(4):425-432), which elevated the northern occurrences of *M. l.* var. *viminea* to *M. viminea* and included the southern occurrences in the new species *M. stoneana*. Despite the 2003 treatment, the U.S. Fish and Wildlife Service (FWS) continued to consider this species to be a federally endangered species because the agency did not recognize the 2003 treatment and continued to recognize the taxon it originally listed, *M. linoides* var. *viminea*, sensu lato, to include the new species, *M. stoneana*. By a rulemaking published in the Federal Register on March 6, 2012, FWS officially recognized the two new species, *M. stoneana* and *M. viminea*, and determined that *M. stoneana* does not warrant listing as endangered or threatened. Consequently, *M. stoneana* is no longer an endangered species. *M. viminea* is an endangered species, but is restricted to Miramar Marine Air Station and vicinity and does not occur on BLM lands.												K		
Monardella undulata subsp. crispa	crisp monardella	VASC	Lamiaceae			BLMS	1B.2		G3T2	S2		No	28-Apr-15				K												

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Monardella undulata subsp. undulata	San Luis Obispo monardella	VASC	Lamiaceae			BLMS	1B.2		G2	S2		No	28-Apr-15	Formerly *M. frutescens* (Hoov.) Jokerst. Occurs on BLM lands in the Point Sal ACEC (Occurrence 31 in the CNDDB). See Elvin, M. A. and A. C. Sanders. 2009. Nomenclatural changes for *Monardella* (Lamiaceae) in California. Novon 19:315-343.			K													
Monardella venosa	veiny monardella	VASC	Lamiaceae			BLMS	1B.1		G1	S1		No	03-Jun-13	Formerly *M. douglasii* Benth. var. *venosa* (Torr.) Jeps.												S				
Monolopia congdonii	San Joaquin woolly threads	VASC	Asteraceae	FE			1B.2		G2	S3		Yes	28-Apr-15	Formerly *Lembertia congdonii* (A. Gray) Greene.			K					K								
Mycena quinaultensis	'little brown mushroom'	FUNG	Tricholomataceae			BLMS			G2	S3		No	28-Apr-15			K														
Navarretia leucocephala subsp. bakeri	Baker's navarretia	VASC	Polemoniaceae			BLMS	1B.1		G4T2	S2		No	13-Sep-12													S				
Navarretia nigelliformis subsp. radians	shining navarretia	VASC	Polemoniaceae			BLMS	1B.2		G4T2	S2		No	13-Sep-12	Mason collection along Clear Creek Rd. Collection by Michael Denslow, Vern Yadon, and Julie Anne Delgado from a north fork of Cantua Creek; coordinates at Consortium of CA Herbaria are on BLM lands.								K								
Navarretia setiloba	Piute Mountains navarretia	VASC	Polemoniaceae			BLMS	1B.1		G2	S2		No	03-Jun-13				K													
Nemacladus twisselmannii	Twisselmann's nemacladus	VASC	Campanulaceae		SR	BLMS	1B.2		G1	S1		No	03-Jun-13				S													
Neviusia cliftonii	Shasta snow-wreath	VASC	Rosaceae			BLMS	1B.2		G2	S2		No	28-Apr-15													S				
Nitrophila mohavensis	Amargosa niterwort	VASC	Amaranthaceae	FE	SE		1B.1		G1	S1	CE	Yes	13-Sep-12	Formerly included in the family Chenopodiaceae but now considered by the Jepson Manual, 2nd edition, to be a member of the family Amaranthaceae.				K												
Nolina interrata	Dehesa nolina, bear grass	VASC	Ruscaceae		SE	BLMS	1B.1		G2	S2		No	13-Sep-12												S					
Oenothera wolfii	Wolf's evening-primrose	VASC	Onagraceae			BLMS	1B.1		G1	S1		No	03-Jun-13			S														

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Opuntia basilaris var. brachyclada	short-joint beavertail	VASC	Cactaceae			BLMS	1B.2		G5T3	S3		No	06-Aug-13	Until March 8, 2004, this var. had been considered K in both Needles and Barstow. But the Jepson Manual does not consider this a desert species, and a report by Pamela MacKay calls into question whether it ever occurred in the eastern Mojave. The draft BLM West Mojave Plan states that it only occurs on private lands in the WEMO planning area. It was therefore been changed to "S" in both Needles and Barstow. The CNPS Rare Plant Treasure Hunt documented an occurrence about 1 mile north of Cajon Pass on BLM land in 2010. The taxon has therefore been moved back to "K" for Barstow. On 8/6/2013 the taxon was added as "S" to the list for Palm Springs based on the fact that CNDDB nonspecific Occurrence 107 has some BLM lands within the mapped 4/5 mile radius circle.				K							S	S					
Opuntia basilaris var. treleasei	Bakersfield cactus	VASC	Cactaceae	FE	SE		1B.1		G5T1	S1		No	27-Jun-13	The Fish and Wildlife Service uses the name *O. treleasei* J.M. Coult., but both Jepson Manual 1st and 2nd editions use the nomenclature shown here. Occurs on split estate (private surface, BLM subsurface) in the Bakersfield Field Office. CNDDB occurrences 51 and 54 are very close to BLM lands in the Ridgecrest Field Office.				S										S		
Orcuttia californica	California orcutt grass	VASC	Poaceae	FE	SE		1B.1		G1	S1		Yes	13-Sep-12												S				
Orcuttia inaequalis	San Joaquin Valley orcutt grass	VASC	Poaceae	FT	SE		1B.1		G1	S1		Yes	11-Mar-13	This was formerly designated as K from the Hollister Field Office, but this was a holdover from the time that Hollister managed a part of what is now managed by the Bakersfield FO.				K											

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Orcuttia pilosa	hairy orcutt grass	VASC	Poaceae	FE	SE		1B.1		G1	S1		Yes	13-Sep-12													S			
Orcuttia tenuis	slender orcutt grass	VASC	Poaceae	FT	SE		1B.1		G2	S2		Yes	13-Sep-12	This is a vernal pool plant. Only one known population of this plant occurs in the Alturas Field Office.	K											K			
Oreostemma elatum	tall alpine aster	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	28-Apr-15							S									
Orthocarpus pachystachyus	Shasta orthocarpus	VASC	Orobanchaceae			BLMS	1B.1		G1	S1		No	16-Nov-10	Previously thought to be extinct.												S			
Orthodontium gracile	slender thread moss	BRYO	Bryaceae			BLMS			G5	S2S3		No	28-Apr-15			S													
Packera eurycephala var. lewisrosei	cut-leaved ragwort	VASC	Asteraceae			BLMS	1B.2		G4T2	S2		No	28-Apr-15	Formerly *Senecio eurycephalus* Torrey & A. Gray var. *lewisrosei* (J.T. Howell) T.M. Barkley.												K			
Packera ganderi	Gander's butterweed	VASC	Asteraceae		SR	BLMS	1B.2		G2	S2		No	28-Apr-15	Formerly *Senecio ganderi* T.M. Barkley & R.M. Beauch. Known on Potrero Mt. (Potrero Peak in spring 2007).											K				
Packera layneae	Layne's butterweed	VASC	Asteraceae	FT	SR		1B.2		G2	S2		No	13-Sep-12	Formerly *Senecio layneae* Greene.									K			S			
Palafoxia arida var. gigantea	giant Spanish needle	VASC	Asteraceae			BLMS	1B.3		G5T3	S2		No	13-Sep-12								K								
Panicum acuminatum var. thermale	Geyser's panicum	VASC	Poaceae		SE	BLMS	1B.2		G5T2Q	S2		No	28-Mar-13	Formerly *Dichanthelium lanuginosum* (Ell.) Gould var. *thermale* (Boland.) Spellenberg. Rare Plant Rank changed from 1B.1 to 1B.2 by CNPS/CDFW on 9-12-2012.															S
Pannaria rubiginosa	petaled mouse	LICH	Pannariaceae			BLMS			G3G5	S1		No	28-Apr-15			K													
Paronychia ahartii	Ahart's paronychia	VASC	Caryophyllaceae			BLMS	1B.1		G2	S2		No	13-Sep-12													K			

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Pedicularis centranthera	dwarf lousewort	VASC	Orobanchaceae			BLMS	2B.3		G4	S2		No	28-Apr-15	Only five known occurrences form CA, all from Secret Valley in Lassen Co, on BLM lands managed by the Eagle Lake Field Office. These occurrences are rather disjunct from Harney and Lake counties in OR and primarily the eastern half of NV.						K										
Pediomelum castoreum	Beaver Dam breadroot	VASC	Fabaceae			BLMS	1B.2		G3	S2		No	13-Sep-12	Reranked from California Rare Plant Rank 4.3 to 1B.2 on 6-29-2011. CNDDB Occurrence 22 occurs on BLM lands in the Needles Field Office near Kingston Wash. Several other occurrences are either on or near BLM lands in the Barstow Field Office.				K						K					
Penstemon albomarginatus	white-margined beardtongue	VASC	Plataginaceae			BLMS	1B.1		G2	S1		No	16-Nov-10					K						K					
Penstemon bicolor subsp. roseus	rosy two-toned beardtongue	VASC	Plataginaceae			BLMS	1B.1		G3T3Q	S1		No	13-Sep-12	On BLM lands near Castle Mt. Mine and Hart Mt. Moved from CNPS List 2.2 to List 1B.1 on 12/8/09.										K					
Penstemon filiformis	thread-leaved beardtongue	VASC	Plantaginaceae			BLMS	1B.3		G3	S3		No	16-Nov-10													S			
Penstemon fruticiformis var. amargosae	Death Valley beardtongue	VASC	Plantaginaceae			BLMS	1B.3		G4T3	S2		No	28-Apr-15					K						K					
Penstemon janishiae	Janish's beardtongue	VASC	Plantaginaceae			BLMS	2B.2		G4	S1		No	28-Apr-15	Status of populations unknown; some have been extirpated. Threats are logging and home site development. Rare in CA, OR, and ID. CNDDB Occurrence 8 is mapped specifically on BLM lands. Occurrence 9 is nonspecific but entire mapped polygon on BLM. Changed from S to K on 8-19-09.	K													
Penstemon personatus	closed-throated beardtongue	VASC	Plantaginaceae			BLMS	1B.2		G2	S2		No	28-Apr-15													S			
Penstemon stephensii	Stephens' beardtongue	VASC	Plantaginaceae			BLMS	1B.3		G2	S2		No	13-Sep-12					K						K					
Penstemon sudans	Susanville beardtongue	VASC	Plantaginaceae			BLMS	1B.3		G3	S3		No	16-Nov-10							K									

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Pentachaeta exilis subsp. aeolica	slender pentachaeta	VASC	Asteraceae			BLMS	1B.2		G5T1	S1		No	13-Sep-12									K								
Perityle inyoensis	Inyo rock daisy	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	28-Apr-15	Occurrences 1 and 8 are entirely within the boundary of the new Cerro Gordo/Conglomerate Mesa ACEC. Occurrence 5 is partially within the ACEC, with the remainder on BLM land outside it.					S									K		
Perityle villosa	Hanaupah rock daisy	VASC	Asteraceae			BLMS	1B.3		G2	S2		No	03-Jun-13	Inyo Mts.														K		
Petalonyx thurberi subsp. gilmanii	Death Valley sandpaper-plant	VASC	Loasaceae			BLMS	1B.3		G5T2	S2		No						K										K		
Phacelia cookei	Cooke's phacelia	VASC	Boraginaceae			BLMS	1B.1		G1	S1		No	16-Nov-10													S				
Phacelia greenei	Scott Valley phacelia	VASC	Boraginaceae			BLMS	1B.2		G2	S2		No	16-Nov-10													K				
Phacelia inundata	playa phacelia	VASC	Boraginaceae			BLMS	1B.3	W	G2	S2 (CA); S2? (NV)		No	28-Apr-15		S					K								S		
Phacelia inyoensis	Inyo phacelia	VASC	Boraginaceae			BLMS	1B.2		G2	S2		No	13-Sep-12	Fish Slough and Alabama Hills.					K											
Phacelia leonis	Siskiyou phacelia	VASC	Boraginaceae			BLMS	1B.3		G3	S3		No	28-Apr-15													S				
Phacelia monoensis	Mono County phacelia	VASC	Boraginaceae			BLMS	1B.1	T	G3	S2		No	28-Apr-15						K											
Phacelia mustelina	Death Valley round-leaved phacelia	VASC	Boraginaceae			BLMS	1B.3		G2	S2		No	03-Jun-13	Saline Valley.													K			
Phacelia nashiana	Charlotte's phacelia	VASC	Boraginaceae			BLMS	1B.2		G3	S3		No	13-Sep-12				K										K			
Phacelia novenmillensis	Nine Mile Canyon phacelia	VASC	Boraginaceae			BLMS	1B.2		G3	S3		No	16-Nov-10				K										K			
Phacelia parishii	Parish's phacelia	VASC	Boraginaceae			BLMS	1B.1		G2G3	S1		No	03-Jun-13	The only known population on BLM lands in Southern California is within and immediately adjacent to a military maneuvering training area. This species was at one time considered extirpated in CA, but was rediscovered in 1989.				K												

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Phacelia phacelioides	Mount Diablo phacelia	VASC	Boraginaceae			BLMS	1B.2		G1	S1		No	03-Jun-13	Known but very uncommon within ACEC of Clear Creek Management Area acc 2009 Draft CCMA RMP/EIS. Six records from CCMA in Cal Flora 2009.								K								
Phaeocollybia californica	California phaeocollybia	FUNG	Cortinariaceae			BLMS			G3	None		No	28-Apr-15			K										S			
Phaeocollybia olivacea	olive phaeocollybia	FUNG	Cortinariaceae			BLMS			G3	None		No	16-Nov-10			K										S			
Phaeocollybia piceae	'spruce phaeocollybia'	FUNG	Cortinariaceae			BLMS			G3?	None		No	16-Nov-10			K													
Phaeocollybia pseudofestiva	no common name	FUNG	Cortinariaceae			BLMS			G3	None		No	16-Nov-10			S													
Phaeocollybia scatesiae	no common name	FUNG	Cortinariaceae			BLMS			G3?	None		No	16-Nov-10			K													
Phaeocollybia spadicea	spadicea phaecollybia	FUNG	Cortinariaceae			BLMS			G3G4	None		No	16-Nov-10			K										S			
Phlox hirsuta	Yreka phlox	VASC	Polemoniaceae	FE	SE		1B.2		G1	S1		Yes														S			
Pholisma sonorae	sand food	VASC	Boraginaceae			BLMS	1B.2		G2	S2		No	13-Sep-12	Formerly included in the family Lennoaceae.							K								
Piperia candida	white-flowered rein orchid	VASC	Orchidaceae			BLMS	1B.2		G3?	S2		No	03-Jun-13	May be on public lands on Red Mt. Jennifer to check--will leave as suspected for now.		S													
Piperia yadonii	Yadon's rein orchid	VASC	Orchciaceae	FE			1B.1		G2	S2		Yes	13-Sep-12									K							
Plagiobothrys uncinatus	hooked popcorn-flower	VASC	Boraginaceae			BLMS	1B.2		G2	S2		No	03-Jun-13				S												
Pleuropogon hooverianus	Hoover's semaphore grass	VASC	Poaceae		ST	BLMS	1B.1		G2	S2		No	13-Sep-12			S													
Poa diaboli	Diablo Canyon blue grass	VASC	Poaceae			BLMS	1B.2		G2	S2		No	28-Apr-15	May be on BLM lands in Ruda Canyon, San Luis Obispo Co.			S													
Polyctenium williamsiae	Williams's combleaf	VASC	Brassicaceae			BLMS	1B.2	T	G2Q	S1 (CA); S2 (NV)	CE	No	03-Jun-13	Known in Bishop on BLM land in the Bodie area. Because the Jepson Manual 2nd Edition and the Flora of North America reduced this species to synonomy under P. fremontii, the species was recently reviewed and kept on List 1B.2 by CNPS and CNDDB by decision dated February 8, 2012.	S				K	S									

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Polygonum polygaloides subsp. esotericum	Modoc County knotweed	VASC	Polygonaceae			BLMS	1B.1		G4G5T3	S3		No	28-Apr-15		K														
Polyozellus multiplex	blue chanterelle	FUNG	Thelephoraceae			BLMS			G4G5	None		No	16-Nov-10			S													
Potentilla basaltica	Black Rock potentilla	VASC	Rosaceae	FC		BLMS	1B.3	T	G1	S1(CA); S1 (NV)		No		Threats appear to be competition from meadow plant species.	K													S	
Pseudobahia peirsonii	Tulare pseudobahia	VASC	Asteraceae	FT	SE		1B.1		G1	S1		No					S												
Ptilidium californicum	Pacific fuzzwort	BRYO	Ptilidiaceae			BLMS	4.3		G3G4	S3?		No	03-Jun-13			K										S			
Puccinellia howellii	Howell's alkali-grass	VASC	Poaceae			BLMS	1B.1		G1	S1		No	03-Jun-13													S			
Puccinellia parishii	Parish's alkaligrass	VASC	Poaceae			BLMS	1B.1		G2G3	S1		No						S											
Pyrrocoma lucida	sticky pyrrocoma	VASC	Asteraceae			BLMS	1B.2		G3	S3		No	13-Sep-12							K									
Raillardella pringlei	showy raillardella	VASC	Asteraceae			BLMS	1B.2		G3	S3		No														S			
Ramalina pollinaria	dusty ramalina	LICH	Ramalinaceae			BLMS			G4	None		No	16-Nov-10			K													
Ramaria amyloidea	'pinkish coral mushroom'	FUNG	Ramariaceae			BLMS			G3	None		No	16-Nov-10			K													
Ramaria aurantiisiccescens	'yellow coral mushroom'	FUNG	Ramariaceae			BLMS			G3	None		No	16-Nov-10			K													
Ramaria cyaneigranosa	'pinkish coral mushroom'	FUNG	Ramariaceae			BLMS			G3	None		No	28-Apr-15			S													
Ramaria largentii	'orange coral mushroom'	FUNG	Ramariaceae			BLMS			G3	None		No	16-Nov-10			K													
Rhynchospora californica	California beaked-rush	VASC	Cyperaceae			BLMS	1B.1		G1	S1		No	03-Jun-13													S			
Ribes canthariforme	Moreno currant, San Diego currant	VASC	Grossulariaceae			BLMS	1B.3		G2	S2		No	16-Nov-10												S				
Ribes tularense	Sequoia gooseberry	VASC	Grossulariaceae			BLMS	1B.3		G2	S2		No	28-Apr-15				K												
Rorippa columbiae	Columbia yellow cress	VASC	Brassicaceae			BLMS	1B.2		G3	S1		No			S					S						S			
Rupertia hallii	Hall's rupertia	VASC	Fabaceae			BLMS	1B.2		G2G3	S2S3		No	28-Apr-15													K			
Sagittaria sanfordii	Sanford's arrowhead	VASC	Alismataceae			BLMS	1B.2		G3	S3		No	13-Sep-12													K			

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Saltugilia latimeri	Latimer's woodland-gilia	VASC	Polemoniaceae			BLMS	1B.2		G2	S2		No	28-Apr-15	Known to occur on BLM lands along or near currently designated OHV routes in the Old Dad Mountains south of the west end of the Mojave National Preserve acc. Jim Weigand.										K	K		K		
Salvia greatae	Orocopia sage	VASC	Lamiaceae			BLMS	1B.3		G2G3	S2S3		No	28-Apr-15	CNDDB Occurrence # 11 is from the south edge of the Trilobite Wilderness near Amboy (Needles Field Office), far from the core of its range in southern Riverside County. The occurrence (shown on BLM lands) is unvouchered and was listed as *Salvia* cf. *funerea* by Spaulding and Twitchell in 1978. CNDDB decided it must be *S. greatae*. Kam Barrows looked at the occurrence in 1986 and found no plants.										S	K				
Sanicula saxatilis	rock sanicle	VASC	Apiaceae		SR	BLMS	1B.2		G2	S2		No	13-Sep-12									S							
Sarcodon fuscoindicum	violet hedgehog	FUNG	Bankeraceae			BLMS			G3	None		No	16-Nov-10			K													
Sedum albomarginatum	Feather River stonecrop	VASC	Crassulaceae			BLMS	1B.2		G2	S2		No	28-Apr-15													S			
Sedum laxum subsp. eastwoodiae	Red Mountain stonecrop	VASC	Crassulaceae			BLMS	1B.2		G5T2	S2		No	03-Jun-13	Formerly *S. eastwoodiae* (Britton) Berger. Formerly a Federal candidate for listing, but removed from the candidate list on publication of a "Listing not warranted" finding by the U.S. Fish and Wildlife Service (Federal Register 79: 56029, September 18, 2014).		K												
Sedum obtusatum subsp. paradisum	Canyon Creek stonecrop	VASC	Crassulaceae			BLMS	1B.3		G4G5T2	S2		No	16-Nov-10	Formerly *S. paradisum* (M. Denton) M. Denton.													K			

SCIENTIFIC NAME	COMMON NAME	TYPE OF PLANT	FAMILY	FED STATUS	CA STATUS	BLM STATUS	CA RARE PLANT RANK	NNPS STATUS	GLOBAL RANK	STATE RANK	NV STATUS	RECOVERY PLAN?	DATE UPDATED	COMMENTS	ALTURAS	ARCATA	BAKERSFIELD	BARSTOW	BISHOP	EAGLE LAKE	EL CENTRO	HOLLISTER	MOTHER LODE	NEEDLES	PALM SPRINGS	REDDING	RIDGECREST	SURPRISE	UKIAH
Senecio clevelandii var. heterophyllus	Red Hills ragwort	VASC	Asteraceae			BLMS	1B.2		G4?T2Q	S2?		Yes	03-Jun-13	*Senecio clevelandii* is now *Packera clevelandii*, but the combination *Packera clevelandii* var. *heterophylla* has not been validly published. This variety has been reduced to synonymy in the Jepson Manual 1st and 2nd editions. The treatment by Barkley in Jepson Manual 1 was not based on genetic work. Barkley's treatment has been continued by Trock in Jepson Manual 2 and Flora North America. CDFW, CNPS, and BLM will continue to recognize the variety until genetic work conclusively shows that vars. *clevelandii* and *heterophyllus* are actually the same taxon.									K						
Sidalcea covillei	Owens Valley checkerbloom	VASC	Malvaceae		SE	BLMS	1B.1		G2	S2		No	28-Apr-15						K										
Sidalcea hickmanii subsp. anomala	Cuesta Pass checkerbloom	VASC	Malvaceae		SR	BLMS	1B.2		G3T1	S1		No	13-Sep-12				S					S							
Sidalcea hickmanii subsp. parishii	Parish's checkerbloom	VASC	Malvaceae		SR	BLMS	1B.2		G3T1	S1		No	03-Jun-13	This species used to be a Federal candidate but was removed from the candidate list in 2006.											S				
Sidalcea keckii	Keck's checkerbloom	VASC	Malvaceae	FE			1B.1		G1	S1		No	13-Sep-12				K												
Sidalcea malviflora subsp. patula	Siskiyou checkerbloom	VASC	Malvaceae			BLMS	1B.2		G5T2	S2		No	13-Sep-12			S													
Sidalcea oregana subsp. eximia	coast checkerbloom	VASC	Malvaceae			BLMS	1B.2		G5T1	S1		No				S													
Sidalcea robusta	Butte County checkerbloom	VASC	Malvaceae			BLMS	1B.2		G2	S2		No	13-Sep-12													K			
Silene campanulata subsp. campanulata	Red Mountain catchfly	VASC	Caryophyllaceae		SE	BLMS	4.2		G5T3Q	S3		No	28-Apr-15	Known from Red Mountain, Mendocino Co., Arcata FO; suspected on public lands in Ukiah FO from an occurrence near public lands in the Gilmore Peak 24k quad, Colusa Co.			K													S

SCIENTIFIC NAME	COMMON NAME	TYPE OF PLANT	FAMILY	FED STATUS	CA STATUS	BLM STATUS	CA RARE PLANT RANK	NNPS STATUS	GLOBAL RANK	STATE RANK	NV STATUS	RECOVERY PLAN?	DATE UPDATED	COMMENTS	ALTURAS	ARCATA	BAKERSFIELD	BARSTOW	BISHOP	EAGLE LAKE	EL CENTRO	HOLLISTER	MOTHER LODE	NEEDLES	PALM SPRINGS	REDDING	RIDGECREST	SURPRISE	UKIAH
Silene occidentalis subsp. longistipitata	long-stiped campion	VASC	Caryophyllaceae			BLMS	1B.2		G4T2Q	S2		No	16-Nov-10													S			
Smilax jamesii	English Peak greenbriar	VASC	Smilacaceae			BLMS	1B.3		G2	S2		No														S			
Sowerbyella rhenana	stalked orange peel fungus	FUNG	Pyrenemataceae			BLMS			G3G5	None		No	16-Nov-10			S										S			
Sparassis crispa	cauliflower mushroom	FUNG	Sparassidaceae			BLMS			None	None		No	16-Nov-10			K													
Spathularia flavida	fairy fan	FUNG	Cudoniaceae			BLMS			G4G5	None		No	16-Nov-10			K										S			
Sphaeralcea rusbyi var. eremicola	Rusby's desert-mallow	VASC	Malvaceae			BLMS	1B.2		G4T2	S2		No	13-Sep-12	CNPS Rare Plant Treasure Hunt found 19 new occurrences in 2010.										K						
Stenotus lanuginosus var. lanuginosus	woolly stenotus	VASC	Asteraceae			BLMS	2B.2		G5T3	S3		No	28-Apr-15	Known in CA from fewer than five occurrences. This species occurs at low numbers at each site.	K															
Stipa exigua	little ricegrass	VASC	Poaceae			BLMS	2B.3		G5	S2		No	03-Jun-13	Formerly *Oryzopsis exigua* Thurb. Known in CA from only two widely separated occurrences, one on public lands within the Eagle Lake Field Office which burned within the last few years. It is not common in NV. Threats include grazing and weed invasion following the recent fire.	K					K									S		
Streptanthus albidus subsp. albidus	Metcalf Canyon jewel-flower	VASC	Brassicaceae	FE			1B.1		G2T1	S1		Yes	13-Sep-12									S							
Streptanthus brachiatus subsp. brachiatus	Socrates Mine jewel-flower	VASC	Brassicaceae			BLMS	1B.2		G2T1	S1		Yes	03-Jun-13																K
Streptanthus brachiatus subsp. hoffmanii	Freed's jewelflower	VASC	Brassicaceae			BLMS	1B.2		G2T2	S2		No	16-Nov-10	This taxon was recognized in Jepson Manual 1st edition, but is reduced to synonymy under S. brachiatus in the 2nd edition.																K
Streptanthus callistus	Mount Hamilton jewel-flower	VASC	Brassicaceae			BLMS	1B.3		G1	S1		No	13-Sep-12									S							

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Streptanthus campestris	southern jewel-flower	VASC	Brassicaceae			BLMS	1B.3		G3	S3		No	28-Apr-15	Nonspecific CNDDB Occurrence 8, in the El Centro FO, is on lands slated for renewable energy; there are BLM lands within the mapped 1 mile radius circle, but there are also private lands. Occurrence 1, in the Palm Springs FO, contains BLM lands within the mapped 1 mile radius circle, but most of the lands within the circle are private.							S					S				
Streptanthus cordatus var. piutensis	Piute Mountains jewel-flower	VASC	Brassicaceae			BLMS	1B.2		G5T1	S1		No	03-Jun-13				K										K		
Streptanthus glandulosus subsp. hoffmannii	Hoffmann's jewel-flower	VASC	Brassicaceae			BLMS	1B.3		G4TH	SH		No	16-Nov-10	Elevated from *S. g.* var. *hoffmannii* Kruckeberg to subsp. *hoffmannii* in Jepson Manual 2nd edition.																S
Streptanthus morrisonii subsp. elatus	Three Peaks jewel-flower	VASC	Brassicaceae			BLMS	1B.2		G2T2	S2		No	28-Apr-15	Reduced to synonymy under *S. morrisonii* in Jepson Manual 2nd edition.																K
Streptanthus morrisonii subsp. hirtiflorus	Dorr's Cabin jewel-flower	VASC	Brassicaceae			BLMS	1B.2		G2T1	S1		No	28-Apr-15	Reduced to synonymy under *S. morrisonii* in Jepson Manual 2nd edition.																S
Streptanthus morrisonii subsp. kruckebergii	Kruckeberg's jewel-flower	VASC	Brassicaceae			BLMS	1B.2		G2T1	S1		No	03-Jun-13	Reduced to synonymy under *S. morrisonii* in Jepson Manual 2nd edition.																K
Streptanthus morrisonii subsp. morrisonii	Morrison's jewel-flower	VASC	Brassicaceae			BLMS	1B.2		G2T2	S2		No	28-Apr-15	The Jepson Manual 2nd edition does not recognize any subspecific taxa under *S. morrisonii*.																K
Streptanthus oliganthus	Masonic Mountain jewel-flower	VASC	Brassicaceae			BLMS	1B.2	W	G2G3	S2		No	28-Apr-15						K											
Streptanthus vernalis	early jewel-flower	VASC	Brassicaceae			BLMS	1B.2		G1	S1		No	24-Aug-09	Known from only one occurrence on serpentine at Three Peaks.																K
Stylocline citroleum	oil neststraw	VASC	Asteraceae			BLMS	1B.1		G2	S2		No	18-Sep-12	After reviewing CNDDB, specific occurrence 18 has BLM lands within the mapped circle.			K													
Stylocline masonii	Mason neststraw	VASC	Asteraceae			BLMS	1B.1		G1	S1		No	03-Jun-13				S													

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Sulcaria isidiifera	splitting yarn lichen	LICH	Alectoriaceae			BLMS	1B.1		G1	S1		No	26-Jan-15	A 5-acre BLM parcel is inside of the 1/5 mile circle mapped for Occurrence Number 4 of this species.			S													
Symphotrichum greatae	Greata's aster	VASC	Asteraceae			BLMS	1B.3		G3	S3		No	28-Apr-15	CNDDB Occurrence 41 in Ventura County abuts BLM lands in the Bakersfield Field Office. Occurrence 36 in Los Angeles County (Palm Springs Field Office) has small area of BLM lands within the nonspecific mapped 1-mile radius circle, this based on an 1893 collection.			S								S				
Symphyotrichum defoliatum	San Bernardino aster	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	13-Sep-12	Newly accepted name for *Aster bernardinus* H.M. Hall. CNDDB maps nonspecific location close to BLM lands on Mt. Laguna.							S				S		S		
Teloschistes flavicans	orangebush lichen	LICH	Teloschistaceae			BLMS			G4G5	None		No	16-Nov-10			S													
Tetracoccus dioicus	Parry's tetracoccus	VASC	Euphorbiaceae			BLMS	1B.2		G3?	S2		No	28-Apr-15												K				
Tetraphis geniculata	bent-kneed four-tooth moss	BRYO	Tetraphidaceae			BLMS			G3G5	None		No	16-Nov-10			S													
Thelypodium howellii var. howellii	Howell's thelypodium	VASC	Brassicaceae			BLMS	1B.2		G2T2	S2		No	03-Jun-13		S					K								S	
Thermopsis californica var. semota	velvety false lupine	VASC	Fabaceae			BLMS	1B.2		G4T2	S2		No	28-Apr-15	Nonspecific CNDDB Occurrence 16 borders BLM land slated for renewable energy.							S								
Thysanocarpus rigidus	Ridge Fringepod	VASC	Brassicaceae			BLMS	1B.2		G1G2	S1S2		No	03-Oct-11	Currently shown in 2 locations close to BLM lands in the Laguna Mountains.							S								
Tortula californica	California screw moss	BRYO	Pottiaceae			BLMS	1B.2		G2?	S2		No	13-Sep-12				S												
Trifolium buckwestiorum	Santa Cruz clover	VASC	Fabaceae			BLMS	1B.1		G2	S2		No	03-Jun-13	Known from 3 locations at Fort Ord, one of which along road scheduled to be widened (entered 1/24/02).								K							
Trifolium jokerstii	Butte County golden clover	VASC	Fabaceae			BLMS	1B.2		G2	S2		No	03-Jun-13													K			

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Trifolium kingii subsp. dedeckerae	DeDecker's clover	VASC	Fabaceae			BLMS	1B.3		G2	S2		No	28-Apr-15	DFG and CNPS still have as *T. dedeckerae* J.M Gillett. Was *Trifolium macilentum* var. *dedeckerae* (J.M. Gillett) Barneby in Jepson Manual 1st edition. The treatment used here is the treatment in Jepson Manual 2nd edition.			S										K		
Trifolium polyodon	Pacific Grove clover	VASC	Fabaceae		SR	BLMS	1B.1		G1	S1		No	03-Jun-13									K							
Triteleia piutensis	Piute Mountains triteleia	VASC	Themidaceae			BLMS	1B.1		G1	S1		No	20-Jan-15	Recently described by Kentner, E. and K. Steiner. 2014. A new species of Triteleia (Themidaceae) from the southern Sierra Nevada. Madroño 61(2): 227-230. Added to CDFW/CNPS list on 7/24/2014.			K												
Usnea longissima	long beard lichen	LICH	Parmeliaceae			BLMS	4.2		G4	S4		No	28-Apr-15			K													
Verbena californica	Red Hills vervain	VASC	Verbenaceae	FT	ST		1B.1		G2	S2		No	13-Sep-12										K						
Vermilacinia cephalota	powdery fog lichen	LICH	Ramalinaceae			BLMS			G3G4	None		No	16-Nov-10	Formerly *Niebla cephalota* (Tuck.) Rundel & Bowler, which the PLANTS database treats as a synonym.		K													
Wyethia reticulata	El Dorado mule ears	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	13-Sep-12	FWS Recovery Plan for Gabbro Soil Plants of the Central Sierra Nevada Foothills addresses this species even though it's not federally listed.									K						
Xylorhiza cognata	Mecca-aster	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	03-Jun-13	Occurs on BLM lands along or near OHV routes and trails in the Meccacopia Special Recreation Area acc. Jim Weigand.											K				
Xylorhiza orcuttii	Orcutt's woody aster	VASC	Asteraceae			BLMS	1B.2		G2G3	S2		No	13-Sep-12								K								

SCIENTIFIC NAME	COMMON NAME	TYPE OF PLANT	FAMILY	FED STATUS	CA STATUS	BLM STATUS	CA RARE PLANT RANK	NNPS STATUS	GLOBAL RANK	STATE RANK	NV STATUS	RECOVERY PLAN?	DATE UPDATED	COMMENTS	ALTURAS	ARCATA	BAKERSFIELD	BARSTOW	BISHOP	EAGLE LAKE	EL CENTRO	HOLLISTER	MOTHER LODE	NEEDLES	PALM SPRINGS	REDDING	RIDGECREST	SURPRISE	UKIAH
Zeltnera namophila	spring-loving centaury	VASC	Gentianaceae	FT				t	G2Q	S2 (Nevada)	CE	Yes	28-Apr-15	Formerly *Centaurium namophilum* Reveal, C.R. Boome, & Beatley, this species is now treated as *Zeltnera namophila* in the Jepson Manual, 2nd edition. Although the CNPS Inventory, accessed 8/8/2013, still treats this as *Centaurium namophilum* (var. *namophilum*) and states that the species does not occur in California, citing previous records they consider to be based on a misidentification of *C. exaltatum* (Griseb.) Piper, the Jepson Manual 2 believes that the specimens referred to *C. exaltatum* are in fact *Z. namophila*. This species is almost certainly in the Carson Slough area of the Barstow Field Office.				K										

Type of Plant: BRYO = Bryophyte; FUNG = Fungus; LICH = Lichen; VASC = Vascular plant; Federal Status: FE = Federally Endangered; FT = Federally Threatened; FC = Federal Candidate; FP = Proposed for Federal Listing; FD = Federally Delisted. State of California (CA) Status: SE = State Endangered; ST = State Threatened; SR = State Rare. California Rare Plant Rank: 1A = Plants presumed extinct in CA; 1B = Plants rare, threatened, or endangered in CA and elsewhere; 2 = Plants rare, threatened, or endangered in CA, but more common elsewhere; 3 = Plants about which more Information is needed; 4 = Plants of limited distribution – a watch list. Decimals following the CA Rare Plant Rank Numbers: x.1 = Seriously endangered in CA; x.2 = Fairly endangered in CA; x.3 = Not very endangered in CA. Nevada Native Plant Society (NNPS) Status: W = Watch List. State of Nevada (NV) Status: CE = Critically Endangered; CE# = Proposed for Critically Endangered. Global and State Rank: The Global Rank is assigned by NatureServe and reflects the overall condition of the element throughout its global range; G-ranks are used for species as a whole, T-ranks for subspecies; the State (S) Rank is assigned by the State Heritage Program and reflects the overall condition of the element within a State. Code meanings can be found at: http://www.natureserve.org/explorer/ranking.htm#interpret. Comments: Additional information, only provided for some plants. Date Updated: This field is provided to show when changes or updates were last made to an element; this tracking was implemented only in recent years, so the field is blank for most elements. K or S under BLM field offices: K = Known to occur on BLM lands managed by that field office; S = Suspected to occur on BLM lands managed by that field office.

FIELD OFFICE		COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	STATE STATUS	BLM STATUS	OTHER STATUS
El Centro		40 Species					
	Mammal						
		California leaf-nosed bat	Macrotus californicus			BLMS	SSC
		Cave myotis	Myotis velifer			BLMS	SSC
		Desert bighorn sheep	Ovis canadensis nelsoni			BLMS	SF
		Fringed myotis	Myotis thysanodes			BLMS	
		Long-eared myotis	Myotis evotis			BLMS	
		Pallid bat	Antrozous pallidus			BLMS	SSC
		Palm Springs little pocket mouse	Perognathus longimembris bangsi			BLMS	
		Small-footed myotis	Myotis ciliolabrum			BLMS	
		Townsend's big-eared bat	Corynorhinus townsendii			BLMS	SSC
		Western mastiff-bat	Eumops perotis californicus			BLMS	SSC
		Yuma myotis	Myotis yumanensis			BLMS	
	Bird						
		Arizona bell's vireo	Vireo bellii arizonae		SE	BLMS	
		Brown pelican	Pelecanus occidentalis	FD	SD	BLMS	SF
		Burrowing owl	Athene cunicularia			BLMS	SSC
		California black rail	Laterallus jamaicensis coturniculus		ST	BLMS	SF
		California spotted owl	Strix occidentalis occidentalis			BLMS	SSC
		Elf owl	Micrathene whitneyi		SE	BLMS	
		Gila woodpecker	Melanerpes uropygialis		SE	BLMS	
		Gilded flicker	Colaptes chrysoides		SE	BLMS	
		Least Bell's vireo	Vireo bellii pusillus	FE	SE		
		Lucy's warbler	Oreothlypis luciae			BLMS	SSC
		Mountain plover	Charadrius montanus			BLMS	SSC
		Southwestern willow flycatcher	Empidonax traillii extimus	FE	SE		
		Tricolored blackbird	Agelaius tricolor			BLMS	SSC
		Western yellow-billed cuckoo	Coccyzus americanus occidentalis	FC	SE	BLMS	
		Yuma clapper rail	Rallus longirostris yumanensis	FE	ST		SF
	Reptile						
		Barefoot banded gecko	Coleonyx switaki		ST	BLMS	
		Coast horned lizard	Phrynosoma blainvillii			BLMS	
		Colorado Desert fringe-toed lizard	Uma notata			BLMS	

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FIELD OFFICE		COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	STATE STATUS	BLM STATUS	OTHER STATUS
		Desert tortoise	Gopherus agassizii	FT	ST		
		Flat-tailed horned lizard	Phrynosoma mcalli			BLMS	
		Southwestern pond turtle	Actinemys marmorata pallida			BLMS	
		Two-striped garter snake	Thamnophis hammondii			BLMS	
	Amphibian						
		Couch's spadefoot toad	Scaphiopus couchi			BLMS	
		Lowland leopard frog	Lithobates yavapaiensis			BLMS	
	Fish						
		Colorado pikeminnow	Ptychocheilus lucius	FE	SE		SF
		Desert pupfish	Cyprinodon macularius	FE	SE		
		Mojave tui chub	Siphateles bicolor mohavensis	FE	SE		SF
		Razorback sucker	Xyrauchen texanus	FE	SE		SF
		Unarmored threespine stickleback	Gasterosteus aculeatus williamsoni	FE	SE		SF

Federal Status: FE = Federally Endangered, FT = Federally Threatened, FC = Federal Candidate, FP = Proposed for Federal Listing, FD = Delisted from Federal ESA; State Status: SE = State Endangered, ST = State Threatened, SC = State Candidate, SD = Delisted from State ESA; Other Status: EA = Bald and Golden Eagle Protection Act, SF = Fully Protected, SSC = Species of Special Concern

APPENDIX D

California Department of Fish and Wildlife RareFind report

CALIFORNIA DEPARTMENT OF FISH and WILDLIFE **RareFind**

Query Summary:
Quad IS (Ogilby (3211477) OR Hedges (3211487))
AND County IS (Imperial)

Print Close

CNDDB Element Query Results

Scientific Name	Common Name	Taxonomic Group	Element Code	Total Occs	Returned Occs	Federal Status	State Status	Global Rank	State Rank	CA Rare Plant Rank	Other Status	Habitats
Anomala hardyorum	Hardy's dune beetle	Insects	IICOL30060	17	1	None	None	G1	S1	null	null	Desert dunes, Sonoran desert scrub
Antrozous pallidus	pallid bat	Mammals	AMACC10010	420	2	None	None	G5	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive, WBWG_H-High Priority	Chaparral, Coastal scrub, Desert wash, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Riparian woodland, Sonoran desert scrub, Upper montane coniferous forest, Valley & foothill grassland
Apiocera warneri	Glamis sand fly	Insects	IIDIP54020	1	1	None	None	G1G2	S1S2	null	null	Desert dunes
Astragalus insularis var. harwoodii	Harwood's milk-vetch	Dicots	PDFAB0F491	120	2	None	None	G5T4	S2	2B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Desert dunes, Desert wash, Mojavean desert scrub
Calliandra eriophylla	pink fairy-duster	Dicots	PDFAB0N040	53	20	None	None	G5	S3	2B.3	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Sonoran desert scrub
Corynorhinus townsendii	Townsend's big-eared bat	Mammals	AMACC08010	635	1	None	None	G3G4	S2	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive, WBWG_H-High Priority	Broadleaved upland forest, Chaparral, Chenopod scrub, Great Basin grassland, Great Basin scrub, Joshua tree woodland, Lower montane coniferous forest, Meadow & seep, Mojavean desert scrub, Riparian forest, Riparian woodland, Sonoran

												desert scrub, Sonoran thorn woodland, Upper montane coniferous forest, Valley & foothill grassland
Croton wigginsii	Wiggins' croton	Dicots	PDEUP0H140	12	1	None	Rare	G2G3	S2	2B.2	BLM_S-Sensitive, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Desert dunes, Sonoran desert scrub
Cyclocephala wandae	Wandae dune beetle	Insects	IICOL33020	1	1	None	None	G1G2	S1S2	null	null	Desert dunes
Ditaxis claryana	glandular ditaxis	Dicots	PDEUP080L0	26	1	None	None	G3G4	S2	2B.2	null	Desert wash, Mojavean desert scrub, Sonoran desert scrub
Efferia macroxipha	Glamis robberfly	Insects	IIDIP07040	1	1	None	None	G1G2	S1S2	null	null	Desert dunes
Eumops perotis californicus	western mastiff bat	Mammals	AMACD02011	296	4	None	None	G5T4	S3S4	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, WBWG_H-High Priority	Chaparral, Cismontane woodland, Coastal scrub, Valley & foothill grassland
Euparagia unidentata	Algodones euparagia	Insects	IIHYMBC010	3	1	None	None	G1G2	S1S2	null	null	Desert dunes
Gopherus agassizii	desert tortoise	Reptiles	ARAAF01012	970	13	Threatened	Threatened	G3	S2S3	null	IUCN_VU-Vulnerable	Joshua tree woodland, Mojavean desert scrub, Sonoran desert scrub
Macrotus californicus	California leaf-nosed bat	Mammals	AMACB01010	46	11	None	None	G4	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, WBWG_H-High Priority	Riparian scrub, Sonoran desert scrub
Melanerpes uropygialis	Gila woodpecker	Birds	ABNYF04150	62	1	None	Endangered	G5	S1	null	BLM_S-Sensitive, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Riparian forest, Riparian woodland
Microbembex elegans	Algodones elegant sand wasp	Insects	IIHYM90010	1	1	None	None	G1G2	S1S2	null	null	Desert dunes
Myotis velifer	cave myotis	Mammals	AMACC01050	9	1	None	None	G5	S1	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, WBWG_M-Medium Priority	Riparian scrub, Sonoran desert scrub
Nyctinomops femorosaccus	pocketed free-tailed bat	Mammals	AMACD04010	90	1	None	None	G4	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, WBWG_M-Medium Priority	Joshua tree woodland, Pinon & juniper woodlands, Riparian scrub, Sonoran desert scrub
Palafoxia arida var. gigantea	giant spanish-needle	Dicots	PDAST6T012	6	2	None	None	G5T3?	S2	1B.3	BLM_S-Sensitive, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Desert dunes
Perdita	Algodones	Insects	IIHYM01130	1	1	None	None	G1G2	S1S2	null	null	Desert

algodones	perdita											dunes
Perdita frontalis	Imperial Perdita	Insects	IIHYM01140	2	1	None	None	G1G2	S1S2	null	null	Desert dunes
Perdita stephanomeriae	a miner bee	Insects	IIHYM01840	3	1	None	None	GNR	S1S2	null	null	Desert dunes
Pholisma sonorae	sand food	Dicots	PDLNN02020	14	2	None	None	G2	S2	1B.2	BLM_S-Sensitive, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Desert dunes, Sonoran desert scrub
Phrynosoma mcallii	flat-tailed horned lizard	Reptiles	ARACF12040	340	6	None	None	G3	S2	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened	Desert dunes, Mojavean desert scrub, Sonoran desert scrub
Polioptila melanura	black-tailed gnatcatcher	Birds	ABPBJ08030	34	1	None	None	G5	S3S4	null	CDFW_WL-Watch List, IUCN_LC-Least Concern	Mojavean desert scrub, Sonoran desert scrub
Pseudocotalpa andrewsi	Andrew's dune scarab beetle	Insects	IICOL37020	29	1	None	None	G1	S1	null	null	Desert dunes, Sonoran desert scrub
Toxostoma crissale	Crissal thrasher	Birds	ABPBK06090	67	1	None	None	G5	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Riparian woodland
Toxostoma lecontei	Le Conte's thrasher	Birds	ABPBK06100	238	2	None	None	G4	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, NABCI_RWL-Red Watch List, USFWS_BCC-Birds of Conservation Concern	Desert wash, Mojavean desert scrub, Sonoran desert scrub

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Ogilby (3211477) OR Hedges (3211487))
 AND County IS (Imperial)

Map Index Number: 63284
EO Index: 63376
Key Quad: Hedges (3211487)
Element Code: ABNYF04150
Occurrence Number: 30
Occurrence Last Updated: 2005-12-01

Scientific Name: *Melanerpes uropygialis*
Common Name: Gila woodpecker

Listing Status: **Federal:** None
State: Endangered
Rare Plant Rank:
Other Lists: BLM_S-Sensitive
IUCN_LC-Least Concern
USFWS_BCC-Birds of Conservation Concern

CNDDB Element Ranks: **Global:** G5
State: S1

General Habitat:
IN CALIFORNIA, INHABITS COTTONWOODS AND OTHER DESERT RIPARIAN TREES, SHADE TREES, AND DATE PALMS.

Micro Habitat:
CAVITY NESTER IN RIPARIAN TREES OR SAGUARO CACTUS.

Last Date Observed: 2002-03-09
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2002-03-09
Occurrence Rank: Fair
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:
UNNAMED WASH SOUTH OF INDIAN WASH, ABOUT 2.25 MILES WEST OF THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:

Ecological:
DESERT WASH WOODLAND WITH PALO VERDE & IRONWOOD SURROUNDED BY DISTURBED CREOSOTE BUSH SCRUB.

Threats:
OFF-ROAD VEHICLE USE.

General:
1 ADULT OBSERVED 9 MAR 2002.

PLSS: T14S, R20E, Sec. 34 (S)
Accuracy: 80 meters
Area (acres): 0
UTM: Zone-11 N3642305 E699897
Latitude/Longitude: 32.90071 / -114.86272
Elevation (feet): 537

County Summary:
Imperial

Quad Summary:
Hedges (3211487)

Sources:
KON02F0001 KONECNY, J. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR MELANERPES UROPYGIALIS 2002-03-09

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 06541
Key Quad: Hedges (3211487)
Occurrence Number: 31

EO Index: 25005
Element Code: ABPBJ08030
Occurrence Last Updated: 1989-08-10

Scientific Name: *Polioptila melanura*
Common Name: black-tailed gnatcatcher

Listing Status: **Federal:** None
State: None

CNDDB Element Ranks: **Global:** G5
State: S3S4

Rare Plant Rank:

Other Lists: CDFW_WL-Watch List
IUCN_LC-Least Concern

General Habitat:

PRIMARILY INHABITS WOODED DESERT WASH HABITATS; ALSO OCCURS IN DESERT SCRUB HABITAT, ESPECIALLY IN WINTER.

Micro Habitat:

NESTS IN DESERT WASHES CONTAINING MESQUITE, PALO VERDE, IRONWOOD, ACACIA; ABSENT FROM AREAS WHERE SALT CEDAR INTRODUCED.

Last Date Observed: 1977-06-07
Last Survey Date: 1977-06-07
Owner/Manager: BLM
Presence: Presumed Extant

Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:

INDIAN WASH, AT HWY S-34, APPROX 12.5 MI N OF I-80 AND 12 MILES S OF HWY 78.

Detailed Location:

Ecological:

Threats:

General:

NESTING BIRDS OBSERVED DURING SUMMER 1977 STUDY; 13 BREEDING PAIRS ESTIMATED.

PLSS: T14S, R20E, Sec. 22, NE (S)
UTM: Zone-11 N3645946 E700809

Accuracy: 1 mile
Latitude/Longitude: 32.93336 / -114.85219

Area (acres): 0
Elevation (feet): 620

County Summary:	Quad Summary:
Imperial	Hedges (3211487)

Sources:

BLM80S0014 BLM - DESERT PLAN STAFF - COMPILATION OF HISTORIC MUSEUM SPECIMEN INFORMATION FOR POLIOPTILA MELANURA LUCIDA, COLLECTED DURING THE PREPARATION OF "THE CALIFORNIA DESERT PLAN". 1980-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 06541
Key Quad: Hedges (3211487)
Occurrence Number: 47

EO Index: 24395
Element Code: ABPBK06090
Occurrence Last Updated: 1989-08-10

Scientific Name: *Toxostoma crissale*
Common Name: Crissal thrasher

Listing Status: **Federal:** None
State: None

CNDDB Element Ranks: **Global:** G5
State: S3

Rare Plant Rank:

Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern

General Habitat:

RESIDENT OF SOUTHEASTERN DESERTS IN DESERT RIPARIAN AND DESERT WASH HABITATS.

Micro Habitat:

NESTS IN DENSE VEGETATION ALONG STREAMS/WASHES; MESQUITE, SCREWBEAN MESQUITE, IRONWOOD, CATCLAW, ACACIA, ARROWWEED, WILLOW.

Last Date Observed: 1977-06-07
Last Survey Date: 1977-06-07
Owner/Manager: BLM
Presence: Presumed Extant

Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:

INDIAN WASH, AT HWY S-34, APPROX 12.5 MI N OF I-80 AND 12 MILES S OF HWY 78.

Detailed Location:

Ecological:

Threats:

General:

NESTING BIRDS OBS DURING SUMMER 1977 STUDY; ESTIMATED THREE BREEDING PAIRS.

PLSS: T14S, R20E, Sec. 22 (S)
UTM: Zone-11 N3645946 E700809

Accuracy: 1 mile
Latitude/Longitude: 32.93336 / -114.85219

Area (acres): 0
Elevation (feet): 620

County Summary:	Quad Summary:
Imperial	Hedges (3211487)

Sources:

BLM80S0013 BLM - DESERT PLAN STAFF - COMPILATION OF HISTORIC MUSEUM SPECIMEN INFORMATION FOR TOXOSTOMA DORSALE, COLLECTED DURING THE PREPARATION OF "THE CALIFORNIA DESERT PLAN". 1980-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 06550
Key Quad: Ogilby (3211477)
Occurrence Number: 35
EO Index: 24533
Element Code: ABPBK06100
Occurrence Last Updated: 1989-08-10

Scientific Name: *Toxostoma lecontei*
Common Name: Le Conte's thrasher

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G4
State: S3
Rare Plant Rank:
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
NABCI_RWL-Red Watch List
USFWS_BCC-Birds of Conservation Concern

General Habitat:

DESERT RESIDENT; PRIMARILY OF OPEN DESERT WASH, DESERT SCRUB, ALKALI DESERT SCRUB, AND DESERT SUCCULENT SCRUB HABITATS.

Micro Habitat:

COMMONLY NESTS IN A DENSE, SPINY SHRUB OR DENSELY BRANCHED CACTUS IN DESERT WASH HABITAT, USUALLY 2-8 FEET ABOVE GROUND.

Last Date Observed: 1896-03-16
Last Survey Date: 1896-03-16
Owner/Manager: UNKNOWN
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:

OGILBY.

Detailed Location:

Ecological:

Threats:

General:

CAS SPECIMEN #55196.

PLSS: T15S, R20E, Sec. 35, NW (S)
UTM: Zone-11 N3633124 E702138
Accuracy: 1 mile
Latitude/Longitude: 32.81754 / -114.84079
Area (acres): 0
Elevation (feet): 360

County Summary:

Imperial

Quad Summary:

Ogilby (3211477)

Sources:

BLM80R0014 BUREAU OF LAND MANAGEMENT - THE CALIFORNIA DESERT PLAN 1980-02-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 06541
Key Quad: Hedges (3211487)
Occurrence Number: 88

EO Index: 24493
Element Code: ABPBK06100
Occurrence Last Updated: 1989-08-10

Scientific Name: *Toxostoma lecontei*
Common Name: Le Conte's thrasher

Listing Status: **Federal:** None
State: None

CNDDB Element Ranks: **Global:** G4
State: S3

Rare Plant Rank:

Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
NABCI_RWL-Red Watch List
USFWS_BCC-Birds of Conservation Concern

General Habitat:

DESERT RESIDENT; PRIMARILY OF OPEN DESERT WASH, DESERT SCRUB, ALKALI DESERT SCRUB, AND DESERT SUCCULENT SCRUB HABITATS.

Micro Habitat:

COMMONLY NESTS IN A DENSE, SPINY SHRUB OR DENSELY BRANCHED CACTUS IN DESERT WASH HABITAT, USUALLY 2-8 FEET ABOVE GROUND.

Last Date Observed: 1977-06-07
Last Survey Date: 1977-06-07
Owner/Manager: BLM
Presence: Presumed Extant

Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:

INDIAN WASH, AT HWY S-34, APPROX 12.5 MI N OF I-80 AND 12 MILES S OF HWY 78.

Detailed Location:

Ecological:

Threats:

General:

NESTING BIRDS OBS DURING SUMMER 1977 STUDY; ESTIMATED ONE BREEDING PAIR.

PLSS: T14S, R20E, Sec. 22, NE (S)
UTM: Zone-11 N3645946 E700809

Accuracy: 1 mile
Latitude/Longitude: 32.93336 / -114.85219

Area (acres): 0
Elevation (feet): 620

County Summary:

Imperial

Quad Summary:

Hedges (3211487)

Sources:

BLM80R0014 BUREAU OF LAND MANAGEMENT - THE CALIFORNIA DESERT PLAN 1980-02-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 33092
EO Index: 3603
Key Quad: Ogilby (3211477)
Element Code: AMACB01010
Occurrence Number: 13
Occurrence Last Updated: 2007-04-03

Scientific Name: *Macrotus californicus*
Common Name: California leaf-nosed bat

Listing Status: **Federal:** None
State: None
Rare Plant Rank:

CNDDB Element Ranks: **Global:** G4
State: S3
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
WBWG_H-High Priority

General Habitat:

DESERT RIPARIAN, DESERT WASH, DESERT SCRUB, DESERT SUCCULENT SCRUB, ALKALI SCRUB AND PALM OASIS HABITATS.

Micro Habitat:

NEEDS ROCKY, RUGGED TERRAIN WITH MINES OR CAVES FOR ROOSTING.

Last Date Observed: 1999-01-XX
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1999-01-XX
Occurrence Rank: Excellent
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

"CARGO MINE," IN JACKSON GULCH, ABOUT 3.5 MILES ENE OF OGILBY, IN THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:

THIS MINE IS PROTECTED BY A STURDY, HIGH CHAIN LINK FENCE, A LOCKED GATE, AND SIGNS. INDIVIDUALS WERE OBSERVED ROOSING ON 30 APR 1992. 1993-1999 NUMBERS REFER TO OUTFLIGHT COUNTS. 650-750 OUTFLIGHT COUNT (OFC) WINTER 1990/91.

Ecological:

HABITAT CONSISTS OF CREOSOTE BUSH SCRUB IN THE LOWER SONORAN LIFE ZONE. THIS POPULATION EXPERIENCES FLUCTUATIONS, BASED ON ACTIONS IN NEARBY MINES.

Threats:

POSSIBLE THREATS INCLUDE RENEWED MINING, HUMAN (RECREATIONAL) DISURBANCE, AND MINE CLOSURE FOR HAZARD ABATEMENT.

General:

132 INDIVS APRIL, 260 OFC MAY, 152 OFC JUNE, 636 OFC DEC 1992. 109 26 JUNE; 207 3 JULY; 1462 10 DEC 1993. 764 WINTER 1994. 222 JUL 1995. 1289 JAN, 182 JUL 1996. 266 JAN, 195 JUN 1997. 221 JAN, 183 JUN 1998. 1292 JAN 1999.

PLSS: T15S, R21E, Sec. 20, SE (S)
Accuracy: 80 meters
Area (acres): 0
UTM: Zone-11 N3635139 E707835
Latitude/Longitude: 32.83464 / -114.77952
Elevation (feet): 720

County Summary:	Quad Summary:
Imperial	Ogilby (3211477)

Sources:

BRO92F0019	BROWN, P. - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS (ROOST SITE) 1992-04-30
BRO92R0002	BROWN-BERRY BIOLOGICAL CONSULTING - A SUMMER BASELINE SURVEY FOR THE CALIFORNIA LEAF-NOSED BAT IN THE CARGO MUCHACHO MOUNTAINS. 1992-10-02
BRO92R0003	BROWN, P.E. - A SPRING SURVEY FOR BATS OF THE AMERICAN GIRL CANYON PROJECT AND THE ORO CRUZ PROJECT, CARGO MUCHACHO MOUNTAINS, IMPERIAL COUNTY, CALIFORNIA. 1992-06-05
BRO93F0045	BROWN-BERRY BIOLOGICAL CONSULTING - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS (ROOST SITE) 1993-07-03
BRO98U0002	BROWN-BERRY BIOLOGICAL CONSULTING - REGARDING: RESULTS OF SUMMER AND WINTER BASELINE MONITORING FOR BATS IN THE VICINITY OF THE ORO CRUZ PROJECT AND THE CARGO MINE, CARGO MUCHACHO MOUNTAINS, CA. 1998-05-04
BRO99U0001	BROWN-BERRY BIOLOGICAL CONSULTING - BAT CENSUS OF CARGO MUCHACHO MINES, AUGUST 1989-JANUARY 1999 1999-01-XX
BRO99U0002	BROWN-BERRY BIOLOGICAL CONSULTING - REGARDING: RESULTS OF SUMMER AND WINTER BASELINE MONITORING FOR BATS IN THE VICINITY OF THE ORO CRUZ PROJECT AND THE CARGO MINE, CARGO MUCHACHO MOUNTAINS, CA. 1999-02-08

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 33093
EO Index: 3604
Key Quad: Ogilby (3211477)
Element Code: AMACB01010
Occurrence Number: 14
Occurrence Last Updated: 1995-04-04

Scientific Name: *Macrotus californicus*
Common Name: California leaf-nosed bat

Listing Status: **Federal:** None
State: None
Rare Plant Rank:

CNDDB Element Ranks: **Global:** G4
State: S3
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
WBWG_H-High Priority

General Habitat:
DESERT RIPARIAN, DESERT WASH, DESERT SCRUB, DESERT SUCCULENT SCRUB, ALKALI SCRUB AND PALM OASIS HABITATS.

Micro Habitat:
NEEDS ROCKY, RUGGED TERRAIN WITH MINES OR CAVES FOR ROOSTING.

Last Date Observed: 1993-12-14
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1993-12-14
Occurrence Rank: Good
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:
"NE OF CARGO MINE," VICINITY OF JACKSON GULCH, IN THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:

Ecological:
HABITAT CONSISTS OF CREOSOTE BUSH SCRUB IN THE LOWER SONORAN LIFE ZONE.

Threats:

General:
1 ADULT OBSERVED ROOSTING.

PLSS: T15S, R21E (S)
Accuracy: 1/5 mile
Area (acres): 0
UTM: Zone-11 N3635466 E708291
Latitude/Longitude: 32.83750 / -114.77458
Elevation (feet): 880

County Summary:	Quad Summary:
Imperial	Ogilby (3211477)

Sources:
BRO93F0046 BROWN-BERRY BIOLOGICAL CONSULTING - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS (ROOST SITE) 1993-12-14

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 33096
EO Index: 3606
Key Quad: Ogilby (3211477)
Element Code: AMACB01010
Occurrence Number: 17
Occurrence Last Updated: 2007-03-05

Scientific Name: *Macrotus californicus*
Common Name: California leaf-nosed bat

Listing Status: **Federal:** None
State: None
Rare Plant Rank:

CNDDB Element Ranks: **Global:** G4
State: S3
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
WBWG_H-High Priority

General Habitat:

DESERT RIPARIAN, DESERT WASH, DESERT SCRUB, DESERT SUCCULENT SCRUB, ALKALI SCRUB AND PALM OASIS HABITATS.

Micro Habitat:

NEEDS ROCKY, RUGGED TERRAIN WITH MINES OR CAVES FOR ROOSTING.

Last Date Observed: 2006-01-15
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2006-01-15
Occurrence Rank: Good
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

"GUADALUPE MINE," IN THE VICINITY OF THE AMERICAN GIRL WASH, IN THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:

2006 OBSERVATION FROM SHAFT OMR #13346.

Ecological:

HABITAT CONSISTS OF CREOSOTE BUSH SCRUB IN THE LOWER SONORAN LIFE ZONE.

Threats:

POSSIBLE THREATS INCLUDE RENEWED MINING, HUMAN (RECREATIONAL) DISTURBANCE, AND MINE CLOSURE FOR HAZARD ABATEMENT.

General:

10 FEMALES AND 2 MALES OBSERVED ROOSTING ON 15 DECEMBER 1992; 10 OF THE BATS HAD BEEN PREVIOUSLY BANDED AND ROOSTED IN THE AMERICAN BOY MINE, WHCIH IS NOW AN ACTIVE MINING SITE. GUANO DETECTED DURING SURVEY ON 15 JAN 2006.

PLSS: T15S, R21E, Sec. 16, SW (S)
Accuracy: 80 meters
Area (acres): 0
UTM: Zone-11 N3637459 E709123
Latitude/Longitude: 32.85530 / -114.76525
Elevation (feet): 880

County Summary:	Quad Summary:
Imperial	Ogilby (3211477)

Sources:

BRO06R0001	BROWN, P. (BROWN-BERRY BIOLOGICAL CONSULTING) - CALIFORNIA STATE LANDS COMMISSION MINE SITE DESCRIPTIONS AND BAT SURVEY RESULTS 2006-02-04
BRO92F0023	BROWN, P. - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS (ROOST SITE) 1992-12-15

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 33095
EO Index: 3605
Key Quad: Ogilby (3211477)
Element Code: AMACB01010
Occurrence Number: 16
Occurrence Last Updated: 2007-04-03

Scientific Name: *Macrotus californicus*
Common Name: California leaf-nosed bat

Listing Status: **Federal:** None
State: None
Rare Plant Rank:

CNDDB Element Ranks: **Global:** G4
State: S3
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
WBWG_H-High Priority

General Habitat:

DESERT RIPARIAN, DESERT WASH, DESERT SCRUB, DESERT SUCCULENT SCRUB, ALKALI SCRUB AND PALM OASIS HABITATS.

Micro Habitat:

NEEDS ROCKY, RUGGED TERRAIN WITH MINES OR CAVES FOR ROOSTING.

Last Date Observed: 1996-07-03
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1996-07-03
Occurrence Rank: Good
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

"PADRE MADRE CLAIM," SOUTH OF THE AMERICAN GIRL WASH, IN THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:

ONE PORTION OF THIS ROOST IS LOCATED OUTSIDE THE FENCE AND ONE PART IS LOCATED INSIDE THE FENCE. INCLUDES SOUTH OF MINE IN INCLINE ON TOP OF HILL.

Ecological:

HABITAT CONSISTS OF CREOSOTE BUSH SCRUB IN THE LOWER SONORAN LIFE ZONE.

Threats:

POSSIBLE THREATS INCLUDE RENEWED MINING, HUMAN (RECREATIONAL) DISTURBANCE, AND MINE CLOSURE FOR HAZARD ABATEMENT.

General:

ROOST SITE. OUTSIDE FENCE: 10 OBSERVED 2 MAY, 10 OBSERVED 18 JUN 1992; INSIDE FENCE: 8 OBSERVED ON 2 MAY, 6 OBSERVED ON 18 JUN 1992. OUTFLIGHT COUNT OF 55 + 25 ON 3 JUL 1996.

PLSS: T15S, R21E, Sec. 19, NE (S)
Accuracy: 1/5 mile
Area (acres): 0
UTM: Zone-11 N3635878 E706624
Latitude/Longitude: 32.84153 / -114.79229
Elevation (feet): 600

County Summary:	Quad Summary:
Imperial	Ogilby (3211477)

Sources:

BRO92F0021	BROWN, P. - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS (ROOST SITE) 1992-05-02
BRO92F0022	BROWN, P. - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS (ROOST SITE) 1992-05-02
BRO92R0002	BROWN-BERRY BIOLOGICAL CONSULTING - A SUMMER BASELINE SURVEY FOR THE CALIFORNIA LEAF-NOSED BAT IN THE CARGO MUCHACHO MOUNTAINS. 1992-10-02
BRO92R0003	BROWN, P.E. - A SPRING SURVEY FOR BATS OF THE AMERICAN GIRL CANYON PROJECT AND THE ORO CRUZ PROJECT, CARGO MUCHACHO MOUNTAINS, IMPERIAL COUNTY, CALIFORNIA. 1992-06-05
BRO99U0001	BROWN-BERRY BIOLOGICAL CONSULTING - BAT CENSUS OF CARGO MUCHACHO MINES, AUGUST 1989-JANUARY 1999 1999-01-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 33096
EO Index: 3606
Key Quad: Ogilby (3211477)
Element Code: AMACB01010
Occurrence Number: 17
Occurrence Last Updated: 2007-03-05

Scientific Name: *Macrotus californicus*
Common Name: California leaf-nosed bat

Listing Status: **Federal:** None
State: None
Rare Plant Rank:

CNDDB Element Ranks: **Global:** G4
State: S3
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
WBWG_H-High Priority

General Habitat:

DESERT RIPARIAN, DESERT WASH, DESERT SCRUB, DESERT SUCCULENT SCRUB, ALKALI SCRUB AND PALM OASIS HABITATS.

Micro Habitat:

NEEDS ROCKY, RUGGED TERRAIN WITH MINES OR CAVES FOR ROOSTING.

Last Date Observed: 2006-01-15
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2006-01-15
Occurrence Rank: Good
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

"GUADALUPE MINE," IN THE VICINITY OF THE AMERICAN GIRL WASH, IN THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:

2006 OBSERVATION FROM SHAFT OMR #13346.

Ecological:

HABITAT CONSISTS OF CREOSOTE BUSH SCRUB IN THE LOWER SONORAN LIFE ZONE.

Threats:

POSSIBLE THREATS INCLUDE RENEWED MINING, HUMAN (RECREATIONAL) DISTURBANCE, AND MINE CLOSURE FOR HAZARD ABATEMENT.

General:

10 FEMALES AND 2 MALES OBSERVED ROOSTING ON 15 DECEMBER 1992; 10 OF THE BATS HAD BEEN PREVIOUSLY BANDED AND ROOSTED IN THE AMERICAN BOY MINE, WHCIH IS NOW AN ACTIVE MINING SITE. GUANO DETECTED DURING SURVEY ON 15 JAN 2006.

PLSS: T15S, R21E, Sec. 16, SW (S)
Accuracy: 80 meters
Area (acres): 0
UTM: Zone-11 N3637459 E709123
Latitude/Longitude: 32.85530 / -114.76525
Elevation (feet): 880

County Summary:	Quad Summary:
Imperial	Ogilby (3211477)

Sources:

BRO06R0001	BROWN, P. (BROWN-BERRY BIOLOGICAL CONSULTING) - CALIFORNIA STATE LANDS COMMISSION MINE SITE DESCRIPTIONS AND BAT SURVEY RESULTS 2006-02-04
BRO92F0023	BROWN, P. - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS (ROOST SITE) 1992-12-15

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 33097
EO Index: 3607
Key Quad: Ogilby (3211477)
Element Code: AMACB01010
Occurrence Number: 18
Occurrence Last Updated: 2011-01-18

Scientific Name: *Macrotus californicus*
Common Name: California leaf-nosed bat

Listing Status: **Federal:** None
State: None
Rare Plant Rank:

CNDDB Element Ranks: **Global:** G4
State: S3
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
WBWG_H-High Priority

General Habitat:
DESERT RIPARIAN, DESERT WASH, DESERT SCRUB, DESERT SUCCULENT SCRUB, ALKALI SCRUB AND PALM OASIS HABITATS.

Micro Habitat:
NEEDS ROCKY, RUGGED TERRAIN WITH MINES OR CAVES FOR ROOSTING.

Last Date Observed: 1992-10-12
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1992-10-12
Occurrence Rank: Good
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:
"TYBO MINE," VICINITY OF THE AMERICAN GIRL WASH, IN THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:
INCLUDES LOCALITY "AMERICAN GIRL MINE."

Ecological:
HABITAT CONSISTS OF CREOSOTE BUSH SCRUB IN THE LOWER SONORAN LIFE ZONE.

Threats:
POSSIBLE THREATS INCLUDE RENEWED MINING, HUMAN (RECREATIONAL) DISTURBANCE, AND MINE CLOSURE FOR HAZARD ABATEMENT.

General:
HISTORIC SITE. 150-200 OBS BY P. BROWN 1977. POPULATION HAS LIKELY DECREASED DUE TO RENEWED MINING IN THE AREA AND REMOVAL OF WASH VEGETATION. 4 INDIVIDUALS OBSERVED ROOSTING ON 12 OCTOBER 1992.

PLSS: T15S, R21E (S)
Accuracy: 1/5 mile
Area (acres): 0
UTM: Zone-11 N3637467 E707137
Latitude/Longitude: 32.85575 / -114.78645
Elevation (feet): 740

County Summary:	Quad Summary:
Imperial	Ogilby (3211477)

Sources:

BLM80R0014	BUREAU OF LAND MANAGEMENT - THE CALIFORNIA DESERT PLAN 1980-02-XX
BRO92F0024	BROWN, P. - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS (ROOST SITE) 1992-12-10
BRO93U0001	BROWN, P.E., R.D. BERRY & C. BROWN - ABSTRACT OF A PAPER PRESENTED AT THE CALIFORNIA MINING ASSOCIATION ANNUAL MEETING IN MONTEREY, MARCH 10, 1993. 1993-03-10

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 26333
Key Quad: Hedges (3211487)
Occurrence Number: 26
EO Index: 40808
Element Code: AMACB01010
Occurrence Last Updated: 2007-04-03

Scientific Name: *Macrotus californicus*
Common Name: California leaf-nosed bat

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G4
State: S3
Rare Plant Rank:
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
WBWG_H-High Priority

General Habitat:
DESERT RIPARIAN, DESERT WASH, DESERT SCRUB, DESERT SUCCULENT SCRUB, ALKALI SCRUB AND PALM OASIS HABITATS.

Micro Habitat:
NEEDS ROCKY, RUGGED TERRAIN WITH MINES OR CAVES FOR ROOSTING.

Last Date Observed: 1999-01-XX
Last Survey Date: 1999-01-XX
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Good
Trend: Unknown

Location:
MESQUITE ADIT, TUMCO WASH, IN THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:
GATED MINE ENTRANCE. LOCATED TO W OF THE GOLDEN RING. INCLUDES QUEEN INCLINE & MESQUITE MINE. ABOUT 80 OBS 1989. 12 CAPT/BANDED (C/B) FEB, 49 OBS JUL, 44 IN DEC 1990. 2 C/B MAY, 12 CAPT, 8 OBS DEC 1991. 3 OBS APR/MAY 1992.

Ecological:
HABITAT CONSISTS OF CREOSOTE BUSH SCRUB IN THE LOWER SONORAN LIFE ZONE.

Threats:
POSSIBLE THREAT OF MINING - SITE IS UNDER CLAIM TO A MINING COMPANY, HUMAN DISTURBANCE, CLOSURE FOR HAZARD ABATEMENT.

General:
3 BANDED BATS CAPT JUN, 15 C/B DEC 1992. ~5 CAPT JUN, 2 IN JUL, 1 OBS DEC '93.1 OBS MAR, OBS IN JUN, 27 IN DEC '94. OBS MAR, 18 IN 6 JUL '95. 13 OBS IN JAN, OBS IN JUL '96.15 OBS JAN, OBS JUN '97. 13 OBS JAN, OBS JUN '98. 27 OBS JAN '99.

PLSS: T15S, R20E, Sec. 01, SW (S)
Accuracy: 2/5 mile
Area (acres): 0
UTM: Zone-11 N3640372 E703297
Latitude/Longitude: 32.88266 / -114.82683
Elevation (feet): 700

County Summary:
Imperial

Quad Summary:
Hedges (3211487)

Sources:

BRO92F0047	BROWN, P. - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS 1992-04-30
BRO92R0002	BROWN-BERRY BIOLOGICAL CONSULTING - A SUMMER BASELINE SURVEY FOR THE CALIFORNIA LEAF-NOSED BAT IN THE CARGO MUCHACHO MOUNTAINS. 1992-10-02
BRO92R0003	BROWN, P.E. - A SPRING SURVEY FOR BATS OF THE AMERICAN GIRL CANYON PROJECT AND THE ORO CRUZ PROJECT, CARGO MUCHACHO MOUNTAINS, IMPERIAL COUNTY, CALIFORNIA. 1992-06-05
BRO93F0073	BROWN & BERRY BIOLOGICAL - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS 1993-06-28
BRO99U0001	BROWN-BERRY BIOLOGICAL CONSULTING - BAT CENSUS OF CARGO MUCHACHO MINES, AUGUST 1989-JANUARY 1999 1999-01-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 26334
Key Quad: Hedges (3211487)
Occurrence Number: 27
EO Index: 40809
Element Code: AMACB01010
Occurrence Last Updated: 2011-08-16

Scientific Name: *Macrotus californicus*
Common Name: California leaf-nosed bat

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G4
State: S3
Rare Plant Rank:
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
WBWG_H-High Priority

General Habitat:
DESERT RIPARIAN, DESERT WASH, DESERT SCRUB, DESERT SUCCULENT SCRUB, ALKALI SCRUB AND PALM OASIS HABITATS.

Micro Habitat:
NEEDS ROCKY, RUGGED TERRAIN WITH MINES OR CAVES FOR ROOSTING.

Last Date Observed: 1999-01-XX
Last Survey Date: 1999-01-XX
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Good
Trend: Unknown

Location:
(GOLDEN) QUEEN MINE, IN TUMCO WASH, IN THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:
1990 OBS MATERNITY ROOST. MESQUITE, GOLDEN KING & CROWN MINES & EAST & WEST SOVERIGN PROSPECT INCLUDED HERE. OBS EXITING INCLINE & SHAFT IN 1989 OBS & IN JUN 1992. 125 OBS AUG 1989. OBS FEB/JUL/DEC 1990. 2 OBS DEC 1991.

Ecological:
HABITAT CONSISTS OF CREOSOTE BUSH SCRUB IN THE LOWER SONORAN LIFE ZONE.

Threats:
RENEWED MINING, HUMAN DISTURBANCE, CLOSURE FOR HAZARD ABATEMENT.

General:
14 BANDED, 178 OBS MAY/JUN, 208 OBS DEC 1992. 40 OBS 29 JUN, 5 OBS JUL, 295 OBS DEC, 10 OBS DEC '93. OBS IN MAR/JUN/JUL/DEC '94. OBS MAR/JUL '95. 6 OBS JUN, 147 JAN/JUN/JUL '96. OBS JAN/JUN '97. 68 OBS JAN, 50 OBS JUN 1998. 190 OBS JAN '99.

PLSS: T15S, R20E, Sec. 01 (S)
Accuracy: 2/5 mile
Area (acres): 0
UTM: Zone-11 N3640600 E703890
Latitude/Longitude: 32.88460 / -114.82044
Elevation (feet): 720

County Summary:	Quad Summary:
Imperial	Hedges (3211487)

Sources:

BRO92F0048	BROWN, P. - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS 1992-06-26
BRO92F0049	BROWN, P. - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS 1992-06-20
BRO92F0050	BROWN, P. - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS 1992-06-19
BRO92F0051	BROWN, P. - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS 1992-06-20
BRO92F0052	BROWN, P. - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS 1992-05-01
BRO92R0002	BROWN-BERRY BIOLOGICAL CONSULTING - A SUMMER BASELINE SURVEY FOR THE CALIFORNIA LEAF-NOSED BAT IN THE CARGO MUCHACHO MOUNTAINS. 1992-10-02
BRO92R0003	BROWN, P.E. - A SPRING SURVEY FOR BATS OF THE AMERICAN GIRL CANYON PROJECT AND THE ORO CRUZ PROJECT, CARGO MUCHACHO MOUNTAINS, IMPERIAL COUNTY, CALIFORNIA. 1992-06-05
BRO93F0047	BROWN-BERRY BIOLOGICAL CONSULTING - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS (ROOST SITE) 1993-01-23
BRO93F0068	BROWN & BERRY BIOLOGICAL - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS 1993-12-11
BRO93F0069	BROWN & BERRY BIOLOGICAL - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS 1993-07-05
BRO93F0070	BROWN & BERRY BIOLOGICAL - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS 1993-06-29
BRO93F0071	BROWN & BERRY BIOLOGICAL - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS 1993-07-07
BRO93F0072	BROWN & BERRY BIOLOGICAL - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS 1993-12-13
BRO98U0002	BROWN-BERRY BIOLOGICAL CONSULTING - REGARDING: RESULTS OF SUMMER AND WINTER BASELINE MONITORING FOR BATS IN THE VICINITY OF THE ORO CRUZ PROJECT AND THE CARGO MINE, CARGO MUCHACHO MOUNTAINS, CA. 1998-05-04
BRO99U0002	BROWN-BERRY BIOLOGICAL CONSULTING - REGARDING: RESULTS OF SUMMER AND WINTER BASELINE MONITORING FOR BATS IN THE VICINITY OF THE ORO CRUZ PROJECT AND THE CARGO MINE, CARGO MUCHACHO MOUNTAINS, CA. 1999-02-08

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 66655
Key Quad: Hedges (3211487)
Occurrence Number: 31
EO Index: 68474
Element Code: AMACB01010
Occurrence Last Updated: 2007-04-20

Scientific Name: *Macrotus californicus*
Common Name: California leaf-nosed bat

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G4
State: S3
Rare Plant Rank:
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
WBWG_H-High Priority

General Habitat:
DESERT RIPARIAN, DESERT WASH, DESERT SCRUB, DESERT SUCCULENT SCRUB, ALKALI SCRUB AND PALM OASIS HABITATS.

Micro Habitat:
NEEDS ROCKY, RUGGED TERRAIN WITH MINES OR CAVES FOR ROOSTING.

Last Date Observed: 2006-01-25
Last Survey Date: 2006-01-25
Owner/Manager: UNKNOWN
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
CARGO MUCHACHO MOUNTAINS, ABOUT 1.4 MI NORTH OF HEDGES.

Detailed Location:
SHAFT & ADIT OMR #13313 & 13316 AND DECLINE OMR #13320.

Ecological:
MATERNITY COLONY FOR MACROTUS CALIFORNICUS.

Threats:

General:
45 INDIVIDUALS OBSERVED IN A SIDE DRIFT OFF THE NORTHWEST BRANCH, 4 FEMALES CAPTURED, BANDED & RELEASED INSIDE THE MINE ON 25 JAN 2006.

PLSS: T14S, R20E, Sec. 36, W (S)
Accuracy: non-specific area
Area (acres): 156
UTM: Zone-11 N3642270 E703327
Latitude/Longitude: 32.89976 / -114.82608
Elevation (feet): 780

County Summary:	Quad Summary:
Imperial	Hedges (3211487)

Sources:

BRO06R0001	BROWN, P. (BROWN-BERRY BIOLOGICAL CONSULTING) - CALIFORNIA STATE LANDS COMMISSION MINE SITE DESCRIPTIONS AND BAT SURVEY RESULTS 2006-02-04
BRO06R0002	BROWN, P. (BROWN-BERRY BIOLOGICAL CONSULTING) - CALIFORNIA STATE LANDS COMMISSION MINE SITE DESCRIPTIONS AND BAT SURVEY RESULTS 2006-06-15

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 68784
EO Index: 69287
Key Quad: Ogilby (3211477)
Element Code: AMACB01010
Occurrence Number: 40
Occurrence Last Updated: 2007-04-10

Scientific Name: *Macrotus californicus*
Common Name: California leaf-nosed bat

Listing Status: **Federal:** None
State: None

CNDDB Element Ranks: **Global:** G4
State: S3

Rare Plant Rank:

Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
WBWG_H-High Priority

General Habitat:

DESERT RIPARIAN, DESERT WASH, DESERT SCRUB, DESERT SUCCULENT SCRUB, ALKALI SCRUB AND PALM OASIS HABITATS.

Micro Habitat:

NEEDS ROCKY, RUGGED TERRAIN WITH MINES OR CAVES FOR ROOSTING.

Last Date Observed: 1999-01-17
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1999-01-17
Occurrence Rank: Unknown
Owner/Manager: UNKNOWN
Trend: Unknown
Presence: Presumed Extant

Location:

AMERICAN BOY MINE. CARGO MUCHACHO MOUNTAINS, TUMCO WASH.

Detailed Location:

Ecological:

Threats:

General:

MAINLY WINTER ROOST PRIOR TO CLOSURE IN 1992. 2 INDIVIDUALS OBSERVED EMERGING FROM ADIT IN JUN 1997. 1 INDIVIDUAL & GUANO OBSERVED IN JAN 1998. OUTFLIGHT COUNT OF 6 INDIVIDUALS AND GUANO OBSERVED 17 JAN 1999.

PLSS: T15S, R21E, Sec. 16, NW (S)
Accuracy: 1/10 mile
Area (acres): 0
UTM: Zone-11 N3638222 E708635
Latitude/Longitude: 32.86227 / -114.77028
Elevation (feet): 740

County Summary:

Imperial

Quad Summary:

Ogilby (3211477)

Sources:

BRO98U0002	BROWN-BERRY BIOLOGICAL CONSULTING - REGARDING: RESULTS OF SUMMER AND WINTER BASELINE MONITORING FOR BATS IN THE VICINITY OF THE ORO CRUZ PROJECT AND THE CARGO MINE, CARGO MUCHACHO MOUNTAINS, CA. 1998-05-04
BRO99U0001	BROWN-BERRY BIOLOGICAL CONSULTING - BAT CENSUS OF CARGO MUCHACHO MINES, AUGUST 1989-JANUARY 1999 1999-01-XX
BRO99U0002	BROWN-BERRY BIOLOGICAL CONSULTING - REGARDING: RESULTS OF SUMMER AND WINTER BASELINE MONITORING FOR BATS IN THE VICINITY OF THE ORO CRUZ PROJECT AND THE CARGO MINE, CARGO MUCHACHO MOUNTAINS, CA. 1999-02-08

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 06550
Key Quad: Ogilby (3211477)
Occurrence Number: 46
EO Index: 82343
Element Code: AMACB01010
Occurrence Last Updated: 2011-01-18

Scientific Name: *Macrotus californicus*
Common Name: California leaf-nosed bat

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G4
State: S3
Rare Plant Rank:
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
WBWG_H-High Priority

General Habitat:
DESERT RIPARIAN, DESERT WASH, DESERT SCRUB, DESERT SUCCULENT SCRUB, ALKALI SCRUB AND PALM OASIS HABITATS.

Micro Habitat:
NEEDS ROCKY, RUGGED TERRAIN WITH MINES OR CAVES FOR ROOSTING.

Last Date Observed: 1944-11-23
Last Survey Date: 1944-11-23
Owner/Manager: UNKNOWN
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
OGILBY.

Detailed Location:

Ecological:

Threats:

General:
2 FEMALES COLLECTED 30 MAY 1943. 4 MALES COLLECTED 24 NOV 1944 BY D.G. CONSTANTINE (LACM #11652-11657).

PLSS: T15S, R20E, Sec. 35 (S)
Accuracy: 1 mile
Area (acres): 0
UTM: Zone-11 N3633124 E702138
Latitude/Longitude: 32.81754 / -114.84079
Elevation (feet): 360

County Summary:	Quad Summary:
Imperial	Ogilby (3211477)

Sources:

BLM80R0014	BUREAU OF LAND MANAGEMENT - THE CALIFORNIA DESERT PLAN 1980-02-XX
CON44S0001	CONSTANTINE, D.G. - LACM RECORDS FOR MACROTUS CALIFORNICUS RECORDS FROM OGILBY 1944-11-24

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 68363
EO Index: 68553
Key Quad: Hedges (3211487)
Element Code: AMACC01050
Occurrence Number: 10
Occurrence Last Updated: 2007-03-07

Scientific Name: *Myotis velifer*
Common Name: cave myotis

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G5
State: S1
Rare Plant Rank:
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
WBWG_M-Medium Priority

General Habitat:
LOWLANDS OF THE COLORADO RIVER AND ADJACENT MOUNTAIN RANGES.

Micro Habitat:
REQUIRE CAVES OR MINES FOR ROOSTING.

Last Date Observed: 2006-06-05
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2006-06-05
Occurrence Rank: Unknown
Owner/Manager: UNKNOWN
Trend: Unknown
Presence: Presumed Extant

Location:
CARGO MUCHACHO MOUNTAINS, ABOUT 1.5 MI NORTH OF HEDGES.

Detailed Location:
SHAFT OMR 13328 IN NW 1/4 OF SECTION 36, NEAR THE BASE OF A WEST FACING HILL. SHAFT WAS 10 X 10 X 50 FT DEEP WITH UNSTABLE LOOSE ROCK IN THE TOP 10 FEET.

Ecological:

Threats:

General:
1 BAT OBSERVED EXITING THE SHAFT AFTER DARK 5 JUN 2005. BAT APPEARED TO BE MYOTIS VELIFER BASED ON A COMPARISON OF OBSERVATION TIME WITH TIME OF ACOUSTIC RECORDS BUT IDENTIFICATION IS NOT CONFIRMED. M. VELIFER IS RARE HERE.

PLSS: T14S, R20E, Sec. 36, NW (S)
Accuracy: non-specific area
Area (acres): 151
UTM: Zone-11 N3643058 E703316
Latitude/Longitude: 32.90686 / -114.82603
Elevation (feet): 820

County Summary:	Quad Summary:
Imperial	Hedges (3211487)

Sources:

BRO06R0002	BROWN, P. (BROWN-BERRY BIOLOGICAL CONSULTING) - CALIFORNIA STATE LANDS COMMISSION MINE SITE DESCRIPTIONS AND BAT SURVEY RESULTS 2006-06-15

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 91986
Key Quad: Hedges (3211487)
Occurrence Number: 252
EO Index: 93061
Element Code: AMACC08010
Occurrence Last Updated: 2014-04-07

Scientific Name: *Corynorhinus townsendii*
Common Name: Townsend's big-eared bat

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G3G4
State: S2
Rare Plant Rank:
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
USFS_S-Sensitive
WBWG_H-High Priority

General Habitat:
THROUGHOUT CALIFORNIA IN A WIDE VARIETY OF HABITATS. MOST COMMON IN MESIC SITES.

Micro Habitat:
ROOSTS IN THE OPEN, HANGING FROM WALLS AND CEILINGS. ROOSTING SITES LIMITING. EXTREMELY SENSITIVE TO HUMAN DISTURBANCE.

Last Date Observed: 1947-05-28
Last Survey Date: 1947-05-28
Owner/Manager: UNKNOWN
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
ABOUT 1.4 MI E OF OGILBY ROAD AT GOLD ROCK RANCH ROAD AND ABOUT 3.2 MI NW OF PASADENA PEAK.

Detailed Location:
MAPPED TO LOCALITY STATED AS "TUMCO MINE, 5 MI N, 2 MI E OGILBY."

Ecological:

Threats:

General:
1 MALE COLLECTED ON 28 MAY 1947 (MVZ #106720) BY S. BENSON.

PLSS: T15S, R20E, Sec. 01, SE (S)
UTM: Zone-11 N3640199 E704351
Accuracy: 1/10 mile
Latitude/Longitude: 32.88090 / -114.81559
Area (acres): 0
Elevation (feet): 830

County Summary:
Imperial

Quad Summary:
Hedges (3211487)

Sources:
BEN47S0006 BENSON, S. - MVZ #106720 1947-05-28

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 66500
Key Quad: Hedges (3211487)
Occurrence Number: 21
EO Index: 18838
Element Code: AMACC10010
Occurrence Last Updated: 2011-08-31

Scientific Name: *Antrozous pallidus*
Common Name: pallid bat

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G5
State: S3

Rare Plant Rank:

Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
USFS_S-Sensitive
WBWG_H-High Priority

General Habitat:

DESERTS, GRASSLANDS, SHRUBLANDS, WOODLANDS AND FORESTS. MOST COMMON IN OPEN, DRY HABITATS WITH ROCKY AREAS FOR ROOSTING.

Micro Habitat:

ROOSTS MUST PROTECT BATS FROM HIGH TEMPERATURES. VERY SENSITIVE TO DISTURBANCE OF ROOSTING SITES.

Last Date Observed: 1998-06-13
Last Survey Date: 1998-06-13
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Good
Trend: Unknown

Location:

TUMCO WASH, IN THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:

INCLUDES QUEEN INCLINE, TUMCO WASH, MESQUITE ADIT, TUMCO WASH, CROWN, QUEEN, W & E SOVEREIGN & TUMCO MINE. OBS FLYING IN CAVE IN 1992. MATERNITY COLONY OBS IN 1998.

Ecological:

HABITAT SURROUNDING ROOST CONSISTS OF CREOSOTE BUSH SCRUB IN THE LOWER SONORAN LIFE ZONE.

Threats:

THREATENED BY A PROPOSAL TO RENEW MINING.

General:

1 M COLL 17 JUL 1958 (MVZ #122877). 14 OBS AUG 1989. 4 JUV OBS JUN 1992. 5 IN CAVE, 87 IN OUTFLIGHT COUNT MIXED W/ MACROTUS, 25 CAPT 26 JUN-1 JUL 1993. OBS IN MAR/JUN 1994, MAR 1995, JUL 1996, JUN 1997, & JUN 1998.

PLSS: T15S, R20E, Sec. 01 (S)
Accuracy: 3/5 mile
Area (acres): 0
UTM: Zone-11 N3640196 E703630
Latitude/Longitude: 32.88100 / -114.82330
Elevation (feet): 720

County Summary:	Quad Summary:
Imperial	Ogilby (3211477), Hedges (3211487)

Sources:

BRO92R0002	BROWN-BERRY BIOLOGICAL CONSULTING - A SUMMER BASELINE SURVEY FOR THE CALIFORNIA LEAF-NOSED BAT IN THE CARGO MUCHACHO MOUNTAINS. 1992-10-02
BRO93F0003	BROWN-BERRY BIOLOGICAL CONSULTING - FIELD SURVEY FORM FOR ANTROZOUS PALLIDUS (ROOST SITE) 1993-06-27
BRO93F0004	BROWN-BERRY BIOLOGICAL CONSULTING - FIELD SURVEY FORM FOR ANTROZOUS PALLIDUS (ROOST SITE) 1993-06-26
BRO98U0002	BROWN-BERRY BIOLOGICAL CONSULTING - REGARDING: RESULTS OF SUMMER AND WINTER BASELINE MONITORING FOR BATS IN THE VICINITY OF THE ORO CRUZ PROJECT AND THE CARGO MINE, CARGO MUCHACHO MOUNTAINS, CA. 1998-05-04
BRO99U0001	BROWN-BERRY BIOLOGICAL CONSULTING - BAT CENSUS OF CARGO MUCHACHO MINES, AUGUST 1989-JANUARY 1999 1999-01-XX
BRO99U0002	BROWN-BERRY BIOLOGICAL CONSULTING - REGARDING: RESULTS OF SUMMER AND WINTER BASELINE MONITORING FOR BATS IN THE VICINITY OF THE ORO CRUZ PROJECT AND THE CARGO MINE, CARGO MUCHACHO MOUNTAINS, CA. 1999-02-08
MAN04S0028	MAMMAL NETWORKED INFORMATION SYSTEM (MANIS) - PRINTOUT OF ANTROZOUS PALLIDUS SPECIMEN RECORDS FROM MANIS. INCLUDES RECORDS FROM MVZ, CAS, KU, UWBM, UMNH, LACM, MSB, FMNH, TTU, MSU. 2004-12-09

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 66655
Key Quad: Hedges (3211487)
Occurrence Number: 317
EO Index: 66798
Element Code: AMACC10010
Occurrence Last Updated: 2007-03-12

Scientific Name: *Antrozous pallidus*
Common Name: pallid bat

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G5
State: S3

Rare Plant Rank:
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
USFS_S-Sensitive
WBWG_H-High Priority

General Habitat:
DESERTS, GRASSLANDS, SHRUBLANDS, WOODLANDS AND FORESTS. MOST COMMON IN OPEN, DRY HABITATS WITH ROCKY AREAS FOR ROOSTING.

Micro Habitat:
ROOSTS MUST PROTECT BATS FROM HIGH TEMPERATURES. VERY SENSITIVE TO DISTURBANCE OF ROOSTING SITES.

Last Date Observed: 2006-06-05
Last Survey Date: 2006-06-05
Owner/Manager: UNKNOWN
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
MINES IN THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:
SHAFT & ADIT OMR #13313 & 13316 AND DECLINE OMR #13320.

Ecological:
NIGHT ROOST FOR ANTROZOUS PALLIDUS.

Threats:

General:
6 INDIVIDUALS OBSERVED NIGHT ROOSTING, INCLUDING 1 WITH A PUP ATTACHED, OBSERVED 5 JUN 2006.

PLSS: T14S, R20E, Sec. 36, W (S)
Accuracy: non-specific area
Area (acres): 156
UTM: Zone-11 N3642270 E703327
Latitude/Longitude: 32.89976 / -114.82608
Elevation (feet): 780

County Summary:
Imperial

Quad Summary:
Hedges (3211487)

Sources:

BRO06R0001	BROWN, P. (BROWN-BERRY BIOLOGICAL CONSULTING) - CALIFORNIA STATE LANDS COMMISSION MINE SITE DESCRIPTIONS AND BAT SURVEY RESULTS 2006-02-04
BRO06R0002	BROWN, P. (BROWN-BERRY BIOLOGICAL CONSULTING) - CALIFORNIA STATE LANDS COMMISSION MINE SITE DESCRIPTIONS AND BAT SURVEY RESULTS 2006-06-15

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 26366
Key Quad: Ogilby (3211477)
Occurrence Number: 3
EO Index: 4093
Element Code: AMACD02011
Occurrence Last Updated: 1995-02-08

Scientific Name: *Eumops perotis californicus*
Common Name: western mastiff bat

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G5T4
State: S3S4
Rare Plant Rank:
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
WBWG_H-High Priority

General Habitat:
MANY OPEN, SEMI-ARID TO ARID HABITATS, INCLUDING CONIFER & DECIDUOUS WOODLANDS, COASTAL SCRUB, GRASSLANDS, CHAPARRAL, ETC.

Micro Habitat:
ROOSTS IN CREVICES IN CLIFF FACES, HIGH BUILDINGS, TREES AND TUNNELS.

Last Date Observed: 1993-07-03
Last Survey Date: 1993-07-03
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
CARGO MINE, IN JACKSON GULCH, IN THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:

Ecological:
HABITAT CONSISTS OF CREOSOTE BUSH SCRUB IN THE LOWER SONORAN LIFE ZONE.

Threats:

General:
MINE SITE IS FENCED. MASTIFF BAT HEARD FLYING OVERHEAD.

PLSS: T15S, R21E (S)
Accuracy: 1 mile
Area (acres): 0
UTM: Zone-11 N3635161 E707853
Latitude/Longitude: 32.83483 / -114.77933
Elevation (feet): 720

County Summary:	Quad Summary:
Imperial	Ogilby (3211477)

Sources:
BRO93F0023 BROWN-BERRY BIOLOGICAL CONSULTING - FIELD SURVEY FORM FOR EUMOPS PEROTIS (CALIFORNICUS) 1993-07-03

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 26334
Key Quad: Hedges (3211487)
Occurrence Number: 4
EO Index: 4095
Element Code: AMACD02011
Occurrence Last Updated: 1999-02-03

Scientific Name: *Eumops perotis californicus*
Common Name: western mastiff bat

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G5T4
State: S3S4
Rare Plant Rank:
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
WBWG_H-High Priority

General Habitat:

MANY OPEN, SEMI-ARID TO ARID HABITATS, INCLUDING CONIFER & DECIDUOUS WOODLANDS, COASTAL SCRUB, GRASSLANDS, CHAPARRAL, ETC.

Micro Habitat:

ROOSTS IN CREVICES IN CLIFF FACES, HIGH BUILDINGS, TREES AND TUNNELS.

Last Date Observed: 1993-06-28
Last Survey Date: 1993-06-28
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:

QUEEN MINE, IN TUMCO WASH, IN THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:

SITE: LARGE INCLINE ENTRANCE WITH A SHAFT TO THE SOUTHWEST.

Ecological:

HABITAT CONSISTS OF CREOSOTE BUSH SCRUB IN THE LOWER SONORAN LIFE ZONE.

Threats:

General:

TWO MASTIFF BATS HEARD FLYING OVERHEAD.

PLSS: T15S, R20E, Sec. 01 (S)
Accuracy: 2/5 mile
Area (acres): 0
UTM: Zone-11 N3640600 E703890
Latitude/Longitude: 32.88460 / -114.82044
Elevation (feet): 720

County Summary:	Quad Summary:
Imperial	Hedges (3211487)

Sources:

BRO93F0024 BROWN-BERRY BIOLOGICAL CONSULTING - FIELD SURVEY FORM FOR EUMOPS PEROTIS (CALIFORNICUS) 1993-06-28

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 26365
Key Quad: Hedges (3211487)
Occurrence Number: 5
EO Index: 4094
Element Code: AMACD02011
Occurrence Last Updated: 1995-02-08

Scientific Name: *Eumops perotis californicus*
Common Name: western mastiff bat

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G5T4
State: S3S4
Rare Plant Rank:
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
WBWG_H-High Priority

General Habitat:
MANY OPEN, SEMI-ARID TO ARID HABITATS, INCLUDING CONIFER & DECIDUOUS WOODLANDS, COASTAL SCRUB, GRASSLANDS, CHAPARRAL, ETC.

Micro Habitat:
ROOSTS IN CREVICES IN CLIFF FACES, HIGH BUILDINGS, TREES AND TUNNELS.

Last Date Observed: 1993-12-11
Last Survey Date: 1993-12-11
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
CROWN MINE, IN TUMCO WASH, IN THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:

Ecological:
HABITAT CONSISTS OF CREOSOTE BUSH SCRUB IN THE LOWER SONORAN LIFE ZONE.

Threats:

General:
MASTIFF BATS WERE HEARD FLYING OVER THE SITE.

PLSS: T15S, R20E, Sec. 12 (S)
Accuracy: 3/5 mile
Area (acres): 0
UTM: Zone-11 N3639579 E704305
Latitude/Longitude: 32.87532 / -114.81623
Elevation (feet): 680

County Summary:	Quad Summary:
Imperial	Ogilby (3211477), Hedges (3211487)

Sources:
BRO93F0025 BROWN-BERRY BIOLOGICAL CONSULTING - FIELD SURVEY FORM FOR EUMOPS PEROTIS (CALIFORNICUS) 1993-12-11

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 68739
Key Quad: Hedges (3211487)
Occurrence Number: 199
EO Index: 69217
Element Code: AMACD02011
Occurrence Last Updated: 2007-03-28

Scientific Name: *Eumops perotis californicus*
Common Name: western mastiff bat

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G5T4
State: S3S4
Rare Plant Rank:
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
WBWG_H-High Priority

General Habitat:
MANY OPEN, SEMI-ARID TO ARID HABITATS, INCLUDING CONIFER & DECIDUOUS WOODLANDS, COASTAL SCRUB, GRASSLANDS, CHAPARRAL, ETC.

Micro Habitat:
ROOSTS IN CREVICES IN CLIFF FACES, HIGH BUILDINGS, TREES AND TUNNELS.

Last Date Observed: 1997-06-11
Last Survey Date: 1997-06-11
Owner/Manager: UNKNOWN
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
ABOUT 6 MILES NORTH OF CARGO MUCHACHO MOUNTAINS, VICINITY OF INDIAN WASH.

Detailed Location:
MAPPED ACCORDING TO T-R-S DATA PROVIDED BY SOURCE. SOURCE GIVES LOCALITY AS "CHEMGOLD IMPERIAL PROJECT SITE."

Ecological:

Threats:

General:
INDIVIDUAL(S) DETECTED ACOUSTICALLY (2 AUDIBLE PASSES OVER THE PROPERTY) ON 11 JUN 1997.

PLSS: T13S, R21E, Sec. 32 (S)
Accuracy: non-specific area
Area (acres): 4,252
UTM: Zone-11 N3652207 E706316
Latitude/Longitude: 32.98877 / -114.79191
Elevation (feet): 800

County Summary:
Imperial

Quad Summary:
Hedges (3211487), Quartz Peak (3311417)

Sources:

BRO97R0001 BROWN, P.E. (BROWN-BERRY BIOLOGICAL CONSULTING) - REGARDING: BAT SURVEY OF THE CHEMGOLD IMPERIAL PROJECT SITE. 1997-07-11

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	68739	**EO Index:**	69218
Key Quad:	Hedges (3211487)	**Element Code:**	AMACD04010
Occurrence Number:	38	**Occurrence Last Updated:**	2007-03-28

Scientific Name: *Nyctinomops femorosaccus*

Common Name: pocketed free-tailed bat

Listing Status: **Federal:** None
State: None

Rare Plant Rank:

CNDDB Element Ranks: **Global:** G4
State: S3

Other Lists: CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
WBWG_M-Medium Priority

General Habitat:

VARIETY OF ARID AREAS IN SOUTHERN CALIFORNIA; PINE-JUNIPER WOODLANDS, DESERT SCRUB, PALM OASIS, DESERT WASH, DESERT RIPARIAN, ETC.

Micro Habitat:

ROCKY AREAS WITH HIGH CLIFFS.

Last Date Observed:	1997-06-11	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1997-06-11	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

ABOUT 6 MILES NORTH OF CARGO MUCHACHO MOUNTAINS, VICINITY OF INDIAN WASH.

Detailed Location:

MAPPED ACCORDING TO T-R-S DATA PROVIDED BY SOURCE. SOURCE GIVES LOCALITY AS "CHEMGOLD IMPERIAL PROJECT SITE."

Ecological:

Threats:

General:

INDIVIDUAL(S) DETECTED ACOUSTICALLY ON 3 OCCASIONS ON 11 JUN 1997.

PLSS:	T13S, R21E, Sec. 32 (S)	**Accuracy:**	non-specific area	**Area (acres):**	4,252
UTM:	Zone-11 N3652207 E706316	**Latitude/Longitude:**	32.98877 / -114.79191	**Elevation (feet):**	800

County Summary:	**Quad Summary:**
Imperial	Hedges (3211487), Quartz Peak (3311417)

Sources:

BRO97R0001	BROWN, P.E. (BROWN-BERRY BIOLOGICAL CONSULTING) - REGARDING: BAT SURVEY OF THE CHEMGOLD IMPERIAL PROJECT SITE. 1997-07-11

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	72878	**EO Index:**	73765
Key Quad:	Clyde (3211488)	**Element Code:**	ARAAF01012
Occurrence Number:	150	**Occurrence Last Updated:**	2011-11-29

Scientific Name: *Gopherus agassizii* **Common Name:** desert tortoise

Listing Status: **Federal:** Threatened **Rare Plant Rank:**

State: Threatened **Other Lists:** IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G3

State: S2S3

General Habitat:

MOST COMMON IN DESERT SCRUB, DESERT WASH, AND JOSHUA TREE HABITATS; OCCURS IN ALMOST EVERY DESERT HABITAT.

Micro Habitat:

REQUIRE FRIABLE SOIL FOR BURROW AND NEST CONSTRUCTION. CREOSOTE BUSH HABITAT WITH LARGE ANNUAL WILDFLOWER BLOOMS PREFERRED.

Last Date Observed:	2005-04-27	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2005-04-27	**Occurrence Rank:**	Good
Owner/Manager:	BLM	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

ALONG PIPELINE & WALKER WAY NORTH & SOUTH OF INDIAN WASH, 3.0 - 4.5 MI NW OF THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:

MAPPED TO PROVIDED COORDINATES AND MAPS. SE SEC 20, W SEC 28, NE SEC 33, SW SEC 34, AND NW SEC 3.

Ecological:

HABITAT CONSISTED OF CREOSOTE SCRUB WITH PATCHES OF DESERT WASH WOODLAND. DOMINANT SPECIES INCL. BURROBRUSH, BIG GALLETA, IRONWOOD, PALO VERDE, CHEESEWEED, BOXTHORN, AFRICAN MUSTARD, MEDITERRANEAN GRASS, & PLANTAIN.

Threats:

POTENTIAL THREATS INCLUDE ROAD & OFF-HIGHWAY TRAFFIC, MILITARY OPERATIONS, PIPELINE CONSTRUCTION, & DEVELOPMENT.

General:

3-4 APR 2001: 8 TORTOISES, 2 CARCASSES, 1 SCUTE, 8 BURROWS (1 OLD, 1 ABANDONED), & 7 SCAT SITES (2 OLD). 21 MAY-10 JUN 2002: 5 TORTOISES (1 IN BURROW, ALL HEALTHY). 18-27 APR 2005: 5 TORTOISES, 27 BURROWS, 6 PALLET BURROWS, & 8 SCAT SITES.

PLSS:	T14S, R20E, Sec. 28 (S)	**Accuracy:**	specific area	**Area (acres):**	230
UTM:	Zone-11 N3643986 E698390	**Latitude/Longitude:**	32.91613 / -114.87847	**Elevation (feet):**	550

County Summary:	**Quad Summary:**
Imperial	Hedges (3211487), Clyde (3211488)

Sources:

GER02F0002	GERMAN, E. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2002-05-29
GOE02F0008	GOETTEE, P. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2002-06-07
GOE02F0009	GOETTEE, P. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2002-05-30
GOE02F0012	GOETTEE, R. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2002-06-10
GRA02F0003	GRANT, C. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2002-05-21
MAL01F0004	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0005	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0006	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0007	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0008	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0011	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0012	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0013	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0168	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0171	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0172	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0173	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0174	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0175	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0176	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0177	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0178	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-04
MAL01F0179	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-04
MAL01F0195	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0201	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-04
MAL01F0209	MALO, L. - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0210	MALO, L. - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0211	MALO, L. - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
TET05R0001	TETRA TECH - 2005 SURVEY DESERT TORTOISE (GOPHERUS AZISII) NORTH BAJA PIPELINE EXPANSION PROJECT (NBX) RIVERSIDE AND IMPERIAL COUNTIES, CALIFORNIA. 2005-04-27

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	72990	**EO Index:**	73903
Key Quad:	Hedges (3211487)	**Element Code:**	ARAAF01012
Occurrence Number:	168	**Occurrence Last Updated:**	2008-11-24

Scientific Name: *Gopherus agassizii* **Common Name:** desert tortoise

Listing Status: **Federal:** Threatened **Rare Plant Rank:**

State: Threatened **Other Lists:** IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G3

State: S2S3

General Habitat:

MOST COMMON IN DESERT SCRUB, DESERT WASH, AND JOSHUA TREE HABITATS; OCCURS IN ALMOST EVERY DESERT HABITAT.

Micro Habitat:

REQUIRE FRIABLE SOIL FOR BURROW AND NEST CONSTRUCTION. CREOSOTE BUSH HABITAT WITH LARGE ANNUAL WILDFLOWER BLOOMS PREFERRED.

Last Date Observed:	2005-01-23	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2005-01-23	**Occurrence Rank:**	Unknown
Owner/Manager:	BLM	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

WEST SIDE OF INDIAN PASS RD, 2.22 MI NE OF THE INTERSECTION OF HWY S34 & INDIAN PASS RD.

Detailed Location:

Ecological:

DESERT PAVEMENT WITH NUMEROUS SMALL WASHES DOMINATED BY IRONWOOD. SURROUNDING AREA IS USED FOR ORVS, RECREATION AND HUNTING.

Threats:

ORVS.

General:

1 JUVENILE (6" LONG) OBSERVED AT BURROW SITE ON 23 JAN 2005.

PLSS:	T14S, R20E, Sec. 11 (S)	**Accuracy:**	80 meters	**Area (acres):**	0
UTM:	Zone-11 N3648684 E702075	**Latitude/Longitude:**	32.95780 / -114.83806	**Elevation (feet):**	685

County Summary:	**Quad Summary:**
Imperial	Hedges (3211487)

Sources:

STE05F0004	STEWARD, D. (U.S. BUREAU OF LAND MANAGEMENT-EL CENTRO) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2005-01-23

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	73129	**EO Index:**	74060
Key Quad:	Hedges (3211487)	**Element Code:**	ARAAF01012
Occurrence Number:	219	**Occurrence Last Updated:**	2011-11-28

Scientific Name: *Gopherus agassizii* **Common Name:** desert tortoise

Listing Status: **Federal:** Threatened **Rare Plant Rank:**

State: Threatened **Other Lists:** IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G3

State: S2S3

General Habitat:

MOST COMMON IN DESERT SCRUB, DESERT WASH, AND JOSHUA TREE HABITATS; OCCURS IN ALMOST EVERY DESERT HABITAT.

Micro Habitat:

REQUIRE FRIABLE SOIL FOR BURROW AND NEST CONSTRUCTION. CREOSOTE BUSH HABITAT WITH LARGE ANNUAL WILDFLOWER BLOOMS PREFERRED.

Last Date Observed:	2005-04-27	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2005-04-27	**Occurrence Rank:**	Excellent
Owner/Manager:	BLM	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

ABOUT 0.7 MI W OF HEDGES ON EAST SIDE OF OGILBY RD, AND ABOUT 1.2 MI E OF GOLD ROCK RANCH.

Detailed Location:

SE QUARTER OF SEC 3, SW QUARTER OF SEC 2, AND NW QUARTER OF SEC 11. MAPPED TO PROVIDED COORDINATES.

Ecological:

HABITAT CONSISTED OF CREOSOTE SCRUB WITH PATCHES OF DESERT WASH WOODLAND. DOMINANT SPECIES INCLUDED BURROBRUSH, BIG GALLETA, IRONWOOD, PALO VERDE, CHEESEWEED, BOXTHORN, AFRICAN MUSTARD, MEDITERRANEAN GRASS, & PLANTAIN.

Threats:

POTENTIAL THREATS INCLUDED ROAD, PEDESTRIAN, & OFF-HIGHWAY TRAFFIC, MILITARY OPERATIONS, FIREARMS USAGE, & DEVELOPMENT.

General:

10 INCH FEMALE AND 210 MM MALE (BOTH IN A BURROWS), 2 ACTIVE BURROWS, AND 3 FRESH SCAT SITES OBSERVED ON 4 APR 2001. 2 BURROWS AND 2 SCAT SITES OBSERVED BETWEEN 18 & 27 APR 2005.

PLSS:	T15S, R20E, Sec. 03, SE (S)	**Accuracy:**	specific area	**Area (acres):**	29
UTM:	Zone-11 N3640253 E701613	**Latitude/Longitude:**	32.88189 / -114.84484	**Elevation (feet):**	550

County Summary:	**Quad Summary:**
Imperial	Hedges (3211487)

Sources:

MAL01F0002	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-04
MAL01F0003	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-04
MAL01F0181	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-04
MAL01F0182	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-04
MAL01F0183	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-04
MAL01F0184	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-04
TET05R0001	TETRA TECH - 2005 SURVEY DESERT TORTOISE (GOPHERUS AZISII) NORTH BAJA PIPELINE EXPANSION PROJECT (NBX) RIVERSIDE AND IMPERIAL COUNTIES, CALIFORNIA. 2005-04-27

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 73130
EO Index: 74061
Key Quad: Hedges (3211487)
Element Code: ARAAF01012
Occurrence Number: 220
Occurrence Last Updated: 2011-10-21

Scientific Name: *Gopherus agassizii*
Common Name: desert tortoise

Listing Status: **Federal:** Threatened
State: Threatened
Rare Plant Rank:
Other Lists: IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G3
State: S2S3

General Habitat:

MOST COMMON IN DESERT SCRUB, DESERT WASH, AND JOSHUA TREE HABITATS; OCCURS IN ALMOST EVERY DESERT HABITAT.

Micro Habitat:

REQUIRE FRIABLE SOIL FOR BURROW AND NEST CONSTRUCTION. CREOSOTE BUSH HABITAT WITH LARGE ANNUAL WILDFLOWER BLOOMS PREFERRED.

Last Date Observed: 2001-04-06
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2001-04-06
Occurrence Rank: Excellent
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

INDIAN WASH, 0.25 MI SSW OF WHERE HWY 34 CROSSES THE WASH, NNW OF CARGO MUCHACHO MOUNTAINS.

Detailed Location:

MAPPED TO PROVIDED COORDINATES.

Ecological:

HABITAT CONSISTED OF OPEN CREOSOTE SCRUB HABITAT WITH A MIX OF CREOSOTE AND AMBROSIA DUMOSA NEAR POWER LINES AND A ROAD.

Threats:

POTENTIAL THREATS INCLUDE ORV AND ROAD TRAFFIC.

General:

10" FEMALE TORTOISE, MALE CARCASS (LESS THAN 5 YEARS DEAD), 3 SCATS, AND A BURROW OBSERVED ON 6 APR 2001.

PLSS: T14S, R20E, Sec. 22 (S)
Accuracy: specific area
Area (acres): 15
UTM: Zone-11 N3645181 E700920
Latitude/Longitude: 32.92644 / -114.85117
Elevation (feet): 615

County Summary:	Quad Summary:
Imperial	Hedges (3211487)

Sources:

MAL01F0009	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-06
MAL01F0192	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-06
MAL01F0194	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-06

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 73131
Key Quad: Hedges (3211487)
Occurrence Number: 221
EO Index: 74062
Element Code: ARAAF01012
Occurrence Last Updated: 2011-10-21

Scientific Name: *Gopherus agassizii*
Common Name: desert tortoise

Listing Status: **Federal:** Threatened
State: Threatened
Rare Plant Rank:
Other Lists: IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G3
State: S2S3

General Habitat:

MOST COMMON IN DESERT SCRUB, DESERT WASH, AND JOSHUA TREE HABITATS; OCCURS IN ALMOST EVERY DESERT HABITAT.

Micro Habitat:

REQUIRE FRIABLE SOIL FOR BURROW AND NEST CONSTRUCTION. CREOSOTE BUSH HABITAT WITH LARGE ANNUAL WILDFLOWER BLOOMS PREFERRED.

Last Date Observed: 2001-04-06
Last Survey Date: 2001-04-06
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Excellent
Trend: Unknown

Location:

0.9 MILE NE OF HWY 34 AT INDIAN PASS RD, NNW OF CARGO MUCHACHO MOUNTAINS.

Detailed Location:

NEAR CENTER OF SEC 15. MAPPED TO PROVIDED COORDINATES.

Ecological:

HABITAT CONSISTED OF OPEN CREOSOTE SCRUB HABITAT NEAR POWER LINES.

Threats:

POTENTIAL THREATS INCLUDE ROAD TRAFFIC AND OFF-HIGHWAY VEHICLES.

General:

1 TORTOISE (8-9" LONG) IN BURROW AND 6 OTHER BURROWS (AT LEAST 2 ACTIVE) OBSERVED ON 6 APR 2001.

PLSS: T14S, R20E, Sec. 15 (S)
Accuracy: specific area
Area (acres): 22
UTM: Zone-11 N3647577 E700243
Latitude/Longitude: 32.94817 / -114.85788
Elevation (feet): 630

County Summary:

Imperial

Quad Summary:

Hedges (3211487)

Sources:

MAL01F0010	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-06
MAL01F0188	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-06
MAL01F0189	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-06
MAL01F0190	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-06
MAL01F0191	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-06

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	82148	**EO Index:**	83131
Key Quad:	Ogilby (3211477)	**Element Code:**	ARAAF01012
Occurrence Number:	294	**Occurrence Last Updated:**	2011-04-04

Scientific Name: *Gopherus agassizii* **Common Name:** desert tortoise

Listing Status: **Federal:** Threatened **Rare Plant Rank:**

State: Threatened **Other Lists:** IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G3

State: S2S3

General Habitat:

MOST COMMON IN DESERT SCRUB, DESERT WASH, AND JOSHUA TREE HABITATS; OCCURS IN ALMOST EVERY DESERT HABITAT.

Micro Habitat:

REQUIRE FRIABLE SOIL FOR BURROW AND NEST CONSTRUCTION. CREOSOTE BUSH HABITAT WITH LARGE ANNUAL WILDFLOWER BLOOMS PREFERRED.

Last Date Observed:	1988-03-19	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1988-03-19	**Occurrence Rank:**	Unknown
Owner/Manager:	BLM, PVT-EVERGLADE LLC	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

AMERICAN GIRL WASH NEAR OBREGON, IN THE CARGO MUCHACHO MOUNTAINS, ABOUT 9 MI NW OF ARAZ JUNCTION.

Detailed Location:

MAPPED TO PROVIDED MAP.

Ecological:

HABITAT CONSISTED OF A LOW VALLEY BETWEEN SEVERAL BARREN LOW HILLS. PALLET WAS OBSERVED UNDER A LARGE FRANSERIA SHRUB.

Threats:

POSSIBLY THREATENED BY EARTH MOVING ACTIVITIES FROM MINING OPERATIONS.

General:

1 ADULT MALE TORTOISE (>25 YEARS OLD, 258 MM MCL) OBS WALKING NEAR PALLET BURROW 20 MAR 1988. 8 OF 13 TRANSECTS IN GENERAL AREA FOUND BURROWS OR PALLET BURROWS & LARGE AMOUNTS OF TORTOISE SCAT WAS FOUND AT THE AMERICAN BOY MINE TUNNEL.

PLSS:	T15S, R21E, Sec. 17 (S)	**Accuracy:**	2/5 mile	**Area (acres):**	0
UTM:	Zone-11 N3637866 E707119	**Latitude/Longitude:**	32.85935 / -114.78655	**Elevation (feet):**	660

County Summary:	**Quad Summary:**
Imperial	Ogilby (3211477)

Sources:

MED88R0001 MEDICA, P. - SURVEY OF THE SOUTHWESTERN PORTION OF THE CARGO MUCHACHO MOUNTAINS FOR THE DESERT TORTOISE IN THE VICINITY OF THE AMERICAN GIRL MINE. 1988-03-20

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 82786
Key Quad: Hedges (3211487)
Occurrence Number: 467
EO Index: 83784
Element Code: ARAAF01012
Occurrence Last Updated: 2011-07-21

Scientific Name: *Gopherus agassizii*
Common Name: desert tortoise

Listing Status: **Federal:** Threatened
State: Threatened
Rare Plant Rank:
Other Lists: IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G3
State: S2S3

General Habitat:

MOST COMMON IN DESERT SCRUB, DESERT WASH, AND JOSHUA TREE HABITATS; OCCURS IN ALMOST EVERY DESERT HABITAT.

Micro Habitat:

REQUIRE FRIABLE SOIL FOR BURROW AND NEST CONSTRUCTION. CREOSOTE BUSH HABITAT WITH LARGE ANNUAL WILDFLOWER BLOOMS PREFERRED.

Last Date Observed: 2001-04-06
Last Survey Date: 2001-04-06
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Excellent
Trend: Unknown

Location:

0.9 MI WSW OF LA COLORADO MINE, 2 MI NW OF HEDGES, NW OF CARGO MUCHACHO MOUNTAINS, ABOUT 17.5 MI NW OF YUMA.

Detailed Location:

MAPPED TO PROVIDED COORDINATES.

Ecological:

HABITAT CONSISTED OF OPEN DESERT WASH WOODLAND WITH A MIX OF IRONWOOD AND PALO VERDE NEAR POWER LINES.

Threats:

POTENTIAL THREATS INCLUDE OFF-HIGHWAY VEHICLES.

General:

2 BURROWS WITH 4 OLD SCATS OBSERVED 6 APR 2001.

PLSS: T14S, R20E, Sec. 35, NW (S)
Accuracy: 80 meters
Area (acres): 0
UTM: Zone-11 N3643007 E701447
Latitude/Longitude: 32.90674 / -114.84601
Elevation (feet): 620

County Summary:	Quad Summary:
Imperial	Hedges (3211487)

Sources:

MAL01F0193 MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-06

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 82788
EO Index: 83785
Key Quad: Hedges (3211487)
Element Code: ARAAF01012
Occurrence Number: 468
Occurrence Last Updated: 2011-07-21

Scientific Name: *Gopherus agassizii*
Common Name: desert tortoise

Listing Status: **Federal:** Threatened
State: Threatened
Rare Plant Rank:
Other Lists: IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G3
State: S2S3

General Habitat:

MOST COMMON IN DESERT SCRUB, DESERT WASH, AND JOSHUA TREE HABITATS; OCCURS IN ALMOST EVERY DESERT HABITAT.

Micro Habitat:

REQUIRE FRIABLE SOIL FOR BURROW AND NEST CONSTRUCTION. CREOSOTE BUSH HABITAT WITH LARGE ANNUAL WILDFLOWER BLOOMS PREFERRED.

Last Date Observed: 2001-04-06
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2001-04-06
Occurrence Rank: Good
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

6 MI NNW OF HEDGES, JUST NW OF CARGO MUCHACHO MOUNTAINS, ABOUT 21 MI NW OF YUMA.

Detailed Location:

MAPPED TO PROVIDED COORDINATES.

Ecological:

HABITAT CONSISTED OF OPEN CREOSOTE SCRUB HABITAT NEAR POWER LINES.

Threats:

POTENTIAL THREATS INCLUDE OFF-HIGHWAY VEHICLES.

General:

A 9" LONG MALE CARCASS RECENTLY KILLED OBSERVED WITH BURROW AND PALLETS BURROWS, AND ANOTHER ACTIVE BURROW OBSERVED SEPARATELY, BOTH ON 6 APR 2001.

PLSS: T14S, R20E, Sec. 10, NW (S)
Accuracy: specific area
Area (acres): 8
UTM: Zone-11 N3649143 E699938
Latitude/Longitude: 32.96234 / -114.86080
Elevation (feet): 700

County Summary:	Quad Summary:
Imperial	Hedges (3211487)

Sources:

MAL01F0185 MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-06

MAL01F0186 MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-06

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 82790
EO Index: 83786
Key Quad: Hedges (3211487)
Element Code: ARAAF01012
Occurrence Number: 469
Occurrence Last Updated: 2011-07-21

Scientific Name: *Gopherus agassizii*
Common Name: desert tortoise

Listing Status: **Federal:** Threatened
State: Threatened
Rare Plant Rank:
Other Lists: IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G3
State: S2S3

General Habitat:

MOST COMMON IN DESERT SCRUB, DESERT WASH, AND JOSHUA TREE HABITATS; OCCURS IN ALMOST EVERY DESERT HABITAT.

Micro Habitat:

REQUIRE FRIABLE SOIL FOR BURROW AND NEST CONSTRUCTION. CREOSOTE BUSH HABITAT WITH LARGE ANNUAL WILDFLOWER BLOOMS PREFERRED.

Last Date Observed: 2001-04-06
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2001-04-06
Occurrence Rank: Excellent
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

5.5 MI NNW OF HEDGES, JUST NW OF CARGO MUCHACHO MOUNTAINS, ABOUT 20.5 MI NW OF YUMA.

Detailed Location:

MAPPED TO PROVIDED COORDINATES FOR BURROW WITH SCAT.

Ecological:

HABITAT CONSISTED OF OPEN CREOSOTE SCRUB HABITAT NEAR POWER LINES.

Threats:

POTENTIAL THREATS INCLUDE OFF-HIGHWAY VEHICLES.

General:

BURROW WITH SCAT OBSERVED ON 6 APR 2001. OLD SCAT ALSO FOUND NEARBY TO THE NNW ON SAME DATE.

PLSS: T14S, R20E, Sec. 15, N (S)
Accuracy: 80 meters
Area (acres): 0
UTM: Zone-11 N3648110 E700475
Latitude/Longitude: 32.95293 / -114.85529
Elevation (feet): 650

County Summary:

Imperial

Quad Summary:

Hedges (3211487)

Sources:

MAL01F0187 MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-06

MAL01F0199 MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-06

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 84033
Key Quad: Ogilby (3211477)
Occurrence Number: 876
EO Index: 85069
Element Code: ARAAF01012
Occurrence Last Updated: 2011-10-20

Scientific Name: *Gopherus agassizii*
Common Name: desert tortoise

Listing Status: **Federal:** Threatened
State: Threatened
Rare Plant Rank:
Other Lists: IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G3
State: S2S3

General Habitat:

MOST COMMON IN DESERT SCRUB, DESERT WASH, AND JOSHUA TREE HABITATS; OCCURS IN ALMOST EVERY DESERT HABITAT.

Micro Habitat:

REQUIRE FRIABLE SOIL FOR BURROW AND NEST CONSTRUCTION. CREOSOTE BUSH HABITAT WITH LARGE ANNUAL WILDFLOWER BLOOMS PREFERRED.

Last Date Observed: 2005-04-27
Last Survey Date: 2005-04-27
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:

1 MI SSW OF HEDGES, JUST NW OF CARGO MUCHACHO MTNS, ABOUT 15 MI NW OF YUMA.

Detailed Location:

MAPPED TO PROVIDED COORDINATES.

Ecological:

HABITAT CONSISTED OF CREOSOTE SCRUB WITH PATCHES OF DESERT WASH WOODLAND. DOMINANT SPECIES INCL. BURROBRUSH, BIG GALLETA, IRONWOOD, PALO VERDE, CHEESEWEED, BOXTHORN, AFRICAN MUSTARD, MEDITERRANEAN GRASS, & PLANTAIN.

Threats:

POTENTIAL THREATS INCLUDE ROAD, PEDESTRIAN, & OFF-HIGHWAY TRAFFIC, MILITARY OPERATIONS, FIREARMS USAGE, & DEVELOPMENT.

General:

3 TORTOISE BURROWS OBSERVED BETWEEN 18 & 27 APR 2005.

PLSS: T15S, R20E, Sec. 14, SW (S)
Accuracy: 80 meters
Area (acres): 0
UTM: Zone-11 N3637487 E702200
Latitude/Longitude: 32.85686 / -114.83917
Elevation (feet): 470

County Summary:	Quad Summary:
Imperial	Ogilby (3211477)

Sources:

TET05R0001 TETRA TECH - 2005 SURVEY DESERT TORTOISE (GOPHERUS AZISII) NORTH BAJA PIPELINE EXPANSION PROJECT (NBX) RIVERSIDE AND IMPERIAL COUNTIES, CALIFORNIA. 2005-04-27

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 84034
EO Index: 85070
Key Quad: Ogilby (3211477)
Element Code: ARAAF01012
Occurrence Number: 877
Occurrence Last Updated: 2011-11-21

Scientific Name: *Gopherus agassizii*
Common Name: desert tortoise

Listing Status: **Federal:** Threatened
Rare Plant Rank:
State: Threatened
Other Lists: IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G3
State: S2S3

General Habitat:

MOST COMMON IN DESERT SCRUB, DESERT WASH, AND JOSHUA TREE HABITATS; OCCURS IN ALMOST EVERY DESERT HABITAT.

Micro Habitat:

REQUIRE FRIABLE SOIL FOR BURROW AND NEST CONSTRUCTION. CREOSOTE BUSH HABITAT WITH LARGE ANNUAL WILDFLOWER BLOOMS PREFERRED.

Last Date Observed: 2005-04-27
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2005-04-27
Occurrence Rank: Good
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

1 MI SSW OF HEDGES, JUST NW OF CARGO MUCHACHO MTNS, ABOUT 15 MI NW OF YUMA.

Detailed Location:

MAPPED TO CARCASS COORDINATES.

Ecological:

HABITAT CONSISTED OF CREOSOTE SCRUB WITH PATCHES OF DESERT WASH WOODLAND. DOMINANT SPECIES INCL. BURROBRUSH, BIG GALLETA, IRONWOOD, PALO VERDE, CHEESEWEED, BOXTHORN, AFRICAN MUSTARD, MEDITERRANEAN GRASS, & PLANTAIN.

Threats:

POTENTIAL THREATS INCLUDE ROAD, PEDESTRIAN, & OFF-HIGHWAY TRAFFIC, MILITARY OPERATIONS, FIREARMS USAGE, & DEVELOPMENT.

General:

4 PIECES OF SCAT OBSERVED 4 APR 2001. TORTOISE CARCASS OBSERVED BETWEEN 18 & 27 APR 2005.

PLSS: T15S, R20E, Sec. 14, NW (S)
Accuracy: 80 meters
Area (acres): 0
UTM: Zone-11 N3638296 E702226
Latitude/Longitude: 32.86414 / -114.83872
Elevation (feet): 490

County Summary:	Quad Summary:
Imperial	Ogilby (3211477)

Sources:

MAL01F0247	MALO, L. - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-04
TET05R0001	TETRA TECH - 2005 SURVEY DESERT TORTOISE (GOPHERUS AZISII) NORTH BAJA PIPELINE EXPANSION PROJECT (NBX) RIVERSIDE AND IMPERIAL COUNTIES, CALIFORNIA. 2005-04-27

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 84035
EO Index: 85071
Key Quad: Hedges (3211487)
Element Code: ARAAF01012
Occurrence Number: 878
Occurrence Last Updated: 2011-11-21

Scientific Name: *Gopherus agassizii*
Common Name: desert tortoise

Listing Status: **Federal:** Threatened
State: Threatened
Rare Plant Rank:
Other Lists: IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G3
State: S2S3

General Habitat:

MOST COMMON IN DESERT SCRUB, DESERT WASH, AND JOSHUA TREE HABITATS; OCCURS IN ALMOST EVERY DESERT HABITAT.

Micro Habitat:

REQUIRE FRIABLE SOIL FOR BURROW AND NEST CONSTRUCTION. CREOSOTE BUSH HABITAT WITH LARGE ANNUAL WILDFLOWER BLOOMS PREFERRED.

Last Date Observed: 2001-04-04
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2001-04-04
Occurrence Rank: Good
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

1.5 MI WNW OF HEDGES, JUST NW OF CARGO MUCHACHO MTNS, ABOUT 17 MI NW OF YUMA.

Detailed Location:

MAPPED TO PROVIDED COORDINATES.

Ecological:

HABITAT CONSISTED OF OPEN CREOSOTE SCRUB HABITAT.

Threats:

POTENTIAL THREATS INCLUDE OFF-HIGHWAY VEHICLES.

General:

CARCASS OBSERVED 4 APR 2001.

PLSS: T15S, R20E, Sec. 03, NE (S)
Accuracy: 80 meters
Area (acres): 0
UTM: Zone-11 N3640982 E701289
Latitude/Longitude: 32.88853 / -114.84813
Elevation (feet): 540

County Summary:	Quad Summary:
Imperial	Hedges (3211487)

Sources:

MAL01F0180 MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-04

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 84137
Key Quad: Ogilby (3211477)
Occurrence Number: 906
EO Index: 85165
Element Code: ARAAF01012
Occurrence Last Updated: 2011-11-04

Scientific Name: *Gopherus agassizii*
Common Name: desert tortoise

Listing Status: **Federal:** Threatened
State: Threatened
Rare Plant Rank:
Other Lists: IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G3
State: S2S3

General Habitat:

MOST COMMON IN DESERT SCRUB, DESERT WASH, AND JOSHUA TREE HABITATS; OCCURS IN ALMOST EVERY DESERT HABITAT.

Micro Habitat:

REQUIRE FRIABLE SOIL FOR BURROW AND NEST CONSTRUCTION. CREOSOTE BUSH HABITAT WITH LARGE ANNUAL WILDFLOWER BLOOMS PREFERRED.

Last Date Observed: 2001-04-04
Last Survey Date: 2001-04-04
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:

2 MI N OF OGILBY, 3.5 MI ESE OF CACTUS, W OF CARGO MUCHACHO MTNS.

Detailed Location:

MAPPED TO PROVIDED COORDINATES.

Ecological:

HABITAT CONSISTED OF CREOSOTE SCRUB WITH AMBROSIA.

Threats:

POTENTIAL THREATS INCLUDED ORV USE.

General:

FRESH SCAT OBSERVED 4 APR 2001.

PLSS: T15S, R20E, Sec. 23, NW (S)
UTM: Zone-11 N3636478 E702069
Accuracy: 80 meters
Latitude/Longitude: 32.84778 / -114.84078
Area (acres): 0
Elevation (feet): 450

County Summary:	Quad Summary:
Imperial	Ogilby (3211477)

Sources:

MAL01F0246 MALO, L. - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-04

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 06562
EO Index: 14018
Key Quad: Ogilby (3211477)
Element Code: ARACF12040
Occurrence Number: 32
Occurrence Last Updated: 2003-01-17

Scientific Name: *Phrynosoma mcallii*
Common Name: flat-tailed horned lizard

Listing Status: **Federal:** None
State: None
Rare Plant Rank:

CNDDB Element Ranks: **Global:** G3
State: S2
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

General Habitat:

RESTRICTED TO DESERT WASHES AND DESERT FLATS IN CENTRAL RIVERSIDE, EASTERN SAN DIEGO, AND IMPERIAL COUNTIES.

Micro Habitat:

CRITICAL HABITAT ELEMENT IS FINE SAND, INTO WHICH LIZARDS BURROW TO AVOID TEMPERATURE EXTREMES; REQUIRES VEGETATIVE COVER AND ANTS.

Last Date Observed: 2002-06-09
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2002-06-09
Occurrence Rank: Excellent
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

ABOUT 0.8 MILE SE OF I-8 AT OGILBY ROAD AND 4 MI S OF OGILBY.

Detailed Location:

1979: LOCATION GIVEN ONLY AS SECTION 24. 2002: SPECIFIC LOCATION GIVEN ON OBSERVATION ALONG PIPELINE.

Ecological:

CREOSOTE SCRUB, SANDY GRAVEL.

Threats:

OHV TRAFFIC AND PIPELINE CONSTRUCTION.

General:

1 LIZARD AND 3 SCATS OBSERVED ON 26 APR 1979, LOCATION GIVEN ONLY AS SECTION 24. 1 LIVE ADULT FOUND IN PIPELINE TRENCH AND MOVED 100 YDS WEST OF RIGHT-OF-WAY ON 9 JUN 2002.

PLSS: T16S, R20E, Sec. 24, SW (S)
Accuracy: 1/10 mile
Area (acres): 0
UTM: Zone-11 N3626132 E703835
Latitude/Longitude: 32.75420 / -114.82421
Elevation (feet): 240

County Summary:	Quad Summary:
Imperial	Ogilby (3211477)

Sources:

HAS02F0004	HASHAGEN, K. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR PHRYNOSOMA MCALLII 2002-06-09
TUR80R0001	TURNER, F. ET AL. - A SURVEY OF THE OCCURRENCE AND ABUNDANCE OF THE FLAT-TAILED HORNED LIZARD IN CALIFORNIA. LABORATORY OF NUCLEAR MEDICINE AND RADIATION BIOLOGY, UC LOS ANGELES 1980-01-25

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	23027	**EO Index:**	14019
Key Quad:	Ogilby (3211477)	**Element Code:**	ARACF12040
Occurrence Number:	33	**Occurrence Last Updated:**	2015-09-03

Scientific Name: *Phrynosoma mcallii*

Common Name: flat-tailed horned lizard

Listing Status: **Federal:** None
State: None

Rare Plant Rank:

CNDDB Element Ranks: **Global:** G3
State: S2

Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

General Habitat:

RESTRICTED TO DESERT WASHES AND DESERT FLATS IN CENTRAL RIVERSIDE, EASTERN SAN DIEGO, AND IMPERIAL COUNTIES.

Micro Habitat:

CRITICAL HABITAT ELEMENT IS FINE SAND, INTO WHICH LIZARDS BURROW TO AVOID TEMPERATURE EXTREMES; REQUIRES VEGETATIVE COVER AND ANTS.

Last Date Observed:	2013-04-28	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2013-04-28	**Occurrence Rank:**	Unknown
Owner/Manager:	BLM	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

INTERSECTION OF INTERSTATE 8 AND BLYTHE OGILBY ROAD, PILOT KNOB MESA, EAST OF ALGODONES DUNES.

Detailed Location:

MAPPED TO INCLUDE 1966 LOCALITY, "3.9 MI S OGILBY," 1968 LOCALITY, "OGILBY RD NEAR US HWY 80" (NOW I-8), AND COORDINATES GIVEN FOR 2013 DETECTION.1979 DETECTION LOCATION REPORTED ONLY AS SECTION 23 ALSO ATTRIBUTED HERE.

Ecological:

DUNE HABITAT.

Threats:

General:

1 COLLECTED 14 MAY 1966. 1 COLLECTED 8 SEP 1968. ONE OBSERVED 26 APR 1979. 1 OBSERVED ON 28 APR 2013.

PLSS:	T16S, R20E, Sec. 23, NW (S)	**Accuracy:**	2/5 mile	**Area (acres):**	0
UTM:	Zone-11 N3626458 E702395	**Latitude/Longitude:**	32.75740 / -114.83950	**Elevation (feet):**	220

County Summary:	**Quad Summary:**
Imperial	Ogilby (3211477)

Sources:

HER16D0001	HERP, INC. - HERPETOLOGICAL EDUCATION AND RESEARCH PROJECT (HERP) DATABASE. FORMERLY A PROJECT OF THE NORTH AMERICAN FIELD HERPING ASSOCIATION 2016-10-11
MCD66S0001	MCDIARMID, R. - MCDIARMID #66-17 -1 LACM #8862 COLLECTED FROM 3.9 MI S OGILBY 1966-05-14
TUR80R0001	TURNER, F. ET AL. - A SURVEY OF THE OCCURRENCE AND ABUNDANCE OF THE FLAT-TAILED HORNED LIZARD IN CALIFORNIA. LABORATORY OF NUCLEAR MEDICINE AND RADIATION BIOLOGY, UC LOS ANGELES 1980-01-25
WIE68S0001	WIEWANDT, T. - UAZ #28045 COLLECTED FROM OGILBY RD NEAR US HWY 80 1968-09-08

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	06544	**EO Index:**	14020
Key Quad:	Ogilby (3211477)	**Element Code:**	ARACF12040
Occurrence Number:	34	**Occurrence Last Updated:**	2012-06-20

Scientific Name: *Phrynosoma mcallii*

Common Name: flat-tailed horned lizard

Listing Status: **Federal:** None

State: None

Rare Plant Rank:

Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

CNDDB Element Ranks: **Global:** G3

State: S2

General Habitat:

RESTRICTED TO DESERT WASHES AND DESERT FLATS IN CENTRAL RIVERSIDE, EASTERN SAN DIEGO, AND IMPERIAL COUNTIES.

Micro Habitat:

CRITICAL HABITAT ELEMENT IS FINE SAND, INTO WHICH LIZARDS BURROW TO AVOID TEMPERATURE EXTREMES; REQUIRES VEGETATIVE COVER AND ANTS.

Last Date Observed:	1979-04-27	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1980-06-20	**Occurrence Rank:**	Unknown
Owner/Manager:	BLM	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

PILOT KNOB MESA, ABOUT 1 MILE NW OF I-8 AT OGILBY RD (S34) AND 2 MILES SSW OF OGILBY.

Detailed Location:

SDNHM LOCALITIES: "OGILBY; 2 MILES SW OF." MAPPED TO PROVIDED TRS FROM 1979 "SECTION SEARCHES." VICINITY OF PLOT #7 IN 1980 SURVEY, ABOUT 1 MILE NW OF S34 AT I-8.

Ecological:

1980: CREOSOTE AND BURSAGE WERE DOMINANT PERENNIALS, IRONWOOD PRESENT. POGONOMYRMEX NESTS FOUND AT SITE. FRINGE-TOED LIZARDS ALSO OCCUR IN THIS AREA & HAVE SCAT INDISTINGUISHABLE FROM THAT OF FTHL; MORE RESEARCH IN THIS AREA IS NEEDED.

Threats:

General:

SDNHM #56513 & 56514 COLLECTED BY M. MCCOID ON 25 MAY 1975. 1 OBSERVED IN SEC 10, 1 OBSERVED IN SEC 15 ON 27 APR 1979. 0 FTHL AND 6 SCATS FOUND 17-20 JUN 1980.

PLSS:	T16S, R20E, Sec. 10 (S)	**Accuracy:**	non-specific area	**Area (acres):**	1,296
UTM:	Zone-11 N3628756 E701038	**Latitude/Longitude:**	32.77837 / -114.85348	**Elevation (feet):**	240

County Summary:	**Quad Summary:**
Imperial	Ogilby (3211477)

Sources:

ALT80R0001	ALTMAN, E. ET AL. - AN EVALUATION OF THE RELATIVE ABUNDANCE OF THE FLAT-TAILED HORNED LIZARD (PHRYNOSOMA MCALLII) IN 10 AREAS IN SOUTHEASTERN CALIFORNIA 1980-09-XX
HER09S0001	HERPNET - PRINTOUT OF PHRYNOSOMA MCALLII RECORDS FROM MULTIPLE MUSEUMS EXCEPT MVZ. 2009-12-09
TUR80R0001	TURNER, F. ET AL. - A SURVEY OF THE OCCURRENCE AND ABUNDANCE OF THE FLAT-TAILED HORNED LIZARD IN CALIFORNIA. LABORATORY OF NUCLEAR MEDICINE AND RADIATION BIOLOGY, UC LOS ANGELES 1980-01-25

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 06564
Key Quad: Ogilby (3211477)
Occurrence Number: 39
EO Index: 22417
Element Code: ARACF12040
Occurrence Last Updated: 2012-09-26

Scientific Name: *Phrynosoma mcallii*
Common Name: flat-tailed horned lizard

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G3
State: S2
Rare Plant Rank:
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

General Habitat:

RESTRICTED TO DESERT WASHES AND DESERT FLATS IN CENTRAL RIVERSIDE, EASTERN SAN DIEGO, AND IMPERIAL COUNTIES.

Micro Habitat:

CRITICAL HABITAT ELEMENT IS FINE SAND, INTO WHICH LIZARDS BURROW TO AVOID TEMPERATURE EXTREMES; REQUIRES VEGETATIVE COVER AND ANTS.

Last Date Observed: 1947-07-26
Last Survey Date: 1947-07-26
Owner/Manager: UNKNOWN
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:

ALONG I-8, ABOUT 2 MILES W OF FELICITY AND 5 MILES SSE OF OGILBY.

Detailed Location:

COULD NOT LOCATE PROVIDED LOCALITY "SPRINGERS." MAPPED TO TRS GIVEN IN BLM'S COMPILATION OF MUSEUM SPECIMENS (BLM80S0020).

Ecological:

Threats:

General:

SDMNH SPECIMEN #38521 COLLECTED BY CHARLES SHAW ON 26 JUL 1947.

PLSS: T16S, R21E, Sec. 19, NW (S)
UTM: Zone-11 N3626155 E705959
Accuracy: 2/5 mile
Latitude/Longitude: 32.75401 / -114.80155
Area (acres): 0
Elevation (feet): 253

County Summary:	Quad Summary:
Imperial	Grays Well NE (3211467), Ogilby (3211477)

Sources:

BLM80S0020	BUREAU OF LAND MANAGEMENT - DESERT PLAN STAFF - COMPILATION OF HISTORIC MUSEUM SPECIMEN INFORMATION FOR PHRYNOSOMA MCALLII, COLLECTED DURING THE PREPARATION OF "THE CALIFORNIA DESERT PLAN" 1980-XX-XX
HER09S0001	HERPNET - PRINTOUT OF PHRYNOSOMA MCALLII RECORDS FROM MULTIPLE MUSEUMS EXCEPT MVZ. 2009-12-09

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 39690
EO Index: 34692
Key Quad: Grays Well NE (3211467)
Element Code: ARACF12040
Occurrence Number: 79
Occurrence Last Updated: 1998-09-10

Scientific Name: *Phrynosoma mcallii*
Common Name: flat-tailed horned lizard

Listing Status: **Federal:** None
State: None
Rare Plant Rank:

CNDDB Element Ranks: **Global:** G3
State: S2
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

General Habitat:

RESTRICTED TO DESERT WASHES AND DESERT FLATS IN CENTRAL RIVERSIDE, EASTERN SAN DIEGO, AND IMPERIAL COUNTIES.

Micro Habitat:

CRITICAL HABITAT ELEMENT IS FINE SAND, INTO WHICH LIZARDS BURROW TO AVOID TEMPERATURE EXTREMES; REQUIRES VEGETATIVE COVER AND ANTS.

Last Date Observed: 1984-05-17
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1984-05-17
Occurrence Rank: Unknown
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

WHERE HIGHWAY 8 CROSSES THE ALL AMERICAN CANAL (BM 196), SE TOWARD CALIFORNIA-MEXICO BORDER, 5 MILES NE OF GRAYS WELL.

Detailed Location:

SCAT FOUND ON NORTH SIDE OF CANAL FROM HIGHWAY CROSSING TO 3 MILES SOUTHEAST OF HIGHWAY 8.

Ecological:

MOST OF THE HABITAT ALONG THE PROPOSED CANAL ROUTE COULD CONTAIN LIZARDS EXCEPT WETLAND/RIPARIAN AREA BETWEEN DROPS 3 & 4, & ALGODONES DUNES (BETWEEN SEGMENT MARKERS 7 TO 11).

Threats:

General:

ABUNDANCE INDEX OF LIZARDS WAS DETERMINED PER SECTION BY COUNTING SCAT.

PLSS: T16S, R20E, Sec. 52 (S)
Accuracy: non-specific area
Area (acres): 193
UTM: Zone-11 N3624577 E701707
Latitude/Longitude: 32.74057 / -114.84725
Elevation (feet): 200

County Summary:

Imperial

Quad Summary:

Grays Well NE (3211467), Ogilby (3211477)

Sources:

ROR84R0001 RORABAUGH, J. (U.S. BUREAU OF RECLAMATION) - AN EVALUATION OF FLAT-TAILED HORNED LIZARD (PHRYNOSOMA MCALLII) HABITAT QUALITY ALONG 40.9 KM (25.4 MI) OF THE PROPOSED ALL-AMERICAN CANAL ROUTE IN IMPERIAL COUNTY, CALIFORNIA 1984-06-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 49935
EO Index: 49935
Key Quad: Ogilby (3211477)
Element Code: ARACF12040
Occurrence Number: 89
Occurrence Last Updated: 2015-09-03

Scientific Name: *Phrynosoma mcallii*
Common Name: flat-tailed horned lizard

Listing Status: **Federal:** None
State: None
Rare Plant Rank:

CNDDB Element Ranks: **Global:** G3
State: S2
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

General Habitat:

RESTRICTED TO DESERT WASHES AND DESERT FLATS IN CENTRAL RIVERSIDE, EASTERN SAN DIEGO, AND IMPERIAL COUNTIES.

Micro Habitat:

CRITICAL HABITAT ELEMENT IS FINE SAND, INTO WHICH LIZARDS BURROW TO AVOID TEMPERATURE EXTREMES; REQUIRES VEGETATIVE COVER AND ANTS.

Last Date Observed: 2002-05-29
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2002-05-29
Occurrence Rank: Excellent
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

0.5 MILE ESE OF THE JUNCTION OF INTERSTATE 8 AND BLYTHE OGILBY ROAD, EAST SIDE OF ALGODONES DUNES.

Detailed Location:

Ecological:

CREOSOTE SCRUB, SANDY GRAVEL, FLAT.

Threats:

PIPELINE CONSTRUCTION, SURROUNDING USE IS DESERT RECREATION.

General:

ONE ADULT KILLED BY CONSTRUCTION EQUIPMENT 29 MAY 2002.

PLSS: T16S, R20E, Sec. 23, NE (S)
Accuracy: 1/10 mile
Area (acres): 0
UTM: Zone-11 N3626463 E703430
Latitude/Longitude: 32.75725 / -114.82845
Elevation (feet): 220

County Summary:	Quad Summary:
Imperial	Ogilby (3211477)

Sources:

NIE02F0002 NIEUWEHUIZEN, I. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR PHRYNOSOMA MCALLII 2002-05-29

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 06540
EO Index: 22762
Key Quad: Ogilby (3211477)
Element Code: IICOL30060
Occurrence Number: 5
Occurrence Last Updated: 1989-08-11

Scientific Name: *Anomala hardyorum*
Common Name: Hardy's dune beetle

Listing Status: **Federal:** None
State: None
Rare Plant Rank:
Other Lists:

CNDDB Element Ranks: **Global:** G1
State: S1

General Habitat:

KNOWN ONLY FROM CREOSOTE BUSH SCRUB HABITAT IN THE VICINITY OF THE ALGODONES DUNES, IMPERIAL COUNTY.

Micro Habitat:

ADULTS ACTIVE AT DUSK, GENERALLY ON NORTH OR EAST SLIP FACES OF DUNES.

Last Date Observed: 1979-04-12
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1979-04-12
Occurrence Rank: Unknown
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

ALGODONES DUNE SYSTEM, 4 MI SSW OF OGILBY.

Detailed Location:

Ecological:

NO KNOWN HOST PLANT. ADULTS HAVE BEEN SIFTED FROM SAND BENEATH A WIDE VARIETY OF PLANTS. NOTHING IS KNOWN OF THE IMMATURE STAGES. ADULTS ARE ACTIVE AT DUSK, GENERALLY ON NORTH- OR EAST-FACING SLIP FACES.

Threats:

General:

PLSS: T16S, R20E, Sec. 22, NW (S)
Accuracy: 1/5 mile
Area (acres): 0
UTM: Zone-11 N3626372 E700427
Latitude/Longitude: 32.75699 / -114.86051
Elevation (feet): 205

County Summary:	Quad Summary:
Imperial	Ogilby (3211477)

Sources:

HAR79R0001 HARDY, A. ET AL. (CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE) - AN INVENTORY OF SELECTED COLEOPTERA FROM THE ALGODONES DUNES. REPORT TO BLM, CONTRACT CA-060-CT 8-68. 1979-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: B5349
Key Quad: Glamis (3211581)
Occurrence Number: 1
EO Index: 118239
Element Code: IICOL33020
Occurrence Last Updated: 2020-05-01

Scientific Name: *Cyclocephala wandae*
Common Name: Wandae dune beetle

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G1G2
State: S1S2
Rare Plant Rank:
Other Lists:

General Habitat:
ENDEMIC TO THE ALGODONES DUNES IN IMPERIAL COUNTY.

Micro Habitat:

Last Date Observed: 1972-09-XX
Last Survey Date: 1972-09-XX
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
ALGODONES DUNES, SE OF THE SALTON SEA.

Detailed Location:
MAPPED NON-SPECIFICALLY ACROSS THE EXTENT OF THE ALGODONES DUNES.

Ecological:

Threats:

General:
SPECIMENS WERE COLLECTED USING BLACKLIGHTS IN 1971 AND 1972.

PLSS: T14S, R18E, Sec. 53 (S)
UTM: Zone-11 N3642497 E681857
Accuracy: non-specific area
Latitude/Longitude: 32.90558 / -115.05548
Area (acres): 148,089
Elevation (feet): 250

County Summary:
Imperial

Quad Summary:
Grays Well NE (3211467), Grays Well (3211468), Ogilby (3211477), Cactus (3211478), Clyde (3211488), Glamis SE (3211571), Glamis (3211581), Glamis NW (3211582), East of Acolita (3311511), Acolita (3311512), Amos (3311513), Tortuga (3311523)

Sources:

AND79R0001	ANDREWS, F. ET AL. (CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE) - THE COLEOPTEROUS FAUNA OF SELECTED CALIFORNIA SAND DUNES. REPORT TO BLM. 1979-03-15
HAR74A0001	HARDY, A. (CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE) - A NEW SPECIES OF CYCLOCEPHALA LATREILLE FROM CALIFORNIA SAND DUNES (COLEOPTERA: SCARABAEIDAE). THE PAN-PACIFIC ENTOMOLOGIST 50: 160-161. 1974-04-XX
KIM07U0001	KIMSEY, L. (UNIVERSITY OF CALIFORNIA, DAVIS) - COMPILED INVERTEBRATE COLLECTION RECORDS NEAR ALGODONES DUNES FROM VARIOUS INSTITUTIONS (UCB, UCD, UCR, USU, USNM, CAS, MCZ, LAMNH, AMNH, CDFA). 2007-04-XX
WAS72S0001	WASBAUER, M. & A. HARDY - CAS #11941 & USNM #11065335 & CMN #17140 COLLECTED 3 MI NW OF GLAMIS 1972-09-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 06540
EO Index: 22697
Key Quad: Ogilby (3211477)
Element Code: IICOL37020
Occurrence Number: 15
Occurrence Last Updated: 1989-08-11

Scientific Name: *Pseudocotalpa andrewsi*
Common Name: Andrew's dune scarab beetle

Listing Status: **Federal:** None
State: None
Rare Plant Rank:
Other Lists:

CNDDB Element Ranks: **Global:** G1
State: S1

General Habitat:

ENDEMIC TO THE CREOSOTE BUSH SCRUB HABITAT OF ALGODONES DUNES, NW OF GLAMIS, IMPERIAL COUNTY; 100-400 FT ELEVATION.

Micro Habitat:

INHABITS BOTH SURFACE AND SUB-SURFACE OF SAND, UTILIZING THE WET SAND INTERFACE AS PROTECTION FROM THE HEAT OF THE DAY.

Last Date Observed: 1979-04-12
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1979-04-12
Occurrence Rank: Unknown
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

ALGODONES DUNE SYSTEM, 4 MI SSW OF OGILBY.

Detailed Location:

ENDEMIC TO THE ALGODONES DUNES.

Ecological:

FLIGHT ACTIVITY 10-30 MINUTES AFTER SUNSET, DIGGING IN 1-2 MINUTES AFTER LANDING, DESCENDING TO THE WET SAND INTERFACE (USUALLY 5-8 CM, UP TO 30 CM). HOST PLANT UNKNOWN, ALTHOUGH MOST ADULTS SWARM AROUND CREOSOTE.

Threats:

OHVS. THE DUNES SOUTH OF HWY 78 ARE THE IMPERIAL SAND DUNES OHVA.

General:

ADULTS SWARM FROM APRIL TO MID-MAY.

PLSS: T16S, R20E, Sec. 22 (S)
Accuracy: 1/5 mile
Area (acres): 0
UTM: Zone-11 N3626372 E700427
Latitude/Longitude: 32.75699 / -114.86051
Elevation (feet): 200

County Summary:

Imperial

Quad Summary:

Ogilby (3211477)

Sources:

HAR79R0001 HARDY, A. ET AL. (CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE) - AN INVENTORY OF SELECTED COLEOPTERA FROM THE ALGODONES DUNES. REPORT TO BLM, CONTRACT CA-060-CT 8-68. 1979-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: B5349
Key Quad: Glamis (3211581)
Occurrence Number: 1
EO Index: 118258
Element Code: IIDIP07040
Occurrence Last Updated: 2020-05-01

Scientific Name: *Efferia macroxipha*
Common Name: Glamis robberfly

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G1G2
State: S1S2
Rare Plant Rank:
Other Lists:

General Habitat:
ENDEMIC TO THE ALGODONES DUNES IN IMPERIAL COUNTY.

Micro Habitat:

Last Date Observed: 1988-09-12
Last Survey Date: 1988-09-12
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
ALGODONES DUNES, SE OF THE SALTON SEA.

Detailed Location:
MAPPED NON-SPECIFICALLY ACROSS THE EXTENT OF THE ALGODONES DUNES.

Ecological:

Threats:

General:
SPECIMENS WERE COLLECTED IN THIS VICINITY IN 1986, 1987, AND 1988.

PLSS: T14S, R18E, Sec. 53 (S)
UTM: Zone-11 N3642497 E681857
Accuracy: non-specific area
Latitude/Longitude: 32.90558 / -115.05548
Area (acres): 148,089
Elevation (feet): 250

County Summary:
Imperial

Quad Summary:
Grays Well NE (3211467), Grays Well (3211468), Ogilby (3211477), Cactus (3211478), Clyde (3211488), Glamis SE (3211571), Glamis (3211581), Glamis NW (3211582), East of Acolita (3311511), Acolita (3311512), Amos (3311513), Tortuga (3311523)

Sources:

FOR88S0001	FORBES, G. - NMSU #48873, 48903, 48905, 48906, 48908-48911, 48914, 48915, 48919, 48922, 48925, 48928, 48929, 48931 & 48933 COLLECTED FROM ALGODONES DUNES, RT 78, 0.8 MI W GECKO RD 1988-09-12
KIM07U0001	KIMSEY, L. (UNIVERSITY OF CALIFORNIA, DAVIS) - COMPILED INVERTEBRATE COLLECTION RECORDS NEAR ALGODONES DUNES FROM VARIOUS INSTITUTIONS (UCB, UCD, UCR, USU, USNM, CAS, MCZ, LAMNH, AMNH, CDFA). 2007-04-XX
KIM17A0001	KIMSEY, L. ET AL. - INSECT BIODIVERSITY OF THE ALGODONES DUNES OF CALIFORNIA 2017-11-24
ROG86S0001	ROGERS, R. - CAS #16132 & NMSU #48932 COLLECTED FROM SAND DUNES, 2 MI W OF GLAMIS, HWY 78 1986-09-19
ROG87S0001	ROGERS, R. - NMSU #48916, 48918, 48926 & 48927 COLLECTED FROM GECKO CAMPGROUND RD, NEAR HWY 78 1987-09-12
ROG87S0002	ROGERS, R. - NMSU #48920 COLLECTED FROM GECKO CAMPGROUND RD, NEAR HWY 78 1987-09-21

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: B5349
Key Quad: Glamis (3211581)
Occurrence Number: 1
EO Index: 118240
Element Code: IIDIP54020
Occurrence Last Updated: 2020-04-28

Scientific Name: *Apiocera warneri*
Common Name: Glamis sand fly

Listing Status: **Federal:** None
State: None
Rare Plant Rank:
Other Lists:

CNDDB Element Ranks: **Global:** G1G2
State: S1S2

General Habitat:

ENDEMIC TO THE ALGODONES DUNES IN IMPERIAL COUNTY.

Micro Habitat:

Last Date Observed: 1982-09-15
Last Survey Date: 1982-09-15
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:

ALGODONES DUNES, SE OF THE SALTON SEA.

Detailed Location:

MAPPED NON-SPECIFICALLY ACROSS THE EXTENT OF THE ALGODONES DUNES.

Ecological:

Threats:

General:

THIS SPECIES IS ONLY KNOWN FROM THE TYPE COLLECTIONS. THESE WERE MADE 1.5 MILES WEST OF GLAMIS AND 4 MILES NORTH OF GLAMIS ON 15 SEP 1982.

PLSS: T14S, R18E, Sec. 53 (S)
Accuracy: non-specific area
Area (acres): 148,089
UTM: Zone-11 N3642497 E681857
Latitude/Longitude: 32.90558 / -115.05548
Elevation (feet): 250

County Summary:	Quad Summary:
Imperial	Grays Well NE (3211467), Grays Well (3211468), Ogilby (3211477), Cactus (3211478), Clyde (3211488), Glamis SE (3211571), Glamis (3211581), Glamis NW (3211582), East of Acolita (3311511), Acolita (3311512), Amos (3311513), Tortuga (3311523)

Sources:

CAZ85A0002	CAZIER, M. - NEW SPECIES AND NOTES ON FLIES BELONGING TO THE GENUS APIOCERA (DIPTERA, APIOCERIDAE). AMERICAN MUSEUM NOVITATES 2837: 1-28. 1985-11-14
KIM07U0001	KIMSEY, L. (UNIVERSITY OF CALIFORNIA, DAVIS) - COMPILED INVERTEBRATE COLLECTION RECORDS NEAR ALGODONES DUNES FROM VARIOUS INSTITUTIONS (UCB, UCD, UCR, USU, USNM, CAS, MCZ, LAMNH, AMNH, CDFA). 2007-04-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: B5349
Key Quad: Glamis (3211581)
Occurrence Number: 1
EO Index: 118355
Element Code: IIHYM01130
Occurrence Last Updated: 2020-05-06

Scientific Name: *Perdita algodones*
Common Name: Algodones perdita

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G1G2
State: S1S2
Rare Plant Rank:
Other Lists:

General Habitat:
ENDEMIC TO THE ALGODONES DUNES IN IMPERIAL COUNTY.

Micro Habitat:

Last Date Observed: 1972-04-09
Last Survey Date: 1972-04-09
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
ALGODONES DUNES, SE OF THE SALTON SEA.

Detailed Location:
MAPPED NON-SPECIFICALLY ACROSS THE EXTENT OF THE ALGODONES DUNES.

Ecological:

Threats:

General:
COLLECTIONS WERE MADE FROM THIS VICINITY IN 1965, 1968, AND 1972.

PLSS: T14S, R18E, Sec. 53 (S)
Accuracy: non-specific area
Area (acres): 148,089
UTM: Zone-11 N3642497 E681857
Latitude/Longitude: 32.90558 / -115.05548
Elevation (feet): 250

County Summary:
Imperial

Quad Summary:
Grays Well NE (3211467), Grays Well (3211468), Ogilby (3211477), Cactus (3211478), Clyde (3211488), Glamis SE (3211571), Glamis (3211581), Glamis NW (3211582), East of Acolita (3311511), Acolita (3311512), Amos (3311513), Tortuga (3311523)

Sources:

HAR72S0005	HARDY, A. - UCRC #165955 COLLECTED 3 MILES NW OF GLAMIS, KIPF ROAD, ALGODONES DUNES 1972-04-09
IRW65S0001	IRWIN, M. - UCRC #165956 COLLECTED 1 MILE WEST OF GLAMIS 1965-04-25
KIM07U0001	KIMSEY, L. (UNIVERSITY OF CALIFORNIA, DAVIS) - COMPILED INVERTEBRATE COLLECTION RECORDS NEAR ALGODONES DUNES FROM VARIOUS INSTITUTIONS (UCB, UCD, UCR, USU, USNM, CAS, MCZ, LAMNH, AMNH, CDFA). 2007-04-XX
RAU68S0001	RAUCH, P. - CAS #14416 COLLECTED 3.5 MILES NW OF GLAMIS 1968-04-13
TIM80A0001	TIMBERLAKE, P. - SUPPLEMENTARY STUDIES ON THE SYSTEMATICS OF THE GENUS PERDITA (HYMENOPTERA, ANDRENIDAE), PART II. UNIVERSITY OF CALIFORNIA PUBLICATIONS IN ENTOMOLOGY 85. 1980-05-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: B5349
EO Index: 119180
Key Quad: Glamis (3211581)
Element Code: IIHYM01140
Occurrence Number: 1
Occurrence Last Updated: 2020-09-28

Scientific Name: *Perdita frontalis*
Common Name: Imperial Perdita

Listing Status: **Federal:** None
State: None
Rare Plant Rank:
Other Lists:

CNDDB Element Ranks: **Global:** G1G2
State: S1S2

General Habitat:

Micro Habitat:

Last Date Observed: 2014-05-10
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2014-05-10
Occurrence Rank: Unknown
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

ALGODONES DUNES, SE OF THE SALTON SEA.

Detailed Location:

VARIOUS COLLECTION LOCALITIES DESCRIBED AS FROM GLAMIS TO 5.7 MILES WEST OF GLAMIS. MAPPED NON-SPECIFICALLY ACROSS THE EXTENT OF THE ALGODONES DUNES.

Ecological:

MOST COLLECTIONS WERE MADE FROM FLOWERS OF TIQUILA PLICATA.

Threats:

General:

COLLECTIONS WERE MADE IN 1960, 1962, 2012, 2013, AND 2014.

PLSS: T14S, R18E, Sec. 53 (S)
Accuracy: non-specific area
Area (acres): 148,089
UTM: Zone-11 N3642497 E681857
Latitude/Longitude: 32.90558 / -115.05548
Elevation (feet): 250

County Summary:

Imperial

Quad Summary:

Grays Well NE (3211467), Grays Well (3211468), Ogilby (3211477), Cactus (3211478), Clyde (3211488), Glamis SE (3211571), Glamis (3211581), Glamis NW (3211582), East of Acolita (3311511), Acolita (3311512), Amos (3311513), Tortuga (3311523)

Sources:

DIC60S0004	DICKSON, R. - CAS #14531 COLLECTED FROM SAND DUNES, 5.7 MILES WEST OF GLAMIS, IMPERIAL CO, CA, ON ERIOGONUM DESERTICOLA 1960-07-25
DIC60S0005	DICKSON, R. - UCRC #173923 COLLECTED E BRAWLEY, ON ERIOGONUM DESERTICOLA 1960-06-28
DIC60S0006	DICKSON, R. - UCRC #173924 COLLECTED FROM SAND DUNES S OF BRAWLEY, ON COLDENIA PLICATA 1960-07-11
KIM07U0001	KIMSEY, L. (UNIVERSITY OF CALIFORNIA, DAVIS) - COMPILED INVERTEBRATE COLLECTION RECORDS NEAR ALGODONES DUNES FROM VARIOUS INSTITUTIONS (UCB, UCD, UCR, USU, USNM, CAS, MCZ, LAMNH, AMNH, CDFA). 2007-04-XX
POR16A0001	PORTMAN, Z. ET AL. - TAXONOMIC REVISION OF PERDITA SUBGENUS HETEROPERDITA TIMBERLAKE (HYMENOPTERA: ANDREDIDAE), WITH DESCRIPTIONS OF TWO ANT-LIKE MALES. ZOOTAXA 4214(1): 1-97. 2016-XX-XX
TIM68A0001	TIMBERLAKE, P. - A REVISIONAL STUDY OF THE BEES OF THE GENUS PERDITA F. SMITH, WITH SPECIAL REFERENCE TO THE FAUNA OF THE PACFIC COAST. PART VII. UNIVERSITY OF CA PUBLICATIONS IN ENTOMOLOGY 49. 1968-XX-XX
YAN20U0001	YANEGA, D. (UNIVERSITY OF CALIFORNIA, RIVERSIDE) - EMAIL REGARDING PERDITA FRONTALIS COLLECTION LOCALITES 2020-09-25

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: B5349
Key Quad: Glamis (3211581)
Occurrence Number: 2
EO Index: 119019
Element Code: IIHYM01840
Occurrence Last Updated: 2020-08-10

Scientific Name: *Perdita stephanomeriae*
Common Name: a miner bee

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** GNR
State: S1S2
Rare Plant Rank:
Other Lists:

General Habitat:

Micro Habitat:

Last Date Observed: 1965-06-13
Last Survey Date: 1965-06-13
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:

ALGODONES DUNES, SE OF THE SALTON SEA.

Detailed Location:

COLLECTION LOCALITY GIVEN ONLY AS "GLAMIS." MAPPED BY CNDDB NON-SPECIFICALLY ACROSS THE EXTENT OF THE GLAMIS DUNES, ALSO KNOW AS THE ALGODONES DUNES.

Ecological:

Threats:

General:

COLLECTED ON 13 JUN 1965. SPECIMENS ORIGINALLY USED TO DESCRIBE THE SPECIES PERDITA GLAMIS, BUT THAT SPECIES WAS LATER LUMPED INTO PERDITA STEPHANOMERIAE.

PLSS: T14S, R18E, Sec. 53 (S)
Accuracy: non-specific area
Area (acres): 148,089
UTM: Zone-11 N3642497 E681857
Latitude/Longitude: 32.90558 / -115.05548
Elevation (feet): 250

County Summary:

Imperial

Quad Summary:

Grays Well NE (3211467), Grays Well (3211468), Ogilby (3211477), Cactus (3211478), Clyde (3211488), Glamis SE (3211571), Glamis (3211581), Glamis NW (3211582), East of Acolita (3311511), Acolita (3311512), Amos (3311513), Tortuga (3311523)

Sources:

KIM07U0001	KIMSEY, L. (UNIVERSITY OF CALIFORNIA, DAVIS) - COMPILED INVERTEBRATE COLLECTION RECORDS NEAR ALGODONES DUNES FROM VARIOUS INSTITUTIONS (UCB, UCD, UCR, USU, USNM, CAS, MCZ, LAMNH, AMNH, CDFA). 2007-04-XX
POR17A0001	PORTMAN, Z. & T. GRISWOLD - REVIEW OF PERDITA SUBGENUS PROCOCKERELLIA TIMBERLAKE (HYMENOPTERA, ANDRENIDAE) AND THE FIRST PERDITA GYNANDROMORPH. ZOOKEYS 712: 87-111. 2017-XX-XX
TIM80A0001	TIMBERLAKE, P. - SUPPLEMENTARY STUDIES ON THE SYSTEMATICS OF THE GENUS PERDITA (HYMENOPTERA, ANDRENIDAE), PART II. UNIVERSITY OF CALIFORNIA PUBLICATIONS IN ENTOMOLOGY 85. 1980-05-XX
WAL65S0004	WALLACE, G. - UCRC #174303 & CAS #14544 COLLECTED FROM GLAMIS 1965-06-13

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: B5349
Key Quad: Glamis (3211581)
Occurrence Number: 1
EO Index: 118339
Element Code: IIHYM90010
Occurrence Last Updated: 2020-05-05

Scientific Name: *Microbembex elegans*
Common Name: Algodones elegant sand wasp

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G1G2
State: S1S2
Rare Plant Rank:
Other Lists:

General Habitat:
ENDEMIC TO THE ALGODONES DUNES IN IMPERIAL COUNTY

Micro Habitat:

Last Date Observed: 1988-10-10
Last Survey Date: 1988-10-10
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
ALGODONES DUNES, SE OF THE SALTON SEA.

Detailed Location:
MAPPED NON-SPECIFICALLY ACROSS THE EXTENT OF THE ALGODONES DUNES.

Ecological:
FOUND ONLY AROUND THE BASES OF SHRUBS WHERE DETRITUS COLLECTS ON ACTIVE SLIP FACES OF THE DUNES.

Threats:

General:
THIS SPECIES IS ONLY KNOWN FROM THE TYPE COLLECTIONS. THESE WERE MADE FROM GLAMIS DUNES, 1 MILE WEST OF GLAMIS IN SEP 1987 AND OCT 1988, AND ALSO 4 MILES SOUTH OF OGILBY IN OCT 1988.

PLSS: T14S, R18E, Sec. 53 (S)
Accuracy: non-specific area
Area (acres): 148,089
UTM: Zone-11 N3642497 E681857
Latitude/Longitude: 32.90558 / -115.05548
Elevation (feet): 250

County Summary:
Imperial

Quad Summary:
Grays Well NE (3211467), Grays Well (3211468), Ogilby (3211477), Cactus (3211478), Clyde (3211488), Glamis SE (3211571), Glamis (3211581), Glamis NW (3211582), East of Acolita (3311511), Acolita (3311512), Amos (3311513), Tortuga (3311523)

Sources:

GRI96A0001	GRISWOLD, T. (UTAH STATE UNIVERSITY) - A NEW MICROBEMBEX ENDEMIC TO THE ALGODONES DUNES, CALIFORNIA (HYMENOPTERA: SPHECIDAE).PAN-PACIFIC ENTOMOLOGIST 72(3): 142-144. 1996-XX-XX
KIM07U0001	KIMSEY, L. (UNIVERSITY OF CALIFORNIA, DAVIS) - COMPILED INVERTEBRATE COLLECTION RECORDS NEAR ALGODONES DUNES FROM VARIOUS INSTITUTIONS (UCB, UCD, UCR, USU, USNM, CAS, MCZ, LAMNH, AMNH, CDFA). 2007-04-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: B5349
Key Quad: Glamis (3211581)
Occurrence Number: 1
EO Index: 118271
Element Code: IIHYMBC010
Occurrence Last Updated: 2020-05-04

Scientific Name: *Euparagia unidentata*
Common Name: Algodones euparagia

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G1G2
State: S1S2
Rare Plant Rank:
Other Lists:

General Habitat:

Micro Habitat:

Last Date Observed: 2008-06-03
Last Survey Date: 2008-06-03
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:

ALGODONES DUNES, SE OF THE SALTON SEA.

Detailed Location:

MAPPED NON-SPECIFICALLY ACROSS THE EXTENT OF THE ALGODONES DUNES.

Ecological:

Threats:

General:

COLLECTIONS WERE MADE FROM THIS VICINITY IN 1960 AND 2008.

PLSS: T14S, R18E, Sec. 53 (S)
Accuracy: non-specific area
Area (acres): 148,089
UTM: Zone-11 N3642497 E681857
Latitude/Longitude: 32.90558 / -115.05548
Elevation (feet): 250

County Summary:

Imperial

Quad Summary:

Grays Well NE (3211467), Grays Well (3211468), Ogilby (3211477), Cactus (3211478), Clyde (3211488), Glamis SE (3211571), Glamis (3211581), Glamis NW (3211582), East of Acolita (3311511), Acolita (3311512), Amos (3311513), Tortuga (3311523)

Sources:

ANONDS0367	ANONYMOUS - AMNH #178751 COLLECTED FROM GECKO RD S OF ALGODONES DUNES WILDERNESS AREA XXXX-XX-XX
CAR09A0001	CARPENTER, J. & L. KIMSEY - THE GENUS EUPARAGIA CRESSON (HYMENOPTERA: VESPIDAE; EUPARAGIINAE). AMERICAN MUSEUM NOVITATES 3643: 1-11. 2009-03-31
DIC60S0001	DICKSON, R. - UCRC #71283 & 71284 COLLECTED FROM ERIOGONUM DESERTICOLA AT SAND DUNES EAST OF BRAWLEY 1960-06-13
DIC60S0002	DICKSON, R. - UCRC #71288 COLLECTED FROM ERIOGONUM DESERTICOLA 7 MILES WEST OF GLAMIS 1960-07-25
DIC60S0003	DICKSON, R. - UCRC #71285, 71286, 71287 & 71289 COLLECTED FROM COLDENIA PLICATA 2 MILES WEST OF GLAMIS 1960-07-25
KIM17A0001	KIMSEY, L. ET AL. - INSECT BIODIVERSITY OF THE ALGODONES DUNES OF CALIFORNIA 2017-11-24

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 77872
EO Index: 6544
Key Quad: Glamis (3211581)
Element Code: PDAST6T012
Occurrence Number: 1
Occurrence Last Updated: 2014-05-28

Scientific Name: *Palafoxia arida var. gigantea*
Common Name: giant spanish-needle

Listing Status: **Federal:** None
State: None
Rare Plant Rank: 1B.3
Other Lists: BLM_S-Sensitive
SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

CNDDB Element Ranks: **Global:** G5T3?
State: S2

General Habitat:

DESERT DUNES.

Micro Habitat:

ACTIVE AND STABLE DUNE AREAS; ASSOCIATED WITH AMMOBROMA SONORAE, ASTRAGALUS LENTIGINOSUS BORREGANUS, ETC. 20-95 M.

Last Date Observed: 2013-04-20
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2013-04-20
Occurrence Rank: Unknown
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

ALGODONES DUNES.

Detailed Location:

SCATTERED THROUGHOUT THE DUNES FROM SOUTHERN PACIFIC RR TRACKS WEST TO THE COACHELLA CANAL AND FROM MAMMOTH WASH SOUTH TO THE CA/MEXICO BORDER. MAPPED BY CNDDB USING MULTIPLE MAP SOURCES.

Ecological:

SAND DUNES WITHIN DESERT PSAMMOPHYTIC SCRUB (STABILIZED AND PARTIALLY STABILIZED DESERT DUNES). ASSOCIATES INCLUDE SEVERAL RARE PLANTS: AMMOBROMA SONORAE, ASTRAGALUS LENTIGINOSUS BORREGANUS, ERIOGONUM DESERTICOLA, PILOSTYLES THURBERI, ETC.

Threats:

ORV USE.

General:

>3,000 PLANTS SEEN ALONG ALL AMERICAN CANAL IN 1993. 34,649 IN 1998; 1,458 IN 1999; 13,933 IN 2000. 25 PLANTS ALONG HWY 78 JUST E OF GECKO RD IN 2009. 80+ PLANTS N OF HWY 78 ~1 MI NW OF OSBORNE LOOKOUT IN 2013. INCL FRMR EOS 2-49, 51, 52.

PLSS: T14S, R18E, Sec. 51 (S)
Accuracy: specific area
Area (acres): 118,017
UTM: Zone-11 N3644086 E681072
Latitude/Longitude: 32.92004 / -115.06355
Elevation (feet):

County Summary:

Imperial, Mexico

Quad Summary:

Grays Well NE (3211467), Grays Well (3211468), Ogilby (3211477), Cactus (3211478), Clyde (3211488), Glamis SE (3211571), Glamis (3211581), Glamis NW (3211582), East of Acolita (3311511), Acolita (3311512), Amos (3311513), Tortuga (3311523)

Sources:

ALE41S0030	ALEXANDER, A. & L. KELLOGG - ALEXANDER #1936 UC #669289 POM #115609, GH #427281 1941-03-14
AND09S0005	ANDRE, J. & T. LA DOUX - ANDRE #9871 UCR #211316, RSA #760079, GMDRC #2967 (CITED IN AND10D0001) 2009-02-26
AND10D0001	ANDRE, J. - EXCEL TABLE OF MULTIPLE PLANT COLLECTIONS 2010-01-18
ANO69S0003	ANONYMOUS - ANONYMOUS #11 UCR #16704 1969-05-24
BAR67S0001	BARR, R. - BARR #67-128 UA (AS CITED IN WAR87R0001) 1967-04-16
BEL13S0009	BELL, D. ET AL. - BELL #4823 RSA #806857 2013-04-20
BEL13U0002	BELL, D. - OBSERVATIONS OF RARE PLANT TAXA FROM DESERT CNPS RARE PLANT TREASURE HUNT SURVEYS, SPRING 2013 2013-03-XX
BEN33S0011	BENSON, L. - BENSON #4223 RSA #431136 1933-04-01

BLM00R0001	BLM-BUREAU OF LAND MANAGEMENT - MONITORING OF SPECIAL STATUS PLANTS IN THE ALGODONES DUNES, IMPERIAL COUNTY, CALIFORNIA: RESULTS OF 1998 MONITORING AND COMPARISON WITH THE DATA FROM WESTECS 1977 MONITORING STUDY 2000-11-XX
BLM01R0001	BLM-BUREAU OF LAND MANAGEMENT - MONITORING OF SPECIAL STATUS PLANTS IN THE ALGODONES DUNES, IMPERIAL COUNTY, CALIFORNIA: 1977, 1998, 1999, AND 2000 2001-06-XX
BLM77F0001	BLM-BUREAU OF LAND MANAGEMENT - FIELD SURVEY FORM FOR PALAFOXIA ARIDA VAR. GIGANTEA 1977-10-13
BLM78F0001	SEARS, W. - BLM (S-II) FIELD SURVEY FORM FOR PALAFOXIA ARIDA VAR. GIGANTEA 1978-XX-XX
BLM86R0002	BLM-BUREAU OF LAND MANAGEMENT - PROPOSED 1985 PLAN AMENDMENTS VOL. 2 1986-01-XX
BOW70S0001	BOWERS, D. - BOWERS #1608 RSA #786954 1970-12-29
BOW81S0001	BOWERS, J. - BOWERS #2076 UA (AS CITED IN WAR87R0001) 1981-03-14
BOW83S0003	BOWERS, J. & S. MCLAUGHLIN - BOWERS #2785 UCR #46271 1983-11-12
BRO80S0003	BROWNELL, K. - BROWNELL #206 UCSB #36654 1980-05-17
CHM00R0001	CH2M HILL - IMPERIAL IRRIGATION DISTRICT (IID)/SAN DIEGO COUNTY WATER AUTHORITY (SDCWA) WATER CONSERVATION AND TRANSFER PROJECT EIR/EIS, SCOPING SUMMARY REPORT 2000-03-10
DAV79S0003	DAVIDSON, C. ET AL. - DAVIDSON #7742 HSU #82914 POM #363734 1979-04-28
DAV79S0004	DAVIDSON, C. ET AL. - DAVIDSON #7792 POM #363735 1979-04-28
DEF33S0002	DE FOREST, H. & J. REMPEL - DE FOREST #17695 RSA #363761 1933-04-10
DUN35S0005	DUNKLE, M. - DUNKLE #4586 POM #363736 1935-04-18
FER38S0002	FERRIS, R. & R. ROSSBACH - FERRIS #9588 UC #604962 POM #19546, GH #427279 1938-05-17
FUL59S0002	FULLER, T. - FULLER #3273 CDA #8432 1959-10-07
GIL28S0004	GILMAN, M. - GILMAN SN POM #145269 1928-04-XX
GOR80S0003	GORDON, P. - GORDON #630 UCSB #37387 1980-05-17
GRA78S0002	GRANGER, S. - GRANGER SN RSA #650937 1978-04-03
GUI08S0005	GUILLIAMS, C. & J. MARSHALL - GUILLIAMS #635 SDSU #18373 & #18392 2008-04-23
GUS83S0012	GUSTAFSON, R. & KEELEY - GUSTAFSON #2569 POM #363733 1983-05-06
HIG74S0001	HIGGINS, L. - HIGGINS #8507 ASU (AS CITED IN WAR87R0001) 1974-04-12
HIT66S0008	HITCHCOCK, C. - HITCHCOCK #24287 DAV #134877 1966-03-19
HOW64S0005	HOWE, D. - HOWE #3756 SD #60969 SDSU #369 1964-04-11
HOW80S0004	HOWE, D. - HOWE SN SD #128762 1980-04-14
HUN80S0001	HUNKINS, C. - HUNKINS #80030903, SEINET #2053908, DES #27249, DBG (CITED IN WAR87R0001) 1980-03-09
JEP27S0017	JEPSON, W. - JEPSON #11722 JEPS #34765 1927-04-15
JON31S0014	JONES, M. - JONES #28599 POM #188054 UC #479265 1931-09-24
JOR82S0002	JORGENSEN, J. - JORGENSEN #305 UCSB #39124 1982-03-24
KEL37S0001	KELLER, A. - KELLER SN RSA #603891 SD #17611 1937-05-31
KEL37S0002	KELLER, A. - KELLER SN SD #17612 1937-05-31
KEL41S0001	KELLOGG, L. ET AL. - KELLOGG ET AL. #1936 UA #189037 (AS CITED IN WAR87R0001) 1941-03-14
LAT77S0004	LATTING, J. - LATTING SN UC #1746487 UCR #115382, SEINET #238517, UTC #230538, DAV #134884 1977-12-11
MAC97S0005	MACKAY, P. - MACKAY #130 VVC #648 1997-03-01
MCG71S0001	MCGEHEE, R. - MCGEHEE #352 SJSU #11689 1971-02-13
MIN64S0002	MINNICH, J. - MINNICH #64-3-25-14 UCR 1964-03-25
MUN32S0027	MUNZ, P. & C. HITCHCOCK - MUNZ #12131 UC #495107 1932-04-05
NEL30S0001	NELSON, A. - NELSON #11161 DS #231258 1930-02-27
NEL36A0001	NELSON, A. - ROCKY MOUNTAIN HERBARIUM STUDIES IV. AMERICAN JOURNAL OF BOTANY 23: 265-271. 1936-XX-XX
NIE77U0021	NIEHAUS, T. - CNPS STATUS REPORT 1977-XX-XX
PEI27S0010	PEIRSON, F. - PEIRSON #7198 RSA #92214 SD #87849 1927-04-15
PIT98S0003	PITZER, B. - PITZER #3477 SD #144029 UCR #102678 1998-02-02
POR03S0027	PORTER, J. - PORTER #13491 RSA #767601 2003-03-04

RAV58S0027	RAVEN, P. - RAVEN #12910 JEPS #30466 RSA #127758 1958-05-06
REC79R0001	U.S. BUREAU OF RECLAMATION - REPORT ON RARE PLANT POPULATIONS ALONG THE ALL AMERICAN CANAL 1979-XX-XX
REI96S0007	REINA, A. & T. VAN DEVENDER - REINA #220 RSA #592920, UCR #97014. SEINET #1110597, ASU, SEINET #891496, ASU #324968 1996-04-27
RIC79S0004	RICH, B. - RICH #79004 RSA #291588 1979-04-21
ROM79R0001	ROMSPERT, A. & J. BURK - ALGODONES DUNES SENSITIVE PLANT PROJECT - C.S.U. FULLERTON PREPARED FOR BLM 1979-XX-XX
ROS63S0001	ROSSBACH, G. - ROSSBACH #5239 UC #1351650 1963-07-03
SEA78S0005	SEARS - SEARS #764 UCR #33542 1978-03-15
SIM65S0001	SIMPSON, J. - SIMPSON SN SD #103941 1965-05-13
STE90S0003	STEWART, J. - STEWART #649 UCR #89809 1990-03-14
STO96S0002	STONE, B. & J. DICE - STONE SN SD #138925 1996-04-29
SWA11S0038	SWANSON, A. - SWANSON #194 RSA #776107 2011-03-09
THO64S0037	THORNE, R. & RUTHERFORD - THORNE #33611 RSA #167678, GH #427280 1964-04-11
THO78S0051	THORNE, R. - THORNE #52150 RSA #336258 1978-05-30
THO84S0002	THORNE, R. ET AL. - THORNE #58265 RSA #331168 1984-04-27
TUR62S0001	TURNER, B. - TURNER #4757 SD #108087 1962-04-19
VAN05S0003	VAN DAM, A. - VAN DAM SN UCR #165596 2005-04-19
VAS64S0002	VASEK, F. - VASEK #640411-2 UCR #3820, UCSB #38383 1964-04-11
VAS64S0006	VASEK, F. - VASEK #640411-03 UCR #3819 1964-04-11
VER64S0005	VERITY, D. ET AL. - VERITY SN SFV #4269A 1964-02-15
WAR87R0001	WARREN, P. & A. LAURENZI - RARE PLANTS SURVEY OF THE YUMA DISTRICT. 1987-08-XX
WES77R0003	WESTEC SERVICES, INC. - SURVEY OF SENSITIVE PLANTS OF THE ALGODONES DUNES - PREPARED FOR BLM. 1977-08-XX
WIE35S0023	WIEGAND, K. & M. WIEGAND - WIEGAND #2578 GH #427282 1935-XX-XX
WIL05U0001	WILLOUGHBY, J. - EMAIL TO R. BITTMAN REGARDING DATA ON ALGODONES DUNES PLANTS 2005-11-30
WIL64S0002	WILSON, K. - WILSON #1327 SFV #4068 1964-04-11
WOL31S0036	WOLF, C. - WOLF #1888 RSA #2149 1931-03-14
WOLNDS0001	WOLF - WOLF #1888 HERBARIUM UNKNOWN XXXX-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 92503
EO Index: 93647
Key Quad: Ogilby (3211477)
Element Code: PDAST6T012
Occurrence Number: 56
Occurrence Last Updated: 2014-05-28

Scientific Name: *Palafoxia arida var. gigantea*
Common Name: giant spanish-needle

Listing Status: **Federal:** None
State: None
Rare Plant Rank: 1B.3
Other Lists: BLM_S-Sensitive
SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

CNDDB Element Ranks: **Global:** G5T3?
State: S2

General Habitat:
DESERT DUNES.

Micro Habitat:
ACTIVE AND STABLE DUNE AREAS; ASSOCIATED WITH AMMOBROMA SONORAE, ASTRAGALUS LENTIGINOSUS BORREGANUS, ETC. 20-95 M.

Last Date Observed: 2002-03-02
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2002-03-02
Occurrence Rank: Unknown
Owner/Manager: UNKNOWN
Trend: Unknown
Presence: Presumed Extant

Location:
IMPERIAL DUNES RECREATION AREA (ALGODONES DUNES), 0.5 MILE WSW OF OGILBY, WEST OF COUNTY ROAD S34.

Detailed Location:
MAPPED ACCORDING TO COORDINATES PROVIDED ON A 2002 PORTER ET AL. COLLECTION; DATUM UNKNOWN; MAPPED TO ENCOMPASS NAD27 AND NAD83.

Ecological:
SHALLOW DUNES AND SANDY SOILS OF BRAIDED WASH.

Threats:

General:
ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 2002 PORTER ET AL. COLLECTION.

PLSS: T15S, R20E, Sec. 34, E (S)
Accuracy: 80 meters
Area (acres): 0
UTM: Zone-11 N3632803 E701564
Latitude/Longitude: 32.81475 / -114.84698
Elevation (feet): 310

County Summary:
Imperial

Quad Summary:
Ogilby (3211477)

Sources:
POR02S0002 PORTER, J. ET AL. - PORTER #13401 RSA #767464, ARIZ #412699 2002-03-02

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 35287
EO Index: 5532
Key Quad: Ogilby (3211477)
Element Code: PDEUP080L0
Occurrence Number: 1
Occurrence Last Updated: 1996-08-27

Scientific Name: *Ditaxis claryana*
Common Name: glandular ditaxis

Listing Status: **Federal:** None
State: None
Rare Plant Rank: 2B.2
Other Lists:

CNDDB Element Ranks: **Global:** G3G4
State: S2

General Habitat:
MOJAVEAN DESERT SCRUB, SONORAN DESERT SCRUB.

Micro Habitat:
IN DRY WASHES AND ON ROCKY HILLSIDES. SANDY SOILS. 15-505 M.

Last Date Observed: 1978-03-15
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1978-03-15
Occurrence Rank: Unknown
Owner/Manager: UNKNOWN
Trend: Unknown
Presence: Presumed Extant

Location:
ABOUT 1.5 MILES NORTHEAST OF OGILBY, SOUTHWEST OF THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:
OBSERVED AT T15S R20E SECTIONS 24 AND 25.

Ecological:
GROWING IN LOWER FAN OF DRY WASH ON GRAVELLY/SANDY SOILS WITHIN CREOSOTE SCRUB.

Threats:

General:
50-100 PLANTS OBSERVED OVER LESS THAN 100 ACRES IN 1978.

PLSS: T15S, R20E, Sec. 24 (S)
Accuracy: 1 mile
Area (acres): 0
UTM: Zone-11 N3635326 E704098
Latitude/Longitude: 32.83702 / -114.81938
Elevation (feet): 550

County Summary:
Imperial

Quad Summary:
Ogilby (3211477)

Sources:
SEA78F0003 SEARS, W. - FIELD SURVEY FORM FOR DITAXIS CLARYANA 1978-03-15

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	76081	**EO Index:**	77074
Key Quad:	Ogilby (3211477)	**Element Code:**	PDEUP0H140
Occurrence Number:	38	**Occurrence Last Updated:**	2014-09-17

Scientific Name: *Croton wigginsii*

Common Name: Wiggins' croton

Listing Status: **Federal:** None

State: Rare

CNDDB Element Ranks: **Global:** G2G3

State: S2

Rare Plant Rank: 2B.2

Other Lists: BLM_S-Sensitive
SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

General Habitat:

DESERT DUNES, SONORAN DESERT SCRUB.

Micro Habitat:

ON SAND DUNES AND IN SANDY ARROYOS. 0-155 M.

Last Date Observed:	2002-07-15	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2002-07-15	**Occurrence Rank:**	Unknown
Owner/Manager:	BLM	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

SE END OF THE ALGODONES DUNES; NEAR THE JUNCTION OF INTERSTATE 8 AND BLYTHE OGILBY ROAD.

Detailed Location:

MAPPED BY CNDDB AS BEST GUESS AROUND SECTION 23 ACCORDING TO TRS INFORMATION ON A 1978 SEARS FIELD SURVEY FORM.

Ecological:

SPARSE DESERT SCRUB ON LOOSE SAND. ASSOCIATES INCLUDE AMMOBROMA SONORAE, PETALONYX THURBERI, TIQUILIA PLICATA, PALAFOXIA ARIDA GIGANTEA, OENOTHERA.

Threats:

General:

SITE BASED ON A VAGUE 1978 SEARS SURVEY FORM. COLLECTIONS FROM "DIRT TRACK HEADING E 3.3 MI FROM GRAYS WELL RD EXIT OFF I-8", "4.1 MI S OF OGILBY AT OGILBY RD, EXIT I-10", AND "OGILBY RD, E SIDE ALGODONES DUNES, S OF I-8" ATTRIBUTED HERE.

PLSS:	T16S, R20E, Sec. 23 (S)	**Accuracy:**	non-specific area	**Area (acres):**	649
UTM:	Zone-11 N3626368 E702733	**Latitude/Longitude:**	32.75652 / -114.83591	**Elevation (feet):**	200

County Summary:	**Quad Summary:**
Imperial	Grays Well NE (3211467), Ogilby (3211477)

Sources:

DAV79S0009	DAVIDSON, C. - DAVIDSON #7794 RSA #480697 1979-04-28
SEA78F0001	SEARS, W. - FIELD SURVEY FORM FOR CROTON WIGGINSII 1978-03-15
SEA78S0010	SEARS - SEARS #765 SEINET #3107109, FLD #4500 1978-XX-XX
VAN02S0001	VAN DEVENDER, T. ET AL. - VAN DEVENDER #2002-473 SEINET #281192 & #286839, USON #12101 2002-07-15

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 28142
EO Index: 17711
Key Quad: Ogilby (3211477)
Element Code: PDFAB0F491
Occurrence Number: 1
Occurrence Last Updated: 2011-10-18

Scientific Name: *Astragalus insularis var. harwoodii*
Common Name: Harwood's milk-vetch

Listing Status: **Federal:** None
State: None
Rare Plant Rank: 2B.2
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

CNDDB Element Ranks: **Global:** G5T4
State: S2

General Habitat:

DESERT DUNES, MOJAVEAN DESERT SCRUB.

Micro Habitat:

OPEN SANDY FLATS AND SANDY OR STONY DESERT WASHES; MOSTLY IN CREOSOTE BUSH SCRUB. -45-700 M.

Last Date Observed: 2008-03-20
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2008-03-20
Occurrence Rank: Unknown
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

VICINITY OF THE INTERSECTION OF OLD HIGHWAY 80 (NOW I-8) AND OGILBY ROAD (HWY S34), SE END OF PILOT KNOB MESA.

Detailed Location:

MAPPED BY CNDDB AS A NON-SPECIFIC POLYGON ALONG OLIGBY RD (HWY S34) TO ENCOMPASS 3 COLLECTIONS FROM "0.5 MI N OF INTERSECTION", "100 M N OF JUNCTION, W SIDE OF ROAD" AND "SE OF INTERSECTION, 30 M E OF OGILBY ROAD".

Ecological:

SPARSE CREOSOTE BUSH SCRUB WITH ASCLEPIAS SP, STEPHANOMERIA SP, AMBROSIA DUMOSA, AND ABRONIA VILLOSA. IN SUN ON DRY, SANDY FLATS.

Threats:

General:

SITE BASED ON MULTIPLE COLLECTIONS FROM THIS AREA; LAST COLLECTED BY GUILLIAMS & MARSHALL IN 2008. NEED MAP DETAIL FOR THIS SITE.

PLSS: T16S, R20E, Sec. 14, S (S)
Accuracy: non-specific area
Area (acres): 69
UTM: Zone-11 N3627208 E702645
Latitude/Longitude: 32.76411 / -114.83667
Elevation (feet): 240

County Summary:

Imperial

Quad Summary:

Ogilby (3211477)

Sources:

ARM83S0003	ARMSTRONG, W. - ARMSTRONG SN SD #115067 1983-05-10
ATW70S0001	ATWOOD, N. - ATWOOD #2335 NY #1258227 1970-04-02
BAL58S0002	BALLS, E. & P. EVERETT - BALLS #22890 UC #1080347, RSA #124371 1958-03-20
GUI08S0004	GUILLIAMS, C. & J. MARSHALL - GUILLIAMS #631 SDSU #18741 2008-04-23
MCL85S0002	MCLAUGHLIN, S. & J. BOWERS - MCLAUGHLIN #2946 ARIZ #257606 1985-03-10
MCL87A0001	MCLAUGHLIN, S. ET AL. - VASCULAR PLANTS OF EASTERN IMPERIAL COUNTY, CA. MADRONO VOL. 34, NO. 4, PP. 359-378, 1987. 1987-XX-XX
THO64S0038	THORNE, R. & R. RUTHERFORD - THORNE #33564 RSA #754257 & #800188 1964-04-10

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 77752
Key Quad: Grays Well NE (3211467)
Occurrence Number: 43
EO Index: 78652
Element Code: PDFAB0F491
Occurrence Last Updated: 2009-12-29

Scientific Name: *Astragalus insularis var. harwoodii*
Common Name: Harwood's milk-vetch

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G5T4
State: S2
Rare Plant Rank: 2B.2
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

General Habitat:
DESERT DUNES, MOJAVEAN DESERT SCRUB.

Micro Habitat:
OPEN SANDY FLATS AND SANDY OR STONY DESERT WASHES; MOSTLY IN CREOSOTE BUSH SCRUB. -45-700 M.

Last Date Observed: 1985-03-10
Last Survey Date: 1985-03-10
Owner/Manager: UNKNOWN
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
I-8 AT JUNCTION WITH SIDEWINDER RD, SE END OF PILOT KNOB MESA.

Detailed Location:
MAPPED BY CNDDB AS BEST GUESS AT THE JUNCTION OF I-8 AND SIDEWINDER RD.

Ecological:
SANDY SOIL WITH LARREA AND CROTON CALIFORNICUS.

Threats:

General:
ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1985 MCLAUGHLIN & BOWERS COLLECTION, MENTIONED AS "UNCOMMON" IN 1985.

PLSS: T16S, R21E, Sec. 21 (S)
Accuracy: 3/5 mile
Area (acres): 0
UTM: Zone-11 N3625454 E710370
Latitude/Longitude: 32.74686 / -114.75465
Elevation (feet): 250

County Summary:
Imperial

Quad Summary:
Yuma West (3211466), Grays Well NE (3211467), Araz (3211476), Ogilby (3211477)

Sources:

MCL85S0001 MCLAUGHLIN, S. & J. BOWERS - MCLAUGHLIN #2942 ARIZ #257607 1985-03-10

MCL87A0001 MCLAUGHLIN, S. ET AL. - VASCULAR PLANTS OF EASTERN IMPERIAL COUNTY, CA. MADRONO VOL. 34, NO. 4, PP. 359-378, 1987. 1987-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	36276	**EO Index:**	31273
Key Quad:	Ogilby (3211477)	**Element Code:**	PDFAB0N040
Occurrence Number:	1	**Occurrence Last Updated:**	2014-08-25

Scientific Name: *Calliandra eriophylla*

Common Name: pink fairy-duster

Listing Status: **Federal:** None

State: None

Rare Plant Rank: 2B.3

Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

CNDDB Element Ranks: **Global:** G5

State: S3

General Habitat:

SONORAN DESERT SCRUB.

Micro Habitat:

SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed:	1990-XX-XX	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1990-XX-XX	**Occurrence Rank:**	Unknown
Owner/Manager:	BLM?	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

VICINITY OF AMERICAN GIRL MINE, CARGO MUCHACHO MOUNTAINS, EAST OF OGILBY.

Detailed Location:

E POLYGON: EXACT LOCATION OF POPULATION(S) NOT PROVIDED; PROJECT SITES ARE WITHIN LARGE PORTIONS OF T15S R21E SECTIONS 17, 18, 19 AND THE SW 1/4 OF SEC 20. W POLYGON: EXACT LOCATION UNKNOWN; MAPPED BASED ON TRS FROM 1978 SEARS COLLECTION.

Ecological:

GROWING IN SHALLOW, STABLE HEAD WASHES AT THE BASE OF THE MOUNTAINS AND ON THE SHALLOW FAN WASHES OUT ON THE ALLUVIAL FANS WHERE THE WASHES BRANCH OUT AND FLOOD WATERS LOSE VELOCITY. DESERT PAVEMENT & WASHES; SANDY SOIL; WITH LARREA.

Threats:

MINING ACTIVITY. PLANTS REPORTEDLY RECOLONIZE DISTURBED AREAS.

General:

W POLYGON IS BASED ON A 1978 SEARS COLLECTION FROM "1 MI N OF OGILBY, 2 MI DOWN DESERT RAT TRAILER PARK RD" WITH GIVEN TRS "T15S R20E S24 & S25" AND GIVEN ELEVATION OF 500 TO 650 FT. E POLYGON OBSERVED IN 1990. NEEDS FIELDWORK.

PLSS:	T15S, R21E, Sec. 17 (S)	**Accuracy:**	non-specific area	**Area (acres):**	3,278
UTM:	Zone-11 N3636835 E706926	**Latitude/Longitude:**	32.85010 / -114.78884	**Elevation (feet):**	1,000

County Summary:	**Quad Summary:**
Imperial	Ogilby (3211477)

Sources:

NEW91U0001	NEWTON, G. - PORTION OF ENVIRONMENTAL DOCUMENT FOR AMERICAN GIRL CANYON PROJECT AND MESQUITE PROJECT. 1991-03-06
SEA78S0009	SEARS - SEARS #776 SEINET #3107285, FLD #4678 1978-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 36283
EO Index: 31280
Key Quad: Ogilby (3211477)
Element Code: PDFAB0N040
Occurrence Number: 2
Occurrence Last Updated: 1997-07-30

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None
Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

CNDDB Element Ranks: **Global:** G5
State: S3

General Habitat:
SONORAN DESERT SCRUB.

Micro Habitat:
SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 1979-04-29
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1979-04-29
Occurrence Rank: Unknown
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:
ALONG RAILROAD ACCESS ROAD 2.2 MILES SOUTHEAST OF CACTUS, PILOT KNOB MESA.

Detailed Location:
NEAR RAILROAD BRIDGE 714-12.

Ecological:
ROCKY WASH CHANNEL. CREOSOTE BUSH SCRUB WITH BEBBIA, OLNEYA, AND CERCIDIUM.

Threats:

General:
ONLY SOURCE OF INFORMATION FOR THIS SITE IS 1979 COLLECTION BY DAVIDSON ET AL.

PLSS: T15S, R20E, Sec. 21 (S)
Accuracy: non-specific area
Area (acres): 85
UTM: Zone-11 N3635628 E699398
Latitude/Longitude: 32.84061 / -114.86950
Elevation (feet): 390

County Summary:
Imperial

Quad Summary:
Ogilby (3211477), Cactus (3211478)

Sources:
DAV79S0001 DAVIDSON, C. ET AL. - DAVIDSON #7803 HSC #66468, POM #347335 1979-04-29

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 36278
EO Index: 31275
Key Quad: Ogilby (3211477)
Element Code: PDFAB0N040
Occurrence Number: 3
Occurrence Last Updated: 2014-08-25

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None
Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

CNDDB Element Ranks: **Global:** G5
State: S3

General Habitat:

SONORAN DESERT SCRUB.

Micro Habitat:

SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 1958-03-20
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2013-03-10
Occurrence Rank: Unknown
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

3.5 MILES NORTH OF OGILBY ON ROAD TO BLYTHE.

Detailed Location:

EXACT LOCATION UNKNOWN. MAPPED AS BEST GUESS BASED ON 1958 BALLS COLLECTION WITH GIVEN ELEV OF 499 FT. A 1937 WIGGINS COLLECTION FROM "3.5 MI N OF OGILBY ON ROAD TO PALO VERDE, ELEV 440 FT" IS ATTRIBUTED HERE; ELEV DOES NOT MATCH LOCALITY.

Ecological:

GRAVELLY SLOPES AND RUNNEL-INTERFLUVE SYSTEM. PONDEROSA PINE COMMUNITY IN CLAY SOIL, SOUTH ASPECT.

Threats:

General:

MAIN SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1958 BALLS COLLECTION. A 1940 WOGLUM COLLECTION FROM "4 MILES NORTH OF OGILBY" IS ALSO ATTRIBUTED TO THIS SITE. BELL SURVEYED THIS AREA IN 2013, BUT NO PLANTS WERE FOUND.

PLSS: T15S, R20E, Sec. 11, SW (S)
Accuracy: non-specific area
Area (acres): 31
UTM: Zone-11 N3638658 E702214
Latitude/Longitude: 32.86740 / -114.83877
Elevation (feet): 499

County Summary:

Imperial

Quad Summary:

Ogilby (3211477)

Sources:

BAL58S0015	BALLS, E. & P. EVERETT - BALLS #22923 SD #48547, RSA #124333 1958-03-20
BEL13U0002	BELL, D. - OBSERVATIONS OF RARE PLANT TAXA FROM DESERT CNPS RARE PLANT TREASURE HUNT SURVEYS, SPRING 2013 2013-03-XX
WIG37S0002	WIGGINS, I. - WIGGINS #8557 POM #265282, DS #278459, SEINET #902098, ARIZ #137709 1937-02-17
WOG40S0014	WOGLUM, R. - WOGLUM #2460 RSA #28737 & 630291, SEINET #2011354, SJNM 1940-03-10

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 36282
EO Index: 31279
Key Quad: Hedges (3211487)
Element Code: PDFAB0N040
Occurrence Number: 5
Occurrence Last Updated: 2010-07-09

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None
Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

CNDDB Element Ranks: **Global:** G5
State: S3

General Habitat:

SONORAN DESERT SCRUB.

Micro Habitat:

SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 1987-01-10
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1987-01-10
Occurrence Rank: Unknown
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

IN WASHES ALONG THE HYDUKE MINE ROAD NORTH OF THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:

ALONG ROAD ON THE SOUTH SIDE OF INDIAN WASH. MAPPED AS LARGE AREA EXTENDING FROM T14S R20E S 1/2 SEC 13 AT THE W END TO T14S R21E N 1/2 SEC 10 (PROJECTED) AT THE E END. APPARENTLY RESTRICTED TO "BLUE DOTTED LINE" WASHES ON MAP PROVIDED.

Ecological:

LOW TOTAL COVER (<5%) IN SMALL WASHES WITH LARREA TRIDENTATA, FOQUIERIA SPLENDENS, FRANSERIA DUMOSA, ACACIA GREGGII, AND KRAMERIA PARVIFLORA. LARGER WASHES SUPPORT OLNEYA TESOTA-CERCIDIUM FLORIDUM WOODLAND.

Threats:

General:

FEWER THAN 5 PLANTS PER ACRE OBSERVED BY HOLLAND AND DAINS IN 1987.

PLSS: T14S, R21E, Sec. 17 (S)
Accuracy: non-specific area
Area (acres): 757
UTM: Zone-11 N3647996 E706948
Latitude/Longitude: 32.95070 / -114.78611
Elevation (feet): 720

County Summary:

Imperial

Quad Summary:

Picacho Peak (3211486), Hedges (3211487)

Sources:

HOL87F0070 HOLLAND, R. & V. DAINS - FIELD SURVEY FORM FOR CALLIANDRA ERIOPHYLLA 1987-01-10

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 36284
EO Index: 31281
Key Quad: Hedges (3211487)
Element Code: PDFAB0N040
Occurrence Number: 6
Occurrence Last Updated: 2008-09-05

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None
Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

CNDDB Element Ranks: **Global:** G5
State: S3

General Habitat:
SONORAN DESERT SCRUB.

Micro Habitat:
SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 1932-04-05
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1932-04-05
Occurrence Rank: Unknown
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:
NEAR TUMCO IN THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:
EXACT LOCATION UNKNOWN. MAPPED BY CNDDB AS A BEST GUESS IN THE VICINITY OF THE TUMCO MINE NEAR THE HEAD OF TUMCO WASH.

Ecological:
IN SMALL GULLIES.

Threats:

General:
SITE KNOWN FROM A 1932 COLLECTION BY MUNZ & HITCHCOCK. NEEDS FIELDWORK.

PLSS: T15S, R20E, Sec. 12 (S)
Accuracy: 3/5 mile
Area (acres): 0
UTM: Zone-11 N3640164 E704289
Latitude/Longitude: 32.88060 / -114.81628
Elevation (feet):

County Summary:
Imperial

Quad Summary:
Ogilby (3211477), Hedges (3211487)

Sources:
MUN32S0020 MUNZ, P. & C. HITCHCOCK - MUNZ #12134 POM #184095, DS #221047 & #690509 1932-04-05

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 62018
EO Index: 62054
Key Quad: Hedges (3211487)
Element Code: PDFAB0N040
Occurrence Number: 13
Occurrence Last Updated: 2005-07-19

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None
Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

CNDDB Element Ranks: **Global:** G5
State: S3

General Habitat:
SONORAN DESERT SCRUB.

Micro Habitat:
SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 1991-04-10
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1991-04-10
Occurrence Rank: Unknown
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:
IN AND ADJACENT TO INDIAN WASH; 6 MILES NORTH OF CARGO MUCHACHO MOUNTAINS, AND 7 TO 8 MILES NORTH OF HEDGES.

Detailed Location:
AROUND 800 FOOT ELEVATION.

Ecological:
DESERT PAVEMENT/DESERT WASH. FOUND WITH FOUQUIERIA SPLENDENS, LARREA TRIDENTATA, AMBROSIA DUMOSA, OLNEYA TESOTA, ENCELIA FARINOSA, ET AL.

Threats:

General:
1991 LARUE COLLECTION IS THE ONLY SOURCE FOR THIS SITE. NEEDS FIELDWORK.

PLSS: T14S, R21E, Sec. 05 (S)
Accuracy: 1 mile
Area (acres): 0
UTM: Zone-11 N3651157 E707383
Latitude/Longitude: 32.97910 / -114.78074
Elevation (feet): 800

County Summary:
Imperial

Quad Summary:
Hedges (3211487)

Sources:
LAR91S0001 LARUE, E. - LARUE #91-32 UCR #67337, RSA #528113, CAS #850219, SEINET #902096, ARIZ #294039 1991-04-10

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 62020
EO Index: 62056
Key Quad: Hedges (3211487)
Element Code: PDFAB0N040
Occurrence Number: 14
Occurrence Last Updated: 2005-07-19

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None
Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

CNDDB Element Ranks: **Global:** G5
State: S3

General Habitat:
SONORAN DESERT SCRUB.

Micro Habitat:
SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 2001-03-26
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2001-03-26
Occurrence Rank: Fair
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:
1.4 AIR MILES NNW OF GOLD ROCK RANCH.

Detailed Location:
IN THE NW 1/4 OF THE SW 1/4 OF SECTION 34.

Ecological:
STRINGER WASH, FOUND WITH OCOTILLO, CREOSOTE BUSH, AND WHITE BURSAGE.

Threats:
THREATENED BY NORTH BAJA PIPELINE PROJECT, LITTER, AND ORV USE.

General:
10 PLANTS SEEN IN 2001.

PLSS: T14S, R20E, Sec. 34, SW (S)
Accuracy: 80 meters
Area (acres): 0
UTM: Zone-11 N3642412 E699726
Latitude/Longitude: 32.90170 / -114.86453
Elevation (feet): 545

County Summary:
Imperial

Quad Summary:
Hedges (3211487)

Sources:
AND01F0024 ANDERSON, B. & J. SCHEFFEL - FIELD SURVEY FORM FOR CALLIANDRA ERIOPHYLLA 2001-03-26

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 62021
Key Quad: Hedges (3211487)
Occurrence Number: 15
EO Index: 62057
Element Code: PDFAB0N040
Occurrence Last Updated: 2005-07-19

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G5
State: S3
Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

General Habitat:
SONORAN DESERT SCRUB.

Micro Habitat:
SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 2001-03-26
Last Survey Date: 2001-03-26
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Good
Trend: Unknown

Location:
ABOUT 0.7 AIR MILE NNE OF GOLD ROCK RANCH, NORTHWEST OF HEDGES.

Detailed Location:

Ecological:
FOUND WITH OCOTILLO, CREOSOTE BUSH, CHOLLA, WHITE BURSAGE, IRONWOOD, CAT CLAW, AND BOX THORN.

Threats:
THREATENED BY NORTH BAJA PIPELINE PROJECT.

General:
84 PLANTS TOTAL (FOR 8 SMALL COLONIES) OBSERVED IN 2001.

PLSS: T15S, R20E, Sec. 03, NW (S)
UTM: Zone-11 N3641423 E700606
Accuracy: specific area
Latitude/Longitude: 32.89262 / -114.85533
Area (acres): 39
Elevation (feet): 540

County Summary:
Imperial

Quad Summary:
Hedges (3211487)

Sources:
AND01F0024 ANDERSON, B. & J. SCHEFFEL - FIELD SURVEY FORM FOR CALLIANDRA ERIOPHYLLA 2001-03-26

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	62023	**EO Index:**	62059
Key Quad:	Hedges (3211487)	**Element Code:**	PDFAB0N040
Occurrence Number:	16	**Occurrence Last Updated:**	2014-08-22

Scientific Name: *Calliandra eriophylla*

Common Name: pink fairy-duster

Listing Status: **Federal:** None

State: None

Rare Plant Rank: 2B.3

Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

CNDDB Element Ranks: **Global:** G5

State: S3

General Habitat:

SONORAN DESERT SCRUB.

Micro Habitat:

SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed:	2013-03-10	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2013-03-10	**Occurrence Rank:**	Good
Owner/Manager:	BLM	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

0.7 AIR MILE NORTHWEST OF HEDGES, 0.2 TO 0.6 MILE NORTH OF TUMCO WASH. NW SLOPES OF CARGO MUCHACHO MOUNTAINS.

Detailed Location:

IN THE SE 1/4 OF SECTION 3 AND THE SW 1/4 OF SECTION 2. 1958 BACIGALUPI COLLECTION FROM 4.8 MI N OF OGILBY, ON NW SLOPES OF CARGO MUCHACHO MTNS AND 1941 ALEXANDER & KELLOGG COLLECITON FROM 5 MI N OF OGILBY ALSO ATTRIBUTED TO THIS SITE.

Ecological:

OPEN ROCKY AREAS WITH SMALL DRAINAGES AND MICROPHYLL WOODLAND. FOUND WITH CREOSOTE BUSH, CHOLLA, WHITE BURSAGE, OCOTILLO, IRONWOOD, GALLETA, LUPINE, AND WHITE RATANY.

Threats:

THREATENED BY NORTH BAJA PIPELINE PROJECT. LITTER, DUMPING, AND ORV USE MAY ALSO THREATEN.

General:

91 PLANTS TOTAL OBSERVED IN 2001. GREATER THAN 30 PLANTS OBSERVED IN THE SE CORNER OF POLYGON IN 2013.

PLSS:	T15S, R20E, Sec. 02, SW (S)	**Accuracy:**	specific area	**Area (acres):**	72
UTM:	Zone-11 N3640268 E701986	**Latitude/Longitude:**	32.88196 / -114.84084	**Elevation (feet):**	560

County Summary:	**Quad Summary:**
Imperial	Hedges (3211487)

Sources:

ALE41S0025	ALEXANDER, A. & L. KELLOGG - ALEXANDER #1894 POM #211622, A #366147, DS #333554, SEINET #902097, ARIZ #34444 1941-03-04
AND01F0024	ANDERSON, B. & J. SCHEFFEL - FIELD SURVEY FORM FOR CALLIANDRA ERIOPHYLLA 2001-03-26
AND13S0001	ANDRE, J. - ANDRE #24103 RSA #806146 2013-03-04
BAC58S0014	BACIGALUPI, R. & P. HUTCHINSON - BACIGALUPI #6123 JEPS #22127 1958-02-17
BEL13U0002	BELL, D. - OBSERVATIONS OF RARE PLANT TAXA FROM DESERT CNPS RARE PLANT TREASURE HUNT SURVEYS, SPRING 2013 2013-03-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 62024
Key Quad: Hedges (3211487)
Occurrence Number: 17

EO Index: 62060
Element Code: PDFAB0N040
Occurrence Last Updated: 2005-07-19

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None

CNDDB Element Ranks: **Global:** G5
State: S3

Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

General Habitat:
SONORAN DESERT SCRUB.

Micro Habitat:
SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 2001-03-26
Last Survey Date: 2001-03-26
Owner/Manager: BLM
Presence: Presumed Extant

Occurrence Type: Natural/Native occurrence
Occurrence Rank: Fair
Trend: Unknown

Location:
1.3 MILES NORTHWEST OF HEDGES.

Detailed Location:
SOUTH EDGE OF SW 1/4 OF SW 1/4 OF SECTION 35.

Ecological:
FOUND WITH WHITE BURSAGE, OCOTILLO, AND CREOSOTE BUSH.

Threats:
THREATENED BY NORTH BAJA PIPELINE PROJECT. LITTER AND ORV USE MAY ALSO THREATEN.

General:
2 PLANTS SEEN IN 2001.

PLSS: T14S, R20E, Sec. 35, SW (S)
UTM: Zone-11 N3641836 E701852

Accuracy: 80 meters
Latitude/Longitude: 32.89612 / -114.84194

Area (acres): 0
Elevation (feet): 605

County Summary:
Imperial

Quad Summary:
Hedges (3211487)

Sources:
AND01F0024 ANDERSON, B. & J. SCHEFFEL - FIELD SURVEY FORM FOR CALLIANDRA ERIOPHYLLA 2001-03-26

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 62025
Key Quad: Hedges (3211487)
Occurrence Number: 18
EO Index: 62061
Element Code: PDFAB0N040
Occurrence Last Updated: 2008-09-05

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G5
State: S3
Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

General Habitat:
SONORAN DESERT SCRUB.

Micro Habitat:
SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 2001-03-26
Last Survey Date: 2001-03-26
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Fair
Trend: Unknown

Location:
1.8 AIR MILES NORTHEAST OF GOLD ROCK RANCH, NORTHWEST OF HEDGES.

Detailed Location:
NE 1/4 OF NW 1/4 OF SW 1/4 OF SECTION 35.

Ecological:
FOUND WITH CREOSOTE BUSH, WHITE BURSAGE, PALO VERDE, IRONWOOD.

Threats:
THREATENED BY NORTH BAJA PIPELINE PROJECT. LITTER AND ORV USE MAY ALSO THREATEN.

General:
5 PLANTS SEEN IN 2001. A 1932 PERISON COLLECTION FROM "6 MILES NORTH OF OGILBY" IS ALSO ATTRIBUTED TO THIS SITE.

PLSS: T14S, R20E, Sec. 35, SW (S)
UTM: Zone-11 N3642614 E701643
Accuracy: 80 meters
Latitude/Longitude: 32.90317 / -114.84399
Area (acres): 0
Elevation (feet): 615

County Summary:	Quad Summary:
Imperial	Hedges (3211487)

Sources:

AND01F0024	ANDERSON, B. & J. SCHEFFEL - FIELD SURVEY FORM FOR CALLIANDRA ERIOPHYLLA 2001-03-26
PEI32S0009	PEIRSON, F. - PEIRSON #9788 RSA #86977, DS #690508 1932-03-21

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 62028
Key Quad: Hedges (3211487)
Occurrence Number: 19
EO Index: 62064
Element Code: PDFAB0N040
Occurrence Last Updated: 2005-07-20

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G5
State: S3
Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

General Habitat:
SONORAN DESERT SCRUB.

Micro Habitat:
SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 2001-03-26
Last Survey Date: 2001-03-26
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Good
Trend: Unknown

Location:
SOUTH OF INDIAN WASH; ON WEST SIDE OF TRANSMISSION LINE, ABOUT 2.2 TO 3.3 AIR MILES NNW OF HEDGES.

Detailed Location:
EAST EDGE OF SECTION 27, THE SW 1/4 OF SW 1/4 OF SECTION 26, AND NW 1/4 OF NW 1/4 OF SECTION 35.

Ecological:
FOUND WITH CREOSOTE BUSH, OCOTILLO, WHITE BURSAGE, CHOLLA, PALO VERDE, IRONWOOD, AFRICAN MUSTARD, ENCELIA, WHITE RATANY, MEDITERRANEAN GRASS, AND BOX THORN.

Threats:
THREATENED BY NORTH BAJA PIPELINE PROJECT. LITTER AND ORV USE MAY ALSO THREATEN.

General:
56 PLANTS TOTAL (FOR 11 COLONIES) OBSERVED IN 2001.

PLSS: T14S, R20E, Sec. 27, E (S)
Accuracy: specific area
Area (acres): 75
UTM: Zone-11 N3644485 E701088
Latitude/Longitude: 32.92013 / -114.84952
Elevation (feet):

County Summary:	Quad Summary:
Imperial	Hedges (3211487)

Sources:
AND01F0024 ANDERSON, B. & J. SCHEFFEL - FIELD SURVEY FORM FOR CALLIANDRA ERIOPHYLLA 2001-03-26

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 62030
Key Quad: Hedges (3211487)
Occurrence Number: 20
EO Index: 62066
Element Code: PDFAB0N040
Occurrence Last Updated: 2005-07-20

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G5
State: S3
Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

General Habitat:
SONORAN DESERT SCRUB.

Micro Habitat:
SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 2001-03-26
Last Survey Date: 2001-03-26
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Fair
Trend: Unknown

Location:
NORTH OF INDIAN WASH; ON WEST SIDE OF TRANSMISSION LINE, 5.4 AIR MILES NNW OF HEDGES.

Detailed Location:
IN THE SE 1/4 OF THE SW 1/4 OF SECTION 10.

Ecological:
FOUND WITH WHITE BURSAGE, CREOSOTE BUSH, OCOTILLO, AND ENCELIA.

Threats:
THREATENED BY NORTH BAJA PIPELINE PROJECT. LITTER AND ORV USE MAY ALSO THREATEN.

General:
5 PLANTS OBSERVED IN 2001.

PLSS: T14S, R20E, Sec. 10, SW (S)
UTM: Zone-11 N3648284 E700188
Accuracy: 80 meters
Latitude/Longitude: 32.95455 / -114.85831
Area (acres): 0
Elevation (feet): 650

County Summary:	Quad Summary:
Imperial	Hedges (3211487)

Sources:
AND01F0024 ANDERSON, B. & J. SCHEFFEL - FIELD SURVEY FORM FOR CALLIANDRA ERIOPHYLLA 2001-03-26

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 62032
Key Quad: Hedges (3211487)
Occurrence Number: 21
EO Index: 62068
Element Code: PDFAB0N040
Occurrence Last Updated: 2005-07-20

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G5
State: S3
Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

General Habitat:
SONORAN DESERT SCRUB.

Micro Habitat:
SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 2001-03-26
Last Survey Date: 2001-03-26
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Excellent
Trend: Unknown

Location:
6.3 AIR MILES SW OF INDIAN PASS; ABOUT 2 AIR MILES NW OF INDIAN WASH, NW OF HEDGES.

Detailed Location:
NW 1/4 OF SECTION 10, AND INTO SW 1/4 OF SW 1/4 OF SECTION 3.

Ecological:
FOUND WITH WHITE BURSAGE, IRONWOOD, GALLETA, BOX THORN, WHITE RATANY, AFRICAN MUSTARD, CREOSOTE BUSH, OCOTILLO, MEDITERRANEAN GRASS, AND ENCELIA.

Threats:
THREATENED BY NORTH BAJA PIPELINE PROJECT. LITTER AND ORV USE MAY ALSO THREATEN.

General:
304 PLANTS TOTAL (FOR 6 COLONIES) OBSERVED IN 2001.

PLSS: T14S, R20E, Sec. 10, NW (S)
Accuracy: specific area
Area (acres): 40
UTM: Zone-11 N3649280 E699895
Latitude/Longitude: 32.96358 / -114.86123
Elevation (feet): 690

County Summary:
Imperial

Quad Summary:
Hedges (3211487)

Sources:
AND01F0024 ANDERSON, B. & J. SCHEFFEL - FIELD SURVEY FORM FOR CALLIANDRA ERIOPHYLLA 2001-03-26

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 62091
EO Index: 62127
Key Quad: Hedges (3211487)
Element Code: PDFAB0N040
Occurrence Number: 30
Occurrence Last Updated: 2005-07-22

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None
Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

CNDDB Element Ranks: **Global:** G5
State: S3

General Habitat:
SONORAN DESERT SCRUB.

Micro Habitat:
SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 2001-03-26
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2001-03-26
Occurrence Rank: Fair
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:
ALONG WEST SIDE OF TRANSMISSION LINE, 3.1 MILES NORTHWEST OF INDIAN WASH.

Detailed Location:
IN THE SE 1/4 OF THE NE 1/4 OF SECTION 4, AND INTO SW 1/4 OF THE NW 1/4 OF SECTION 3.

Ecological:
STRINGER WASH FOUND WITH IRONWOOD, CREOSOTE BUSH, ENCELIA, AND WHITE BURSAGE.

Threats:
THREATENED BY NORTH BAJA PIPELINE PROJECT. LITTER AND ORV USE MAY ALSO BE THREATS.

General:
15 PLANTS OBSERVED IN 2001.

PLSS: T14S, R20E, Sec. 04, NE (S)
Accuracy: specific area
Area (acres): 8
UTM: Zone-11 N3650791 E699529
Latitude/Longitude: 32.97726 / -114.86482
Elevation (feet): 710

County Summary:	Quad Summary:
Imperial	Hedges (3211487)

Sources:
AND01F0024 ANDERSON, B. & J. SCHEFFEL - FIELD SURVEY FORM FOR CALLIANDRA ERIOPHYLLA 2001-03-26

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 62098
EO Index: 62134
Key Quad: Ogilby (3211477)
Element Code: PDFAB0N040
Occurrence Number: 31
Occurrence Last Updated: 2014-08-25

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None
Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

CNDDB Element Ranks: **Global:** G5
State: S3

General Habitat:
SONORAN DESERT SCRUB.

Micro Habitat:
SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 1978-04-30
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2013-03-10
Occurrence Rank: Unknown
Owner/Manager: UNKNOWN
Trend: Unknown
Presence: Presumed Extant

Location:
IN WASH ON ROAD S34 (OGILBY ROAD) NORTH OF I-8.

Detailed Location:
EXACT LOCATION UNKNOWN. MAPPED AS BEST GUESS BY CNDDB ALONG S34 NEAR AMERICAN GIRL WASH NORTH OF OGILBY.

Ecological:
WASH WOODLAND WITH OLNEYA, CERCIDIUM FLORIDUM, KRAMERIA GRAYI, LARREA, ETC. OPEN ROCKY AREAS WITH SMALL DRAINAGES AND MICROPHYLL WOODLAND.

Threats:

General:
1978 LATTING COLLECTION IS THE MAIN SOURCE OF INFORMATION FOR THIS SITE. BELL SURVEYED THIS AREA IN 2013, BUT NO PLANTS WERE FOUND.

PLSS: T15S, R20E, Sec. 26, W (S)
Accuracy: non-specific area
Area (acres): 112
UTM: Zone-11 N3634801 E702396
Latitude/Longitude: 32.83260 / -114.83766
Elevation (feet): 400

County Summary:	Quad Summary:
Imperial	Ogilby (3211477)

Sources:

BEL13U0002	BELL, D. - OBSERVATIONS OF RARE PLANT TAXA FROM DESERT CNPS RARE PLANT TREASURE HUNT SURVEYS, SPRING 2013 2013-03-XX
LAT78S0002	LATTING, J. - LATTING SN UCR #137366 1978-04-30

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 72157
Key Quad: Ogilby (3211477)
Occurrence Number: 35
EO Index: 73122
Element Code: PDFAB0N040
Occurrence Last Updated: 2008-09-05

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G5
State: S3
Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

General Habitat:
SONORAN DESERT SCRUB.

Micro Habitat:
SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 1970-04-06
Last Survey Date: 1970-04-06
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
3 MILES EAST OF OGILBY, ON DIRT ROAD WEST OF CARGO MUCHACHO MOUNTAINS.

Detailed Location:
EXACT LOCATION UNKNOWN. MAPPED BY CNDDB AS A BEST GUESS.

Ecological:
LOW DESERT SCRUB, SANDY SOIL.

Threats:

General:
ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1970 COLLECTION BY NIILUS. NEEDS FIELDWORK.

PLSS: T15S, R21E, Sec. 31 (S)
UTM: Zone-11 N3633145 E706984
Accuracy: 1 mile
Latitude/Longitude: 32.81682 / -114.78905
Area (acres): 0
Elevation (feet): 360

County Summary:
Imperial

Quad Summary:
Ogilby (3211477)

Sources:
NII70S0001 NILUS, T. - NIILUS #173 RSA #658024 1970-04-06

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 72161
Key Quad: Hedges (3211487)
Occurrence Number: 38
EO Index: 73127
Element Code: PDFAB0N040
Occurrence Last Updated: 2014-08-27

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G5
State: S3
Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

General Habitat:
SONORAN DESERT SCRUB.

Micro Habitat:
SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 2013-03-04
Last Survey Date: 2013-03-04
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
ON BLM RD 664, 0.5 MILE EAST OF OGILBY RD, CARGO MUCHACO MOUNTAINS.

Detailed Location:
MAPPED ACCORDING TO COORDINATES PROVIDED ON A 2013 ANDRE COLLECTION, IN THE NW 1/4 OF THE SE 1/4 OF SECTION 26.

Ecological:
SPARSELY VEGETATED GRAVELLY TO ROCKY VOLCANIC HILLS AND PAVEMENTS. ASSOCIATED WITH ENCELIA FARINOSA, FOUQUIERIA, AMBROSIA DUMOSA, ERIOGONUM THOMASII, LARREA TRIDENTATA, AND FAGONIA PACHYACANTHA.

Threats:

General:
MAIN SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 2013 ANDRE COLLECTION; DESCRIBED AS "OCCASIONAL". A 2001 COLLECTION BY PITZER & BALLMER FROM "VICINITY OF INDIAN WASH, 13.9 MILES SOUTH OF HIGHWAY 78 ON OGILBY RD" IS ALSO ATTRIBUTED HERE.

PLSS: T14S, R20E, Sec. 26, SE (S)
Accuracy: 80 meters
Area (acres): 0
UTM: Zone-11 N3644031 E702274
Latitude/Longitude: 32.91583 / -114.83695
Elevation (feet): 640

County Summary:	Quad Summary:
Imperial	Hedges (3211487)

Sources:

AND13S0002	ANDRE, J. - ANDRE #24139 RSA #806150 2013-03-04
PIT01S0001	PITZER, B. & G. BALLMER - PITZER #4264 UCR #163763 2001-03-17

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 79366
Key Quad: Hedges (3211487)
Occurrence Number: 42
EO Index: 80349
Element Code: PDFAB0N040
Occurrence Last Updated: 2010-07-09

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G5
State: S3
Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

General Habitat:
SONORAN DESERT SCRUB.

Micro Habitat:
SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 1998-03-22
Last Survey Date: 1998-03-22
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
APPROXIMATELY 1 MILE EAST OF OGILBY ROAD AND SOUTH OF INDIAN PASS ROAD, NORTH END OF CARGO MUCHACHO MOUNTAINS.

Detailed Location:
MAPPED BY CNDDB AS BEST GUESS BASED ON COORDINATES ON COLLECTION LABEL; COORDINATES ARE FROM 1998 WITH NO DATUM SPECIFIED.

Ecological:
VOLCANIC SUBSTRATES WITH LARREA TRIDENTATA, OLNEYA TESOTA, AND FOUQUIERIA SPLENDENS.

Threats:

General:
ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1998 REBMAN COLLECTION.

PLSS: T14S, R20E, Sec. 25, NW (S)
Accuracy: 1/10 mile
Area (acres): 0
UTM: Zone-11 N3644635 E703112
Latitude/Longitude: 32.92112 / -114.82786
Elevation (feet): 787

County Summary:
Imperial

Quad Summary:
Hedges (3211487)

Sources:
REB98S0001 REBMAN, J. ET AL. - REBMAN #4946 UCR #112167, SD #144883, RSA #643389 1998-03-22

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 86962
Key Quad: Hedges (3211487)
Occurrence Number: 49
EO Index: 87923
Element Code: PDFAB0N040
Occurrence Last Updated: 2012-10-16

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G5
State: S3
Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

General Habitat:
SONORAN DESERT SCRUB.

Micro Habitat:
SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 1985-03-09
Last Survey Date: 1985-03-09
Owner/Manager: UNKNOWN
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
ENTRENCHED WASH NORTH END OF CARGO MUCHACHO MOUNTAINS.

Detailed Location:
MAPPED ALONG WASH NEAR COORDINATES PROVIDED ON HERBARIUM PRINTOUT FOR 1985 MCLAUGHLIN COLLECTION. SOURCE OF COORDINATES IS UNKNOWN; COORDINATES ARE LOCATED ON A SLOPE ON THE SOUTH SIDE OF THE WASH.

Ecological:
ASSOCIATED WITH ASCLEPIAS ALBICANS.

Threats:

General:
ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1985 MCLAUGHLIN COLLECTION. NEEDS FIELDWORK.

PLSS: T14S, R20E, Sec. 36 (S)
Accuracy: non-specific area
Area (acres): 73
UTM: Zone-11 N3642459 E704203
Latitude/Longitude: 32.90129 / -114.81668
Elevation (feet): 800

County Summary:
Imperial

Quad Summary:
Hedges (3211487)

Sources:
MCL85S0005 MCLAUGHLIN, S. & J. BOWERS - MCLAUGHLIN #2931, SEINET #902093, ARIZ #257518 1985-03-09

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	46437	**EO Index:**	46437
Key Quad:	Glamis (3211581)	**Element Code:**	PDLNN02020
Occurrence Number:	2	**Occurrence Last Updated:**	2019-01-03

Scientific Name: *Pholisma sonorae*

Common Name: sand food

Listing Status: **Federal:** None

State: None

Rare Plant Rank: 1B.2

Other Lists: BLM_S-Sensitive
SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

CNDDB Element Ranks: **Global:** G2

State: S2

General Habitat:

DESERT DUNES, SONORAN DESERT SCRUB.

Micro Habitat:

LOOSE, DEEP SAND DUNES, USUALLY ON THE MORE STABLE, WINDWARD FACE. 0-125 M.

Last Date Observed:	2018-04-22	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2018-04-22	**Occurrence Rank:**	Good
Owner/Manager:	BLM	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

ALGODONES DUNES.

Detailed Location:

MAPPED BY CNDDB TO ENCOMPASS VARIOUS SOURCES OF MAP INFORMATION. INCLUDES FORMER EO #S 3-11, 13-25, 28-41, 43-45, 47-49, 51, 52. IN 2013, THE 4 PLANTS OBSERVED N OF HWY 78 WERE THE ONLY INDIVIDUALS SEEN OVER A LARGE AREA.

Ecological:

MOST COMMONLY FOUND IN SHELTERED STABILIZED SAND DUNES BUT IT MAY OCCUR IN LOOSE DEEP SAND ON THE WINDWARD FACES OF SAND DUNES. ROOT PARASITE ON COLDENIA PLICATA, ERIOGONUM DESERTICOLA, AND COLDENIA PALMERI.

Threats:

ORV ACTIVITY, BORDER PATROL USE.

General:

SEEN IN 1977 THROUGHOUT DUNES. POPULATION NUMBERS FOR PARTS OF OCC: 571 IN 1994, ~486 FLOWER HEADS IN '98, 385 IN '99, 1576 IN '00, 3740 IN '01, 3317 IN '02, 78,417 IN '04, 4 IN '13, 24 IN '17, 94 IN '18.

PLSS:	T14S, R18E, Sec. 57, N (S)	**Accuracy:**	specific area	**Area (acres):**	78,858
UTM:	Zone-11 N3640419 E682852	**Latitude/Longitude:**	32.88668 / -115.04526	**Elevation (feet):**	300

County Summary:	**Quad Summary:**
Imperial	Grays Well NE (3211467), Grays Well (3211468), Ogilby (3211477), Cactus (3211478), Clyde (3211488), Glamis SE (3211571), Glamis (3211581), Glamis NW (3211582), East of Acolita (3311511), Acolita (3311512), Amos (3311513), Tortuga (3311523)

Sources:

ANO36S0002	ANONYMOUS - ANONYMOUS SN SD #15582 1936-05-XX
AUB59S0001	AUBREY, F. - AUBREY SN UCR #16469 1959-04-25
BAR66S0001	BARR, R. - BARR #66-36 US ARIZ #161673 (AS CITED IN WAR87R0001) 1966-05-30
BEL13U0002	BELL, D. - OBSERVATIONS OF RARE PLANT TAXA FROM DESERT CNPS RARE PLANT TREASURE HUNT SURVEYS, SPRING 2013 2013-03-XX
BEN10I0002	BENNETT, A. - PHOTOS OF PHOLISMA SONORAE, CALPHOTOS ID #0000 0000 0510 2064-2072 2010-05-16
BEZ65S0001	BEZY, R. - BEZY SN UA #231779 (AS CITED IN WAR87R0001) 1965-05-28
BLM00R0001	BLM-BUREAU OF LAND MANAGEMENT - MONITORING OF SPECIAL STATUS PLANTS IN THE ALGODONES DUNES, IMPERIAL COUNTY, CALIFORNIA: RESULTS OF 1998 MONITORING AND COMPARISON WITH THE DATA FROM WESTECS 1977 MONITORING STUDY 2000-11-XX
BLM01R0001	BLM-BUREAU OF LAND MANAGEMENT - MONITORING OF SPECIAL STATUS PLANTS IN THE ALGODONES DUNES, IMPERIAL COUNTY, CALIFORNIA: 1977, 1998, 1999, AND 2000 2001-06-XX

BLM04R0002	BLM-BUREAU OF LAND MANAGEMENT - MONITORING OF SPECIAL STATUS PLANTS IN THE ALGODONES DUNES, IMPERIAL COUNTY, CALIFORNIA: 1977, 1998, 1999, 2000, 2001, AND 2002 2004-10-XX
BLM04R0003	BLM-BUREAU OF LAND MANAGEMENT - MONITORING OF SPECIAL STATUS PLANTS IN THE ALGODONES DUNES, IMPERIAL COUNTY, CALIFORNIA, RESULTS OF 2003 PILOT SAMPLING 2004-01-05
BLM05R0001	BLM-BUREAU OF LAND MANAGEMENT - 2004 MONITORING OF SPECIAL STATUS PLANTS IN THE ALGODONES DUNES, IMPERIAL COUNTY, CALIFORNIA 2005-03-24
BLM80M0001	BUREAU OF LAND MANAGEMENT - CALIFORNIA DESERT CONSERVATION AREA - MAP OF RARE, THREATENED, AND ENDANGERED PLANT SPECIES 1980-XX-XX
BLM86R0002	BLM-BUREAU OF LAND MANAGEMENT - PROPOSED 1985 PLAN AMENDMENTS VOL. 2 1986-01-XX
BRU17F0017	BRUNER, C. (U.S. BUREAU OF LAND MANAGEMENT) - FIELD SURVEY FORM FOR PHOLISMA SONORAE 2017-04-05
BRU17F0020	BRUNER, C. (U.S. BUREAU OF LAND MANAGEMENT) - FIELD SURVEY FORM FOR PHOLISMA SONORAE 2017-04-06
BRU17F0021	BRUNER, C. (U.S. BUREAU OF LAND MANAGEMENT) - FIELD SURVEY FORM FOR PHOLISMA SONORAE 2017-04-06
BRU17F0022	BRUNER, C. (U.S. BUREAU OF LAND MANAGEMENT) - FIELD SURVEY FORM FOR PHOLISMA SONORAE 2017-04-05
BRU18F0021	BRUNER, C. ET AL. (U.S. BUREAU OF LAND MANAGEMENT) - FIELD SURVEY FORM FOR PHOLISMA SONORAE 2018-03-27
BRU18F0035	BRUNER, C. ET AL. (U.S. BUREAU OF LAND MANAGEMENT) - FIELD SURVEY FORM FOR PHOLISMA SONORAE 2018-03-29
BRU18F0040	BRUNER, C. ET AL. (U.S. BUREAU OF LAND MANAGEMENT) - FIELD SURVEY FORM FOR PHOLISMA SONORAE 2018-03-29
BRU18F0045	BRUNER, C. ET AL. (U.S. BUREAU OF LAND MANAGEMENT) - FIELD SURVEY FORM FOR PHOLISMA SONORAE 2018-04-22
CAR73S0005	CARLQUIST, S. & WALLACE - CARLQUIST #4365 RSA #239048, SD #90614, NY #37805, CAS #577823, MO #100679897, SEINET #10847674, CAS-BOT-BC #230596 1973-05-14
CHA08I0001	CHARTERS, M. - PHOTOS OF PHOLISMA SONORAE, CALPHOTOS ID #0000 0000 0508 0614-0620 2008-05-05
CHM00R0001	CH2M HILL - IMPERIAL IRRIGATION DISTRICT (IID)/SAN DIEGO COUNTY WATER AUTHORITY (SDCWA) WATER CONSERVATION AND TRANSFER PROJECT EIR/EIS, SCOPING SUMMARY REPORT 2000-03-10
COO36S0001	COOK, L. - COOK SN UCR #95847 SD #16026 1936-06-13
COT67S0001	COTHRUN, D. - COTHRUN SN ASU #37347 (AS CITED IN WAR87R0001) 1967-07-07
COX63S0001	COX, G. - COX SN SDSU #7874 1963-04-28
DAV79F0001	DAVIDSON, C. ET AL. - FIELD SURVEY FORM FOR ASTRAGALUS MAGDALENAE VAR. PEIRSONII & PHOLISMA SONORAE 1979-04-28
DAV79S0010	DAVIDSON, C. ET AL. - DAVIDSON #7759 RSA #446408 1979-04-28
DAV79S0011	DAVIDSON, C. ET AL. - DAVIDSON #7793 RSA #446407, HSC #82769 1979-04-28
DEF34S0001	DEFOREST, H. - DE FOREST #18614 RSA #446409 1934-03-29
DICNDU0001	DICE, J. - LOCATION OF PHOLISMA SONORAE IN COMMENTS OF SKI95F0013. XXXX-XX-XX
DIR03S0001	DIRIDONI, G. - DIRIDONI SN SD #243934 2003-01-21
ENG79S0001	ENGARD, R. - ENGARD #1132 DBG (AS CITED IN WAR87R0001) 1979-04-14
FIL18F0005	FILLIPI, D. - FIELD SURVEY FORM FOR PHOLISMA SONORAE 2018-04-18
GIL28S0005	GILMAN, M. - GILMAN SN POM #145275 & #145276, SBBG #59874, CAS #154857, DS #171324, CAS-BOT-BC #230598 & #230595 1928-04-25
GUI08S0006	GUILLIAMS, C. & J. MARSHALL - GUILLIAMS #634 (A-D) SDSU #18394, #18388, #18364, & #18358 2008-04-23
GUS83S0013	GUSTAFSON, R. & KEELEY - GUSTAFSON #2571 RSA #446405 1983-05-06
HAR65S0004	HARWOOD, R. - HARWOOD SN SDSU #7880 1965-05-09
HEN64S0001	HENRICKSON, J. & RUTHERFORD - HENRICKSON #1836 RSA #182256, GH #376183 1964-05-16
HIL01S0005	HILL, S. & K. KRAMER - HILL #33499 UCR #123800, ILLS #211703, SEINET #7048030 2001-04-27
HOW64S0006	HOWE, D. - HOWE #3761 SDSU #8108 1964-04-12
HOW64S0007	HOWE, D. - HOWE #10193 RSA #172241 & #446406 1964-05-13
KOL46S0001	KOLUVEK, P. - KOLUVEK SN UC #775203, NY #37804, DS #342223, MO #100679895, SEINET #10946708, CAS-BOT-BC #230599 1946-06-11
LUC83R0001	LUCKENBACH, R. A. & R. B. BURY - EFFECTS OF OFF-ROAD VEHICLES ON THE BIOTA OF THE ALGODONES DUNES, IMPERIAL COUNTY, CALIFORNIA; JOURNAL OF APPLIED ECOLOGY (1983); 20; PG. 265-286 1983-XX-XX
MCC93R0003	MCCALVIN, C. (U.S. FISH AND WILDLIFE SERVICE) - SURVEYS FOR SEVEN RARE PLANT SPECIES, THE FLAT-TAILED HORNED LIZARD, AND THE COLORADO DESERT FRINGED-TOED LIZARD, ALL-AMERICAN CANAL LINING PROJECT, IMPERIAL COUNTY, CALIFORNIA 1993-08-XX
MOR81U0007	MOREY, S. - MAPS OF BOUNDED AREAS REPRESENTATIVE OF DATA POINTS FROM WES77R0004. 1981-04-24

OESNDF0001	OESTERREIC, W. - BLM FIELD SURVEY FORM FOR PHOLISMA SONORAE XXXX-07-19
PEI32S0013	PEIRSON, M. - PEIRSON #9781 RSA #77813 1932-03-21
POR03S0028	PORTER, J. - PORTER #13491 RSA #0084082 2003-04-08
REC79R0001	U.S. BUREAU OF RECLAMATION - REPORT ON RARE PLANT POPULATIONS ALONG THE ALL AMERICAN CANAL 1979-XX-XX
ROM79R0001	ROMSPERT, A. & J. BURK - ALGODONES DUNES SENSITIVE PLANT PROJECT - C.S.U. FULLERTON PREPARED FOR BLM 1979-XX-XX
ROO49S0046	ROOS, J. - ROOS #4984 RSA #89981 1949-04-07
RYA69S0007	RYAN, J. - RYAN #50 RSA #209611 1969-04-11
SDNNDU0003	SAN DIEGO NATURAL HISTORY MUSEUM - NOTES ON GENERAL LOCATIONS OF (AMMOBROMA) PHOLISMA SONORAE. XXXX-XX-XX
SKI95F0013	SKINNER, M. - FIELD SURVEY FORM FOR PHOLISMA SONORAE 1995-04-08
SPJ80S0003	SPJUT, R. & J. ADAMS - SPJUT #6153 HSC #66961 1980-04-30
THO78S0030	THORNE, R. - THORNE #52167 RSA #336093 1978-05-30
THO84S0003	THORNE, R. ET AL. - THORNE #58267 RSA #331172 & #0109169, NY #37806 1984-04-27
WAL73S0004	WALLACE, G. & CARLQUIST - WALLACE #1193 RSA #257643, CAS #763732, CAS-BOT-BC #293705 1973-05-14
WAL98F0006	WALL, M. - FIELD SURVEY FORM FOR PHOLISMA SONORAE 1998-06-08
WAL98F0007	WALL, M. - FIELD SURVEY FORM FOR PHOLISMA SONORAE 1998-06-08
WAL98F0008	WALL, M. - FIELD SURVEY FORM FOR PHOLISMA SONORAE 1998-06-08
WAR87R0001	WARREN, P. & A. LAURENZI - RARE PLANTS SURVEY OF THE YUMA DISTRICT. 1987-08-XX
WED66S0002	WEDBERG, H. - WEDBERG #1234 SDSU #8102 1966-05-02
WES77R0003	WESTEC SERVICES, INC. - SURVEY OF SENSITIVE PLANTS OF THE ALGODONES DUNES - PREPARED FOR BLM. 1977-08-XX
WES77R0004	WESTEC SERVICES, INC. - SURVEY OF SENSITIVE PLANTS OF THE ALGODONES DUNES - PREPARED FOR BLM BY WESTEC. 1977-XX-XX
WIE03A0001	WIESENBORN, W. - INSECTS ON PHOLISMA SONORAE FLOWERS AND THEIR CONSPECIFIC POLLEN LOADS, MADRONO VOL. 50, NO. 2, PP. 110-114, 2003 2003-XX-XX
WIL66S0003	WILGUS, J. - WILGUS SN ARIZ #159492 (AS CITED IN WAR87R0001) 1966-05-15
YAT80S0001	YATSKIEVYCH, G. - YATSKIEVYCH #80-129 ARIZ #221475, MO #100654470, SEINET #10743474 (ALSO CITED IN WAR87R0001) 1980-04-26

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 06550
Key Quad: Ogilby (3211477)
Occurrence Number: 12
EO Index: 46458
Element Code: PDLNN02020
Occurrence Last Updated: 2001-11-09

Scientific Name: *Pholisma sonorae*
Common Name: sand food

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G2
State: S2
Rare Plant Rank: 1B.2
Other Lists: BLM_S-Sensitive
SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

General Habitat:
DESERT DUNES, SONORAN DESERT SCRUB.

Micro Habitat:
LOOSE, DEEP SAND DUNES, USUALLY ON THE MORE STABLE, WINDWARD FACE. 0-125 M.

Last Date Observed: 1902-05-XX
Last Survey Date: 1902-05-XX
Owner/Manager: UNKNOWN
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
OGILBY, NEAR HEDGES MINES.

Detailed Location:
EXACT LOCATION UNKNOWN, MAPPED AS BEST GUESS BY CNDDB AT OGILBY.

Ecological:

Threats:

General:
SITE BASED ON A 1902 COLLECTION BY STOCKTON. NEEDS FIELDWORK.

PLSS: T15S, R20E, Sec. 35, N (S)
Accuracy: 1 mile
Area (acres): 0
UTM: Zone-11 N3633124 E702138
Latitude/Longitude: 32.81754 / -114.84079
Elevation (feet): 400

County Summary:	Quad Summary:
Imperial	Ogilby (3211477)

Sources:

SDNNDU0003	SAN DIEGO NATURAL HISTORY MUSEUM - NOTES ON GENERAL LOCATIONS OF (AMMOBROMA) PHOLISMA SONORAE. XXXX-XX-XX
STO02S0001	STOCKTON, A. - STOCKTON SN UC #105882 1902-05-XX

APPENDIX E

Photo pages

Photo 1.
Representative photo of the *Brassica (nigra) and other mustards semi-natural stands* CNPS vegetation category.

Photo 2.
Representative photo of the *Larrea tridentata Encelia farinosa alliance* CNPS vegetation category.

Photo 3.
Representative photo of the *Parkinsonia florida—Olneya tesota alliance* CNPS vegetation category.

Photo 4.
Example Observation point during raptor surveys.

Photo 5.
Example Observation point used during raptor surveys.

Photo 6.
Example Observation point used during raptor surveys.

Photo 7.
Example Observation point used during raptor surveys.

Photo 8.
Active eyrie for prairie falcon observed during raptor surveys.

Photo 9.
Active eyrie for prairie falcon observed during raptor surveys.

Photo 10.
Red-tailed hawk roost detected.

Photo 11.
Potentially suitable western burrowing owl habitat within the Analysis Area.

Photo 12.
Potentially suitable western burrowing owl habitat within the Analysis Area.

Photo 13.
Habitat assessed for Colorado desert fringe-toed lizard. Sandy area was assessed for potential habitat for the lizard.

Photo 14.
Habitat assessed for Colorado desert fringe-toed lizard.

Photo 15.
Abandoned underground mine assessed for bat use. There is a bat compatible closure (angle-iron gate) in the mine portal.

Photo 16.
Abandoned underground mine assessed for bat use.

Photo 17.
Location of Gila woodpecker historical detection location outside of Analysis Area.

Photo 18.
Representative small wash assessed for Gila woodpecker habitat within the Analysis Area.

Photo 19.
Active desert tortoise burrow observed.

APPENDIX F

BLM Sensitive Species 'Non' List

Appendix F. BLM Sensitive Species for the El Centro Field Office with a Potential to Occur of "None".

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur	Effects Determination
AMPHIBIANS					
Lithobates yavapaiensis Lowland leopard frog	Occurs in a variety of perennial to near perennial waters in desert grasslands to pinyon juniper biotic communities (AGFD 2006). Inhabits large rivers, streams, canals, cienegas, cattle tanks or other aquatic features (Rorabaugh 2008). Can survive in semi-permanent aquatic systems by retreating into deep mud cracks, mammal burrows, or rock fissures, but large pools are required for adult survival and reproductive efforts (Bureau of Reclamation 2016). Elevation: In California, from near sea level to 5,961 ft (CDFW 2018).	Historic range included Arizona, California, Nevada, New Mexico, U.S. and extreme northeastern Baja California, northern Sonora, and possibly northwestern Chihuahua, Mexico (AGFD 2006, Bureau of Reclamation 2016). Current range is restricted to southern Arizona and adjacent portions of Sonora (Bureau of Reclamation 2016).	Assumed to be extirpated from California, otherwise extremely rare (CDFW 2018). Historically inhabited San Bernardino, Riverside and Imperial counties, along the Colorado River Valley and Imperial Valley (CDFW 2018).	**None.** There is no perennial water in the Analysis Area and this species is considered extirpated from California.	
BIRDS					
Agelaius tricolor Tricolored blackbird	Occupies areas near fresh water, preferably in emergent wetland with tall, dense cattails or tules, but also in thickets of willow, blackberry, wild rose, tall herbs (CDWF 2008c). Feeds in grasslands and cropland habitats. Seeks cover in emergent wetland vegetation and also in trees and shrubs (CDWF 2008c).	Historically the ranged throughout most of lower-elevation California, with smaller nesting colonies known from Baja California, Nevada, and Oregon (USFWS 2019). The majority of the breeding population was found in the Central Valley, along the California coast, in the Sierra Nevada foothills, and in southern California (USFWS 2019).	Common locally throughout Central Valley and in coastal districts from Sonoma County (CDWF 2008c). More widespread in winter along the central coast and San Francisco Bay area and in portions of the Colorado Desert (CDWF 2008c).	**None.** The Analysis Area does not contain appropriate habitat for this species are no occurrence records for this species within the California Natural Diversity Database in these quadrangles (CDFW 2020).	
Charadrius montanus Mountain plover	Utilizes short grasslands, plowed fields with little vegetation, and open sagebrush areas. Avoids areas with dense cover. Nests in open areas in high-elevation grassland, often blue gramma and buffalo grass patches (CDFW 2008a). Does not nest in California (CDFW 2008a). Elevation: In California, below 3,200 ft in winter (CDFW 2008a).	Breeds in western Great Plains and Rocky Mountains States from the Canadian border to Northern Mexico (USFWS 2021). In the U.S., breeding occurs in Colorado, Montana, Nebraska, New Mexico and Wyoming and less frequently in Kansas, Oklahoma, Texas, and Utah (USFWS 2021).	In California, winter resident September through March in Central Valley from Sutler and Yuba counties southward. Also in foothills west of San Joaquin Valley, Imperial Valley, Los Angeles County, and San Bernardino County and along the central Colorado river valley (CDFW 2008a, b). Extralimital records along the northern coast (CDFW 2008a).	**None.** This species is only known to winter in California and is outside the known range. There are no records for this species within the California Natural Diversity Database in these quadrangles (CDFW 2020).	

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur	Effects Determination
Colaptes chrysoides Gilded flicker	This species is most common in riparian areas, desert washes, and other habitats with Joshua trees or saguaro cacti (CDFW 1997). Typically avoids urban and rural neighborhoods, even when saguaros are present (CDFW 1997, Corman and Wise-Gervais 2005). This species hybridizes with the Northern Flicker (Wiebe and Moore 2017). Hybrids are typically found in riparian woodlands at the upper end of the species' elevational range (Corman 2005b). This species is non-migratory and uses similar habitats year-round (Moore, Pyle, and Wiebe 2017). Nest in soft wood of a snag or dead branches of live cottonwood, willow, Joshua tree, or saguaro cacti (CDFW 1997). Elevation: In Arizona, typically 200–3,200 ft but occasionally up to 4,600 ft in riparian areas (Corman 2005b).	This species is non-migratory (Moore, Pyle, and Wiebe 2017). Occurs in Arizona, California and Nevada, U.S. and the Mexican states of Baja California, Baja California Sur, Sinaloa and Sonora (Moore, Pyle, and Wiebe 2017).	Considered nearly extirpated in California (CDFW 1997).	**None.** This species is considered extirpated, the Analysis Area lacks appropriate habitat, and there are no records for this species within the California Natural Diversity Database in these quadrangles (CDFW 2020).	
Laterallus jamaicensis coturniculus California black rail	This species breeds in tidal marshes, shallow freshwater marshes, wet meadows, flooded grassy areas and wetlands fed by irrigation with persistent emergent vegetation (Eddleman, Flores, and Legare 1994, Richmond et al. 2010). Uses areas with water depths of roughly one inch or less (Dodge 2019). The *coturniculus* subspecies is non-migratory, although juveniles disperse erratically from their natal sites (Eddleman, Flores, and Legare 1994). Uses similar habitat year-round (Eddleman, Flores, and Legare 1994). Along the Colorado River they prefer dense bulrush stands, shallow water, and gently sloping shorelines (CDFW 1990b). Elevation: In Arizona, 150–600 ft (AGFD 2002a, Corman 2005a).	The *coturniculus* subspecies occurs in Arizona and California, U.S. and Baja California and Sonora, Mexico (Eddleman, Flores, and Legare 1994, Hinojosa-Huerta et al. 2013).	Scarce, yearlong resident of saline, brackish, and fresh emergent wetlands in the San Francisco Bay area, Sacramento-San Joaquin Delta, coastal southern California at Morro Bay and a few other locations, the Salton Sea, and lower Colorado River area (CDFW 1990b). Formerly a local resident in coastal wetlands from Santa Barbara County to San Diego County (CDFW 1990b).	**None.** The Analysis Area lacks appropriate habitat and is outside the known ranged, and there are no records for this species within the California Natural Diversity Database in these quadrangles (CDFW 2020).	

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur	Effects Determination
Micrathene whitneyi Elf owl	Occupies desert riparian habitat of moderate to open canopy, often with a moderate to sparse shrub understory, and typically bordering desert wash, desert scrub, or grassland habitats (CDFW 1990c). Taller trees with a shrub understory may be required. Utilizes moderately tall trees and snags, including cottonwood, sycamore, willow, mesquite, and saguaros often using cavities made by other birds (CDFW 1990c). Nested in cottonwood and saguaro in California but also nests in willow, sycamore, and mesquite trees or snags of moderate height (CDFW 1990c). In the Sonoran Desert regions they are found mainly in riparian habitats or in areas with numerous saguaro (Wise-Gervais 2005). Elevation: up to 7,000 ft (CDFW 1990c).	Found from the southwest U.S. to central Mexico and Baja California. Northern populations winter in central Mexico and on the Pacific slope north to Sinaloa, Mexico (Wise-Gervais 2005).	Rarely seen spring and summer resident of the Colorado River Valley. Records at Cottonwood Springs and Corn Springs in Riverside County (CDFW 1990c). Now nearly extirpated along the length of Colorado River. Reported only north of Needles, San Bernadino County, roughly 22 miles north of Blythe, Riverside County, and at Corn Springs since 1970 (CDFW 1990c).	**None.** This Analysis Area lacks appropriate habitat and there are no records for this species within the California Natural Diversity Database in these quadrangles (CDFW 2020)	
Pelecanus occidentalis Brown pelican	Inhabits estuarine, marine subtidal, and marine pelagic waters along the coasts (CDFW 1990b). Usually rests on water or inaccessible rocks, but uses mudflats, sandy beaches, wharfs, and jetties. Nests on rocky or low and brushy slopes of undisturbed islands, usually on the ground, but less often in bushes. Requires undisturbed lands adjacent to good marine fishing areas.	Found along the Atlantic, Pacific, and Gulf coasts of North and South America (USFWS 2009). Can also be found from Nova Scotia to Venezuela and on the Pacific Coast from British Columbia to south-central Chile and the Galapagos Islands (USFWS 2009). On the Gulf Coast they occur in Florida, Alabama, Louisiana, Texas, Mississippi, and Mexico. Can use the Salton Seas in California, lakes in Florida, and bodies of water in southeast Arizona (USFWS 2009).	Breeds on the Channel Islands, Anacapa in Santa Barbara and Santa Cruz counties (CDFW 1990b). Rare to uncommon on the Salton Sea and Colorado River reservoirs (CDFW 1990b).	**None.** The analysis area occurs outside of this species range and no suitable aquatic habitat exists within the Analysis Area.	

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur	Effects Determination
Strix occidentalis occidentalis California spotted owl	Inhabits forests and woodlands with large old trees and snags, high basal areas of trees and snags, dense canopies, multiple canopy layers, and downed woody debris (Shuford and Garadali 2008). In southern California, occupies montane hardwood and montane hardwood-conifer forests, especially with Canyon Live Oak and Bigcone Douglas fir and mid to high elevations. Uses coastal oak woodland, valley foothill riparian, and redwood forests at low elevations (Shuford and Garadali 2008).. Elevation: seal level in San Diego County to 6,600 ft in Tulare County (Shuford and Garadali 2008)..	Includes three resident subspecies: the Northern Spotted Owl *(S. o. caturina*) in the mountains of the Pacific coast from southwestern British Columbia south through western Washington and Oregon to San Francisco Bay, California; the Mexican Spotted Owl (*S. o. lucida*) in forested mountains from southern Utah and Colorado south to Michoacan Mexico; and the California Spotted Owl of northern California south along the western slope of Sierra Nevada and in mountains of central and southern Califronia nearly to the Mexican border with three sight records from the Sierra San Pedro Matir in northern Baja California (Shuford and Garadali 2008).	In the southern California mountains, they are known to occur in the southern Coast ranges from Monterey County south through the Traverse and Peninsular ranges to southern San Diego County (Shuford and Garadali 2008). Detected in the Santa Cruz Mountains of San Mateo and Santa Cruz counties. Also observed in the San Bernardino Mountains (Shuford and Garadali 2008).	**None.** The analysis occurs outside this species range and no suitable forested habitat occurs within the Analysis Area.	
Vireo bellii arizonae Arizona bell's vireo	Inhabits low, dense riparian growth along water or intermittent streams. Typically associated with willow, cottonwood, baccharis, wild blackberry or mesquite in desert localities (CDFW 1990a). Utilizes thickets of willow and other low shrubs. Usually found near water (CDFW 1990a). Elevations: In California, summers below 2,000 ft (CDFW 1990a).	Primarily occurs throughout Arizona, Utah, Nevada, and Sonora Mexico and in California along the lower Colorado River (CDFW 1990a).	Rare summer resident along the Colorado River from Needles in San Bernardino County south to Blythe in Riverside County (CDFW 1990a). Also found at Picacho State Recreation Area and near Laguna Dam in Imperial County (CDFW 1990a).	**None.** No suitable riparian a habitat occurs within the analysis Area.	
Vireo bellii pusillus Least bell's vireo	Inhabits low, dense riparian growth along water or intermittent streams. Typically associated with willow, cottonwood, baccharis, wild blackberry or mesquite in desert localities (CDFW 1990a). Utilizes thickets of willow and other low shrubs. Usually found near water (CDFW 1990a). Elevations: In California, summers below 2,000 ft (CDFW 1990a).	Endemic to California and northern Baja California (CDFW 1990a).	Summer resident mostly in San Benito and Monterey counties, in coastal southern California from Santa Barbara County south, and along the western edge of the deserts in desert riparian habitat (CDFW 1990a).	**None.** No suitable riparian a habitat occurs within the analysis Area.	

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur	Effects Determination
MAMMALS					
Myotis evotis Long-eared myotis	Inhabits nearly all brush, woodland and forest habitats but coniferous woodlands and forests seem to be preferred. Roosts in buildings, crevices, under bark, and in snags(CDFW 1990g). Occurs in semiarid shrublands, sage, chaparral, and agricultural areas, but usually associated with coniferous forests (WBWG 2018). Elevation: sea level to at least 9,000 ft (CDFW 1990g).	Found across western North American from southwestern Canada (British Columbia, Alberta, and Saskatchewan) to Baja California and eastward in the U.S. to the western Great Plains (WBWG 2018).	Widespread in California but believed to be uncommon in most of its range. Avoids arid Central Valley and hot deserts, occurring along the entire coast and in the Sierra Nevada, Cascades, and Great Basin from the Oregon border south through the Tehachapi Mountains to the Coast Ranges (CDFW 1990g).	**None.** No suitable forest or woodland habitats occur within the analysis Area.	
Myotis thysanodes Fringed myotis	Utilizes a wide variety of habitats including pinyon-juniper, valley foothill hardwood and hardwood-conifer forests (CDFW 1990f). Roosts in crevices in buildings, mines, rocks, rock faces, bridges, and in large decadent trees or snags (WBWG 2018). Elevation: sea level to 9,350 ft but most common between 4,000 and 7,000 ft (WBWG 2018).	Throughout much of western North American from southern British Columbia, Canada, south the Chiapas, Mexico from Santa Cruz Island in California, east to the Black Hills of South Dakota (WBWG 2018).	Widespread in California occurring in all but the Central Valley and Colorado and Mojave deserts. Abundance appears to be irregular (CDFW 1990f).	**None.** No suitable forest or woodland habitats occur within the analysis Area.	
Perognathus longimembris bangsi Palm Springs little pocket mouse	Known from various vegetation communities including creosote scrub, desert scrub, and grasslands, generally occurring on loosely packed or sandy soils with sparse to moderately dense cover (Bolster 1998).	Historically known from the San Gorgonino Pass area east to southern Joshua Tree National Park and Shaver's Valley, south through the Coachella Valley to Ocotillo (Bolster 1998).	Currently found in the northern and western regions of Coachella Valley north of Interstate 10 (Nature Serve 2021).	**None.** The analysis Area occurs outside the known range of this species.	
PLANTS					
Ambronia umbellate* var. *aurita chaparral sand-verbena	Annual herb that blooms March through September. Inhabits chaparral, coastal scrub, and desert dunes (CNPS 2021c). Elevation: 250 to 5,250 ft (CNPS 2021c).	Known from California, Arizona, and Baja California (CNPS 2021c).	Imperial, Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura counties (CNPS 2021c). One location in Anza-Borrego does not appear to be naturally occurring.	**None.** No suitable desert dunes of chaparral habitat occur within the Analysis Area.	

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur	Effects Determination
Astragalus magdalenae* var. *peirsonii Peirson's milk-vetch	Perennial herb that blooms December through April. Inhabits desert dunes (CNPS 2021m). Elevation: 200 to 750 ft (CNPS 2021m).	Occurs in California, Arizona, Baja California, and Sonora Mexico (CNPS 2021m).	Imperial County and presumed extirpated if once present in San Diego County (CNPS 2021m).	**None.** No suitable desert dune habitat occurs within the analysis Area.	
Choenactis glabriuscula* var. *orcuttiana Orcutt's pincushion	Annual herb that blooms January through August. Inhabits sandy substrates including coastal bluff scrub in coastal dunes (CNPS 2021k). Elevation: sea level to 325 ft (CNPS 2021k).	Occurs in California and Baja California (CNPS 2021k).	Found in Los Angeles, San Diego, Venture counties and presume extirpated in Orange County (CNPS 2021k).	**None.** The analysis Area occurs outside of the range of this species and no suitable costal dunes occur within the analysis Area.	
Chorizanthe polygonoides* var. *longispina Long-spined spineflower	Annual herb that blooms April through July. Inhabits clay substrates in chaparral, coastal scrub, meadows, seeps, valley, foothill grassland, and vernal pools (CNPS 2021f). Elevations: 100 to 5,000 ft (CNPS 2021f).	Occurs in California and Baja California (CNPS 2021f).	Found in Orange, Riverside, Santa Barbara, and San Diego counties (CNPS 2021f).	**None.** The analysis Area occurs outside of the range of this species and no suitable costal dunes occur within the analysis Area.	
Cylindropuntia fosbergii Pink teddy-bear cholla	Perennial stem succulent that blooms March through May. Inhabits Sonoran desert scrub habitats (CNPS 2021n). Elevation: 280 to 2,790 ft (CNPS 2021n).	Endemic to California (CNPS 2021n).	Occurs in San Diego County (CNPS 2021n).	**None.** The Analysis Area occurs outside of the known range of this species.	
Dieteria asteroids* var. *lagunensis Mt. Laguna aster	Perennial herb that blooms July through August. Utilizes cismontane woodland and lower montane coniferous forest (CNPS 2021i). Elevation: 2,600 to 7,900 ft (CNPS 2021i).	Located in California and Baja California (CNPS 2021i).	Found in San Diego County (CNPS 2021i).	**None.** The Analysis Area is outside the known range of this species.	
Fremontodendron mexicanum Mexican flannelbush	Perennial evergreen shrub that blooms March through June. Inhabits gabbroic, metavocalnic, or serpentine substrates within closed-cone coniferous forest, chaparral, and cismontane woodlands (CNPS 2021g). Elevation: 30 to 2,350 ft (CNPS 2021g).	Known from California and Baja California (CNPS 2021g).	Found in San Diego County (CNPS 2021g).	**None.** Outside known range and no occurrence records.	

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur	Effects Determination
Grindelia hallii San Diego gumplant	Perennial herb that blooms May through October. Utilizes chaparral, lower montane coniferous forest, meadow, seeps, valley and foothill grassland (CNPS 2021q). Elevation: 280 to 5,725 ft (CNPS 2021q).	Endemic to California (CNPS 2021q).	Found in San Diego County (CNPS 2021q).	**None.** Outside known range and no occurrence records.	
Helianthus niveus* subsp. *tephrodes Algodones Dunes sunflower	Perennial herb that blooms September to May. Lives on desert dunes (CNPS 2021a). Elevation: 165 to 330 ft (CNPS 2021a).	Found in California, Arizona, and Sonora Mexico (CNPS 2021a).	Occurs in Imperial and San Diego counties (CNPS 2021a).	**None.** No suitable dune habitats exist within the Analysis Area and no records of the species occur within the Analysis Area.	
Hulsea californica San Diego sunflower	Perennial herb that blooms April through June. Inhabits openings and burned areas in chaparral, lower montane coniferous forest, and upper montane coniferous forests (CNPS 2021r). Elevation: 3,000 to 9,565 ft (CNPS 2021r).	Endemic to California (CNPS 2021r).	Found in Riverside and San Diego counties (CNPS 2021r).	**None.** Outside known range and no occurrence records.	
Lepidium flavum var. felipense Borrego Valley peppergrass	Annual herb that blooms March through May. Inhabits sandy areas in pinyon and juniper woodland and Sonoran desert scrub (CNPS 2021b). Elevation: 1,495 to 2,755 ft (CNPS 2021b).	Occurs in California and Baja California (CNPS 2021b).	Found in San Diego County (CNPS 2021b).	**None.** Outside known range and no occurrence records.	
Monardella nana* subsp. *leptosiphon San Felipe monardella	Perennial rhizomatous herb that blooms June through July. Inhabits chaparral and lower montane coniferous forest (CNPS 2021s). Elevation: 3,940 to 6,085 ft (CNPS 2021s).	Occurs in California and Baja California (CNPS 2021s).	Found in Riverside and San Diego counties (CNPS 2021s). Note: Known mostly from Hot Springs Mountains. Most of the plants from the Palomar Mountains are mis-identified. May not warrant taxonomic recognition due to problems with type specimen and its distribution and a lot of intermediacy between current subtaxa, and evident integradations (CNPS 2021s).	**None.** No suitable chaparral, or forest habitats occur within the Analysis Area.	

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur	Effects Determination
Palafoxia arida* var. *gigantea Giant Spanish needle	Annual/perennial herb that blooms January through May. Inhabits desert dunes (CNPS 2021e). Elevation: 50 to 330 ft (CNPS 2021e).	Occurs in California and Sonora Mexico (CNPS 2021e).	Known only from Imperial County (CNPS 2021e).	**None.** No suitable dune habitats exist within the Analysis Area and no records of the species occur within the Analysis Area.	
Streptanthus campestris Southern jewel-flower	Perennial herb that blooms May through July. Inhabits rocky areas in chaparral, lower montane coniferous forest, and pinyon juniper woodland (CNPS 2021u). Elevation: 2,950 to 7,545 ft (CNPS 2021u).	Found in California and Baja California (CNPS 2021u).	Occurs in Imperial, Los Angeles, Riverside, Santa Barbara, San Bernardino, San Diego, and Ventura counties (CNPS 2021u).	**None.** No suitable chaparral, woodlands or forest habitats occur within the Analysis Area.	
Symphotrichum defoliatum San Bernardino aster	Perennial rhizomatous herb that blooms July through November. Inhabits areas near ditches, streams and springs in cistomontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, and valley and foothill grasslands that are vernally mesic (CNPS 2021p). Elevation: 0.6 to 620 ft (CNPS 2021p).	Endemic to California (CNPS 2021p).	Found in Imperial, Kern, Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, San Diego, and possibly in San Luis Obispo counties(CNPS 2021p).	**None.** No suitable aquatic habitat occurs within the analysis Area.	
Thermopsis californica var. semota Velvety false lupine	Perennial rhizomatous herb that blooms March through June. Inhabits cismontane woodland, lower montane coniferous forest, meadows and seeps, and valley and foothill grasslands (CNPS 2021v). Elevation: 305 to 570 ft (CNPS 2021v).	Endemic to California (CNPS 2021v).	Found in San Diego County (CNPS 2021v).	**None.** Outside known range and no occurrence records.	
Thysanocarpus rigidus rigid fringepod	Annual herb that blooms February through May. Inhabits dry rocky slopes in pinyon and juniper woodland (CNPS 2021o). Elevation: 185 to 70 ft (CNPS 2021o).	Occurs in California and Baja California (CNPS 2021o).	Found in Los Angeles, Riverside, San Bernardino, and San Diego counties (CNPS 2021o).	**None.** Outside the known range and no occurrence records.	

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur	Effects Determination
REPTILES					
Actinemys marmorata pallida Southwestern pond turtle	Inhabit ponds, lakes, rivers, streams, creek, marshes, and irrigation ditches with abundant vegetation and either rocky or muddy bottoms in woodland, forests, grassland (CHS 2021f). Prefers shallower area in pools with logs, rocks, cattail mats, and exposed banks required for basking. May enter brackish water and seawater (CHS 2021f). Elevation: sea level to 6.696 ft but mostly below 4,890 ft (CHS 2021f).	Occurs in California and Baja California (CHS 2021f).	Found south, east, and west of the San Francisco Bay area with eastern boundary along the edge of the South Coast Ranges with an isolated, relict population along the Mojave River at Campy Cody and at Afton Canyon (CHS 2021f).	**None.** The analysis Area occurs outside the known range of this species.	
Coleonyx switaki Barefoot banded gecko	Inhabits rocky areas at the heads of canyons. Restricted to areas dominated by massive rock formations (CDFW 1990j). In flatlands, canyons, thornscrub and in where vegetation is sparse (CHS 2021e). Elevation: near sea level to over 2,000 ft (CHS 2021e).	Occurs in California and Baja California (CDFW 1990j).	Found on the east face of the Peninsular Ranges with unsubstantiated reports near Anza Borrego Desert in San Diego County(CDFW 1990j). Isolated population of subspecies *C.s. switaki* is known from Coyote Mountains of Imperial County (CHS 1990j).	**None.** The analysis Area occurs outside the known range of this species.	
Phrynosoma mcallii Flat-tailed horned lizard	Inhabits hard packed sandy flats and low dunes in Lower Colorado River desertscrub community, particularly in areas with creosote-white bursage vegetation (USFWS Brennan 2008, 2011). Restricted to areas of fine sand and sparse vegetation in desert washes and flats (CDFW 2000a). Most common in areas with high density of harvester ants and fine windblow sand but rarely occurs on dunes (CHS 2021b). Elevation: Below 820 ft (AGFD 2010b, CHS 2021b).	Occurs in Arizona and California, U.S. and the Mexican states of Baja California and Sonora (USFWS 2011).	Found in central Riverside, eastern San Diego and Imperial counties (CDFW 2000a). Throughout most of the Colorado desert from Coachella Valley south through the Imperial Valley and west into the Anza-Borrego desert, south to Baja California, southwestern Arizona, and northwestern Sonora (CHS 2021b).	**None.** No suitable hard packed sandy flats or low dunes occur within the Analysis Area. No records for this species occur within the Analysis Area.	***Phrynosoma mcallii*** Flat-tailed horned lizard

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur	Effects Determination
Phrynosoma blainvilli Coast horned lizard	Inhabits valley-foothill hardwood, conifer and riparian habitats, pine-cypress, juniper, and annual grassland habitats (CDFW 2000a). Occurs in open areas of sandy soil and low vegetation in valleys, foothills, semiarid mountains and along dirt roads or near ant hills (CHS 2021a). Elevation: Sea level to 6,000 ft (CDFW 2000a) or 8,000 ft (CHS 2021a).	Endemic to California (CHS 2021a).	Historically found along the Pacific coast from the Bay Area to Baja California border and west the Sierra Nevada Mountains (CHS 2021a).	**None.** The analysis Area occurs outside the known range of this species.	
Thamnophis hammondii Two-striped gartersnake	Inhabit vegetated areas associated with permanent or semi-permanent bodies of water (CDFW 2000). Associated vegetation includes oak woodland, willow, coastal sage scrub, scrub oak, sparce pine, chaparral, and brushland (CHS 2021g). Elevation: sea level to 8,000 ft (CDFW 2000).	Occurs in California and Baja California (CHS 2021g)	Found on the southeastern slope of the Diablo Range and the Salinas Valley south along the South Coast and Traverse ranges to the Mexican border and on Santa Catalina Island (CDFW 2000).	**None.** The analysis Area occurs outside the known range of this species.	

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_____. 2021i. Mt. Laguna Aster *Dieteria asteroides* var. *lagunensis*. *Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39)*.

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Appendix F: Project Design Features, Conservation Management Actions, and Mitigation Measures

SMP would prevent unnecessary or undue degradation of public lands by complying with the performance standards found in 43 CFR 3809.415 and 3809.420, as applicable. SMP would comply with BLM's terms and conditions related to the specific mining and reclamation activities and with other federal and state laws related to environmental protection and protection of cultural resources. SMP would commit to the following environmental protection measures to prevent unnecessary or undue degradation during Project activities. The measures are derived from the general requirements established in 43 CFR 3809.420, as applicable, as well as other federal and state water and air quality regulations.

Table F-1: Project Design Features

Number	Project Design Feature	Resources Impacted
PDF-1	Surface water within the Project Area consists of stormwater runoff within natural ephemeral drainages. The Project would require a California General Permit (CGP) pursuant to CGP Regulation (National Pollutant Discharge Elimination System No. CAS000002; State Water Resources Control Board Order No. 2009-0009-DWQ amended by 2010-0014-DWQ and 2012-0006-DWQ). Construction activities subject to the CGP include: • Any construction or demolition activity, including, but not limited to, clearing, grading, grubbing, or excavation, or any other activity that results in a land disturbance of equal to or greater than one acre. • All areas subject to land surface disturbance activities related to the Project including, but not limited to, Project staging areas, immediate access areas, and storage areas. All previously active areas are still considered active areas until final stabilization is complete.	**Water Resources**
PDF-2	A BLM approved SWPPP would be developed and implemented to control sedimentation from disturbance associated with Project activities. BMPs would be developed following the BLM's BMPs for Water Quality 2022 to manage disturbed surfaces. Sediment control structures could include, but not be limited to, fabric and/or hay bale filter fences, siltation or filter berms, and downgradient drainage channels in order to prevent unnecessary or undue degradation.	**Water Resources**
PDF-3	Water used for dust control would be kept to a practicable minimum in order to minimize the risk of water runoff, and any water runoff would be managed so not to cause downstream erosion or flooding nor cause an exceedance of applicable water quality standards.	**Water Resources**
PDF-4	Only minor servicing of mobile equipment (greasing and periodic fueling) would be conducted on BLM lands, limiting the potential for diesel fuel spills. Spill response kits would be maintained to ensure that pollutants are prevented from entering into washes. Any pollutants generated by Project activities would be properly disposed of in accordance with applicable regulations. The Project does not trigger any waste	**Water Resources**

Number	Project Design Feature	Resources Impacted
	discharge requirements under Title 27, California Code of Regulations, Section 20005 et seq.	
PDF-5	SMP would implement BMPs for erosion and sediment control measures that would be identified in the BLM approved SWPPP. The effectiveness of erosion control measures would be monitored throughout the duration of the Project as required by the CGP. SMP would follow all erosion and sediment control measures identified in the Reclamation Plan (Sespe 2022), including, but not limited to, specific prohibitions, effluent limitations, potential contaminant source identification, practices to reduce pollutants, assessment of pollutant sources, materials inventory, preventative maintenance program, spill prevention and response procedures, general stormwater BMPs, training, recordkeeping, and sampling procedures.	**Water Resources, Soils**
PDF-6	SMP would operate under a monitoring program that would be developed for BLM approval under the Proposed Action.	**Water Resources, Soils**
PDF-7	Air quality impacts associated with the Project would be primarily from fugitive dust generation by vehicles and equipment during operations and from vehicle and drill powerplant emissions. Road dust emissions and tailpipe emissions from drilling activities and vehicle travel along the access roads have the potential to release regulated pollutants. The Project would comply with applicable State of California and Imperial County Air District rules for fugitive dust emissions and greenhouse gas emissions.	**Air Quality**
PDF-8	SMP would properly dispose of waste oil, other related fluids, filters, oily rags, etc., in appropriate disposal locations. Litter and trash generated by the contractors would be collected in appropriate containers and removed as required from the Project Area. Project-related refuse would be hauled to an authorized landfill for disposal. No refuse would be disposed on-site.	**Hazardous Material/Solid Waste**
PDF-9	Portable toilet facilities provided for the duration of the Project would be maintained by contractors, and accumulated human waste would periodically be collected and transported to an approved disposal site. No waste would be buried on-site.	**Hazardous Material/Solid Waste**
PDF-10	Prior to Project activities, pre-construction migratory bird surveys would be conducted by a BLM-approved Qualified Biologist within 48 hours of proposed disturbance during the migratory bird breeding season (February 15 to August 31). These pre-construction surveys would also include vegetation surveys, including noxious and invasive species and special status species. Should active nests be identified during the pre-construction surveys, the following species-specific avoidance buffers would be implemented: 200 feet for non-ESA listed species; 300 feet for ESA listed species; and 500 feet for raptor species. No work would be conducted within the avoidance buffer areas until a BLM-approved Qualified Biologist determines that the nest is no longer active, fledglings are independent of the nest, the nest has failed, or the BLM approves a buffer reduction deemed appropriate by the Qualified Biologist. If an avoidance buffer needs to be reduced, SMP would contact the U.S. Fish and Wildlife	**Wildlife Resources, Vegetation**

Number	Project Design Feature	Resources Impacted
	Service (USFWS) and BLM and provide the necessary survey information to support the buffer reduction.	
PDF-11	During the bat maternity season (April 1 to August 31), SMP would implement a 500-foot avoidance buffer for drilling activities around features with evidence of use by BLM sensitive bat species. No prolonged drilling activity (i.e., drill site operations) would occur within this buffer; however, overland travel via access routes through the buffer would be permitted. SMP would utilize shielded lights that would limit nighttime drilling lighting within the avoidance buffers.	**Wildlife Resources**
PDF-12	To the extent possible, the Project would be completed outside the Mojave Desert tortoise (*Gopherus agassizii*) active season (March 15 to November 1), between November 2 and March 14.	**Wildlife Resources**
PDF-13	Within 24 hours of the commencement of Project activities, a BLM-approved Authorized or Qualified Biologist would inspect the area to be disturbed plus a 500-foot buffer, focusing on areas that could provide suitable desert tortoise burrow or cover sites, such as dry washes with caliche. This may be combined with the above pre-construction migratory bird survey if taking place during the nesting season. Burrows would be flagged such that they would be avoided by Project activities. When requesting authorization of biologists to handle desert tortoises, the Permittee/BLM will submit credentials to the USFWS for review and approval at least 30 days prior to the need for the biologist to perform those activities in the field.	**Wildlife Resources**
PDF-14	A BLM-approved Authorized or Qualified Biologist would be on-site prior to and during Project actions involving heavy machinery or any surface disturbing activities to ensure no desert tortoises are killed or burrows crushed, and Project staff are compliant with tortoise best practices.	**Wildlife Resources**
PDF-15	All surface disturbing activity would be limited to the land area essential for the Project. In determining these limits, consideration would be given to topography, public health and safety, placement of facilities, and other limiting factors. Work area boundaries would be appropriately marked to minimize disturbance. All workers would strictly limit their activities and vehicles to the areas marked. All workers would be trained to recognize work area markers and to understand equipment movement restrictions.	**Wildlife Resources**
PDF-16	All workers, including all construction and drilling contractor personnel, and others who implement Project activities would be given special instruction, which would include training on desert tortoise distribution, general behavior and ecology, protection afforded by state and federal endangered species acts (including prohibitions and penalties), procedures for reporting encounters, and the importance of following the protection measures. The education program may consist of a class or video presented by a BLM-approved Authorized or Qualified Biologist. The presentation to be used would be reviewed and approved by the BLM Wildlife Biologist or other biologist.	**Wildlife Resources**
PDF-17	All personnel would be notified that the desert tortoise is a species listed as threatened under the ESA and protected by	**Wildlife Resources**

Number	Project Design Feature	Resources Impacted
	state and federal law. Fines can be as high as $50,000 and/or one year in prison for violations.	
PDF-18	Personnel would be notified that desert tortoises are not to be handled, fed, or harassed in any way. If encountered, tortoises would be allowed space and time to move from the area on their own volition. The only exception to this is if the tortoise is in imminent, unavoidable danger (i.e., certain to be injured or killed if no action is taken) and an Authorized Biologist is not present. In this case, Project personnel may move a desert tortoise the shortest distance necessary to remove the tortoise from imminent danger. The desert tortoise shall be monitored until an Authorized Biologist or USFWS is contacted for further instruction.	**Wildlife Resources**
PDF-19	If a desert tortoise is discovered in harm's way, an Authorized Biologist will move the tortoise into adjacent habitat following the latest USFWS clearance and handling procedures. The tortoise would not be moved more than 300 meters from their capture location. If the Authorized Biologist observes significant clinical signs of ill health, the tortoise should be removed from the wild in coordination with the USFWS. If suitable habitat is not available within 300 meters of the tortoises' capture locations or other land ownership restrictions prevent the release of individuals within 300 meters (e.g., privately owned land lacking permission), the tortoise should be translocated to the Recipient Site identified (**Figure 3-14**).	**Wildlife Resources**
PDF-20	Personnel who attend tortoise training will sign an attendance sheet, which would be submitted to the BLM for their information. Should BLM staff inspect the site during construction activities, workers on-site should be able to provide proof of tortoise training (a hard hat sticker is recommended for this purpose).	**Wildlife Resources**
PDF-21	SMP would designate a field contact representative (FCR) who would be responsible for overseeing compliance with protective stipulations for the desert tortoise and for coordination on compliance with the BLM. The FCR must be on-site during all Project activities. The FCR would have the authority to halt Project activities that are in violation of the stipulations. The FCR would have a copy of all stipulations when work is being conducted on the site. The FCR may be a crew chief or field supervisor, a project manager, any other employee of the Project Proponent, or a BLM-approved Authorized or Qualified Biologist. Any incident occurring during Project activities that is considered by the FCR to be in non-compliance with the mitigation plan would be documented immediately by the FCR. The FCR would ensure that appropriate corrective action is taken. Corrective actions would be documented by the FCR. The following incidents would require immediate cessation of the construction activities causing the incident, including: • Imminent threat of injury or death to a desert tortoise; • Unauthorized handling of a desert tortoise, regardless of intent, except in the instance of imminent, unavoidable danger;	**Wildlife Resources**

Number	Project Design Feature	Resources Impacted
	• Operation of construction equipment or vehicles outside a project area cleared of desert tortoise, except on designated roads, and • Conducting any construction activity without a biological monitor where one is required. If a tortoise is encountered during construction activities, work would be halted in proximity to the tortoise until an on-call BLM-approved Authorized Biologist can move the animal from harm's way or until the desert tortoise leaves of its own accord.	
PDF-22	Where possible, motor vehicle access would be limited to maintained roads and designated routes. All vehicle tracks that might encourage public use would be reclaimed after Project-specific use. Barriers would be installed to prevent unauthorized vehicular traffic and signs would be posted indicating these roads would be for authorized use only.	**Wildlife Resources**
PDF-23	Speed Limits: Vehicle speed within Project area, along right-of-way maintenance roads and on routes designated for limited use, would not exceed 20 miles per hour. Speed limits would be clearly marked by the Proponent, and workers would be made aware of these limits.	**Wildlife Resources, Access and Transportation**
PDF-24	Tortoises Under Vehicles: Vehicles parked in desert tortoise habitat would be inspected immediately prior to being moved. The practice of placing an orange cone by the driver-side door would be used as a reminder to check for tortoise before re-entering and moving the vehicle. If a tortoise is found beneath a vehicle, a BLM-approved Authorized Biologist would be contacted to move the animal from harm's way, or the vehicle would not be moved until the desert tortoise leaves of its own accord.	**Wildlife Resources**
PDF-25	Access roadside signs depicting a picture of desert tortoise would be posted to remind workers of the potential presence of tortoise within the Project Area.	**Wildlife Resources**
PDF-26	Project maintenance and construction, stockpiles of excavated materials, equipment storage, and vehicle parking would be limited to existing disturbed areas wherever possible. Should use of existing disturbed areas prove infeasible, any new disturbance would be confined to the smallest practical area, considering topography, placement of facilities, location of burrows or vegetation, public health and safety, and other limiting factors. Special habitat features, particularly tortoise burrows, would be flagged by the BLM-approved Authorized or Qualified Biologist so that they may be avoided by installation equipment and during placement of poles and anchors.	**Wildlife Resources, Vegetation, Soils**
PDF-27	All trash and food items generated by construction and maintenance activities would be promptly contained and regularly removed from the Project site to reduce the attractiveness of the area to common ravens and other desert predators. Portable toilets would be provided on-site if appropriate.	**Wildlife Resources, Hazardous Material/Solid Waste**
PDF-28	Feeding of wildlife and/or leaving of food or trash as an attractive nuisance to wildlife is prohibited. Particular attention would be paid to "micro-trash" (including such small items as screws, nuts, washers, nails, coins, rags, small	**Wildlife Resources, Hazardous Material/Solid Waste**

Number	Project Design Feature	Resources Impacted
	electrical components, small pieces of plastic, glass or wire, and any debris or trash that is colorful or shiny). All trash and food items would be promptly contained within closed, wildlife-proof containers. These would be regularly removed from the Project site to reduce the attractiveness of the area to ravens and other predators.	
PDF-29	Domestic pets are prohibited on-site. This prohibition does not apply to the use of domestic animals that may be used to aid in official and approved monitoring procedures/protocols, or service animals under Titles II and III of the Americans with Disabilities Act.	**Wildlife Resources**
PDF-30	To prevent the introduction of new noxious and invasive weed species into the Project Area, all vehicles and equipment that will be used on-site transported from outside of the Project Area would be washed and cleaned prior to entering the Project Area at a designated location outside of the Project Area.	**Vegetation, Noxious and Non-native Invasive Species**
PDF-31	All seed mixes and natural erosion products used for reclamation would be certified weed-free.	**Vegetation, Noxious and Non-native Invasive Species**
PDF-32	Weed control practices would be implemented as necessary in coordination with the BLM, and non-native invasive plants would be removed manually.	**Vegetation, Noxious and Non-native Invasive Species**
PDF-33	All revegetation efforts in the Project Area will be done with a BLM-approved native seed mix that closely matches the surrounding vegetation type.	**Vegetation, Noxious and Non-native Invasive Species**
PDF-34	Pre-construction vegetation surveys, including for noxious and non-native invasive species and special status species, would be conducted in tandem with the pre-construction migration bird surveys described above. Should special status plant species be identified during Project activities, the BLM would require SMP to implement temporary barrier fencing around the individual plants for avoidance and to minimize impacts throughout the life of the Project.	**Vegetation, Special Status Species**
PDF-35	Injury: Should any desert tortoise be injured or killed, all activities would be halted and the BLM-approved Authorized Biologist immediately contacted. The biologist would have the responsibility for determining whether the animal should be transported to a veterinarian for care, which is paid for by the Project Proponent, if involved. If the animal recovers, the USFWS is to be contacted to determine the final disposition of the animal; few injured desert tortoises are returned to the wild.	**Wildlife Resources**
PDF-36	SMP has committed to avoidinstances of all known cultural resources and engage in consultation with the Native American Heritage Commission and the Quechan Tribe of the Fort Yuma Reservation regarding the Project. Additionally, SMP prepared and implemented a tribal monitoring plan regarding the Project.	**Cultural Resources**
PDF-37	All ground-disturbing activities have the potential to unearth archaeological sites or human remains; all such discoveries on federal lands would be treated in accordance with the Native American Graves and Repatriation Act (25 USC 30001-3013) and other federal and state regulations.	**Cultural Resources**
PDF-38	SMP would implement site-specific fire prevention/protection actions, which would, at a minimum,	**Human Health and Safety**

Number	Project Design Feature	Resources Impacted
	include designating Project fire coordinators, providing adequate fire suppression equipment (including in vehicles), and establishing emergency response information relevant to the Project Area.	
PDF-39	SMP would have a 2,000-gallon portable water storage tank on-site for dust suppression that would also be available to assist in firefighting operations. SMP would ensure that all mobile equipment be equipped with fire extinguishers, hand tools, and first aid kits. In the event of an initial, small fire that does not create enough smoke, flame, and heat to prevent fighting the fire using a hand-held fire extinguisher or a small water hose, and providing no one would be endangered, SMP personnel and/or contractors would make a reasonable effort to extinguish the fire. If two or more people are present, one would fight the fire while one reports to 911 the size, type, and location in the event the fire grows out of control. Personnel would not directly engage any fire which is beyond the incipient stage (i.e., a fire which has progressed to the point it has substantially involved any structure/equipment).	**Air Quality, Human Health and Safety**
PDF-40	Planning and prevention of fires would also be managed through the appropriate handling and storage of fuels, inspections, and recordkeeping, spill prevention and response procedures, proper use of safety equipment, resource management training, and fire prevention training. SMP would coordinate with local law enforcement and fire departments to provide 24-hour access as needed for emergency response.	**Human Health and Safety**
PDF-41	SMP would have two fuel tanks on-site that would contain no more than 1,000 gallons of diesel fuel and 300 gallons of jet fuel, respectively. To prevent the spread of any accidental leakage in storage, fuel and lubricants would be stored in a shallow (4-inch deep), 10-foot by 10-foot lined reservoir at each drill site and in an approximately 6-inch deep, 20-foot by 40-foot lined reservoir at the fueling station. During drilling operations, the drill rig would be parked on top of plastic sheeting. A spill prevention kit would be stored on-site consisting of an oil-only absorbent mat material (i.e., PIG® absorbent mat pad) and absorbent clay or shale (i.e., Oil-Dri or "kitty litter"). The volume of absorbent that would be kept on-site for potential spills is estimated to be 50 gallons at each active drill site and 100 gallons at the fueling station. As there would be up to two active drill sites at one time, an estimated 200 gallons of absorbent that would be kept on-site.	**Soils, Hazardous Material/Solid Waste**
PDF-42	Cellular telephone service is generally available within the Project Area site for emergency and other communications. A satellite phone would also be made available in case of emergencies. Contractors would be trained in proper emergency response, incident reporting, and general health and safety issues. All equipment would be maintained in a safe and orderly manner.	**Human Health and Safety**
PDF-43	A Spill Contingency Plan would be prepared to describe the procedures followed by SMP and their contractors to prevent, control, and mitigate releases of oil and petroleum products to the environment within the Project Area.	**Soils, Hazardous Material/Solid Waste, Water Resources**

Number	Project Design Feature	Resources Impacted
PDF-44	Fueling would be performed on a 20-foot by 40-foot plastic sheeting over an approximately 6-inch-deep reservoir. The fueling area would be sloped gently to one corner with a small sump to contain any accidental releases of fuel.	**Soils, Hazardous Material/Solid Waste, Water Resources**
PDF-45	Equipment servicing would be performed within the fueling area or on plastic sheeting within the drill sites.	**Soils, Hazardous Material/Solid Waste, Water Resources**
PDF-46	A standard procedure fueling and servicing would be performed at the designated fueling stations and drill sites; however, equipment may need to be serviced at times elsewhere within the Project Area, and spill protection measures would be implemented.	**Soils, Hazardous Material/Solid Waste, Water Resources**
PDF-47	Diesel fuel is a major consumable for the exploration equipment. Diesel fuel is available from local suppliers and would be received in tank trucks. The Project would receive and unload diesel to the on-site storage tank.	**Soils, Hazardous Material/Solid Waste, Water Resources**
PDF-48	Diesel fuel would be offloaded using drip-less connections in a contained area to eliminate spillage contamination. The off-loading sites would be designed to drain into the main storage site containment and have a spill response kit containing booms and clean-up materials to ensure that any off-containment spillage is immediately contained and cleaned.	**Soils, Hazardous Material/Solid Waste, Water Resources**
PDF-49	A small spill response trailer would be maintained in the Project Area to clean up any spills.	**Soils, Hazardous Material/Solid Waste, Water Resources**
PDF-50	Inspections of fuel valves and other inlets and outlets as well as secondary containment would be made daily.	**Soils, Hazardous Material/Solid Waste, Water Resources**
PDF-51	All site personnel that would be involved in fuel-handling would be trained in the operation and maintenance of equipment to prevent discharges.	**Soils, Hazardous Material/Solid Waste, Water Resources**
PDF-52	The fuel tanks would be secured and locked during times when SMP personnel and contractors are not on-site.	**Soils, Hazardous Material/Solid Waste, Water Resources**

In addition to the applicant-committed PDFs, the following CMAs per the DRECP LUPA (BLM 2016), as described below, would be required by the BLM. All of the CMAs described below would be fully supported and covered financially by SMP.

Table F-2: Conservation Management Actions

Number	Conservation Management Action	Resources Affected
LUPA-BIO-7	Where DRECP vegetation types or Focus or BLM Special Status Species habitats may be affected by ground-disturbance and/or vegetation removal during pre-construction, construction, operations, and decommissioning related activities but are not converted by long-term (i.e., more than two years of disturbance, see Glossary of Terms) ground disturbance, restore these areas following the standards, approved by BLM authorized officer, following the most recent BLM policies and procedures for the vegetation community or species	Vegetation, including Noxious and Non-native Invasive Species and Special Status Species

Number	Conservation Management Action	Resources Affected

	habitat disturbance/impacts as appropriate, summarized below:
	• Implement site-specific habitat restoration actions for the areas affected including specifying and using:
	  • The appropriate seed (e.g., certified weed- free, native, and locally and genetically appropriate seed)
	  • Appropriate soils (e.g., topsoil of the same original type on site or that was previously stored by soil type after being salvaged during excavation and construction activities)
	  • Equipment
	  • Timing (e.g., appropriate season, sufficient rainfall)
	  • Location
	  • Success criteria
	  • Monitoring measures
	  • Contingency measures, relevant for restoration, which includes seeding that follows BLM policy when on BLM administered lands.
	• Salvage and relocate cactus, nolina, and yucca from the site prior to disturbance using BLM protocols. To the maximum extent practicable for short-term disturbed areas (see Glossary of Terms), the cactus and yucca will be re-planted back to the original site.
	• Restore and reclaim short-term (i.e. 2 years or less, see Glossary of Terms) disturbed areas, including pipelines, transmission projects, staging areas, and short-term construction-related roads immediately or during the most biologically appropriate season as determined in the activity/project specific environmental analysis and decision, following completion of construction activities to reduce the amount of habitat converted at any one time and promote recovery to natural habitats and vegetation as well as climate refugia and ecosystem services such carbon storage.	

LUPA-BIO-10	Consistent with BLM state and national policies and guidance, integrated weed management actions, will be carried out during all phases of activities, as appropriate, and at a minimum will include the following: • Thoroughly clean the tires and undercarriage of vehicles entering or reentering the project site to remove potential weeds. • Store project vehicles on site in designated areas to minimize the need for multiple washings whenever vehicles re-enter the project site. • Properly maintain vehicle wash and inspection stations to minimize the introduction of invasive weeds or subsidy of invasive weeds.	Vegetation, including Noxious and Non-native Invasive Species

Number	Conservation Management Action	Resources Affected
	• Closely monitor the types of materials brought onto the site to avoid the introduction of invasive weeds and non-native species. • Reestablish native vegetation quickly on disturbed sites. • Monitor and quickly implement control measures to ensure early detection and eradication of weed invasions to avoid the spread of invasive weeds and non-native species on site and to adjacent off-site areas. • Use certified weed-free mulch, straw, hay bales, or equivalent fabricated materials for installing sediment barriers.	
LUPA-BIO-12	For activities that may impact Focus or BLM Special Status Species, implement the following LUPA CMA for noise: • To the extent feasible, and determined necessary by BLM to protect Focus and BLM sensitive wildlife species, locate stationary noise sources that exceed background ambient noise levels away from known or likely locations of BLM sensitive wildlife species and their suitable habitat. • Implement engineering controls on stationary equipment, buildings, and work areas including sound-insulation and noise enclosures to reduce the average noise level, if the activity will contribute to noise levels above existing background ambient levels. • Use noise controls on standard construction equipment including mufflers to reduce noise	Noise; Wildlife, including Special Status Species
LUPA-BIO-13	Implement the following CMA for project siting and design • To the maximum extent practicable site and design projects to avoid impacts to vegetation types, unique plant assemblages, climate refugia as well as occupied habitat and suitable habitat for Focus and BLM Special Status Species (see "avoid to the maximum extent practicable" in Glossary of Terms). • The siting of projects along the edges (i.e. general linkage border) of the biological linkages identified in Appendix D (Figures D-1 and D-2) will be configured (1) to maximize the retention of microphyll woodlands and their constituent vegetation type and inclusion of other physical and biological features conducive to Focus and BLM Special Status Species' dispersal, and (2) informed by existing available information on modeled focus and BLM Special Status Species habitat and element occurrence data, mapped delineations of vegetation types, and based on available empirical data, including radio telemetry, wildlife tracking sign, and road-kill information. Additionally, projects will be sited and designed to maintain the function of F Special Status Species connectivity	Wildlife, including Special Status Species; Vegetation, including Noxious and Non-native Invasive Species and Special Status Species

Number	Conservation Management Action	Resources Affected
	and their associated habitats in the following linkage and connectivity areas: • Within a 5-mile-wide linkage across Interstate 10 centered on Wiley's Well Road to connect the Mule and McCoy mountains (the majority of this linkage is within the Chuckwalla ACEC and Mule-McCoy Linkage ACEC) . • Within a 3-mile-wide linkage across Interstate 10 to connect the Chuckwalla and Palen mountains. • Within a 1.5-mile-wide linkage across Interstate 10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center. • The confluence of Milpitas Wash and Colorado River floodplain within 2 miles of California State Route 78 (this linkage is entirely within the Chuckwalla ACEC). • Delineate the boundaries of areas to be disturbed using temporary construction fencing and flagging prior to construction and confine disturbances, project vehicles, and equipment to the delineated project areas to protect vegetation types and focus and BLM Special Status Species. • Long-term nighttime lighting on project features will be limited to the minimum necessary for project security, safety, and compliance with Federal Aviation Administration requirements and will avoid the use of constant-burn lighting. • All long-term nighttime lighting will be directed away from riparian and wetland vegetation, occupied habitat, and suitable habitat areas for Focus and BLM Special Status Species. Long-term nighttime lighting will be directed and shielded downward to avoid interference with the navigation of night-migrating birds and to minimize the attraction of insects as well as insectivorous birds and bats to project infrastructure. • To the maximum extent practicable (see Glossary of Terms), restrict construction activity to existing roads, routes, and utility corridors to minimize the number and length/size of new roads, routes, disturbance, laydown, and borrow areas. • To the maximum extent practicable (see Glossary of Terms), confine vehicular traffic to designated open routes of travel to and from the project site, and prohibit, within project boundaries, cross-country vehicle and equipment use outside of approved designated work areas to prevent unnecessary ground and vegetation disturbance.	

Number	Conservation Management Action	Resources Affected
	• To the maximum extent practicable(see Glossary of Terms) , construction of new roads and/or routes will be avoided within Focus and BLM Special Status Species suitable habitat within identified linkages for those Focus and BLM Special Status Species, unless the new road and/or route is beneficial to minimize net impacts to natural or ecological resources of concern. These areas will have a goal of "no net gain" of project roads and/or routes • To the maximum extent practicable (see Glossary of Terms), any new road and/or route considered within Focus and BLM Special Status Species suitable habitat within identified linkages for those Focus and BLM Special Status Species will not be paved so as not to negatively affect the function of identified linkages. • Use nontoxic road sealants and soil stabilizing agents.	
LUPA-BIO-PLANT-2	Implement an avoidance setback of 0.25 mile for all Focus and BLM Special Status Species occurrences. Setbacks will be placed strategically adjacent to occurrences to protect ecological processes necessary to support the plant Species (see Appendix Q, Baseline Biology Report, in the Proposed LUPA and Final EIS [2015], or the most recent data and modeling).	Vegetation, including Noxious and Non-native Invasive Species
LUPA-BIO-SVF-1	For activity-specific NEPA analysis, a map delineating potential sites and habitat assessment of the following special vegetation features is required: Yucca clones, creosote rings, Saguaro cactus, Joshua tree woodland, microphyll woodland, Crucifixion thorn stands. BLM guidelines for mapping/surveying cactus, yuccas, and succulents shall be followed.	Vegetation, including Noxious and Non-native Invasive Species
LUPA-BIO-SVF-6	Microphyll woodland: impacts to microphyll woodland (see Glossary of Terms) will be avoided, except for minor incursions (see Glossary of Terms).	Vegetation, including Noxious and Non-native Invasive Species
LUPA-BIO-VEG-1	Management of cactus, yucca, and other succulents will adhere to current up-to-date BLM policy.	Vegetation, including Noxious and Non-native Invasive Species
LUPA-BIO-VEG-2	Promote appropriate levels of dead and downed wood on the ground, outside of campground areas, to provide wildlife habitat, seed beds for vegetation establishment, and reduce soil erosion, as determined appropriate on an activity-specific basis.	Vegetation, including Noxious and Non-native Invasive Species
LUPA-BIO-IFS-9	Vehicular traffic will not exceed 15 miles per hour within the areas not cleared by protocol level surveys where desert tortoise may be impacted.	Wildlife, including Threatened and Endangered Species
LUPA-BIO-IFS-12	If burrowing owls are present, a designated biologist (see Glossary of Terms) will conduct appropriate activity-specific biological monitoring (see Glossary of Terms) to ensure avoidance of occupied burrows and establishment of the 656 feet (200 meter) setback to sufficiently minimize disturbance during the nesting period on all activity sites, when practical.	Wildlife, including Special Status Species

Number	Conservation Management Action	Resources Affected
LUPA-BIO-IFS-13	If burrows cannot be avoided on-site, passive burrow exclusion by a designated biologist (see Glossary of Terms) through the use of one-way doors will occur according to the specifications in Appendix D or the most up-to-date agency BLM or CDFW specifications. Before exclusion, there must be verification that burrows are empty as specified in Appendix D or the most up-to-date BLM or CDFW protocols. Confirmation that the burrow is not currently supporting nesting or fledgling activities is required prior to any burrow exclusions or excavations.	Wildlife, including Special Status Species
LUPA-BIO-IFS-14	Activity-specific active translocation of burrowing owls may be considered, in coordination with CDFW.	Wildlife, including Special Status Species
LUPA-BIO-IFS-24	Provide protection from loss and harassment of active golden eagle nests through the following actions: • Activities that may impact nesting golden eagles, will not be sited or constructed within 1-mile of any active or alternative golden eagle nest within an active golden eagle territory, as determined by BLM in coordination with USFWS as appropriate.	Wildlife, including Migratory Birds and Special Status Species
LUPA-CTTM-7	Manage Recreation Facilities consistent with the objectives for the recreation management areas and facilities (see also Section II.4.2.1.10).	Recreation
LUPA-CUL-9	Promote DRECP desert vegetation types/communities by avoiding them where possible, then use required compensatory mitigation, off-site mitigation, and other means to ensure Native American vegetation collection areas and practices are maintained.	Vegetation; Cultural Resources
LUPA-CUL-11	Promote and protect desert microphyll woodland vegetation type/communities to ensure Native American cultural values are maintained.	Vegetation; Cultural Resources
LUPA-MIN-2	Existing authorized mineral/energy operations, including existing authorizations, modifications, extensions and amendments and their required terms and conditions, are designated as an allowable use within all BLM lands in the LUPA Decision Area, and unpatented mining claims subject to valid existing rights. Amendments and expansions authorized after the signing of the DRECP LUPA ROD are subject to applicable CMAs, including ground disturbance caps within Ecological and Cultural Conservation Areas, subject to valid existing rights, subject to governing laws and regulations.	All Resources; Land Use Plan Conformance
LUPA-MIN-6	New or expanded mineral operations will be evaluated on a case-by-case basis, and authorizations are subject to LUPA requirements, and the governing laws and regulations.	All Resources; Land Use Plan Conformance
LUPA-SW-3	Where a seeming conflict between CMAs within or between resources arises, the CMA(s) resulting in the most resource protection apply.	All Resources
LUPA-SW-5	Exceptions to any of the specific soil and water stipulations contained in this section, as well as those listed below under the subheadings “Soil Resources,” “Surface Water,” and “Groundwater Resources,” may be granted by the authorized officer if the applicant submits a plan, or, for BLM-initiated actions, the BLM provides documentation, that demonstrates:	Water Resources

Number	Conservation Management Action	Resources Affected
	• The impacts are minimal (e.g., no predicted aquifer drawdown beyond existing annual variability in basins where cumulative groundwater use is not above perennial yield and water tables are not currently trending downward) or can be adequately mitigated.	
LUPA-SW-11	Where possible, side casting shall be avoided where road construction requires cut- and-fill procedures.	Water Resources
NLCS-CUL-1	Any adverse effects to historic properties resulting from allowable uses will be addressed through the Section 106 process of the National Historic Preservation Act and the implementing regulations at 36 CFR Part 800. Resolution of adverse effects will in part be addressed via alternative mitigation that includes regional synthesis and interpretation of existing archaeological data in addition to mitigation measures determined through the Section 106 consultation process.	Cultural Resources; National Conservation Lands
NLCS-MIN-2	For the purposes of locatable minerals, California Desert National Conservation Lands are treated as "controlled" or "limited" use areas in the CDCA, requiring a Plan of Operations for greater than casual use under 43 CFR 3809.11.	National Conservation Lands
NLCS-NSHT-12	Cultural Resources – Any adverse effects to historic properties resulting from allowable uses will be addressed through the Section 106 process of the National Historic Preservation Act and the implementing regulations at 36 CFR Part 800.	Cultural Resources; National Conservation Lands
ACEC-CUL-6	Where specific threats are identified, implement protection measures consistent with agency NHPA Section 106 responsibilities.	Cultural Resources; Areas of Critical Environmental Concern

In addition to the applicant-committed PDFs and CMAs, the following mitigation measures, as described below, would be required by the BLM. All of the mitigation measures described below would be fully supported and covered financially by SMP.

Table F-3: Required Mitigation Measures

Number	Mitigation Measure	Resources Affected	Effectiveness and Impacts of Mitigation
M-1	SMP would install exclusionary fencing around the access road to prevent desert tortoise crossings and collisions with individual species within the Tumco Wash.	Wildlife, Special Status Species	Exclusionary fencing would limit tortoise access to roads and prevent potential mortality. Exclusionary fencing is often used to control tortoises and limit access to potentially hazardous conditions (AIDTT 2008). The impacts associated with this mitigation include additional temporary disturbance associated with the fence. Fencing would be installed on the previously disturbed ROW to reduce impacts to vegetation and wildlife habitat. All disturbance would be reclaimed as described in **Appendix E**.
M-2	Notices would be posted on the BLM's website and at designated recreational sites in the area	Noise, Recreation	The impacts associated with this mitigation include a potential decrease in the utilization of the Project Area and surrounding public

Number	Mitigation Measure	Resources Affected	Effectiveness and Impacts of Mitigation
	notifying the public of dates and times that drilling would occur, bringing awareness to potential elevated levels of noise and activity in the Project Area during which time recreationalists may choose to visit locations outside of the Project Area.		land by recreationalists. Recreationalists may choose to use other public lands in the surrounding area.
M-3	Idling of all vehicles would be reduced to a minimum necessary for operational capacity.	Air Quality	Limiting idling would reduce overall emissions and therefore, reduce impacts to air quality and climate change.
M-4	The staging area would be stabilized during use using BLM approved methods, and staging area soils will be stabilized upon Project completion.	Air Quality, Soils	Stabilizing the staging area would reduce fugitive dust generation from loose soils and would reduce impacts from soil erosion.
M-5	A Cultural Monitoring and Inadvertent Discovery Plan will be prepared in consultation with the BLM ECFO archaeologist and implemented prior to conducting fieldwork. Any inadvertent cultural resources discovered during construction, operations and/or reclamation would require SMP to cease all work immediately and notify the BLM Authorized Officer. The BLM Authorized Officer would then evaluate the discovery in coordination with other consulting parties to determine and implement appropriate treatment, if necessary.	Cultural Resources	Periodic monitoring would reduce impacts to known sites as well as any undocumented cultural sites or sensitive areas identified. SMP would implement PDFs and mitigation measures to avoid and reduce impacts to cultural resources.
M-6	All known culturally sensitive areas within 100 feet of ground-disturbing activities and access roads will be safeguarded with periodic archaeological monitoring and possibly barrier fencing, in consultation with the BLM ECFO archaeologist,	Cultural Resources	Barrier fencing would reduce accidental impacts to culturally sensitive areas from personnel and equipment. The impacts associated with this mitigation include additional temporary disturbance associated with the barrier fencing. Fencing would be placed so as to avoid impacts to vegetation. All disturbance would be reclaimed as described in **Appendix E**.
M-7	Periodic archaeological monitoring (checking fencing, access routes, and drill pad locations, etc.) will be conducted by SMP's archaeological contractor (at least once every two weeks during drilling activities) in consultation with the BLM ECFO archaeologist.	Cultural Resources	Periodic monitoring would reduce impacts to known sites as well as any undocumented cultural sites or sensitive areas. If any previously undocumented sites are identified, SMP would implement PDFs and mitigation measures to avoid and reduce impacts to cultural resources.
M-8	Pre-construction vegetation surveys would be conducted prior to commencement of Project	Vegetation, Special Status Species	Barrier fencing would reduce accidental impacts to special status plant species from personnel and equipment. The impacts

Number	Mitigation Measure	Resources Affected	Effectiveness and Impacts of Mitigation
	activities and would occur in tandem with the pre-construction migratory bird surveys described in the above PDFs (Table F-1). Should special status plant species be identified during Project activities, the BLM would require SMP to implement temporary barrier fencing around the individual plants for avoidance and to minimize impacts throughout the life of the Project.		associated with this mitigation include additional temporary disturbance associated with the barrier fencing. Fencing would be placed so as to avoid impacts to vegetation. All disturbance would be reclaimed as described in **Appendix E**.
M-9	Netting or other applicable barriers would be placed over inactive sumps during the evaporation process and prior to backfilling to prevent wildlife entrapment.	Wildlife	Netting would reduce wildlife entrapment and mortality from potential wildlife ingress to inactive sumps during the evaporation process post-drilling.
M-10	Minor incursions to microphyll woodland would be avoided or mitigated when construction the temporary portal access road.	Vegetation, Special Status Species	Avoidance of a minor incursion would prevent impacts to present microphyll woodlands from temporary surface disturbance for construction of the portal access road and reclamation of the road upon Project completion.

Appendix G: Issues Considered as Part of the NEPA Analysis

Table G-1: Issues Considered

Determination	Issue	Rationale for Determination
PI	Air Quality	Resource is present and potentially affected; please refer to Section 3.3 for a detailed analysis.
PI	Areas of Critical Environmental Concern	Resource is present and potentially affected; please refer to Section 3.5 for a detailed analysis.
PI	Climate Change, including GHG Emissions	Resource is present and potentially affected; please refer to Section 3.6 for a detailed analysis.
PI	Conservation Lands	Resource is present and potentially affected; please refer to Section 3.7 for a detailed analysis.
PI	Cultural Resources	Resource is present and potentially affected; please refer to Section 3.8 for a detailed analysis.
PI	Environmental Justice	Resource is present and potentially affected; please refer to Section 3.10 for a detailed analysis.
NP	Farmlands (Prime or Unique)	No prime and unique farmlands are present within the Project Area; resource is not present and therefore not affected.
NI	Fire Management	Resource is present; however, there is minimal risk of fire from Project activities, and with the implementation of the PDFs, impacts would be minimized.
NP	Fish Habitat	No existing surface water other than ephemeral drainages within the Project Area; resource is not present and therefore not affected.
NP	Floodplains	No 100-year floodplains or wetlands exist within the Project Area; resource is not present and therefore not affected.
NP	Forests and Rangelands	Resource is not present and therefore not affected.
NP	Forestry Resources and Woodland Products	Resource is not present and therefore not affected.
NI	Human health and safety concerns	Drill support vehicles would occur along public BLM roads and the general public's access within the active drilling area would be temporarily limited; with the implementation of the PDFs, impacts would be minimized.
PI	Invasive, Non-native Species	Resource is present and potentially affected; please refer to Section 3.20 for a detailed analysis.
NP	Lands and Realty	No existing Right-of-Ways or land use authorizations occur within the Project Area; resource is not present and therefore not affected.
NP	Lands with Wilderness Characteristics	The Project Area is not within an area designated as Lands with Wilderness Characteristics; resource is not present and therefore not affected.
NP	Livestock Grazing Management	No rangelands are allotments are present within the Project Area; resource is not present and therefore not affected.
PI	Migratory birds and wildlife	Resource is present and potentially affected; please refer to Section 3.22 for a detailed analysis.

Determination	Issue	Rationale for Determination
NI	Mineral Resources	The Proposed Action would not involve the removal of large quantities of earth that may potentially lead to structural instability. A small amount of material would be removed from boreholes and would not affect potential mineral resources in the ground. Due to the short-term timeline of the Proposed Action and the small-scale surface disturbance for exploration activities, impacts to minerals are not anticipated; therefore, resource is present but not affected.
PI	Native American Religious Concerns	Resource is present and potentially affected; please refer to Section 3.14 for a detailed analysis.
PI	Noise Resources	Resource is present and potentially affected; please refer to Section 3.15 for a detailed analysis.
NI	Paleontological Resources	The Project Area has limited potential for fossil preservation in the colluvial sediments (Stantec 2022c); due to the short-term nature and the limited areas of impact from the Project, impacts to paleontological resources would not occur.
PI	Recreation Resources	Resource is present and potentially affected; please refer to Section 3.17 for a detailed analysis.
NP	Sage Grouse Habitat	There are no sage-grouse populations within or nearby the Project Area; resource is not present and therefore not affected.
NI	Socioeconomics	Due to the short-term and small-scale nature of exploration activities and the remote area of the Project, impacts to socioeconomic values would not occur other than a net social and economic benefit from employment opportunities related to the Project. Temporary drilling crews would be on-site at the Project during exploration operations; employees may stay temporarily on-site or off-site in the nearby communities of Winterhaven, California, El Centro, California, or Yuma, Arizona. The Proposed Action is unlikely to increase demand for short-term housing in the area or noticeably increase demand for public or private services. The Project may stimulate minor, temporary economic activity in nearby communities within Imperial County, California or in Yuma, Arizona; however, other socioeconomic impacts have not been identified and therefore socioeconomics is present but not affected.
PI	Soils	Resource is present and potentially affected; please refer to Section 3.18 for a detailed analysis.
PI	Threatened, Endangered or Candidate Plant or Animal Species	Resource is present and potentially affected; please refer to Section 3.23 for a detailed analysis.
PI	Travel and Transportation	Resource is present and potentially affected; please refer to Section 3.19 for a detailed analysis.
PI	Vegetation	Resource is present and potentially affected; please refer to Section 3.20 for a detailed analysis.
PI	Visual Resources	Resource is present and potentially affected; please refer to Section 3.21 for a detailed analysis.

Determination	Issue	Rationale for Determination
NI	Wastes, Hazardous or Solid	No hazardous substances would be used in the drilling program so no hazardous waste would be generated by the Project; with the implementation of PDFs and BMPs, impacts would be minimized.
PI	Water	Resource is present and potentially affected; please refer to Section 3.22 for a detailed analysis.
NP	Wetlands/Riparian Zones	No wetlands or riparian zones are present within the Project Area; resource not present and therefore not affected.
NP	Wild Horses and Burros	The Project Area is not located within a Herd Management Area; resource not present and therefore not affected.
NP	Wild and Scenic Rivers	The Project is not within one mile of a designated Wild and Scenic River; resource not present and therefore not affected.
NP	Wilderness and Wilderness Study Areas	The Project Area is not located within a designated wilderness area or wilderness study area; resource not present and therefore not affected.
PI	Wildlife	Resource is present and potentially affected; please refer to Section 3.23 for a detailed analysis.

NP = not present in the area impacted by the proposed or alternative actions.
NI = present, but not affected to a degree that detailed analysis is required.
PI = present and may be impacted to some degree; detailed analysis required.

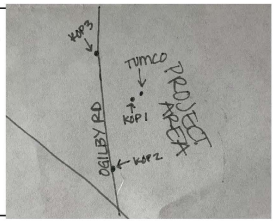
Appendix H: Visual Contrast Rating Worksheets

Form 8400-4
(June 2018)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: 07/18/2022
District Office: California Desert District
Field Office: El Centro
Land Use Planning Area:

SECTION A. PROJECT INFORMATION

1. Project Name	4. KOP Location (T.R.S)	5. Location Sketch
Oro Cruz Exploration Project	T15S, R20E, S2 SWSE	
2. Key Observation Point (KOP) Name: KOP 1 - Tumco Parking Lot/Kiosk Area		
3. VRM Class at Project Location: Class III & IV	(Lat. Long): 32.8809, -114.8326	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	FG: Rugged, defined, circular rough rocks MG: Rugged to smooth, domed to flat BG: Jagged, rough, low to tall	FG: Sparse to clustered, irregular MG: Sparse clustered irregular BG: Indistinct	MG: Vertical and horizontal, short, linear, regular
LINE	FG: Irregular, horizontal, curving MG: horizontal, curving, jagged, diverging BG: angular, undulating, irregular	FG: Diffuse, broken, jagged, clumped MG: Diffuse, broken, indistinct in far MG BG: Indistinct	MG: Bold, perpendicular and parallel to land, simple, straight, broken posts and gate, polygon BLM sign
COLOR	FG: tan, light brown, gray, green MG: tan, brown, gray-brown BG: dark brown-gray, blue, luminous	FG: Green, brownish green, brown MG: Green, to brown, indistinct BG: Indistinct	MG: Dark brown, white writing on sign, monotone, saturated
TEX-TURE	FG: Medium/coarse, clumped to stippled MG: Medium density, stippled to granular, BG: Coarse to fine, directional, contrasty	FG: Coarse, patchy to clumped, sparse MG: Coarse to fine, clumped to scattered BG: Indistinct	MG: Coarse grain, uniform distribution, ordered spatially

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	BG: Solid contrasting linear forms, irregular	BG: Contrasting, void	BG: Drilling equipment may appear as tall, linear forms; vehicles and helicopters may appear contrasting geometric forms
LINE	BG: Horizontal features against void soil disturbance	BG: Irregular, void, indistinct from vegetation removal/soil disturbance	BG: Vertical, irregular and horizontal, indistinct
COLOR	BG: Lighter exposed soils, dark drill pads and equipment against hillsides	BG: Void if vegetation is disturbed through exploration; colored where reclaimed with native reseeding	BG: Reflective, opposing colors, dark
TEX-TURE	BG: Smoother, exposed soils	BG: Smooth, sparse, void, but likely indistinct from a distance	BG: Dotted, uniform, directional

SECTION D. CONTRAST RATING ✓ SHORT TERM __ LONG TERM

1. DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM			✓				✓				✓	
	LINE			✓				✓				✓	
	COLOR			✓				✓				✓	
	TEXTURE			✓				✓				✓	

2. Does project design meet visual resource management objectives? ✓ Yes ___ No
(Explain on reverses side)

3. Additional mitigating measures recommended
___ Yes ✓ No (Explain on reverses side)

Evaluator's Names: Gianni Giuliano, Shelby Hockaday
Date: 07/18/2022

(Continued on Page 2)

Comments from item 2.

VRM Class III allows for moderate changes to the characteristic landscape. The distance between the KOP and the proposed Project, approximately facing Drill Areas 2, 3, and 5 is less than one mile away; however, it is anticipated that the mountainous topography of the area would prevent much of the Project from being visible. How far disturbance occurs vertically up the mountains in the background would dictate the amount of disturbance that may be seen. Assuming disturbance occurs at higher elevations along the mountainsides or lower within the valleys/canyons of the drill areas, the degree of contrast for form, line, color and texture to land/water, vegetation, and structures has been recorded as weak. It is possible that the degree of contrast would be none if disturbance occurs lower in the valleys behind the mountains directly in front of KOP 1. Project activities may attract attention from the public due to their distance from KOP 1 and the potential visibility of recreationalists/tourists visiting the historic Tumco walking area; however, drilling equipment, drill pad construction, and vehicles traveling on access roads would have weak to indistinct contrast. A helicopter may be visible for short periods of time traveling from Drill Area 1 to Drill Areas 3 and 5, but would likely not be visible traveling to Drill Area 2 from the viewpoint of KOP 1. All visual contrast would be temporary during exploration activities and would not be constant within either Drill Areas 2, 3 or 5 or along the access roads during the life of the Project.

VRM Class IV allows for major changes to the landscape. The proposed Project is not anticipated to result in major changes to the landscape.

Additional Mitigating Measures (See item 3)

No mitigation measures are suggested at this time. If necessary, the Proponent would coordinate with the BLM to determine additional mitigation measures.

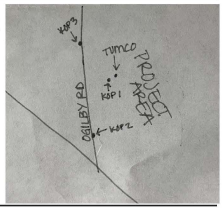
KOP 1 – Tumco Parking Lot/Kiosk Area

Form 8400-4
(June 2018)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: 07/18/2022
District Office: California Desert District
Field Office: El Centro
Land Use Planning Area:

SECTION A. PROJECT INFORMATION

1. Project Name	4. KOP Location (T.R.S)	5. Location Sketch
Oro Cruz Exploration Project	T15S, R20E, S14 SESW	
2. Key Observation Point (KOP) Name KOP 2 - Pullout traveling north on Ogilby Road		
3. VRM Class at Project Location Class III & IV	(Lat. Long) 32.8525, -114.8383	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	FG: Flat, low, wide, circular round rocks MG: Low, linear to curving BG: Jagged, rough, irregular	FG: Prominent, dense irregular clusters MG: Definite to indistinct dense clusters BG: Indistinct	No structures are visible in the existing landscape
LINE	FG: weak curving lines in gravel MG: horizontal, parallel soft dirt road BG: Jagged, angular, complex to faint	FG: Irregular, perpendicular, diagonal MG: Irregular, perpendicular to horizontal BG: Indistinct	
COLOR	FG: Tan, grayish brown MG: Tan, grayish brown, light brown BG: gray to dark brown, blue, luminous	FG: Green, tan, brown MG: Green, brown to coppery BG: Indistinct	
TEX-TURE	FG: fine to medium, uneven, dotted MG: medium to smooth, scatter, indistinct BG: Directional, striated, rough to smooth	FG: Coarse, clumped to sparse MG: Coarse to smooth, slight gradation BG: Indistinct	

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	BG: Solid contrasting linear forms, irregular, faint	BG: Contrasting, void, indistinct	BG: Drilling equipment may appear as tall, linear forms; vehicles and helicopters may appear contrasting geometric forms
LINE	BG: Horizontal features against void soil disturbance	BG: Irregular, void, indistinct from vegetation removal and soil disturbance from distance	BG: Vertical, irregular and horizontal, to indistinct
COLOR	BG: Lighter exposed soils, dark drill pads, equipment against/atop hillsides, contrasting vehicle traffic on access road	BG: Void if vegetation is disturbed in locations visible from KOP, colored where reclaimed with native reseeding	BG: Reflective opposing colors, dark
TEX-TURE	BG: Smoother, exposed soils but weak/faint	BG: Smooth, sparse, void, likely indistinct from distance	BG: Dotted, uniform, directional

SECTION D. CONTRAST RATING ✓ SHORT TERM __ LONG TERM

1. DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM			✓				✓				✓	
	LINE			✓				✓				✓	
	COLOR			✓				✓				✓	
	TEXTURE			✓				✓				✓	

2. Does project design meet visual resource management objectives? ✓ Yes ___ No
(Explain on reverses side)

3. Additional mitigating measures recommended
___ Yes ✓ No (Explain on reverses side)

Evaluator's Names: Gianni Giuliano, Shelby Hockaday
Date: 07/18/2022

(Continued on Page 2)

Comments from item 2.

VRM Class III allows for moderate changes to the characteristic landscape. KOP 2 is approximately two miles away from the proposed Project, specifically Drill Area 6 at the south end of the Project Area. It is anticipated that much of the Project would not be visible from this KOP due to the mountainous topography and proposed Project layout; however, some drilling equipment may be faintly visible in the far background atop/against the mountains and a helicopter may be temporarily visible during travel to Drill Area 6. How far disturbance occurs vertically up the mountains in the background would dictate the amount of disturbance that may be seen from KOP 2. Assuming disturbance occurs at higher elevation along the backsides of the mountains visible from this KOP, and potentially atop or along the front sides of the mountains, and lower valleys/canyons within the drill areas, the degree of contrast for form, line, color, and texture to land/water, vegetation, and structures has been recorded as weak. It is possible that the degree of contrast would be none if disturbance occurs lower in the valleys behind the face of the mountains directly in front of KOP 2. Project activities may attract attention from the public due to their distance from KOP 1, however, drilling equipment, drill pad construction, and vehicles traveling on the access road would have weak to indistinct contrast. All visual contrast would be temporary during exploration activities and would not be constant within Drill Area 6 or along the access roads during the life of the Project.

VRM Class IV allows for major changes to the landscape. The proposed Project is not anticipated to result in major changes to the landscape.

Additional Mitigating Measures (See item 3)

No mitigation measures are suggested at this time. If necessary, the Proponent would coordinate with the BLM to determine additional mitigation measures.

KOP 2 – Pullout Traveling North on Ogilby Road

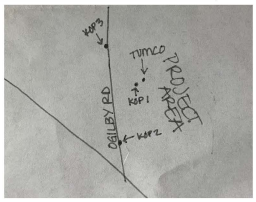
Form 8400-4
(June 2018)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: 07/18/2022
District Office: California Desert District
Field Office: El Centro
Land Use Planning Area:

SECTION A. PROJECT INFORMATION

1. Project Name Oro Cruz Exploration Project	4. KOP Location (T.R.S) T15S, R20E, S2 SENW	5. Location Sketch
2. Key Observation Point (KOP) Name KOP 3 - Pullout traveling south on Ogilby Road		
3. VRM Class at Project Location Class III & IV	(Lat. Long) 32.8895, -114.8391	



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	FG: Flat, linear road, parallel soil edges MG: Rough to smooth, flat, wide BG: irregular to smooth, indistinct	FG: Simple, vertical to complex shrubs MG: Sparse to amorphous BG: Indistinct	MG: Tall, linear narrow power poles with diagonal supports
LINE	FG: Linear, horizontal, straight, bold MG: Soft, weak converging soil lines BG: Angular jagged mts to smooth sky	FG: Bold to weak, subangular to smooth MG: Irregular, soft to weak BG: Indistinct	MG: Vertical, straight, simple
COLOR	FG: Gray, yellow, tan, black MG: Tan, brownish gray BG: Gray, black, brown, blue, luminous	FG: Green, brown to olive green MG: Greenish brown to indistinct, weak BG: Indistinct	MG: dark hue contrasted with background, monochrome
TEX-TURE	FG: Fine to medium, cracked, rough soils MG: Gradational, coarse to smooth BG: Jagged rough mts to smooth sky	FG: Sparse to clustered/dense MG: Medium grain, low contrast, uneven BG: Indistinct	MG: Smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	BG: Solid contrasting linear forms, irregular and weak	BG: Contrasting, void, indistinct	BG: Drilling equipment may appear tall, linear forms in the far BG, vehicles & helicopters may appear contrasting
LINE	BG: Horizontal and vertical features against void soil disturbance	BG: Irregular, void, indistinct from vegetation removal/soil disturbance	BG: Vertical, irregular and horizontal, indistinct, visibility would be faint
COLOR	BG: lighter exposed soils but faint, dark drill pads and equipment faint against hillsides	BG: Void if vegetation is disturbed but would be very faint; colored and uniform where reclaimed with native reseeding	BG: Reflective, opposing colors, faint
TEX-TURE	BG: smoother, exposed soils, irregular	BG: smooth, sparse, void, likely indistinct in far BG	BG: Dotted, uniform, directional, indistinct

SECTION D. CONTRAST RATING ✓ SHORT TERM __ LONG TERM

1. DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM			✓				✓				✓	
	LINE			✓				✓				✓	
	COLOR			✓				✓				✓	
	TEXTURE			✓				✓				✓	

2. Does project design meet visual resource management objectives? ✓ Yes ___ No
(Explain on reverses side)

3. Additional mitigating measures recommended
___ Yes ✓ No (Explain on reverses side)

Evaluator's Names
Gianni Giuliano
Shelby Hockaday

Date
07/18/2022

(Continued on Page 2)

Comments from item 2.

VRM Class III allows for moderate changes to the characteristic landscape. The distance between the KOP and the proposed Project, approximately facing Drill Area 3 is approximately one mile away. It is anticipated that the mountainous topography and the direction of the KOP facing the Project Area with tall vegetation in the foreground to middleground would prevent much of the Project from being visible. How far disturbance occurs vertically up the mountains int he background would dictate the amount of disturbance that may be seen, and much of the proposed disturbance would likely occur behind the face of the mountains that is not visible from KOP 3. Assuming disturbance occurs at higher elevations along the mountainsides or lower within the valleys/canyons of the drill areas, behind the face of the mountains visible from KOP 3, the degree of contrast for form, line, color, and texture to land/water, vegetation, and structures has been recorded as weak. It is possible that the degree of contrast would be none if disturbance occurs lower in the valleys or along the backside of the mountains as anticipated rather than along the mountain edges visible from KOP 3. Project activities may attract attention from the public due to their distance from KOP 3 and the potential visibility by travelers driving on Ogilby Road; however, drilling equipment, drill pad construction, and vehicles traveling on access roads would have weak to indistinct contract. A helicopter may be visible for short periods of time traveling from Drill Area 1 to Drill Area 3, but would be temporary and inconsistent. All visual contrast would be temporary during exploration activities and would not be constant within all drill areas, including Drill Area 3 that has the potential to be visible from KOP 3, or along the access roads during the life of the Project.

VRM Class IV allows for major changes to the landscape. The proposed Project is not anticipated to result in major changes to the landscape.

Additional Mitigating Measures (See item 3)

No mitigation measures are suggested at this time. If necessary, the Proponent would coordinate with the BLM to determine additional mitigation measures.

KOP 3 – Pullout Traveling South on Ogilby Road

Appendix I: Public Comments and Responses

Oro Cruz Exploration Project
EA/MND Public Comments and Responses

Letter ID #	Comment ID #	Name/Entity	Comment	Response
1.0	1.1	• Ah-Mut Pipa Foundation • Center for Biological Diversity • California Mining Organizer (Earthworks) • Sierra Club California/Nevada Desert Committee	Dear Ms. Martinez, We are writing to request a 45-day extension of the public comment period for the SMP Gold Corp Oro Cruz Exploration Project. Given that the current comment period closing December 16th overlaps with the Thanksgiving holiday, and given the length of the EA (578 pages), an extension to January 30th will be necessary to ensure adequate time for the public to review and comment on the project. Thank you for your consideration	Thank you for your comment. As stated by the BLM in an email response to the commenters on November 30, 2022, after review and consideration of the request, the BLM adhered to the public comment schedule as originally posted but please be advised, extra timing was considered and included within the deadline due to the Thanksgiving holiday.
2.0	2.1	Individual	I appreciate the diligent work involved in preparing this comprehensive EA. I am very concerned about the potential adverse impacts on the ESA threatened Mojave desert tortoises and other native wildlife species.	Thank you for your comment. Per the analysis in Section 3.23.3 of the EA/MND, impacts to threatened and endangered species (including Mojave Desert tortoise), special status species, and general wildlife species are anticipated to be negligible to minor, short-term, and localized. Several Project Design Features (PDFs) have been developed by the proponent for implementation during the Project to minimize impacts. Additional wildlife-specific mitigation measures would be required for implementation by the BLM, as outlined in Appendix F of the EA/MND. Mitigation measures include monitoring of project activities by a BLM-approved Authorized or Qualified Biologist to ensure no desert tortoises are killed or burrows crushed, and project staff are compliant with tortoise best practices. Project activities would be monitored throughout the life of the Project to avoid potential impacts to Mojave Desert tortoise habitat. SMP would designate a Field Contact Representative (FCR) who would be responsible for overseeing compliance with protective stipulations for desert tortoise habitat, and for compliance coordination with the BLM. The FCR would be a BLM-approved Authorized or Qualified Biologist on-site year-round throughout the life of the Project in order to implement all tortoise-related PDFs to minimize impacts. The FCR would be an on-site compliance monitor for all aspects of the Project, and should desert tortoise be detected, the FCR would contact the BLM.
2.0	2.2	Individual	I am also concerned about potential harm to those resources that were intended for protection under the ACEC designation.	As stated in Section 3.5.3 of the EA/MND, the Project would avoid the resources that the Picacho ACEC was designated to protect, including biological and cultural resources. Additional Conservation Management Actions (CMAs) and mitigation measures would be required by the BLM to minimize impacts, as outlined in Appendix F of the EA/MND. Impacts to the Picacho ACEC would be negligible, short-term, and localized.
2.0	2.3	Individual	BLM has an unreliable track record when it comes to approving mining operations and then preventing environmental damage from those operations.	The proposed Project would entail construction, operation, and reclamation of mineral exploration drilling activities. Per 3809.401(d), an operator must submit a reclamation cost estimate at a time specified by the BLM. The BLM will coordinate with the proponent for submittal of the reclamation cost estimate

Letter ID #	Comment ID #	Name/Entity	Comment	Response
			Some mining companies go bankrupt or otherwise default on their obligations. This leaves the public with the significant costs of cleaning up toxic wastes and land reclamation. BLM could require companies to post adequate bonds to cover such costs but often improperly fails to do so. History has repeatedly shown that environmental promises in final BLM NEPA and decision documents are not always kept. Words on paper don't always translate into tangible actions. How can BLM ensure the public that this specific mining would be different?	accordingly and will review the estimate to ensure it meets the federal requirements found at 3809.552. The BLM will request a revised estimate if any deficiencies are found or if additional information must be submitted in order to determine a final reclamation cost. The BLM will notify the Project proponent when it has determined the final amount. Project operations must not begin until the BLM issues a decision approving a Plan of Operations and a financial guarantee has been provided (3809.412). The BLM will further coordinate with Imperial County (the SMARA lead) as to which agency will hold the bond. Furthermore, the Project would be in conformance with all federal and state land use plans as described in Chapter 1 of the EA/MND, and the BLM would require mitigation measures be implemented in addition to the PDFs committed to by the proponent to minimize environmental impacts to present resources, as included in Appendix F of the EA/MND.
2.0	2.4	Individual	What are the real risks of harm to tortoises and the ACEC?	Per the analysis in Section 3.23.3 and Section 3.5.3 of the EA/MND, which analyze impacts to threatened and endangered species (including Mojave desert tortoise) and impacts to the Picacho ACEC, respectively, impacts to desert tortoise and the ACEC under the Proposed Action would be negligible, short-term, and localized. Several PDFs have been developed by the proponent for implementation during the Project to minimize impacts. Additional wildlife-specific mitigation measures would be required for implementation by the BLM, as outlined in Appendix F of the EA/MND. Furthermore, the BLM has engaged in consultation with the U.S. Fish and Wildlife Service (USFWS) pursuant to Section 7 of the Endangered Species Act for approval of an Activity Request Form under the Programmatic Biological Opinion for Mojave Desert tortoise. The BLM further consulted with the USFWS on appropriate mitigation measures to be implemented under the Proposed Action to minimize impacts to Mojave Desert tortoise pursuant to requirements under the 2017 Programmatic Biological Opinion for activities in the California Desert Conservation Area. The USFWS did not request additional measures to be implemented in addition to the PDFs committed to by SMP, the CMAs required under the DRECP LUPA, or the BLM-required mitigation measures, all included in Appendix F of the EA/MND.
2.0	2.5	Individual	Will a sufficient bond be required as a condition of approval? Thanks for considering my comments.	Should the Proposed Action be approved, the proponent would coordinate with the BLM and Imperial County to ensure a sufficient bond is in place for construction, operations, and reclamation for the Project. Development and approval of the bond is outside the scope of the NEPA and CEQA analysis in this EA/MND.
3.0	3.1	Individual	Kudos to BLM for this very comprehensive and informative EA. I appreciate the diligent and professional work that went into preparing it.	Thank you for your comment and support of the mitigation measures proposed. Per the analysis in Section 3.23.3 of the EA/MND for threatened and endangered species and per the PDFs, CMAs, and additional BLM-required mitigation

Letter ID #	Comment ID #	Name/Entity	Comment	Response
			My primary concern is any potential harm to ESA threatened Mojave desert tortoises. Despite ESA listing in 1990, most tortoise populations continue to rapidly decline. I support the EA measures to protect tortoises. I hope BLM will carefully monitor work activities to ensure these measures are being fully implemented. If tortoise habitats are destroyed, there should be effective mitigation. I care about tortoises and I ask BLM to do a better job of protecting them. Thank you very much for your consideration.	measures included in Appendix F of the EA/MND, impacts to Mojave Desert tortoise under the Proposed Action would be minor, short-term, and localized. Mitigation measures include monitoring of project activities by a BLM-approved Authorized or Qualified Biologist to ensure no desert tortoises are killed or burrows crushed, and project staff are compliant with tortoise best practices. Project activities would be monitored throughout the life of the Project to avoid potential impacts to Mojave Desert tortoise habitat. SMP would designate an FCR who would be responsible for overseeing compliance with protective stipulations for desert tortoise habitat, and for compliance coordination with the BLM. The FCR would be a BLM-approved Authorized or Qualified Biologist on-site year-round throughout the life of the Project in order to implement all tortoise-related PDFs to minimize impacts. The FCR would be an on-site compliance monitor for all aspects of the Project, and should desert tortoise be detected, the FCR would contact the BLM.
4.0	4.1	Desert Tortoise Council	**RE: Oro Cruz Exploration Project Environmental Assessment (DOI-BLM-CA-D070-2022-0012-EA; IS #21-0029)** Dear Ms. Martinez, Ms. Sahagun, and Mr. Abraham, The Desert Tortoise Council (Council) is a non-profit organization comprised of hundreds of professionals and laypersons who share a common concern for wild desert tortoises and a commitment to advancing the public's understanding of desert tortoise species. Established in 1975 to promote conservation of tortoises in the deserts of the southwestern United States and Mexico, the Council routinely provides information and other forms of assistance to individuals, organizations, and regulatory agencies on matters potentially affecting desert tortoises within their geographic ranges. As of June 2022, our mailing address has changed to: Desert Tortoise Council 3807 Sierra Highway #6-4514 Acton, CA 93510 Our email address has not changed. Both our physical and email addresses are provided above in our letterhead for your use when providing future correspondence to us. When given a choice, we prefer that the Bureau of Land Management (BLM) and Imperial County Planning Department (ICPD) email to us future correspondence, as mail delivered via the U.S. Postal Service may take several days to be delivered. Email is an "environmentally friendlier way" of receiving correspondence and documents rather than "snail mail."	Thank you for your comments. The BLM has taken note of Desert Tortoise Council's email correspondence preference and mailing address change for the interested parties list.

Letter ID #	Comment ID #	Name/Entity	Comment	Response
4.0	4.2	Desert Tortoise Council	We appreciate this opportunity to provide comments on the above-referenced project. Given the location of the proposed project in habitats known to be occupied by Mojave desert tortoise (*Gopherus agassizii*) (synonymous with Agassiz's desert tortoise), our comments pertain to enhancing protection of this species during activities funded, authorized, or carried out by the BLM and authorized by ICPD, which we assume will be added to the Decision Record for this project as needed. Please accept, carefully review, and include in the relevant project file the Council's following comments and attachments for the proposed project. The Mojave desert tortoise is among the top 50 species on the list of the world's most endangered tortoises and freshwater turtles. The International Union for Conservation of Nature's (IUCN) Species Survival Commission, Tortoise and Freshwater Turtle Specialist Group, now considers the Mojave desert tortoise to be Critically Endangered (Berry et al. 2021), as it is a "species that possess an extremely high risk of extinction as a result of rapid population declines of 80 to more than 90 percent over the previous 10 years (or three generations), population size fewer than 50 individuals, other factors." It is one of three turtle and tortoise species in the United States to be critically endangered. This status, in part, prompted the Council to join Defenders of Wildlife and Desert Tortoise Preserve Committee (Desert Tortoise Council 2020) to petition the California Fish and Game Commission in March 2020 to elevate the listing of the Mojave desert tortoise from threatened to endangered in California. The BLM's press release indicates, "SMP Gold Corp. [Proponent] has submitted a Plan of Operations (Plan) to conduct exploratory drilling activities at the Oro Cruz historic mining area located in the Cargo Muchacho Mountains in eastern Imperial County, California. The BLM will analyze the proposed project and either approve, approve with conditions, or deny the Plan. The proposed project includes approximately two miles of existing road improvements and construction of 6.2 miles of new roads, up to eight helicopter landing pads, 65 drill pads, and a 2.8 acre staging area. The proposed exploration activities would occur within the Picacho Area of Critical Environmental Concern, approximately seven miles north of Ogilby. The surface disturbance on BLM-managed land from the proposed exploration activities is approximately 20.5 acres. Environmental Analysis of this project will include publication of a joint National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) document. The BLM is the lead for compliance with the NEPA and Imperial County is the lead for CEQA." Unless otherwise noted, referenced page numbers below refer to the November 2022, "Environmental Assessment/Mitigated Negative Declaration (EA/MND) Oro Cruz Exploration Project." We note on page 2, "Pursuant to requirements under CEQA and the California Surface Mining and Reclamation Act of 1975 (SMARA) for projects that would entail over one acre of surface disturbance, a Reclamation Plan is also required to address the reclamation activities that would be	Thank you for providing the additional reference literature from Abella and Berry (2016) for consideration. The Plan of Operations, associated Reclamation Plan, and EA/MND have been prepared using the best available literature, data, and resources that are relevant to the activities proposed under the Proposed Action and the Project Area itself.

Letter ID #	Comment ID #	Name/Entity	Comment	Response
			undertaken following completion of the proposed exploratory drilling activities." We would like to offer a document for your use (Abella and Berry 2016), entitled "Enhancing and restoring habitat for the desert tortoise (*Gopherus agassizii*)" that identifies best management practices to facilitate success of restoration activities in arid environments.	
4.0	4.3	Desert Tortoise Council	We note in the above description and on page 5 that the Proponent intends on "…constructing approximately 6.2 miles of new, temporary 12-foot-wide exploration drilling access roads" and the "…exact location of proposed surface disturbance may change based on exploration results as exploration operations progress; therefore, the full extent of the disturbance locations has not been defined," which we interpret to mean that even more roads may be created that could result in more than the 20.5 acres of disturbance. Although the project is identified as exploratory in nature, is it true that the eventual mine is a foregone conclusion? Either way, will there be a future EA that covers development of the mine, which is connected to exploratory activities, but likely to be a much larger impact? These questions should be answered in the EA and decision document.	The proposed surface disturbance for temporary drilling access roads and drill sites is included in the total surface disturbance calculation of 20.54 acres. While the exact locations of drill sites are flexible within the Plan boundary as well as the associated temporary access roads, the acres of surface disturbance for such would be within the 20.54-acre surface disturbance total analyzed in the EA/MND, per the activities outlined in Table 2-1 of the EA/MND. This EA/MND analyzes only the proposed exploratory drilling activities associated with the Oro Cruz Exploration Project. Any future proposed additional surface disturbance and/or project plans outside of the current analysis would be subject to individual future NEPA analysis at a level deemed appropriate by the BLM.
4.0	4.4	Desert Tortoise Council	We question the Proponent's need to create so many linear miles of new temporary roads and ask that, if not already, the BLM geologist work with the Proponent to reassess the locations of existing roads and insofar as possible restrict travel to those roads. Alternatively, the Proponent utilizing experienced tortoise biologist(s), could travel cross-country to drill sites without creating roads that will predictably be used by the public and may not ever be needed again for future mining activities. We strongly recommend that these temporary roads not be bladed with heavy equipment across our public lands; it will be very difficult to remove them from public use and restored to their previous condition after their construction. We also ask that if the number of linear miles cited in the EA is met, that the Proponent be required to consult with the BLM before any additional roads are created. So, even though "…the full extent of the disturbance locations has not been defined," there must be some BLM-imposed limit, a cap, to these undefined impacts by the Proponent.	Road improvements to existing access roads would be bladed and cleared of vegetation, and road construction would be conducted using a bulldozer; however, access roads within each Drill Area for access to drill sites would be reclaimed and re-seeded concurrently throughout the life of the Project. Cross country travel was not considered due to the severity of the terrain in the area; the equipment that would be utilizing the cross country routes is large and could not be maneuvered in a safe manner without an established road. Increased damage to the landscape would also be caused by the volume of traffic using the cross-country route, vehicles would not follow the same path every time and eventually several makeshift "roads" would be established. Therefore, road improvements to existing roads and the creation of new temporary exploration access roads are necessary to provide safe access to the Project. As stated in the analysis under Section 3.19.3 of the EA/MND, access roads would be used strictly for Project support vehicles to access the exploration Drill Areas and limited access signs and safety barriers would be erected. Reclamation actions would be closely coordinated with the BLM and a Reclamation Plan is under review for approval by Imperial County and the Division of Mine Reclamation in accordance with the Surface Mining and Reclamation Act. Areas disturbed would be reclaimed for pre-Project disturbance existing land uses. The extent of additional roads is calculated within the disturbance acres in each drill area as noted in Table 2-1 of the EA/MND; surface disturbance would not exceed the total proposed 20.54 acres.
4.0	4.5	Desert Tortoise Council	We question the math used to derive the acreages of impact predicted for "New Access Roads (Temporary and Permanent)," which is given as 3.32 acres in Table 2-1. We note that 6.2 linear miles of 12-foot-wide temporary roads equals 9.01 acres (6.2 x 5,280 x 12 = 392,832/43,560	Thank you for pointing out the discrepancy in acreage calculations within Table 2-1. The table mistakenly labeled the approximately 3.3 acres for new access roads as temporary and permanent; however, the acreages for the proposed 6.2

Letter ID #	Comment ID #	Name/Entity	Comment	Response
			ft2/acre = 9.01 acres) and 1.8 miles of 15-foot-wide permanent roads = 3.27 acres (1.8 x 5,280 x 15 = 142,560/43,560 ft2/acre = 3.27 acres), for a total of 12.28 acres, not 3.32 acres as given in Table 2-1 on page 5. These calculations need to be reconsidered and published in the record of decision or another subsequent BLM document. We note that the total impact of 20.5 acres will likely need to be changed throughout this and subsequent documents.	miles of temporary, non-consecutive access roads within each drill area was already included within the surface disturbance totals for each respective drill area where temporary drill site access roads would be required. The table has been revised and a footnote noting the inclusion of the temporary access road acreages within the drill area disturbance acreages has been included. The total surface disturbance under the Proposed Action would be 20.54 as analyzed throughout the EA/MND. Permanent disturbance is not anticipated from access road construction proposed under the Proposed Action. While the EA/MND previously noted that a permanent access road would be constructed for access to the Project Area from the south through to Drill Area 1 for access to the underground Oro Cruz Mine Portal, the text of the EA/MND has been revised to clarify that the new access road would be fully reclaimed following BLM policy within five years from Project implementation (i.e., the total life of the Project).
4.0	4.6	Desert Tortoise Council	Furthermore, we question the BLM/ICPD's assertion that these roads will be "temporary." We note on page 5 that "Roads and drill sites would be reclaimed using a bulldozer and/or CAT excavator or equivalent," which is similar to the machinery to be used to create the roads. Given the persistence of even a single pass by Patton-era tanks over this same area of the desert in the 1940s, we expect that these "temporary" roads will create "permanent" impacts that no additional use of heavy equipment will eradicate. We request that the permanent direct impacts of these roads and the indirect impacts to the tortoise and tortoise habitat be fully mitigated and the mitigation be monitored for effectiveness. Please see our April 4 comment letter regarding this issue[1]. [1]https://www.dropbox.com/s/u2acfv33q9vsfvt/El%20Centro%20Mining%20Exploration.4-3-2022.pdf?dl=0	Permanent disturbance is not anticipated from access road construction proposed under the Proposed Action. While the EA/MND previously noted that a permanent access road would be constructed for access to the Project Area from the south through to Drill Area 1 for access to the underground Oro Cruz Mine Portal, the text of the EA/MND has been revised to clarify that the new access road would be fully reclaimed following BLM policy upon completion of underground exploration activities. Temporary access roads within each drill area for access to drill sites would be reclaimed and re-seeded concurrently throughout the life of the Project. Reclamation actions would be closely coordinated with the BLM and a Reclamation Plan is under review for approval by Imperial County and the Division of Mine Reclamation in accordance with the Surface Mining and Reclamation Act. Furthermore, per the analysis in Section 3.23.3 of the EA/MND for threatened and endangered species and per the PDFs, CMAs, and additional BLM-required mitigation measures included in Appendix F of the EA/MND, impacts to Mojave Desert tortoise under the Proposed Action would be minor, short-term, and localized. Areas disturbed would be reclaimed for pre-Project disturbance existing land uses.
4.0	4.7	Desert Tortoise Council	On page 9, we read the following: "Roads not needed for post-closure access would be reclaimed. The abandoned road surfaces would be scarified by ripping, if necessary. Where necessary, rock or earthen berms and water bars would be placed to prevent vehicular access and reduce erosion." We strongly discourage the use of heavy equipment for "ripping, if necessary," as such treatment of these "temporary" roads will predictably create more disturbance than they will eliminate. Where necessary, the interface between existing roads and temporary roads should be camouflaged with vertical mulching or other appropriate methods. We also provide for your use Abella and Berry (2016[2]), which present best management practices for revegetation in arid habitats. [2]https://www.dropbox.com/s/nx1b5m2b5ehya12/%23Abella%20and%20Berry%202016.pdf?dl=0	The text of the EA/MND under Section 2.1.2 and the Reclamation Plan that is currently under review by Imperial County has been revised to remove "The abandoned road surfaces would be scarified by ripping, if necessary". Additionally, the Section 2.1.2 of the EA/MND and the Reclamation Plan has been revised to include the following text: "The interface between existing roads and the proposed temporary access roads would be camouflaged with vertical mulching".

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4.0	4.8	Desert Tortoise Council	We strongly oppose the italicized wording in the following sentence given at the top of page 100: "Project activities would be monitored throughout the life of the Project to avoid potential impacts to Mojave Desert tortoise habitat, *should Project activities be conducted during the Mojave Desert tortoise active season (March 15 through November 1).*" The implication here is that activities would not be monitored from November 1 through March 15, which we strongly oppose and is not supported by scientific research. Although adult tortoises are typically less active during this time of year, they are not *inactive*; both adult tortoises and particularly juvenile tortoises may be active on warmer days and definitely during rainy days. Additionally, biological monitors are responsible to monitor *all* construction activities, including those that are not related to tortoise activities, such as maintaining litter-free conditions, containing all construction impacts within designated areas, and educating new construction workers as they enter the site. Also, who will be on hand to move a tortoise from harm's way if one is found under a construction vehicle between November 1 and March 15? Construction workers are not allowed to handle tortoises; and given the remoteness of the project area, there would be no immediate remedy to move such animals out of harm's way. Given the above information, we strongly recommend that BLM require that *All* exploratory activities, regardless of the season, be monitored.	Per PDF-19 included in Table F-1 of Appendix F of the EA/MND, if a tortoise is encountered during construction activities, work would be halted immediately per the authority of a designated Field Contact Representative (who would be a BLM-approved Authorized or Qualified Biologist), who would be on-site year-round during all Project activities, in proximity to the tortoise until an on-call BLM-approved Authorized Biologist arrives to move the tortoise from harm's way, or until the tortoise leaves of its own accord. The tortoise would not be moved more than 300 meters from their capture location. If the Authorized Biologist observes significant clinical signs of ill health, the tortoise should be removed from the wild in coordination with the USFWS. If suitable habitat is not available within 300 meters of the tortoises' capture locations or other land ownership restrictions prevent the release of individuals within 300 m (e.g., privately owned land lacking permission), the tortoise should be translocated to the Recipient Site identified in the revised Figure 3-14 of the EA/MND. The only exception to this measure is if the tortoise is in imminent, unavoidable danger (i.e., certain to be injured or killed if no action is taken) and an Authorized Biologist is not present. In this case, project personnel may move a desert tortoise the shortest distance necessary to remove the tortoise from imminent danger. The desert tortoise shall be monitored until an Authorized Biologist or USFWS is contacted for further instruction. Additionally, pre-construction surveys would be conducted year-round prior to surface disturbance occurring per the PDFs and BLM-required additional mitigation measures included in Appendix F of the EA/MND.
4.0	4.9	Desert Tortoise Council	Conversely, we do not recognize the following requirement as either feasible or reflecting current management: "The FCR [field contact representative] would be required to be onsite during all Project activities during the active season." Often, in practice, FCRs are office managers or supervisors who are not field-based, so to require them to be onsite may prove to be unrealistic depending on their job responsibilities. Our suggestion is to drop this requirement.	Per Table F-1 of Appendix F of the EA/MND, PDF-21 is a component of the Plan of Operations to minimize impacts to desert tortoise and other wildlife species that may be present within the Project Area with designation of a Field Contact Representative (FCR) to oversee compliance with protective stipulations for desert tortoise. The BLM would require additional mitigation measures to further minimize wildlife impacts, as included in Table F-2 of Appendix F. The FCR would be a BLM-approved Authorized or Qualified Biologist on-site year-round throughout the life of the Project in order to implement all tortoise-related PDFs to minimize impacts. The FCR would be an on-site compliance monitor for all aspects of the Project, and should desert tortoise be detected, the FCR would contact the BLM. Furthermore, the BLM has completed consultation with the USFWS pursuant to Section 7 of the Endangered Species Act for approval of an Activity Request Form under the Programmatic Biological Opinion for Mojave Desert tortoise.
4.0	4.10	Desert Tortoise Council	We request that the Project Proponent contribute to the National Fish and Wildlife Foundation's Raven Management Fund for regional and cumulative impacts of ravens on tortoises that are not	The proposed mitigation measures required by the BLM for implementation, in addition to the proponent-committed PDFs in Appendix F of the EA/MND, have

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			addressed in the EA. BLM usually requires this mitigation, but we did not see this requirement in the EA.	been deemed sufficient to minimize environmental impacts to threatened and endangered species, including desert tortoise, under the Proposed Action.
4.0	4.11	Desert Tortoise Council	We appreciate this opportunity to provide comments on this project and trust they will help protect tortoises during any resulting authorized activities. Herein, we reiterate that the Desert Tortoise Council wants to be identified as an Affected Interest for this and all other projects funded, authorized, or carried out by the BLM that may affect species of desert tortoises, and that any subsequent environmental documentation for this project is provided to us at the contact information listed above. Additionally, we ask that you respond in an email that you have received this comment letter so we can be sure our concerns have been registered with the appropriate personnel and office for this project. Respectfully, Edward L. LaRue, Jr., M.S. Ecosystems Advisory Committee, Chairperson Desert Tortoise Council **Literature Cited** Abella S.R. and K.H. Berry. 2016. Enhancing and restoring habitat for the desert tortoise (*Gopherus agassizii*). Journal of Fish and Wildlife Management 7(1):xx–xx; e1944-687X. doi: 10.3996/052015-JFWM-046. Berry, K.H., L.J. Allison, A.M. McLuckie, M. Vaughn, and R.W. Murphy. 2021. *Gopherus agassizii*. The IUCN Red List of Threatened Species 2021: e.T97246272A3150871. https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T97246272A3150871.en Desert Tortoise Council. 2020. A Petition to the State of California Fish and Game Commission to change the status of *Gopherus agassizii* from Threatened to Endangered. Formal petition submitted on 11 March 2020.	The BLM confirms that the Desert Tortoise Council is listed as an interested party.
5.0	5.1	Dita Skalic	Dear Ms. Martinez, Im writing to express my serious concerns about the impacts of the proposed Oro Cruz Exploration Project in Imperial County, California. Exploration by Southern Empire Resources Corp. would cause irreversible damage to a landscape of great cultural, religious, and spiritual importance to the Quechan people. Furthermore, the project would have significant impacts on the Picacho Area of Critical Environmental Concern, including on critical habitat for the threatened Mojave Desert Tortoise. I urge the Bureau of Land Management to require an Environmental Impact Statement to properly analyze these impacts before making a decision on the project. Sincerely, Dita Skalic Levstikova ulica Mor.	Thank you for your comment. Impacts from the Proposed Action to Areas of Critical Environmental Concern (ACECs), Cultural Resources, Native American Religious Concerns and Traditional Values, and on Wildlife including Threatened and Endangered Species are analyzed in the following sections of the EA/MND, respectively: Section 3.5, 3.8, 3.14, and 3.23. Associated Project Design Features (PDFs) and additional mitigation measures to minimize impacts are included as Appendix F of the EA/MND. Federal agencies, including the BLM, implement NEPA per the procedures developed by CEQ, which is the responsible agency for developing NEPA guidance for implementation. In line with the CEQ guidelines revised in 2020

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				and then again in 2022 for implementing regulations of NEPA, which does not mandate particular results or substantive outcomes but rather requires Federal agencies to consider environmental impacts of Proposed Actions, the BLM determined that an EA is the appropriate level of NEPA review for the Proposed Action. In following 40 CFR Section 1501.5(c)(1) and 40 CFR 1501.6(a) per the 2022 updates to the NEPA Implementing Regulations under Docket CEQ-2021-0002, the BLM has determined that it has provided sufficient evidence and analysis to deem preparation of an EA followed by issuance of a FONSI appropriate for the Proposed Action.
6.0	6.1	Yvone Smith Michael Terry EP Karen Riggs Vicki Hughes Kim Peterson Ted Fishman Julie Adelson Stacie Charlebois Joseph Pluta Tamara Voyles Ronit Corry Kristina Fiorini Candace Hollis-Franklyn Lori Bates Therese Ryan Jamila Garrecht Candace Rocha Sudi McCollum Rachel Wolf Mark Kennedy Martin Henderson Linc Conard Alexandra Hart Sharon Barnes Jana Mariposa Niernberger Muhar Mal Gaff Karen Hellwig Bruce Grobman Pam Zimmerman	Dear Ms. Martinez, Dear Ms. Martinez: I am concerned about the proposed Oro Cruz Exploration Project in Imperial County, California. Exploration by Southern Empire Resources Corp. would cause irreversible damage to a landscape of great cultural, religious, and spiritual importance to the Quechan people. Furthermore, the project would have significant effects on the Picacho Area of Critical Environmental Concern including on critical habitat for the threatened Mojave Desert Tortoise. I urge the Bureau of Land Management to require an Environmental Impact Statement to properly analyze these effects before making a decision on the project.	Thank you for your comment. The Project area does not include any designated critical habitat for the Mojave Desert Tortoise. Information on impacts from the Proposed Action to ACECs, Cultural Resources, Native American Religious Concerns and Traditional Values, and on Wildlife including Threatened and Endangered Species are analyzed in the following sections of the EA/MND, respectively: Section 3.5, 3.8, 3.14, and 3.23. Associated PDFs and additional mitigation measures to minimize impacts are included as Appendix F of the EA/MND. Federal agencies, including the BLM, implement NEPA per the procedures developed by CEQ, which is the responsible agency for developing NEPA guidance for implementation. In line with the CEQ guidelines revised in 2020 and then again in 2022 for implementing regulations of NEPA, which does not mandate particular results or substantive outcomes but rather requires Federal agencies to consider environmental impacts of Proposed Actions, the BLM determined that an EA is the appropriate level of NEPA review for the Proposed Action. In following 40 CFR Section 1501.5(c)(1) and 40 CFR 1501.6(a) per the 2022 updates to the NEPA Implementing Regulations under Docket CEQ-2021-0002, the BLM has determined that it has provided sufficient evidence and analysis to deem preparation of an EA followed by issuance of a FONSI appropriate for the Proposed Action.

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		Nora Roman David Burtis Kurt Beck Margaret Murray Holly Dowling Holly Burgin Jeffrey Hemenez John Crump Marilyn Shepherd Diana Bohn Henry Schlinger Michael W Evans Phoenix Giffen Lynn Ryan Probyn Gregory Roind Wood Gregory Coyle Kate Transchel Ann Stratten Margaret Shekell Karen Berger David Williams Sharon Byers Ali Van Zee Tina Colafranceschi Melvin D. Cheitlin Mike Evans Evan Jane Kriss Toni Mayer Christopher Evans Stephen Anderson Rhys Atkinson Thad Solloway Betty Winholtz Jerry Horner Annamarie Jones Joseph Kotzin O'Neill Louchard Lacey Hicks Laurence Burdick		

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		Charlene Root J. Barry Gurdin James Hatchett Elisabeth Armendarez Charlene Woodcock Ann Dorsey Ellen McCann Judy Shively Joan Murray Todd Jailer Kristine Andarmani Elena Knox Lauren Murdock Tina Brenza Joan Smith Darren Frale Blaise Brockman Sandi Covell Nikki Nafziger William Mittig Margaret Lander Lisa Patton Lynne Ann Russel Weisz Andy Carman Anthony Jammal Carol Becker Celeste M Anacker Gerald Orcholski Shoshana Wechsler George Lynch Caephren McKenna Lollie Ragana Emily Brandt Walter Ramsey James Hanink Shawn Johnson Carol Gordon Christa Neuber Bernadette Webster		

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		Janet Pielke Mike Pasner Kat Johnson Ana Herold Edward Cavasian Billy Trice Robert Hall Mary Edwards Teri Yazdi DR Specer Christine Hayes Val Farrelly Donna Sharee Susan Porter Livnat Lottati Carlita Martinez Kim Stringfellow Sarah Townsend Richard Paperno Rolf Svehaug Roberto Aburto Mrs Lynch Federique Joly Paulette Schindele Michele Reilly Claudia Wornum Carolyn Stallard Joseph Boone Natasha Saravanja Howard Labadie Judith Smith Gabriel Lautaro Linda Petrulias Warren Clark Alexander Vollmer Gary Baxel Nicolas Duonn Neville Dunn Cinda Johansen Sylvia Marie		

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		R. Zierikzee Joanna Welch Ted Cheeseman Ross Heckmann Jamie Le Lea Ella Boyle Martha Herrero James Randy Monroe Mary Able Liz Amsden Robert Reed Michael Bordenave Matthew Leivas Laura Arias Scott Emsley Victoria Miller Amber H Polly O'Malley Noah Youngelson Gila Wdiowinski Lisa Ann Kelly and Family Yves DeCarqouet JL Angell Ann Graves Dennis Trembly Portland H. Coates Amber Sumrall Paul Belz Kim Forrest Querido Galdo Lucy Kenyon Janine Comrack Elaine Livesey-Fassel George Schneider Janice Nakamura Ernie Walters Joseph Aragon Jr. Lauren Coodley Lorraine Lowry Adele Myers		

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		Alicia Lippman Debora Bone Ian Haddow S Kaehn Gulshan Oomerjee Marilyn Bintz Lily Mejia Jessica Mitchell-Shihabi Pam Thomas-Hill Catherine Mills Marilyn Fuller Caryn Graves Tia Triplett Robert Ricewasser Ellen Segal Marisa Landsberg Payal Sampat Joel Fithian Rashid Patch Elaine Alfaro Kris Cordova Richard Camp Nancy Hiestand Diane Lamont Charles Wieland Barbara Harper Sheri Kuticka Nancy Heck Nora Coyle Karen Kirschling Kermit Cuff Meryl Lowell Casee Maxfield Anna Drummond Anne Earhart Heather R Linda Davis Andy Tomsky Theresa Bucher Nancy Fomenko		

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		Nevin Ditzler Reed Fenton Wayne Steffes Jenny E Saar Jeffery Olson Lindsay Mugglestone Jerry Persky Dan Esposito Raymundo Ramirez Rosendo Soberanez Percy Hicks-Severn Polly Pitsker Helena Hernandez Steven Kassel John Everett Sylvia Vairo Candace Key Mari Dominguez Judith Anderson Jackie Pomies Aerie Youn Mark Swoiskin Linda Martin Vance Arquilla Taia Erqueta Anna Connolly Pela Tomasello Kim Messmer Dee Randolph John Paladin Cindy Koch Patricia Day Anna Boucher Ilya Turov Philip Epstein Elizabeth Adan Elizabeth Darovic Javier Del Valle Rhonda Kess Charles Hammerstad		

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		Candy Bowman Sherrill Futrell Caryl Pearson Eury I Ramos Bruce Scotton Dodie Carlton Leah Redwood Richard Monroe Pea rl Zalon Charles Wolfe Lois Harris Dana Thompson Connie Lindgren Lanelle Lovelace Bruce Fleming David Carp Karen Ratzlaff Susanne Madden Aarati Joly Dan Silver Camille Gilbert Twyla Meyer Joshua Arthur Kristen Lowry Jean Mont-Eton Pam Thomas-Hill Catherine Mills Marilyn Fuller Caryn Graves Tia Triplett Joan Forman Roy Vanderleelie Patti Fink Gerald Morris Doug Bender Nancy Pearlman Charlene Kerchevall Janice Morrill Kim Reichart Noah Schlager		

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		David Stalder James Blair Madeline Sides Rayna Vilasenor Christobal Illingworth Alison Merkel Yazmin Gonzalez Alison Merkel Abraham Oboruemuh Willie White Daniel Murphy Anne Stewart Alhour Hasab Zainab Hasan Brad Nelson George Riuz Jana Harker Maria Cardenas Spencer Berman Michael McMahan Janelle Hillhouse Gabriel Steinfeld Marjorie Xavier Sylvanna Aragon Todd Snyder Linda Rudin RoseAna Douglas Lanisha Romero Monica Jackson Laura Herndon Gary Goetz Dolores Cohenour		
7.0	7.1	Jeri Langham	Dear Ms. Martinez, Dear Ms. Martinez, AS A PROFESSOR EMERITUS OF BIOLOGICAL SCIENCES AFTER 38 YEARS OF TEACHING PRINCIPLES OF ECOLOGY AT CALIFORNIA STATE UNIVERSITY AND 36 YEARS OF LEADING TRIPS FOR VICTOR EMANUEL NATURE TOURS, I'm writing to	Thank you for your comment. The Project area does not include any designated critical habitat for the Mojave Desert Tortoise. Information on impacts from the Proposed Action to ACECs, Cultural Resources, Native American Religious Concerns and Traditional Values, and on Wildlife including Threatened and Endangered Species are analyzed in the following sections of the EA/MND, respectively: Section 3.5, 3.8, 3.14, and 3.23. Associated PDFs and additional mitigation measures to minimize impacts are included as Appendix F of the EA/MND.

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			express my serious concerns about the impacts of the proposed Oro Cruz Exploration Project in Imperial County, California. Exploration by Southern Empire Resources Corp. would cause irreversible damage to a landscape of great cultural, religious, and spiritual importance to the Quechan people. Furthermore, the project would have significant impacts on the Picacho Area of Critical Environmental Concern, including on critical habitat for the threatened Mojave Desert Tortoise. I urge the Bureau of Land Management to require an Environmental Impact Statement to properly analyze these impacts before making a decision on the project. Sincerely,	Federal agencies, including the BLM, implement NEPA per the procedures developed by CEQ, which is the responsible agency for developing NEPA guidance for implementation. In line with the CEQ guidelines revised in 2020 and then again in 2022 for implementing regulations of NEPA, which does not mandate particular results or substantive outcomes but rather requires Federal agencies to consider environmental impacts of Proposed Actions, the BLM determined that an EA is the appropriate level of NEPA review for the Proposed Action. In following 40 CFR Section 1501.5(c)(1) and 40 CFR 1501.6(a) per the 2022 updates to the NEPA Implementing Regulations under Docket CEQ-2021-0002, the BLM has determined that it has provided sufficient evidence and analysis to deem preparation of an EA followed by issuance of a FONSI appropriate for the Proposed Action.
8.0	8.1	Scott Rubel	Dear Ms. Martinez, United States	Comment incomplete.
9.0	9.1	Sara Hayes	Dear Ms. Martinez, Dear Ms. Martinez, I'm writing to express my serious concerns about the impacts of the proposed Oro Cruz Exploration Project in Imperial County, California. Exploration by Southern Empire Resources Corp. would cause irreversible damage to a landscape of great cultural, religious, and spiritual importance to the Quechan people. What you're making me wonder about if complete tribal consultation. Furthermore, the project would have significant impacts on the Picacho Area of Critical Environmental Concern, including on critical habitat for the threatened Mojave Desert Tortoise. I strongly urge the Bureau of Land Management to require an Environmental Impact Statement to properly analyze these impacts before making a decision on the project, and include the consultation mentioned earlier. Sincerely,	Thank you for your comment. The Project area does not include any designated critical habitat for the Mojave Desert Tortoise. Information on impacts from the Proposed Action to ACECs, Cultural Resources, Native American Religious Concerns and Traditional Values, and on Wildlife including Threatened and Endangered Species are analyzed in the following sections of the EA/MND, respectively: Section 3.5, 3.8, 3.14, and 3.23. Associated PDFs and additional mitigation measures to minimize impacts are included as Appendix F of the EA/MND. Furthermore, formal government-to-government consultation with Native American tribes by the BLM has been conducted since March 2021. All instances of government-to-government consultation in accordance with Section 106 of the National Historic Preservation Act are provided within Sections 3.14 and 4.1 of the EA/MND. Federal agencies, including the BLM, implement NEPA per the procedures developed by CEQ, which is the responsible agency for developing NEPA guidance for implementation. In line with the CEQ guidelines revised in 2020 and then again 2022 for implementing regulations of NEPA, which does not mandate particular results or substantive outcomes but rather requires Federal agencies to consider environmental impacts of Proposed Actions, the BLM determined that an EA is the appropriate level of NEPA review for the Proposed Action. In following 40 CFR Section 1501.5(c)(1) and 40 CFR 1501.6(a) per the 2022 updates to the NEPA Implementing Regulations under Docket CEQ-2021-0002, the BLM has determined that it has provided sufficient evidence and

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				analysis to deem preparation of an EA followed by issuance of a FONSI appropriate for the Proposed Action.
10.0	10.1	Georgia Labey	Dear Ms. Martinez, Dear Ms. Martinez, I'm writing to express my serious concerns about the impacts of the proposed Oro Cruz Exploration Project in Imperial County, California. Exploration by Southern Empire Resources Corp. would cause irreversible damage to a landscape of great cultural, religious, and spiritual importance to the Quechan people. Furthermore, the project would have significant impacts on the Picacho Area of Critical Environmental Concern, including on critical habitat for the threatened Mojave Desert Tortoise. In addition to the above concerns, CA is in a severe drought and we will soon be facing water restrictions because of the rapidly declining water levels at Lake Mead and Lake Powell due to reduced flow from the Colorado River. There can be no justification for approving a project that would use thousands of gallons of water per day when we are already faced with a water crisis. I urge the Bureau of Land Management to require an Environmental Impact Statement to properly analyze these impacts before making a decision on the project. Sincerely,	Thank you for your comment. The Project area does not include any designated critical habitat for the Mojave Desert Tortoise. Information on impacts from the Proposed Action to ACECs, Cultural Resources, Native American Religious Concerns and Traditional Values, and on Wildlife including Threatened and Endangered Species are analyzed in the following sections of the EA/MND, respectively: Section 3.5, 3.8, 3.14, and 3.23. Associated PDFs and additional mitigation measures to minimize impacts are included as Appendix F of the EA/MND. The Proposed Action would purchase water from vendors as needed to support exploration drilling and dust suppression activities. The Project estimates a total of 240,000 gallons of water to be used over the life of the Project, which equates to approximately 0.736 acre-feet of water being used for the life of the project. The USGS estimates the Ogilby Valley Groundwater Basin, within with the Project Area is located, to have a natural recharge rate of 250 acre-feet per year (California's Groundwater Bulletin 118). In relation to the Colorado River, the estimated 0.736 acre-feet of water needed for the life of the Project equates to 0.00013 percent of the total current level of Lake Powell (5,462,412 acre-feet) and 0.0000098 percent of the total current level of Lake Mead amount (7,449,000 acre-feet). Water for the Project would be trucked in and would be procured from the nearby Gold Rock Ranch RV Resort, a local water purveyor, and/or the City of Yuma, using water that is already permitted for pumping/use (i.e., the total amount permitted has already been considered within the total water budget available for pumping and the Project would be purchasing via an agreement with the seller for an amount within the seller's allowable acre-feet) and available for sale. The Project does not propose active groundwater pumping or drilling of new groundwater wells. As stated in Section 3.22 of the EA/MND, impacts to water resources would be negligible. Federal agencies, including the BLM, implement NEPA per the procedures developed by CEQ, which is the responsible agency for developing NEPA guidance for implementation. In line with the CEQ guidelines revised in 2020 and then again in 2022 for implementing regulations of NEPA, which does not mandate particular results or substantive outcomes but rather requires Federal agencies to consider environmental impacts of Proposed Actions, the BLM determined that an EA is the appropriate level of NEPA review for the Proposed Action. In following 40 CFR Section 1501.5(c)(1) and 40 CFR 1501.6(a) per the 2022 updates to the NEPA Implementing Regulations under Docket CEQ-2021-

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				0002, the BLM has determined that it has provided sufficient evidence and analysis to deem preparation of an EA followed by issuance of a FONSI appropriate for the Proposed Action.
11.0	11.1	Karen Jacques	Dear Ms. Martinez, Dear Ms. Martinez, I'm writing to express my serious concerns about the impacts of the proposed Oro Cruz Exploration Project in Imperial County, California. I see this project as yet another assault on an already badly damaged ecosystems that simply can't take anymore. I am sick and tired of greed driven corporations destroying one place after another and leaving toxic death scapes in their wake and I am equally sick and tired of the relentless, settler colonial assault on places scared to indigenous peoples. Exploration by Southern Empire Resources Corp. would cause irreversible damage to a landscape of great cultural, religious, and spiritual importance to the Quechan people. Furthermore, the project would have significant impacts on the Picacho Area of Critical Environmental Concern, including on critical habitat for the threatened Mojave Desert Tortoise. I urge the Bureau of Land Management to require an Environmental Impact Statement to properly analyze these impacts before making a decision on the project. I believe that a fairly done EIS would show this project to be untenable. Sincerely,	Thank you for your comment. The Project area does not include any designated critical habitat for the Mojave Desert Tortoise. Information on impacts from the Proposed Action to ACECs, Cultural Resources, Native American Religious Concerns and Traditional Values, and on Wildlife including Threatened and Endangered Species are analyzed in the following sections of the EA/MND, respectively: Section 3.5, 3.8, 3.14, and 3.23. Associated PDFs and additional mitigation measures to minimize impacts are included as Appendix F of the EA/MND. Federal agencies, including the BLM, implement NEPA per the procedures developed by CEQ, which is the responsible agency for developing NEPA guidance for implementation. In line with the CEQ guidelines revised in 2020 and then again in 2022 for implementing regulations of NEPA, which does not mandate particular results or substantive outcomes but rather requires Federal agencies to consider environmental impacts of Proposed Actions, the BLM determined that an EA is the appropriate level of NEPA review for the Proposed Action. In following 40 CFR Section 1501.5(c)(1) and 40 CFR 1501.6(a) per the 2022 updates to the NEPA Implementing Regulations under Docket CEQ-2021-0002, the BLM has determined that it has provided sufficient evidence and analysis to deem preparation of an EA followed by issuance of a FONSI appropriate for the Proposed Action.
12.0	12.1	Charlene Woodcock	Dear Ms. Martinez, Dear Ms. Martinez, Our state government needs to respect the cultural values of the Quechan people and the state's need to conserve water. To allow gold mining prospecting on these desert lands would harm the indigenous people , the native plants and animals, and be a terrible waste of water. These impacts of the proposed Oro Cruz Exploration Project in Imperial County, California, are unacceptable. Exploration by Southern Empire Resources Corp. would cause irreversible damage to a landscape of great cultural, religious, and spiritual importance to the Quechan people. Furthermore, the project would have significant impacts on the Picacho Area of Critical Environmental Concern, including on critical habitat for the threatened Mojave Desert Tortoise.	Thank you for your comment. Formal government-to-government consultation with Native American tribes by the BLM has been conducted since March 2021, including extensive consultation meetings with the Fort Yuma Quechan Indian Tribe. All instances of government-to-government consultation in accordance with Section 106 of the National Historic Preservation Act are provided within Sections 3.14 and 4.1 of the EA/MND. The Proposed Action would purchase water from local vendors as needed to support exploration drilling and mandatory dust suppression activities. Water for the Project would be trucked in and would be procured from the nearby Gold Rock Ranch RV Resort, a local water purveyor, and/or the City of Yuma, using water that is already permitted for pumping/use and available for sale. The Project does not propose active groundwater pumping or drilling of new groundwater wells. As stated in Section 3.22 of the EA/MND, impacts to water resources would be negligible.

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			I urge the Bureau of Land Management to require an Environmental Impact Statement to properly analyze these impacts before making a decision on the project. Sincerely,	The Project area does not include any designated critical habitat for the Mojave Desert Tortoise. Information on impacts from the Proposed Action to ACECs, Cultural Resources, Native American Religious Concerns and Traditional Values, and on Wildlife including Threatened and Endangered Species are analyzed in the following sections of the EA/MND, respectively: Section 3.5, 3.8, 3.14, and 3.23. Associated PDFs and additional mitigation measures to minimize impacts are included as Appendix F of the EA/MND. Federal agencies, including the BLM, implement NEPA per the procedures developed by CEQ, which is the responsible agency for developing NEPA guidance for implementation. In line with the CEQ guidelines revised in 2020 and then again in 2022 for implementing regulations of NEPA, which does not mandate particular results or substantive outcomes but rather requires Federal agencies to consider environmental impacts of Proposed Actions, the BLM determined that an EA is the appropriate level of NEPA review for the Proposed Action. In following 40 CFR Section 1501.5(c)(1) and 40 CFR 1501.6(a) per the 2022 updates to the NEPA Implementing Regulations under Docket CEQ-2021-0002, the BLM has determined that it has provided sufficient evidence and analysis to deem preparation of an EA followed by issuance of a FONSI appropriate for the Proposed Action.
13.0	13.1	Mha Atma S Khalsa	Dear Ms. Martinez, Dear Ms. Martinez, As a California resident and an American citizen and taxpayer I have great concern about the impacts of the proposed Oro Cruz Exploration Project in Imperial County, California. Exploration by Southern Empire Resources Corp. would cause irreversible damage to a landscape of great cultural, religious, and spiritual importance to the Quechan people. Furthermore, the project would have significant impacts on the Picacho Area of Critical Environmental Concern, including on critical habitat for the threatened Mojave Desert Tortoise. I urge the Bureau of Land Management to require an Environmental Impact Statement to properly analyze these impacts before making a decision on the project. Sincerely,	Thank you for your comment. The Project area does not include any designated critical habitat for the Mojave Desert Tortoise. Information on impacts from the Proposed Action to ACECs, Cultural Resources, Native American Religious Concerns and Traditional Values, and on Wildlife including Threatened and Endangered Species are analyzed in the following sections of the EA/MND, respectively: Section 3.5, 3.8, 3.14, and 3.23. Associated PDFs and additional mitigation measures to minimize impacts are included as Appendix F of the EA/MND. Federal agencies, including the BLM, implement NEPA per the procedures developed by CEQ, which is the responsible agency for developing NEPA guidance for implementation. In line with the CEQ guidelines revised in 2020 and then again in 2022 for implementing regulations of NEPA, which does not mandate particular results or substantive outcomes but rather requires Federal agencies to consider environmental impacts of Proposed Actions, the BLM determined that an EA is the appropriate level of NEPA review for the Proposed Action. In following 40 CFR Section 1501.5(c)(1) and 40 CFR 1501.6(a) per the 2022 updates to the NEPA Implementing Regulations under Docket CEQ-2021-0002, the BLM has determined that it has provided sufficient evidence and

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				analysis to deem preparation of an EA followed by issuance of a FONSI appropriate for the Proposed Action.
14.0	14.1	Martha Booz	Dear Ms. Martinez, Dear Ms. Martinez, I am very concerned about the impacts of the proposed Oro Cruz Exploration Project in Imperial County, California. You know that exploration by Southern Empire Resources Corp. would cause irreversible damage to the landscape of the Quechan people. Furthermore, the project would have significant impacts on the Picacho Area of Critical Environmental Concern, including on critical habitat for the threatened Mojave Desert Tortoise. I urge the Bureau of Land Management to require an Environmental Impact Statement to properly analyze these impacts before making a decision on the project. Sincerely,	Thank you for your comment. The Project area does not include any designated critical habitat for the Mojave Desert Tortoise. Information on impacts from the Proposed Action to ACECs, Cultural Resources, Native American Religious Concerns and Traditional Values, and on Wildlife including Threatened and Endangered Species are analyzed in the following sections of the EA/MND, respectively: Section 3.5, 3.8, 3.14, and 3.23. Associated PDFs and additional mitigation measures to minimize impacts are included as Appendix F of the EA/MND. Federal agencies, including the BLM, implement NEPA per the procedures developed by CEQ, which is the responsible agency for developing NEPA guidance for implementation. In line with the CEQ guidelines revised in 2020 and then again in 2022 for implementing regulations of NEPA, which does not mandate particular results or substantive outcomes but rather requires Federal agencies to consider environmental impacts of Proposed Actions, the BLM determined that an EA is the appropriate level of NEPA review for the Proposed Action. In following 40 CFR Section 1501.5(c)(1) and 40 CFR 1501.6(a) per the 2022 updates to the NEPA Implementing Regulations under Docket CEQ-2021-0002, the BLM has determined that it has provided sufficient evidence and analysis to deem preparation of an EA followed by issuance of a FONSI appropriate for the Proposed Action.
15.0	15.1	Janet Girard	Dear Ms. Martinez, Dear Ms. Martinez, As a taxpayer and landowner in California, I wish to express my great concern about the environmental impacts of the proposed Oro Cruz Exploration Project in Imperial County, California. Exploration by Southern Empire Resources Corp. would cause irreversible damage to a landscape of great cultural, religious, and spiritual importance to the Quechan people. Furthermore, the project would have significant impacts on the Picacho Area of Critical Environmental Concern, including on critical habitat for the threatened Mojave Desert Tortoise. (Unacceptable!) I urge the Bureau of Land Management to require an Environmental Impact Statement to properly analyze these impacts before making a decision on the project. Sincerely,	Thank you for your comment. The Project area does not include any designated critical habitat for the Mojave Desert Tortoise. Information on impacts from the Proposed Action to ACECs, Cultural Resources, Native American Religious Concerns and Traditional Values, and on Wildlife including Threatened and Endangered Species are analyzed in the following sections of the EA/MND, respectively: Section 3.5, 3.8, 3.14, and 3.23. Associated PDFs and additional mitigation measures to minimize impacts are included as Appendix F of the EA/MND. Federal agencies, including the BLM, implement NEPA per the procedures developed by CEQ, which is the responsible agency for developing NEPA guidance for implementation. In line with the CEQ guidelines revised in 2020 and then again in 2022 for implementing regulations of NEPA, which does not mandate particular results or substantive outcomes but rather requires Federal agencies to consider environmental impacts of Proposed Actions, the BLM determined that an EA is the appropriate level of NEPA review for the Proposed Action. In following 40 CFR Section 1501.5(c)(1) and 40 CFR 1501.6(a) per the

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				2022 updates to the NEPA Implementing Regulations under Docket CEQ-2021-0002, the BLM has determined that it has provided sufficient evidence and analysis to deem preparation of an EA followed by issuance of a FONSI appropriate for the Proposed Action.
16.0	16.1	Mark Feldman	Dear Ms. Martinez, Dear Ms. Martinez, I' AM WRITING TO STRONGLY EXPRESS MY SERIOUS CONCERNS ABOUT THE IMPACTSD OF THE PROPOSED ORO CRUZ EXPLORATION PROJECT IN IMPERIAL COUNTY, CA. Exploration by Southern Empire Resources Corp. WOULD CAUSE IRREVERSIBLE DAMAGE TO A LANDSCAPE OF GREAT CULTURAL, RELIGOUS, AND SPIRITUAL IMPORTANCE TO THE QUECHAN PEOPLE, Furthermore, THIS DISASTEROUS WOULD HAVE SIGNIFICENT IMPACT ON THE Picacho Area of Critical Environmental Concern, INCLUDING on critical habitat FOR THE THREATENED Mojave Desert Tortoise. I STRONGLY THE Bureau of Land Management TO SWIFTLY REQUIRE AN Environmental Impact Statement TO PROPERLY ANALYZE THESE IMPACTS BEFORE MAKING A DECISON ON THIS TERRIBLE OUT OF TOUCH WITH WITH THIS DESTRUCTIVE PROJECT.. Sincerely,	Thank you for your comment. The Project area does not include any designated critical habitat for the Mojave Desert Tortoise. Information on impacts from the Proposed Action to ACECs, Cultural Resources, Native American Religious Concerns and Traditional Values, and on Wildlife including Threatened and Endangered Species are analyzed in the following sections of the EA/MND, respectively: Section 3.5, 3.8, 3.14, and 3.23. Associated PDFs and additional mitigation measures to minimize impacts are included as Appendix F of the EA/MND. Federal agencies, including the BLM, implement NEPA per the procedures developed by CEQ, which is the responsible agency for developing NEPA guidance for implementation. In line with the CEQ guidelines revised in 2020 and then again 2022 for implementing regulations of NEPA, which does not mandate particular results or substantive outcomes but rather requires Federal agencies to consider environmental impacts of Proposed Actions, the BLM determined that an EA is the appropriate level of NEPA review for the Proposed Action. In following 40 CFR Section 1501.5(c)(1) and 40 CFR 1501.6(a) per the 2022 updates to the NEPA Implementing Regulations under Docket CEQ-2021-0002, the BLM has determined that it has provided sufficient evidence and analysis to deem preparation of an EA followed by issuance of a FONSI appropriate for the Proposed Action.
17.0	17.1	Bob Miller	Dear Ms. Martinez, Dear Ms. Martinez, I'm writing to express my serious concerns about the impacts of the proposed Oro Cruz Exploration Project in Imperial County, California. Exploration by Southern Empire Resources Corp. would cause irreversible damage to a landscape of great cultural, religious, and spiritual importance to the Quechan people. Furthermore, the project would have significant impacts on the Picacho Area of Critical Environmental Concern, including on critical habitat for the threatened Mojave Desert Tortoise. I urge the Bureau of Land Management to require an Environmental Impact Statement to properly analyze these impacts before making a decision on the project.	Thank you for your comment. The Proposed Action being considered by the BLM proposed exploratory drilling only. The EA/MND does not analyze impacts from mining. The Project area does not include any designated critical habitat for the Mojave Desert Tortoise. Information on impacts from the Proposed Action as a result of exploratory drilling to ACECs, Cultural Resources, Native American Religious Concerns and Traditional Values, and on Wildlife including Threatened and Endangered Species are analyzed in the following sections of the EA/MND, respectively: Section 3.5, 3.8, 3.14, and 3.23. Associated PDFs and additional mitigation measures to minimize impacts are included as Appendix F of the EA/MND. Federal agencies, including the BLM, implement NEPA per the procedures developed by CEQ, which is the responsible agency for developing NEPA guidance for implementation. In line with the recent CEQ guidelines revised in 2020 and then again in 2022 for implementing regulations of NEPA, which does

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			Gold mining is VERY DESTRUCTIVE to the environment. Sincerely,	not mandate particular results or substantive outcomes but rather requires Federal agencies to consider environmental impacts of Proposed Actions, the BLM determined that an EA is the appropriate level of NEPA review for the Proposed Action. In following 40 CFR Section 1501.5(c)(1) and 40 CFR 1501.6(a) per the 2022 updates to the NEPA Implementing Regulations under Docket CEQ-2021-0002, the BLM has determined that it has provided sufficient evidence and analysis to deem preparation of an EA followed by issuance of a FONSI appropriate for the Proposed Action.
18.0	18.1	Alexander Pellegrino	Dear Ms. Martinez, Dear Ms. Martinez, The mountaintops of my home region have been turned into valleys by mining operations. Sacred sites of the Monacan Nation have been built over and a dear friend has his family graveyard bulldozed. Spare other communities this pain. I'm writing to express my serious concerns about the impacts of the proposed Oro Cruz Exploration Project in Imperial County, California. Exploration by Southern Empire Resources Corp. would cause irreversible damage to a landscape of great cultural, religious, and spiritual importance to the Quechan people. Furthermore, the project would have significant impacts on the Picacho Area of Critical Environmental Concern, including on critical habitat for the threatened Mojave Desert Tortoise. I urge the Bureau of Land Management to require an Environmental Impact Statement to properly analyze these impacts before making a decision on the project. Sincerely,	Thank you for your comment. The Project area does not include any designated critical habitat for the Mojave Desert Tortoise. Information on impacts from the Proposed Action to ACECs, Cultural Resources, Native American Religious Concerns and Traditional Values, and on Wildlife including Threatened and Endangered Species are analyzed in the following sections of the EA/MND, respectively: Section 3.5, 3.8, 3.14, and 3.23. Associated PDFs and additional mitigation measures to minimize impacts are included as Appendix F of the EA/MND. Furthermore, all known cultural resources would be avoided under the Proposed Action. Federal agencies, including the BLM, implement NEPA per the procedures developed by CEQ, which is the responsible agency for developing NEPA guidance for implementation. In line with the CEQ guidelines revised in 2020 and then again in 2022 for implementing regulations of NEPA, which does not mandate particular results or substantive outcomes but rather requires Federal agencies to consider environmental impacts of Proposed Actions, the BLM determined that an EA is the appropriate level of NEPA review for the Proposed Action. In following 40 CFR Section 1501.5(c)(1) and 40 CFR 1501.6(a) per the 2022 updates to the NEPA Implementing Regulations under Docket CEQ-2021-0002, the BLM has determined that it has provided sufficient evidence and analysis to deem preparation of an EA followed by issuance of a FONSI appropriate for the Proposed Action.
19.0	19.1	Zion White	Dear Ms. Martinez, Dear Ms. Martinez, I am from the Quechan Nation, and I'm writing to express my serious concerns about the impacts of the proposed Oro Cruz Exploration Project in Imperial County, California. Exploration by Southern Empire Resources Corp. would cause irreversible damage to a landscape of great cultural, religious, and spiritual importance to the Quechan people. Furthermore, the project	Thank you for your comment. The Project area does not include any designated critical habitat for the Mojave Desert Tortoise. Information on impacts from the Proposed Action to ACECs, Cultural Resources, Native American Religious Concerns and Traditional Values, and on Wildlife including Threatened and Endangered Species are analyzed in the following sections of the EA/MND, respectively: Section 3.5, 3.8, 3.14, and 3.23. Associated PDFs and additional mitigation measures to minimize impacts are included as Appendix F of the EA/MND.

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			would have significant impacts on the Picacho Area of Critical Environmental Concern, including on critical habitat for the threatened Mojave Desert Tortoise. I urge the Bureau of Land Management to require an Environmental Impact Statement to properly analyze these impacts before making a decision on the project. Sincerely,	Federal agencies, including the BLM, implement NEPA per the procedures developed by CEQ, which is the responsible agency for developing NEPA guidance for implementation. In line with the CEQ guidelines revised in 2020 and then again in 2022 for implementing regulations of NEPA, which does not mandate particular results or substantive outcomes but rather requires Federal agencies to consider environmental impacts of Proposed Actions, the BLM determined that an EA is the appropriate level of NEPA review for the Proposed Action. In following 40 CFR Section 1501.5(c)(1) and 40 CFR 1501.6(a) per the 2022 updates to the NEPA Implementing Regulations under Docket CEQ-2021-0002, the BLM has determined that it has provided sufficient evidence and analysis to deem preparation of an EA followed by issuance of a FONSI appropriate for the Proposed Action.
20.0	20.1	Gary Hughes	Dear Ms. Martinez, Dear Ms. Martinez, I'm writing to express my serious concerns about the impacts of the proposed Oro Cruz Exploration Project in Imperial County, California. Exploration by Southern Empire Resources Corp. would cause irreversible damage to a landscape of great cultural, religious, and spiritual importance to the Quechan people. Furthermore, the project would have significant impacts on the Picacho Area of Critical Environmental Concern, including on critical habitat for the threatened Mojave Desert Tortoise. I urge the Bureau of Land Management to at an absolute minimum require an Environmental Impact Statement to properly analyze these impacts before making a decision on the project. To fail to complete an EIS would be an arbitrary and capricious decision that violates bedrock environmental law. Sincerely,	Thank you for your comment. The Project area does not include any designated critical habitat for the Mojave Desert Tortoise. Information on impacts from the Proposed Action to ACECs, Cultural Resources, Native American Religious Concerns and Traditional Values, and on Wildlife including Threatened and Endangered Species are analyzed in the following sections of the EA/MND, respectively: Section 3.5, 3.8, 3.14, and 3.23. Associated PDFs and additional mitigation measures to minimize impacts are included as Appendix F of the EA/MND. Federal agencies, including the BLM, implement NEPA per the procedures developed by CEQ, which is the responsible agency for developing NEPA guidance for implementation. In line with the CEQ guidelines revised in 2020 and then again in 2022 for implementing regulations of NEPA, which does not mandate particular results or substantive outcomes but rather requires Federal agencies to consider environmental impacts of Proposed Actions, the BLM determined that an EA is the appropriate level of NEPA review for the Proposed Action. In following 40 CFR Section 1501.5(c)(1) and 40 CFR 1501.6(a) per the 2022 updates to the NEPA Implementing Regulations under Docket CEQ-2021-0002, the BLM has determined that it has provided sufficient evidence and analysis to deem preparation of an EA followed by issuance of a FONSI appropriate for the Proposed Action.
21.0	21.1	Patricia Brown, PH.D.	I am a retired UCLA research biologist and a consultant. Since 1968, my research has concentrated exclusively on bats (auditory neurophysiology, echolocation behavior, ontogeny, thermoregulation and foraging and roosting ecology). Much of this research has been conducted on bats that live in abandoned mines, especially in desert areas. I have surveyed more than 10,000 mine features for bats in the California Desert as part of my research and for government agencies and mining companies as part of environmental assessments prior to and concurrent with renewed mining in	Thank you for your comment. The PDF-11 to implement a 500-foot avoidance buffer during the bat maternity season (April 1 to August 31) for surface drilling around features with evidence of use by BLM sensitive bat species is in compliance with Volume IV Section 7 Biological Resources in the DRECP Final EIS (BLM 2015) for implementing an avoidance setback of 500 feet around known bat roosts. The EA/MND analyzes effects resulting from surface disturbance only. Underground exploration is not analyzed in the EA/MND as it

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			historic mining areas. Since 1976, I have surveyed (internally and externally) every mine working in the Cargo Muchacho Mountains to document seasonal bat use. In my research, the California leaf-nosed bat (*Macrotus californicus*) has been a species of interest since 1968. At that time, bat banding was supported by USFWS to determine movements and longevity in bats. My colleagues and I banded 14,431 California leaf-nosed bats from mines in mountain ranges close to the Lower Colorado River (LCR) between 1958 and 2016, of which 4,477 individuals were recaptured at least once (and some up to six times). The maximum longevity between initial banding and recapture was 16 years. The banding data showed a strong correlation for bats remaining in the mountain range in which they were banded, but often switching mines between seasons within a mountain range. I banded several hundred bats in the Cargo Muchacho Mountains between 1978 and 1997. Of these, recaptures were documented on only two occasions of bats moving between two mines in the Chocolate Mountains close to the LCR and mines in the Cargo Muchachos (Brown 2017). The results of the banding research showed that California leaf-nosed bats move between mines seasonally between mines in the Cargo Muchacho Mountains, with most mines having resident bats year-round. This species is a member of the tropical leaf-nosed bat family Phyllostomatidae and are active all year in the lower elevation deserts of California and Arizona and cannot lower their body temperature to enter winter hibernation. They survive by roosting in warm mines with temperatures of 80 º F or greater. Geothermally heated mines in some mountain ranges provide these temperatures at depths great than 100 feet below the surface (and sometimes over 1000 feet underground), and winter roosts can contain many times the number of bats (both males and females) of summer colonies. These large winter colonies are very important to the survival of the species and must be protected. With hot outside temperatures in the spring and summer, the bats are using areas in mines closer to the surface. Maternity colonies are often within sight of a mine portal where temperatures are 90 º F or warmer during since the babies cannot thermal-regulate for several weeks and develop faster in warmer temperatures. Each female California leaf-nosed bat has a single baby (pup) each year. In the Cargo Muchacho Mountains, the colonies begin to form by late March and the pups are born in early May. This is a period when any disturbance (such as drilling in the vicinity) can cause to abandon the roost, often leaving flightless juvenile bats behind to starve. Although the pups may begin to fly at a month after birth, they continue to nurse beyond that period. If undisturbed, the maternity colony will remain intact through the end of summer. In the fall, the bats congregate in mines for breeding, often in a lek roost (i.e. separate mines or in complex mines that are not used during winter or maternity season). Groups of males perform courtship displays complete with vocalizations that attract the females. Following insemination, the pregnant females have delayed fetal development and give birth 9 months later (Brown 2004).	is not subject to permitting under the 43 CFR 3809 Surface Management regulations and is therefore not under the decision-making realm of the BLM as it pertains to the proposed Project. However, the proponent has voluntarily conducted LiDAR mapping of the historic Oro Cruz Mine underground workings to inform the underground exploration activities. The proponent would use all best available LiDAR data to make the best effort to avoid drilling through voids in underground workings. Drill siting to avoid known voids in the underground workers is also in the best interest of the proponent as drills would be sited based on locations where a constant circulation of fluids to lubricate the drill rig and bring samples to the surface is possible, as lost circulation of the fluids would result in a lost drill hole at the depth at which an open cavity is encountered, should the drill rig go through a void.

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			The information provided above is why drilling should not disturb any mine roosts in the Cargo Muchachos at any season. The 500-foot rule given as mitigation in the EA was derived for surface disturbance ONLY in the DRECP during the exploration and development of renewable energy resources and would not be applicable to underground disturbance unless the portal of an adit or collar of a shaft aligned perfectly with all the underground workings.	
21.0	21.2	Patricia Brown, PH.D.	Most of the mines that are important to roosting bats (and sometimes hazardous to humans) have bat-compatible gates that were installed either by American Girl Mining Joint Venture or the BLM. All the drill areas except for the section connecting the Oro Cruz Underground to the American Girl Wash are close to historic mines, most with bat use. The majority shelter California leaf-nosed bats, although the "Mesquite" Mine adit (west of the King) and close to drill area 2 shelters a pallid bat (*Antrozous pallidus*) maternity colony. The "Desert Lavender" adit near drill area 5 is a big brown bat (*Eptesicus fuscus*) maternity roost. The portal is only the access point into the mine and is usually not where the bats are roosting. The California leaf-nosed bats could be hundreds of feet underground especially in the winter, and drilling through the roost could cause injuries and roost abandonment. The 40% dip in the ore body in the larger mines is to the southeast with drifts at about 100-foot levels. Without an accurate underground map, it would be impossible to predict if an 800-foot-long drill hole (often diagonal) will intersect historic underground workings. It is also in the best interest of the mining company not to drill through open areas. Although I have made hand drawn bats of many of the mine workings, some areas were too hazardous to enter (although they have bat residency). My maps would probably not be accurate enough to predict from the surface where a drill rig positioned 500 feet (or hopefully further) from the portal will intersect workings several hundred feet below the surface. For this reason, I recommend that Lidar mapping be conducted for the all the complex mines close to the drill areas, to guide the drilling away from underground workings. Especially Important is the Queen (the largest *Macrotus* year-round roost in the Tumco Area) with the only access to the underground via a 300-foot-deep shaft, with multiple drifts radiating from there. The Crown (and West Crown) are also complex mines, and significant portions of the underground mine were collapsed during drilling by American Girl Mining Joint Venture exploration, including the "Glory Hole" to the west of the main Crown decline. This large open chamber sheltered Mexican free-tailed bats (*Tadarida mexicana brasiliensis*) and cave myotis (*Myotis velifer*) until a drill road above it collapsed it to a small opening. These species have not returned to the Cargoes. In the drilling for the Oro Cruz pit, a drill road above the historic portal to the underground completely sealed it during the spring, entombing maternity colonies of four bat species (including Townsend's big-eared bats). While the King is not a very complex mine, a drill hole adjacent to the shaft displaced one of the main maternity colonies of California leaf-nosed bats. As of my last surveys in 2016, the bats had not returned. While renewed mining does permanently destroy bat habitat, drilling not done in an informed and supervised manner can also do damage.	The proponent has voluntarily conducted LiDAR mapping of the historic Oro Cruz Mine underground workings to inform the underground exploration activities; however, the proponent would make their best attempt at utilizing all best available LiDAR data to also support surface drill siting in order to avoid the known voids (including mine shafts, and adits that may support bat species) in the underground workings. Furthermore, surface drill siting has been preliminarily located in the Plan of Operations based on geologic mapping and would be further developed should the Proposed Action be approved. Surface drilling relies on a constant circulation of fluids to lubricate the drill rig and bring samples to the surface; as such, lost circulation of the fluids would result in a lost drill hole at the depth at which an open cavity is encountered, should the drill rig go through a void, such as an area with an open underground mine working. The Proponent would make the best effort possible so that surface drilling would not intersect with underground workings due to not only technical infeasibility, but also economic infeasibility given the potential loss of productivity of a drill site if it were to be sited in an area that would potentially intersect with an underground mine working. Per PDF-11 (described in Appendix F of the EA/MND), a 500-foot avoidance buffer would be implemented during the bat maternity season (April 1 to August 31) for surface drilling around features with evidence of use by BLM sensitive bat species. The proponent would utilize data provided by the BLM with locations of known abandoned mine sites that host populations of BLM sensitive bat species to implement the buffer and to inform surface drill siting.
21.0	21.3	Patricia Brown, PH.D.	The shielding of lights from the drilling is not real mitigation and the lights will not be a benefit for the bats in attracting insects. The four BLM and CDFW species of special concern do not "hawk"	Shielded lights on drilling equipment is a standard equipment feature that would be used during nighttime drilling to limit visual impacts from night lighting in the

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			insects. They are all gleaners, especially California leaf-nosed bats and Townsend's big-eared bats while pallid bats forage for ground dwelling arthropods. I also noticed in that SMP Gold Corp also will enhance some "existing roads" that follow or cross dry washes. A radiotelemetry foraging project of *Macrotus* in the Tumco Wash are showed that although desert wash vegetation made up less than 5% of the available habitat, the bats foraged in it 90% of the time. This research was conducted because in the American Girl Wash much of the wash microphyll woodland was removed during construction, and the bat population sharply declined in the remaining roosts. It took two decades for the bat population to recover in the American Boy Mine. Care should be taken to avoid impacting ANY desert wash vegetation (including young plants).	Project Area and is not included as a mitigation measure. Although some of the known bat species with potential to be present within the Project Area do not depend on "hawking" insects from the air and therefore would likely not be drawn to insect populations that may be attracted to nighttime drill lighting, there is a potential for some foraging bat species to be present that do rely on "hawking" insects rather than foraging from the ground and/or vegetation; therefore, the creation of a source of light that would attract insects and thus some species of foraging bats is considered a potential impact under the Proposed Action. Additionally, per the PDFs, CMAs, and BLM required mitigation measures included in Appendix F of the EA/MND, pre-construction surveys would be conducted prior to surface disturbing activities in order to identify presence of both wildlife and vegetation species that may require coordinated avoidance with the BLM. Disturbance to washes would be limited to vehicular crossings and would not include construction disturbance.
21.0	21.4	Patricia Brown, PH.D.	The bat section of the WestLand Biological Report is not complete or accurate in several regards. They did not appear to have knowledge of my prior research and surveys in the area (although BLM should have provided them with reports written for the American Girl Mine JV and latter directly for the BLM AML program). It would be helpful if they had given the dates of their 2022 surveys as well as the names and coordinates of the features where bats were "observed". What methods did the use to confirm the presence of bats? Did they enter the gated mines? The comment of "stringy" black guano and yellow urine staining is not indicative of *Macrotus* or any of the other bat species roosting in the mines. I suspect that they may have seen woodrat "amber rat" marking secretions. The sections on the natural history of California leaf-nosed bats and other bat species occurring in the Cargo Muchachos were "boiler plate", included species that would not occur in this range and missed several that do (despite their occurrence in the CNDDB).	Biological baseline surveys were conducted in March 2021, as stated in the biological baseline report (WestLand 2021) and Section 3.23.2 of the EA/MND. In addition to survey data gathered during the March 2021 surveys, the baseline report relied on literature reviews, information provided in the California Natural Diversity Database, known existing conditions from recent data collected, and details for monitoring for mobilization. The BLM considered the baseline report complete and accepted in June 2021. The BLM did not require baseline surveys to include gated mines. Per the PDFs, CMAs, and BLM required mitigation measures included in Appendix F of the EA/MND, pre-construction surveys would be constructed prior to surface disturbing activities in order to identify presence of wildlife species and any associated additional mitigation or avoidance measures that may be necessary, to be coordinated with the BLM.
21.0	21.5	Patricia Brown, PH.D.	They and the Stantec report did not mention the value of the horizontal underground workings as desert tortoise habitat. My late husband Dr. Tim Brown was a herpetologist (and graduate school classmate of Dr. Kristen Berry). Until his death in 1979, he assisted me in my underground mine surveys, looking for rattlesnakes. We frequently encountered tortoises or fresh scat in all seasons, but usually in the winter months. They can live hundreds of feet underground, but also use shallow prospects. When doing exclusions prior to renewed mining at the American Boy Mine, a large male tortoise lived at the first drift level 100 feet below the portal and regularly accessed the surface via a 40% rocky incline. A tortoise nest (with eggs and hatchlings observed and photographed) occurred within 25 feet of the portal of the north entrance to the "Tunnel" Mine near proposed drill area 3. When looking for desert tortoises or their sign only on the surface, the population of tortoises in the Cargo Muchachos is under-estimated. They could also become casualties to drilling through underground workings.	Per PDF-13 in Table F-1 of Appendix F of the EA/MND, within 24 hours of the commencement of Project activities, ~~pre-construction tortoise surveys would be conducted by~~ a BLM-approved Authorized or Qualified Biologist would inspect ~~within~~ the area to be disturbed plus a 500-foot buffer, focusing on areas that could provide suitable desert tortoise burrow or cover sites, such as dry washes with caliche. Burrows would be flagged such that they would be avoided by Project activities. Mitigation measures also include monitoring of project activities by a BLM-approved Authorized or Qualified Biologist to ensure no desert tortoises are killed or burrows crushed, and project staff are compliant with tortoise best practices. Additionally, please refer to response to Comment # 21.1 and 21.2. Drilling through underground workings is not anticipated. The proponent would utilize all

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				best available LiDAR data to support surface drill siting in order to avoid the known voids in the underground workings; furthermore, this would be in the best interest of the proponent as surface drilling through open cavities is both technically and economically infeasible.
21.0	21.6	Patricia Brown, PH.D.	Big horn sheep were also regularly seen by me and others at American Girl Mining JV on the ridge on the north side of American Girl Wash during mining activities in the 1990s, just east of the area where the haul road will be reopened. A big horn sheep certified biologist (who can differentiate mule deer from big horn sheep scat) should conduct a survey of the rocky "inaccessible areas" near the drill sites. I would predict that 10 helicopter flights a day over the mountainous terrain might disturb them.	Biological baseline surveys were conducted in March 2021 to ascertain the most current presence of wildlife species in the area of analysis. The baseline data collected was used to analyze impacts to present or potentially present wildlife species as a result of the Proposed Action. Bighorn sheep were not observed during the baseline surveys in the survey area and additional literature and information from recent surveys and the California Natural Diversity Database were reviewed to support the conclusions made in the baseline report. Pre-construction surveys would be conducted prior to surface disturbance under the Proposed Action per the PDFs, CMAs, and BLM required mitigation measures outlined in Appendix F of the EA/MND. Should bighorn sheep or other additional wildlife species not previously present be observed, SMP would coordinate additional avoidance or mitigation measures with the BLM as necessary.
21.0	21.7	Patricia Brown, PH.D.	I believe that potential impacts of this project could be serious to bats, tortoises and big horn sheep unless mitigation is revised following more complete biological surveys. These wildlife were the one of the reasons for the creation of the Picacho ACEC. If you need any clarification of my comments or the addition of references, please contact me. Sincerely, Patricia Brown, Ph.D. 134 Eagle Vista Bishop, CA 93514 760 920 3975	The BLM has determined the additional mitigation measures outlined in Appendix F of the EA/MND to be sufficient and appropriate for minimization of impacts to the wildlife species that have been documented as present. Per Section 3.23.3, impacts to big game species, special status bat species, and desert tortoise would be minor, short-term, and localized. Additionally, as discussed in Section 3.5.3, impacts to the Picacho ACEC would be negligible, short-term, and localized.
22.0	22.1	William Rainey, Ph.D.	Various statements in the EA and associated documents acknowledge the presence of sensitive bat species (*Macrotus californicus* and *Corynorhinus townsendii*) on the Oro Cruz project site, but the BLM acquired biological contract report (WestLand 2021) involved apparently brief investigation with no description of methods. Other documentation in the EA shows that particularly *M. californicus* had been found in substantial numbers in surveys over many years at all seasons in the multiple underground workings in the project area. Given no significant underground survey or portal exodus monitoring effort in the biological contract report, the current distribution and activity of sensitive bat species on the site can only be inferred from prior investigations. These data and research at other mines both in the Cargo Muchacho Mountains and elsewhere indicate that the bats are present year round and *Macrotus* in particular is active throughout the year including emerging many nights in winter to forage in adjacent arborescent wash vegetation. The primary constraint on the proposed project directed at lessening negative impacts on sensitive bat species is that drilling will not be permitted within 500 ft of features used by sensitive bats in the interval designated as the maternity season (April 1-August 31), and the temporary drilling	Thank you for your comment. Biological baseline surveys were conducted in March 2021, as stated in the biological baseline report (WestLand 2021) and Section 3.23.2 of the EA/MND. In addition to survey data gathered during the March 2021 surveys, the baseline report relied on literature reviews, information provided in the California Natural Diversity Database, known existing conditions from recent data collected, and details for monitoring for mobilization. The BLM considered the baseline report complete and accepted in June 2021. Shielded lighting for nighttime drilling would be implemented during all instances of nighttime drilling year-round to minimize impacts from light pollution on wildlife and visual resources. Per PDF-11 (described in Appendix F of the EA/MND), a 500-foot avoidance buffer would be implemented during the bat maternity season (April 1 to August 31) for surface drilling around features with evidence of use by BLM sensitive

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			facilities would use light shielding at night to lessen disturbance. It isn't entirely clear from the text whether light shielding at night is required at all times or only during the maternity season interval. A major concern with this limited seasonal buffer described as required around recognized bat activity sites is that the biological report or other text offers no compilation of such sites from the substantial amount of prior bat research in the area. An initial approximation of such a list would include the portals of all underground workings in the project area.	bat species. The proponent would utilize data provided by the BLM with locations of known abandoned mine sites that host populations of BLM sensitive bat species to implement the buffer and to inform surface drill siting. This PDF is in compliance with Volume IV Section 7 Biological Resources in the DRECP Final EIS (BLM 2015) for implementing an avoidance setback of 500 feet around known bat roosts. The EA/MND analyzes effects resulting from surface disturbance only. Underground exploration is not analyzed in the EA/MND as it is not subject to permitting under the 43 CFR 3809 Surface Management regulations and is therefore not under the decision-making realm of the BLM as it pertains to the proposed Project. However, the proponent has voluntarily conducted LiDAR mapping of the historic Oro Cruz Mine underground workings to inform the underground exploration activities. The proponent would use all best available LiDAR data to make the best effort to avoid drilling through voids in underground workings. Drill siting to avoid known voids in the underground workings is also in the best interest of the proponent as drills would be sited based on locations where a constant circulation of fluids to lubricate the drill rig and bring samples to the surface is possible, as lost circulation of the fluids would result in a lost drill hole at the depth at which an open cavity is encountered, should the drill rig go through a void. Additionally, as described in the PDFs, CMAs, and BLM required mitigation measures, pre-construction surveys would be conducted prior to all surface disturbing activities in order to identify present of wildlife and vegetation species; any additional avoidance or impact minimization measures would be coordinated with the BLM based on the results of the pre-construction surveys.
22.0	22.2	William Rainey, Ph.D.	Another concern is the limited seasonal duration of the proposed buffer, so outside that interval a drill pad might be installed and operated semi-continuously for a substantial interval without constraints on lighting or noise directly adjacent to a portal at which bats would have previously exited and entered in darkness every night for foraging. Disturbance constraints on available foraging time at low winter temperatures are a particular concern given both lowered prey activity and availability at that season and the bat's potentially substantial increase in energy expenditure for thermoregulation while foraging at low ambient temperatures.	The BLM has determined that implementation of the 500-foot avoidance buffer during the bat maternity season (April 1 through August 1) around known bat maternity roosts with evidence of use by BLM sensitive bat species would be sufficient in minimizing impacts to bat species under the Proposed Action. The proponent would utilize data provided by the BLM with locations of known abandoned mine sites that host populations of BLM sensitive bat species to implement the buffer and to inform surface drill siting. Overall, impacts to bat species under the Proposed Action would be minor, short-term, and localized and species populations are not anticipated to be impacted as a whole. Shielded lighting for nighttime drilling would be implemented during all instances of nighttime drilling year-round to minimize impacts from light pollution on wildlife and visual resources.
22.0	22.3	William Rainey, Ph.D.	An allied comment on project noise analyses is that mapping and noise range analyses are based on audible range noise (I.e, below 20 kHz). Bats can hear in this range and several species, notably	No sensitive wildlife noise receptors were identified during baseline data collection or analysis of the Proposed Action. Overall, noise impacts under the

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			Antrozous pallidus, rely heavily on low intensity prey produced *(e.g.,* scorpion movement through vegetative litter beneath a shrub) and bat foraging and probably efficiency may be reduced in areas of elevated anthropogenic sound (*e.g.*, road corridors). A different foraging and communication interference not well represented by audio range sound assumptions is that the sensitive bat species (*Macrotus* and *Corynorhinus)* in the project area are both primarily gleaners, detecting prey on foliage by emitting multiharmonic pulses of largely ultrasonic sound and listening for the returning echoes. The amount of ultrasound emission from drilling and associated static equipment (generators, etc.) is poorly known, but some masking effects near drill sites is likely to contribute along with other disturbance factors to a radius of avoidance for these species. Because they primarily forage by gleaning rather than the aerial pursuit mode of smaller bats, the suggestion in the EA that *Macrotus* may benefit from insects attracted to project lighting seems quite unlikely.	Proposed Action would be negligible and short-term given that noise impacts from both exploratory drilling and helicopter use would not be stationary and would be temporary in nature. Section 3.23.3 of the EA/MND has been revised to clarify potential noise impacts to special status wildlife species. Overall, bat species may experience indirect impacts from noise generation under the Proposed Action, as clarified in Section 3.23.3 of the Revised EA/MND, but impacts to bat species from Project activities are anticipated to be minor. Per the PDFs, CMAs, and BLM required mitigation measures outlined in Appendix F of the EA/MND, pre-construction surveys would be conducted prior to any surface disturbance commencing to identify presence of wildlife species, in accordance with the measures required under the DRECP for impacts to biological resources (BLM 2015). Should presence of wildlife species be identified, including bat species in abandoned mine features near to potential surface drilling sites that may host individuals, any additional avoidance or impact minimization measures would be coordinated with the BLM for implementation. Per Section 3.23.3 of the EA/MND, although drills would be shielded per the standard equipment specifications during nighttime drilling, the Proposed Action would create a source of light that would attract insects and, thus, foraging bats. Although some of the known bat species with potential to be present within the Project Area do not depend on "hawking" insects from the air and therefore would likely not be drawn to insect population that may be attracted to nighttime drill lighting, there is a potential for some foraging bat species to be present that do rely on "hawking" insects rather than foraging from the ground and/or vegetation; therefore, the creation of a source of light that would attract insects and thus some species of foraging bats is considered a potential impact under the Proposed Action. Shielded lighting for nighttime drilling would be implemented during all instances of nighttime drilling year-round to minimize impacts from light pollution on wildlife and visual resources.
22.0	22.4	William Rainey, Ph.D.	Each drill pad will have a partially liquid filled sump for drilling coolant with additives and extracted drilling fines. These sumps are described as being excavated to have one low gradient slope that allows exodus of wildlife that might have approached to drink. For small wildlife with extensive wettable wing areas including birds and bats, such sumps can still generate substantial fatality rates particularly when traces of petroleum lubricants accumulate over time as a surface film and the viscosity near the surface increases from accumulating fines or additives and lessens the ability of small animals to move in the fluid. Bats may at least initially sink below visual detection during the night, so daytime evidence of mortality may be overlooked. The sumps should be monitored by a biologist and protectively netted if mortality is detected. The project description indicates the sumps will be backfilled after they have dried, but it is important to note that hazard to	A BLM required mitigation measure has been added to Table F-3 of Appendix F of the EA/MND as M-9 that would require the proponent to place netting or other applicable barriers over inactive sumps during the evaporation process and prior to backfilling to prevent wildlife entrapment.

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			wildlife from sumps that are still liquid likely remains after the drill rigs have moved on to the next site.	
22.0	22.5	William Rainey, Ph.D.	From the materials made available with the EA, it seems unclear that the proposed plan has maps of existing underground workings that will allow pad siting and drilling to avoid encountering prior underground mine workings. Beyond the operational issue of fluid loss, these areas include the daytime refuges of sensitive bat species, which may be at considerable depth to exploit the thermal gradient at different seasons. Given the major risk substantial undetected mortality from drilling collapsing aggregated bat refuge sites or occluding sometimes constricted and already unstable abandoned mine features that allow bats to travel from geothermally heated refuges to the surface it would be best to contract for laser mapping of the human accessible underground workings and designate a no-drill buffer around the mapped workings that allows for identifiable but inaccessible workings.	The proponent has voluntarily conducted LiDAR mapping of the historic Oro Cruz Mine underground workings to inform the underground exploration activities. The proponent would use all available LiDAR data to make the best effort to avoid drilling through known voids (including roosts, mine shafts, and adits that may support bat species) in the underground workings. Furthermore, surface drill siting has been preliminarily located in the Plan of Operations based on geologic mapping and would be further developed should the Proposed Action be approved. Surface drilling relies on a constant circulation of fluids to lubricate the drill rig and bring samples to the surface; as such, lost circulation of the fluids would result in a lost drill hole at the depth at which an open cavity is encountered, should the drill rig go through a void, such as an area with an open underground mine working. The proponent would make the best effort to ensure that surface drilling would not intersect with underground workings due to not only technical infeasibility, but also economic infeasibility given the potential loss of productivity of a drill site if it were to be sited in an area that would potentially intersect with an underground mine working.
22.0	22.6	EPA	Subject: EPA's Comments on the Draft Environmental Assessment/Mitigated Negative Declaration and Draft/Unsigned Finding of No Significant Impact for the SMP Gold Corp. Oro Cruz Exploration Project, Imperial County, California Dear Mayra Martinez: The U.S. Environmental Protection Agency has reviewed the Bureau of Land Management's Draft Environmental Assessment / Mitigated Negative Declaration and draft Finding of No Significant Impact (FONSI) for the above referenced project. The EPA's comments are provided pursuant to the National Environmental Policy Act, Council on Environmental Quality regulations (40 CFR Parts 1500-1508) and our NEPA review authority under Section 309 of the Clean Air Act. SMP Gold Corp. proposes mineral exploration activities at the Oro Cruz Pit Area on land managed by the BLM in Imperial County, California. The project proposes up to 65 drill pads and associated access roads, with possible heli-portable operations, in a historical mining area with previous surface disturbance. The DEA/MND describes the Proposed Action and alternatives, including a "no action" alternative. We appreciate the opportunity to review the DEA and FONSI and offer the following recommendations for the Final EA and the BLM's Finding of No Significant Impact. ***Impacts to Tribe's Traditional Cultural Places***	Thank you for your comment. The Fort Yuma Quechan Indian Tribe identified that the proposed project is located within a larger landscape they consider a Traditional Cultural Property. The BLM continues to consult with the Quechan about the nature and extent of the Traditional Cultural Property as part of its Government-to-Government consultation, as well as for Section 106 of the NHPA consultation and relevant to other EOs and regulations. The BLM recognizes the attributes that give Traditional Cultural Properties significance, such as their association with historical events or traditional practices, are often intangible in nature. The status of the Section 106 process and tribal consultation is located in Sections 3. 8, 3.14 and 4.12. Additionally, as stated in Section 3.8 of the EA/MND, all known cultural resource sites would be avoided thus minimizing direct impacts. No adverse impacts would occur with avoidance measures implemented. Project activities would be considered temporary in nature, as exploratory drilling would occur within one to two years from the beginning of the Project, followed by monitoring and reclamation activities through the remaining three years. The BLM would require additional mitigation measures to minimize indirect impacts to known cultural resource sites, as described in Section 3.8.3 and Appendix F of the EA/MND, resulting in indirect impacts being negligible, short-term, and localized.

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			The draft FONSI (p. 4) indicates the Fort Yuma Quechan Tribe considers the area a Traditional Cultural Place. The DEA states that the Fort Yuma Quechan Indian Tribe has expressed opposition to the project as the project location is in an area with "great cultural, religious and spiritual significance." It further describes the area as being a significant cultural landscape that is "integral to the spiritual and everyday lives of the Quechan people" (p. 48). Based on the analysis in the document for Tribes' Traditional Cultural Places, it is unclear whether the BLM has confirmed that the area is to be considered a Traditional Cultural Place for the purpose of BLM compliance with the National Historic Preservation Act. According to the DEA, the BLM has requested further information from the Fort Yuma Quechan Tribe about the Traditional Cultural Place but, as of the date of the draft FONSI, this has not been provided and consultation remains ongoing. Still, the BLM concludes "due to the short-term nature of the Project, impacts to Native American religious concerns and traditional values would be minor, short-term, and localized." Appendix F of the DEA contains mitigation measures in terms of Project Design Features and includes PDF-35 which states that the project proponent has committed to avoiding impacts to cultural resources, engaging with tribes and preparing and implementing a tribal monitoring plan. It is unclear whether and how the objections of the Quechan Tribe would be resolved and if that would affect the level of significance of the impact. ***Recommendations for the Final EA and FONSI:*** • Describe whether the BLM considers the area a Traditional Cultural Place for the purposes of NHPA compliance.[1] • Describe the status of consultation with the Fort Yuma Quechan Tribe, issues raised during consultation and any proposed or agreed upon mitigation measures. • Discuss the resolution of the Tribe's objections and document how impacts to cultural resources would be less than significant. The EPA appreciates the opportunity to review this Draft EA and draft/unsigned FONSI. When the Final EA and FONSI are available, please email the documents to quam.spencer@epa.gov. If you have any questions, please contact me at 415-947-4167, or Spencer Quam, the lead reviewer for this project, at 415-972-3768.	
23.0	23.1	• Lisa Velenky Center for Biological Diversity • Joan Taylor, Sierra Club California/Nevada Desert Committee	**RE: SMP Gold Corp. Oro Cruz Exploration Project EA/MND** Dear Ms. Martinez, These comments are timely submitted on the BLM's Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) and proposal to approve the Plan of Operations (PoO) for the SMP Gold Corp. Oro Cruz Exploration Project (Project) from the Center for Biological Diversity, Western Watersheds Project, Earthworks, the Sierra Club California/Nevada Desert	Thank you for your comment. The BLM held a public comment period from November 16 – December 16, 2022 in accordance with the NEPA process for the EA portions of the joint document. Although a joint document was prepared by the BLM and Imperial County in accordance with NEPA and CEQA, the two analyses are considered separate for the two separate review processes under NEPA and CEQA by the lead agencies. Although the two agencies have coordinated, the review and decision making processes are considered separate under the two regulations. The public review periods for the EA/MND for

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		• Laura Cunningham Western Watersheds Project • Jared Naimark, Earthworks • Isabella Langone, California Native Plant Society • Bradley Angel, Greenaction for Health and Environmental Justice • Kara Matsumoto, Conservation Lands Foundation • Kelly Herbinson and Cody Hanford, Mojave Desert Land Trust • Preston J. Arrow-weed, Ahumt Pipa Foundation	Committee, Conservation Lands Foundation, Greenaction for Health and Environmental Justice, Mojave Desert Land Trust, California Native Plant Society, and the Ahmut Pipa Foundation (collectively "Conservation Organizations"). These comments are timely submitted. Although the BLM and Imperial County prepared a joint document with the EA and a Mitigated Negative Declaration (MND) combined, BLM provided public notice for the EA comment period ending December 16, 2022. On December 13, 2022, Imperial County notified the public of an opportunity to comment on the MND with comments due January 20, 2023. Because the project is a single project and both NEPA and CEQA require the agencies to consider the whole of the project in their review, the Conservation Organizations reserve the right to add additional comments regarding the joint EA/MND and compliance with State laws including SMARA and CEQA during the comment period noticed by Imperial County. As detailed below, BLM's review and proposed approval of the Project violates a number of federal laws, including the Federal Land Policy Management Act (FLPMA), the National Environmental Policy Act (NEPA), and other federal laws and regulations. At a minimum, due to the likely potential for significant impacts, BLM must prepare a full Environmental Impact Statement (EIS) for this Project. In addition, because there is a fair argument that the project will have significant impacts, Imperial County must prepare an EIR. These comments incorporate the previous comments submitted by the above groups, especially as the EA fails to adequately respond to those comments.	comments related to the NEPA and CEQA analyses were attempted to be as aligned as possible. Federal agencies, including the BLM, implement NEPA per the procedures developed by CEQ, which is the responsible agency for developing NEPA guidance for implementation. In line with the CEQ guidelines revised in 2020 and then again in 2022 for implementing regulations of NEPA, which does not mandate particular results or substantive outcomes but rather requires Federal agencies to consider environmental impacts of Proposed Actions, the BLM determined that an EA is the appropriate level of NEPA review for the Proposed Action. In following 40 CFR Section 1501.5(c)(1) and 40 CFR 1501.6(a) per the 2022 updates to the NEPA Implementing Regulations under Docket CEQ-2021-0002, the BLM has determined that it has provided sufficient evidence and analysis to deem preparation of an EA followed by issuance of a FONSI appropriate for the Proposed Action per the analysis in the EA/MND that no significant impacts would occur under the Proposed Action. Consistent with the CEQA statutes, if a project is found to have no adverse effects, or if the potential effect can be reduced to a level that is less than significant through project revisions/mitigations, a Negative Declaration or MND can be adopted (§21080). Specifically, the statute provides that MNDs may be used, "when the initial study has identified potentially significant effects on the environment, but (1) revisions in the project plans or proposals made by, or agreed to by, the applicant before the proposed negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur, and (2) there is no substantial evidence in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment" (§21064.5). In summary, if all potential significant impacts can be eliminated or reduced to less than significant, a MND can be prepared in lieu of an EIR. Through preparation of a detailed initial study, as well as a detailed suite of technical studies, Imperial County determined that an MND was the appropriate project document under CEQA. The County held an Environmental Evaluation Committee (EEC) meeting on November 17th, 2022, where a draft version of the initial study/MND was presented to the public, and to a seven-member panel representing various County agencies/organizations. Through this public process, the EEC determined that the mitigations measures as proposed would reduce the significant effects to a less than significant level, or project design features as included would avoid them all together. For these reasons, the County found that an MND was the appropriate CEQA level of

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				review/documentation for the project. Further, public controversy over the possible environmental effects of a project is not sufficient reason to require an EIR "if there is no substantial evidence in light of the whole record before the Lead Agency that the project may have a significant effect on the environment" (§ 21082.2).
23.0	23.2	• Lisa Velenky Center for Biological Diversity • Joan Taylor, Sierra Club California/Nevada Desert Committee • Laura Cunningham Western Watersheds Project • Jared Naimark, Earthworks • Isabella Langone, California Native Plant Society • Bradley Angel, Greenaction for Health and Environmental Justice • Kara Matsumoto, Conservation Lands Foundation • Kelly Herbinson and Cody Hanford, Mojave Desert Land Trust • Preston J. Arrow-weed, Ahumt Pipa Foundation	**I. The Project, and BLM's Review and Proposed Approval, Violates FLPMA** BLM's review and proposed approval of the Project violates the agency's multiple duties to protect public land resources under FLPMA. **A. <u>The Project Must Comply with All Applicable Land Use Plans</u>** FLPMA is the basic "organic act" for management of the BLM public lands. Under FLPMA, BLM must develop land use plans for the public lands under its control, 43 U.S.C. § 1712, and all resource management decisions must be in accordance with those plans. <u>Id</u>. § 1732(a), 43 C.F.R. § 1610.5-3(a). *See* <u>Norton v. S. Utah Wilderness Alliance</u>, 542 U.S. 55, 69 (2004) (this requirement "prevent[s] BLM from taking actions inconsistent with the provisions of a land use plan"); <u>Ore. Natural Res. Council v. Brong</u>, 492 F.3d 1120, 1128 (9th Cir. 2007) (holding BLM decision is "inconsistent with the [Land Use] Plan and, consequently, violate FLPMA"); <u>W. Watersheds Project v. Salazar</u>, 843 F.Supp.2d 1105, 1114 (D. Id. 2012) (reversing BLM decisions as inconsistent with land use plans); <u>W. Watersheds Project v. Bennett</u>, 392 F.Supp.2d 1217, 1227 (D. Id. 2005) (same). If a Proposed Action is not clearly consistent with the land use plan, BLM must either deny the Proposed Action or amend the plan, complying with NEPA and allowing for public participation. *See* 43 C.F.R. §§ 1610.5-3, 1610.5-5. *See also* <u>National Parks and Conservation Ass'n v. FAA</u>, 998 F.2d 1523, 1526 (10th Cir. 1993) (nonconforming land use required RMP amendment). The Interior Board of Land Appeals recognizes that this "consistency" requirement reflects the mandatory duty to fully and strictly comply with the governing land management plans. *See, e.g.* <u>Jenott Mining Corp.</u>, 134 IBLA 191, 194 (1995); <u>Uintah Mountain Club</u>, 112 IBLA 287, 291 (1990); <u>Marvin Hutchings v. BLM</u>, 116 IBLA 55, 62 (1990); <u>Southern Utah Wilderness Alliance</u>, 111 IBLA 207, 210-211 (1989). Complying with the RMP is required by both the general land use conformity requirement of FLPMA as well as BLM's duty under FLPMA to "prevent unnecessary or undue degradation" ("UUD") of the public lands. 43 U.S.C. §1732(b). To prevent UUD, BLM must ensure that all environmental protection standards will be met at all times. 43 C.F.R. § 3809.5 (definition of UUD prohibited by FLPMA includes "fail[ure] to comply with one or more of the following: … Federal and state laws related to environmental protection.").	As described under Section 1.3 of the EA/MND, under 43 CFR 3809.415, the operator of the Plan of Operations must prevent unnecessary or undue degradation to the public lands. The Proposed Action is in conformance with FLPMA in ensuring that resource protection is not compromised in accordance with the mandated principles of FLPMA. The Proposed Action is also in conformance with the California Desert Conservation Area (CDCA) Plan and the DRECP Land Use Plan Amendment (LUPA), which amended the CDCA Plan. The Proposed Action specifically conforms to the following Land Use Plan objectives from the CDCA and DRECP: encourage the development of mineral resources in a manner which satisfies national and local needs and provides for economically and environmentally sound exploration, extraction and reclamation practices; and support responsible mining and energy development operations necessary for California's infrastructure, commerce and economic well-being. The Proposed Action would include the implementation of applicant-committed environmental protection measures, avoidance, and minimization measures CMAs in conformance with the DRECP LUPA, and per BLM mitigation requirements (Appendix F of the EA/MND). The BLM has determined that no unnecessary or undue degradation would occur under the Proposed Action, and thus the Project would remain in compliance with FLPMA and all applicable land use plans.

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			"All future resource management authorizations and actions … shall conform to the approved plan." 43 C.F.R. §1610.5-3(a). BLM defines "conformity" as requiring that "a resource management action shall be specifically provided for in the plan, or if not specifically mentioned, shall be clearly consistent with the terms, conditions, and decisions of the approved plan or plan amendment." Id. §1601.0-5(b). "Consistent" is defined as requiring that decisions "will adhere to the terms, conditions, and decisions of officially approved and adopted resource related plans." Id. §1601.0-5(c). Mining operations are not exempted from FLPMA's requirement to comply with the RMP. For example, in Western Exploration v. U.S. Dept. of the Interior, 250 F. Supp. 3d 718, 747 (D. Nev. 2017), the court held that in the mining context, as well as for other potential uses of public land, RMP standards to protect the Greater Sage Grouse must be met to comply with BLM's duty to "prevent unnecessary or undue degradation" under FLPMA. The court rejected a challenge from the mining industry and others and agreed with the Interior Department that meeting the RMP requirements was part of the UUD mandate: > Defendants [Interior Department et al.] contend that the ''unnecessary or undue degradation'' standard in the statute does not preclude the agency from establishing a more protective standard that seeks improvements in land conditions that ''go beyond the status quo.'' The FEIS states that "if actions by third parties result in habitat loss and degradation, even after applying avoidance and minimization measures, then compensatory mitigation projects will be used to provide a net conservation gain to the sage-grouse.'' The Agencies' goals to enhance, conserve, and restore sage-grouse habitat and to increase the abundance and distribution of the species, they argue, is best met by the net conservation gain strategy because it permits disturbances so long as habitat loss is both mitigated and counteracted through restorative projects. If anything, this strategy demonstrates that the Agencies allow some degradation to public land to occur for multiple use purposes, but that degradation caused to sage- grouse habitat on that land be counteracted. The Court fails to see how BLM's decision to implement this standard is arbitrary and capricious. Moreover, the Court cannot find that BLM did not consider all relevant factors in choosing this strategy, as it appears to possess elements proposed in the DEIS. > In sum, Plaintiffs fail to establish that BLM's challenged decisions under FLPMA are arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law. Western Exploration, at 747 (internal citations omitted). *See also* Mineral Policy Center v. Norton, 292 F. Supp. 2d 30, 49 (D.D.C. 2003) ("when BLM receives a proposed Plan of Operations under the 2001 rules, pursuant to Section 3809.420(a)(3), it assures that the proposed mining use conforms to the terms, conditions, and decisions of the applicable land use plan, in full compliance with FLPMA's land use planning and multiple use policies.").	

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			BLM's mitigation policy, as detailed by the Interior Solicitor, acknowledges the need to ensure compliance with an RMP as part of its mitigation duties under the FLPMA UUD standard. In discussing the previous rulemaking (quoted above) with approval, the Solicitor reiterated "'the operator's responsibility to comply with applicable land use plans and BLM's responsibility to specify necessary mitigation measures.' Id. at 54,840 (emphasis supplied)." M-37039, The Bureau of Land Management's Authority to Address Impacts of its Land Use Authorizations through Mitigation, 20, n. 115 (Dec. 21, 2016)(Mitigation Opinion). The 2016 Mitigation Opinion was temporarily revoked in 2017, but was recently reinstated by the Solicitor. M-37075, Withdrawal of M-37046 and Reinstatement of M-37039 (April 15, 2022) (Exhibit 2). This new Opinion noted that the 2017 Opinion (M-37046) "expresses no views regarding the merits of the legal analysis or conclusions contained in the [2016 Opinion]." M-37075 at 2. The Solicitor noted that "in the hardrock mining context, the BLM has long recognized that the UUD requirement creates a 'responsibility [for the BLM] to specify necessary mitigation measures' when approving mining plans of operations." M-37039, at 19 (citations omitted). "The BLM regulations addressing surface management of hardrock mining operations on public lands have consistently included mitigation as a requirement for preventing UUD, including as part of the general performance standards in the current regulations." Id.	
23.0	23.3	• Lisa Velenky Center for Biological Diversity • Joan Taylor, Sierra Club California/Nevada Desert Committee • Laura Cunningham Western Watersheds Project • Jared Naimark, Earthworks • Isabella Langone, California Native Plant Society • Bradley Angel, Greenaction for Health and Environmental Justice • Kara Matsumoto, Conservation Lands Foundation	**B. The Project Does Not Comply with the Management Requirements and Prescriptions of the DRECP and Federal Law.** *1. California Desert National Conservation Lands* The Picacho ACEC was designated as an ACEC and as California Desert National Conservation Lands (CDNCLs) by the Desert Renewable Energy Conservation Plan (DRECP) Record of Decision signed in September of 2016. The DRECP identifies CDNCLs, in accordance with the Omnibus Public Land Management Act of 2009 (Omnibus Act), which are nationally significant landscapes within the California Desert Conservation Area (CDCA) with outstanding cultural, ecological, and scientific values. The CDNCLs are a permanent addition to the National Landscape Conservation System (NLCS), as per the direction to BLM in the Omnibus Act. DRECP at xi-xii. The Omnibus Act added to the newly established NLCS "[a]ny area designated by Congress to be administered for conservation purposes, including…public land within the [CDCA] administered by the [BLM] for conservation purposes." 16 U.S.C. § 7202(b)(2)(D). Unlike other CDCA lands managed under multiple-use principles, these areas are to be managed "in a manner that protects the values for which [they were] designated." *Id*. § 7202(c)(2); see also 43 U.S.C. §1732(a). The Federal Land Policy Management Act (FLPMA) requires that public lands be managed under multiple use principles "except that where a tract of such public land has been dedicated to specific	As stated in the comment response for Comment #23.2 and provided in Section 1.3 of the EA/MND, the Proposed Action is in conformance with the CDCA Plan and the DRECP LUPA, which amended the CDCA Plan. The Proposed Action specifically conforms to the following Land Use Plan objectives from the CDCA and DRECP: encourage the development of mineral resources in a manner which satisfies national and local needs and provides for economically and environmentally sound exploration, extraction, and reclamation practices; and support responsible mining and energy development operations necessary for California's infrastructure, commerce, and economic well-being. Furthermore, per the analysis under Section 3.7.3 of the EA/MND, relevant CMAs for National Conservation Lands (Appendix F of the EA/MND) would be required to be implemented under the Proposed Action, and impacts to National Conservation Lands would be negligible, short-term, and localized. Relatedly, mineral entry within the Picacho ACEC has not been withdrawn; therefore, locatable mineral exploration and development is not prohibited on lands within the ACEC. Per the analysis in Section 3.5.3 of the EA/MND, with implementation of the PDFs and relevant CMAs for ACECs (Appendix F of the EA/MND), impacts to the Picacho ACEC under the Proposed Action would be negligible, short-term, and localized.

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		• Kelly Herbinson and Cody Hanford, Mojave Desert Land Trust • Preston J. Arrow-weed, Ahumt Pipa Foundation	uses according to any other provisions of law it shall be managed in accordance with such law" (emphasis added). Thus, all NLCS lands within the CDCA must be managed to prohibit discretionary uses that are incompatible with the conservation, protection, and restoration of their landscapes. See 16 U.S.C. § 7202. Because the project is in the Picacho Area of Critical Environmental Concern it will significantly impact nationally significant values therein, including cultural, ecological, and scientific resources of this area. These values and the management goals are detailed in the DRECP Appendix B regarding the Picacho ACEC. Most importantly, the BLM EA/MND must consider how the goals can be met if the Project is approved. The goals include to enhance, protect, and preserve the cultural and biological resources, and to maintain desert tortoise habitat connectivity between the Chuckwalla Desert Wildlife Management/Area of Critical Environmental Concern/ Critical Habitat Units and high value climate refugia for wildlife. Due to their special protective designation, ACECs, including the Picacho ACEC, must be managed to a higher conservation standard that is consistently implemented across all ACECs. The EA/MND fails to show that BLM fully considered how the Project would affect these management goals. *2. National Conservation Lands Standards* The 2009 Omnibus Bill (Omnibus) established the National Conservation Lands as a permanent system of protected lands, "...to conserve, protect and restore nationally significant landscapes that have outstanding cultural, ecological, and scientific values for the benefit of current and future generations." Id. To ensure that the permanently protected National Conservation Lands are managed in order to "conserve, protect and restore nationally significant landscapes," all units within the system have several basic conservation standards, including: 1) Prescriptive language that requires the area to be managed for the conservation, protection and enhancement of resources over other uses; 2) A prohibition on discretionary uses that are not consistent with conservation and protection of these resources; 3) A mineral withdrawal; and 4) Restrictions on off-road vehicles and a travel management plan with restrictions ry to protect the area. These standards ensure that lands within the system are managed consistently for conservation and safeguarded for future generations. The Omnibus Bill makes clear that units of the system must be managed to a higher conservation standard.	
23.0	23.4	• Lisa Velenky Center for Biological Diversity	*3. Department of the Interior and BLM Policy*	Per Section 3.7.3 of the EA/MND, the Proposed Action would result in 20.54 acres of surface disturbance, all anticipated to occur within the CDCA and specifically the Picacho ACEC National Conservation Lands. Mineral entry

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		• Joan Taylor, Sierra Club California/Nevada Desert Committee • Laura Cunningham Western Watersheds Project • Jared Naimark, Earthworks • Isabella Langone, California Native Plant Society • Bradley Angel, Greenaction for Health and Environmental Justice • Kara Matsumoto, Conservation Lands Foundation • Kelly Herbinson and Cody Hanford, Mojave Desert Land Trust • Preston J. Arrow-weed, Ahumt Pipa Foundation	Conservation primacy and standards for the system have also been outlined in Department of the Interior guidance and BLM policies. In 2010, Secretarial Order 3308 established a unified conservation vision for managing the National Conservation Lands 'as required by the Omnibus Act of 2009' to 'conserve, protect, and restore nationally significant landscapes.´ Further stating that "the BLM shall ensure that the components of the [system] are managed to protect the values for which they were designated, including, where appropriate, prohibiting uses that are in conflict with those values." Secretarial Order 3308, Management of the National Landscape Conservation System, Nov 15, 2010, Sec. 4. In 2011, BLM released the 15-Year Strategic Plan, setting specific goals for how to manage the National Conservation Lands focused on conservation, protection, and restoration. The Strategic Plan further expanded that "there is an overarching and explicit commitment to conservation and resource protection as the primary objective" and that the BLM shall "not authorize discretionary uses that cannot be managed in a manner compatible with the designation proclamation or legislation." The National Landscape Conservation System, 15 Year Strategy, 2010. In 2012, BLM released two relevant Policy Manuals: 6100-National Landscape Conservation System Management; and 6220-National Monuments, Conservation areas, and Similar Designations. When making management decisions BLM must use these manuals as guidance. Secretarial Order 3308, and policy manual 6100 and 6220 provide guidance to BLM employees on the drafting of management plans and land use plan decisions as related to the National Conservation Lands. The Secretarial Order, 15-Year Strategy and Policy Manuals make clear that agency policy prioritizes conservation over other uses within the National Conservation Lands. Lastly, it should be clear, that the CDNCLs are managed as part of the National Conservation Lands, and no longer managed under multiple-use standards as outlined in the Federal Land Policy Management Act. *See* BLM's 15-Year Strategy for the National Conservation Lands, citing FLPMA, as amended, Public Law No. 94-579, Title III, Sec. 302(a). Clearly, units of the National Conservation Lands must be managed for the specific uses for which they were designated. BLM is precluded from permitting exploration activities that may run afoul of the requirements of the governing land use plan, and adversely impact the very purposes for which the ACEC and CDNCL were designated. Exploration activities will result in habitat loss, fragmentation, noise and dust, as well as adverse impacts to groundwater, cultural and scenic resources. FLPMA requires BLM to conduct all management and implementation activities "in accordance with" governing RMPs. 43 U.S.C. § 1732(a); *see also* 43 CFR § 1610.5-3(a) ("All future resource management authorizations and actions .. . shall conform to the approved plan"). The EA was required to fully analyze and disclose whether the actions proposed in the amended Plan of Operations (PoO) conform to the requirements of the DRECP, including the objectives for land; wildlife; vegetation; cultural and tribal resources, and other resources. It has failed to do so.	within the Picacho ACEC has not been withdrawn; therefore, locatable mineral exploration and development is not prohibited on lands within the ACEC. All areas of surface disturbance resulting from Project-related activities would be reclaimed concurrently throughout the life of the surface exploration Project, except for the proposed new 1.8-mile main access road to the underground portal within Drill Area 1 and the staging area, which would be reclaimed following SMP's completion of underground exploration activities. The relevant CMAs for National Conservation Lands (Appendix F of the EA/MND) would be required to be implemented under the Proposed Action, and impacts to National Conservation Lands would be negligible, short-term, and localized. As stated in the comment response for Comment #23.2 and provided in Section 1.3 of the EA/MND, the Proposed Action is in conformance with FLPMA in ensuring that resource protection is not compromised in accordance with the mandated principles of FLPMA. The Proposed Action is also in conformance with the CDCA Plan and the DRECP LUPA. No impacts to groundwater would occur per Section 3.22.3 of the EA/MND. Direct impacts to cultural resources would not occur, and indirect impacts to cultural resources would be negligible per Section 3.8.3 of the EA/MND. Impacts to visual (scenic) resources would be negligible per Section 3.21.3 of the EA/MND. The Project would be required to implement all relevant CMAs per the DRECP, as outlined in Table F-2 of Appendix F of the EA/MND, and the BLM would require additional mitigation measures across several resource management categories as provided in Table F-3 of Appendix F of the EA/MND. Furthermore, the EA/MND sections relevant to the NEPA analysis were prepared in conformance with NEPA implementing regulations (40 CFR 1500-1508) and per policy guidance provided in the BLM NEPA Handbook H-1790-1.

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			BLM cannot approve any actions under the PoO that are inconsistent with BLM's own management plans, management policies, guidelines, handbooks, and manuals. Here the EA/MND fails to show that the Project will not be inconsistent with the management plans and policies, and therefore BLM should not approve the Project.	
23.0	23.5	• Lisa Velenky Center for Biological Diversity • Joan Taylor, Sierra Club California/Nevada Desert Committee • Laura Cunningham Western Watersheds Project • Jared Naimark, Earthworks • Isabella Langone, California Native Plant Society • Bradley Angel, Greenaction for Health and Environmental Justice • Kara Matsumoto, Conservation Lands Foundation • Kelly Herbinson and Cody Hanford, Mojave Desert Land Trust • Preston J. Arrow-weed, Ahumt Pipa Foundation	*4. The EA/MND Fails to Fully Address ACEC and CDNCL Standards* While the SMP Gold Corporation's Oro Cruz Pit Area Exploration Plan of Operation recognizes that the proposed project is within an Area of Critical Environmental Concern (ACEC) - specifically the Picacho ACEC, it fails to identify that it is also within an area identified as part of the California Desert National Conservation Lands (CDNCL), which are part of the National Conservation Lands System (NLCS). The EA now acknowledges the project is within CDNCL lands but still fails to adequately address the project in the context of the NCLS. The Desert Renewable Energy Conservation Plan (DRECP) provided a framework for the Picacho ACEC. Applicable Objectives (from Appendix L of the DRECP) for the Picacho ACEC/CDNCL lands that need to be addressed for compliance in the environmental review include: – Minimize soil disturbance. – Protect and enhance robust populations of both rare and common native plants. Unique plant assemblages exist within this ACEC, including mesquite and all thorn assemblages. – Create a baseline of plant species to track environmental changes. – Maintain and enhance habitat that supports native wildlife; Desert Tortoise, Mule Deer, Bighorn Sheep. – Manage landscape to ensure wildlife passage and connectivity between wildlife populations. – Protect biodiversity and manage for resilience (protect climate refugia and provide for migration corridors). – Maintain and or enhance key ecosystem processes (e.g., carbon sequestration, water residence time) and prepare and respond to significant disturbances to the environment (e.g., floods). – Encourage compliance with ACEC management recommendations – Protect resource values of the ACEC – Review certain proposed mining activities to ensure that they provide adequate protection of public lands and their resources. Mining activities would be allowed with appropriate analysis, stipulations, and mitigation.	Per Section 3.7.3 of the EA/MND, the Proposed Action would result in 20.54 acres of surface disturbance, all anticipated to occur within the CDCA and specifically the Picacho ACEC National Conservation Lands. Mineral entry within the Picacho ACEC has not been withdrawn; therefore, locatable mineral exploration and development is not prohibited on lands within the ACEC. All areas of surface disturbance resulting from Project-related activities would be reclaimed concurrently throughout the life of the surface exploration Project, except for the proposed new 1.8-mile main access road to the underground portal within Drill Area 1 and the staging area, which would be reclaimed following SMP's completion of underground exploration activities within five years of Project implementation. The relevant CMAs for National Conservation Lands (Appendix F of the EA/MND) would be required to be implemented under the Proposed Action, and impacts to National Conservation Lands would be negligible, short-term, and localized. Additionally, the Plan of Operations provided details of the amount of water needed for the life of the project based on a preliminary water supply assessment. Groundwater pumping is not proposed under the Project. Water utilized for Project activities would be provided by a local water purveyor, Gold Rock Ranch and/or City of Yuma, which may be sourced from groundwater or the Colorado river. Sourcing is dependent on the purveyors and all water rights are secured by those entities. The estimated amount of water needed for the life of the Project is about 0.736 acre-feet or 0.0000098 percent of the total current level of Lake Mead. The natural groundwater recharge of the Ogilby Valley Groundwater Basin is 250 acre-feet per year (California's Groundwater Bulletin 118) and the Project estimated water amount is 0.30 percent of the natural recharge rate. Based on the Plan of Operations and EA analysis, a detailed Water Supply Assessment was not required. While it is stated in the EA/MND that groundwater may be encountered during drilling activities, the volume of groundwater would be minimal if at all within the drill sumps and would be fully contained within the sumps. Sumps would be backfilled once all water has evaporated. Per the analysis in Section 3.22.3 and

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			Special attention is to be given to project impacts that may affect groundwater. Specifically, "for any activity that proposes to utilize groundwater resources regardless of project location," BLM must comply with the groundwater CMA's, including CMA LUPA-SW-23 that states: LUPA-SW-23: A Water (Groundwater) Supply Assessment shall be prepared in conjunction with the activity's NEPA analysis and prior to an approval or authorization. This assessment must be approved by the BLM in coordination with USFWS, CDFW, and other agencies, as appropriate, prior to the development, extraction, injection, or consumptive use of any water resource. The purpose of the Water Supply Assessment is to determine whether over-use or over-draft conditions exist within the project basin(s), and whether the project creates or exacerbates these conditions. The Assessment shall include an evaluation of existing extractions, water rights, and management plans for the water supply in the basin(s) (i.e., cumulative impacts), and whether these cumulative impacts (including the proposed project) can maintain existing land uses as well as existing aquatic, riparian, and other water- dependent resources within the basin(s) (i.e., cumulative impacts), and whether these cumulative impacts (including the proposed project) can maintain existing land uses as well as existing aquatic, riparian, and other water-dependent resources within the basin(s). DRECP at 141. The Water Supply Assessment shall also address: • Estimates of the total cone of depression considering cumulative drawdown from all potential pumping in the basin(s), including the project, for the life of the project through the decommissioning phase • Potential to cause subsidence and loss of aquifer storage capacity due to groundwater pumping • Potential to cause injury to other water rights, water uses, and landowners • Changes in water quality and quantity that affect other beneficial uses • Effects on groundwater dependent vegetation and groundwater discharge to surface water resources such as streams, springs, seeps, wetlands, and playas that could impact biological resources, habitat, or are culturally important to Native Americans • Additional field work that may be required, such as an aquifer test, to evaluate site specific project pumping impacts and if necessary, establish trigger points that can be used for a Groundwater Water Monitoring and Mitigation Plan • The mitigation measures required, if there are significant or potentially significant impacts on water resources include but are not limited to, the use of specific technologies, management practices, retirement of active water rights, development of a recycled water supply, or water imports.	with compliance with state and county permitting requirements, the Proposed Action would have a negligible, short-term, and localized impact on groundwater resources.

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			BLM's environmental review must provide a Groundwater Supply Assessment in conjunction with its analysis of the proposed project under NEPA to comply with the Plan requirements and FLPMA. But has failed to do so. The EA/MND, Appendix B says that it is unnecessary to provide a Ground Water Supply Assessment and that other groundwater CMAs do not apply because the groundwater extraction is not *under the Project* site, but this response fails to address the key question—whether and how the use of groundwater for this Project may affect resources and potentially cause injury to other water uses and whether mitigation is needed. In addition, as discussed below, the failure to fully analyze these uses and impacts violates BLM's duties under NEPA. The EA/MND at 59 states the water will come from either Gold Rock Ranch and/or a local water purveyor and without even fully identifying the source states there will be "sufficient water supplies available to serve the Project. Therefore, the Project would have less than significant impacts." EA/MND at 59. This kind of conclusory statement without support does not meet the requirements of the Plan in the CMAs, NEPA, or CEQA. Further, the EA/MND (at 92) admits "Groundwater may be encountered during the course of exploratory drilling within the Drill Pads." But fails to quantify the amount of groundwater that may be affected if it is encountered as well as the baseline conditions of the groundwater. This also contradicts the premise in the EA/MND that no groundwater on site would be affected.	
23.0	23.5	• Lisa Velenky Center for Biological Diversity • Joan Taylor, Sierra Club California/Nevada Desert Committee • Laura Cunningham Western Watersheds Project • Jared Naimark, Earthworks • Isabella Langone, California Native Plant Society • Bradley Angel, Greenaction for Health and Environmental Justice • Kara Matsumoto, Conservation Lands Foundation	**C. <u>The Project Fails to Prevent Undue Impairment of the Scenic, Scientific and Environmental Values of the CDCA.</u>** BLM must also consider whether the proposed PoO complies with the FLPMA requirements "to protect the scenic, scientific, and environmental values of the public lands of the California Desert Conservation Area against undue impairment, and to assure against pollution of the streams and waters within the California Desert Conservation Area." 43 U.S.C. § 1781. The undue impairment standard is a more environmentally protective standard than the unnecessary and undue degradation (UUD) standard (discussed in more detail below), which applies on all BLM lands: Under FLPMA section 601(f), BLM can prevent activities that cause undue impairment to the scenic, scientific, and environmental values or cause pollution of streams and waters of the CDCA, separate and apart from BLM's authority to prevent unnecessary or undue degradation. The IBLA has agreed that BLM's obligation to protect the three enumerated CDCA values from ''undue impairment'' supplements the unnecessary or undue degradation standard for CDCA lands. *See* Eric L. Price, James C. Thomas, 116 IBLA 210, 218–219 (1990). Thus, BLM decisions with respect to development proposals in the CDCA are governed by both the ''undue impairment'' standard of subsection 601(f) and the ''unnecessary or undue degradation'' standard of section 302(b), as implemented by the subpart 3809 regulations.	The Proposed Action is in conformance with the mandated principles of FLPMA in ensuring that resource protection is not compromised, including in relation to the CDCA. The Proposed Action would be in compliance with the CDCA Plan and the DRECP LUPA (which amended the CDCA Plan). In accordance with 43 USC 1781(f), the General Mining Law of 1872 remains applicable on public lands within the CDCA, such that measures must be in place to protect the scenic, scientific, and environmental values of the CDCA against undue impairment, and to assure against pollution of the streams and waters within the CDCA. The Proposed Action specifically conforms to the following Land Use Plan objectives from the CDCA and DRECP: Encourage the development of mineral resources in a manner which satisfies national and local needs and provides for economically and environmentally sound exploration, extraction and reclamation practices; and, support responsible mining and energy development operations necessary for California's infrastructure, commerce and economic well-being. Impacts to surface and groundwater under the Proposed Action, including water quality, would be negligible, short-term, and localized per the analysis provided in Section 3.22.3. Additionally, the Project would acquire the necessary waters of the state permitting, including the Lake and Streambed Alteration Agreement with the California Department of Fish and Wildlife, and a Construction Stormwater General Permit with the Regional Water Quality Board pursuant to California State Water Resources Control Board requirements. Neither undue

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		• Kelly Herbinson and Cody Hanford, Mojave Desert Land Trust • Preston J. Arrow-weed, Ahumt Pipa Foundation	66 Fed. Reg. 69998, 70018 (Nov. 21, 2000). *See also* Reeves v. U.S., 54 Fed. Cl. 652, 670-674 (Fed. Cl. 2002) (in the context of the "nonimpairment" standard for Wilderness Study Areas, federal claims court held that mining claimant had no property right under the Mining Law to violate the standard, upholding BLM's denial of the proposed Plan of Operations). BLM's surface mining regulations, 43 C.F.R. § 3809 et seq., specifically define UUD as occurring when operations "[f]ail to attain a stated level of protection or reclamation required by specific laws in areas such as the California Desert Conservation Area." 43 C.F.R. § 3809.5. BLM was required to fully consider FLPMA's "undue impairment" standard for the CDCA and require measures "to protect the scenic, scientific, and environmental values of the public lands of the California Desert Conservation Area against undue impairment, and to assure against pollution of the streams and waters within the California Desert Conservation Area." FLPMA Section 601(f), 43 U.S.C. § 1781(f). All of the areas within the proposed Plan of Operations are protected as CDNCL and/or ACEC; therefore, as part of the analysis of the proposed Plan of Operations, BLM must look to the objectives, desired future conditions, allowable uses, and Conservation Management Actions (CMAs) adopted in the DRECP (as detailed above), but the EA/MND fails to show that BLM has done so. Allowing any unmitigated adverse impacts to sensitive and protected plant species, wildlife, water resources, cultural resources, scenic, and other environment values would violate FLPMA's standards for these lands, and therefore the Project should not be approved.	impairment nor pollution of streams and waters within the CDCA would occur under the Proposed Action. As stated throughout the EA/MND and noted in this comment, the Proposed Action would be located within the CDCA designated as California Desert National Conservation Lands, specifically within the Picacho ACEC. The BLM has determined that no significant impacts would occur to any of the present and potentially affected resources (analyzed in Chapter 3) under the Proposed Action. The activities under the Proposed Action would be short-term, and all surface disturbance would be reclaimed. Project reclamation would be completed concurrently with exploratory drilling activities, and monitoring for the success of reclamation of those areas would be completed within five years of Project implementation. In addition to the PDFs committed to by the proponent and the CMAs that would be required for implementation per the DRECP (Tables F-1 and F-2 of Appendix F of the EA/MND), the BLM would require additional mitigation measures related to Wildlife, Special Status Species, Noise, Recreation, Air Quality, Soils, Cultural Resources, and Vegetation to further minimize the negligible to minor, short-term, and localized impacts anticipated under the Proposed Action.
23.0	23.6	• Lisa Velenky Center for Biological Diversity • Joan Taylor, Sierra Club California/Nevada Desert Committee • Laura Cunningham Western Watersheds Project • Jared Naimark, Earthworks • Isabella Langone, California Native Plant Society • Bradley Angel, Greenaction for Health and Environmental Justice	**D. <u>The Project Fails to Prevent Unnecessary or Undue Degradation of Public Land Resources.</u>** FLPMA requires that the BLM "take any action necessary to prevent unnecessary or undue degradation of the lands." 43 U.S.C. § 1732(b). This is known as the "prevent UUD" standard. This duty to "prevent undue degradation" is "the heart of FLPMA [that] amends and supersedes the Mining Law." <u>Mineral Policy Center v. Norton</u>, 292 F.Supp.2d 30, 42 (D.D.C. 2003). "FLPMA, by its plain terms, vests the Secretary of the Interior [and the BLM] with the authority – indeed the obligation – to disapprove of an otherwise permissible mining operation because the operation, though necessary for mining, would unduly harm or degrade the public land." <u>Id</u>. The 3809 regulations implement FLPMA's mandate to prevent UUD through two primary provisions: (1) the definition of UUD at 3809.5; and (2) the Performance Standards at 3809.420. As detailed below, BLM must fully consider the UUD mandate and protect public resources. The Performance Standards in Part 3809 mandates that all operations "must take mitigation measures specified by BLM to protect public lands." 43 CFR § 3809.420(a)(4). BLM cannot approve a mining project that would cause UUD. 43 C.F.R. § 3809.411(d)(3)(iii). "FLPMA's requirement that the Secretary prevent UUD supplements requirements imposed by other federal laws and by state law."	As stated in Chapter 1 of the EA/MND, pursuant to 43 CFR 3809.11 and 3809.415, the Project would result in minor surface reworking of previously mined and disturbed areas, and measures would be taken to prevent unnecessary or undue degradation during Project operations. The Project would comply with the performance standards in 43 CFR 3809.420 and other federal and state laws related to environmental protection and protection of cultural resources. The Project is "reasonably incident" to mining as defined in 43 CFR 3715.0-5, and the Project would attain the stated level of protection and reclamation required by specific laws in the CDCA. Given that the Project would comply with all relevant land use plans and state and federal regulations, per the impact analysis provided in Chapter 3 of the EA/MND, and with the implementation of applicant-committed PDFs, DRECP-required CMAs, and BLM-required additional mitigation measures, the Project would not result in unnecessary or undue degradation and is therefore in compliance with FLPMA. Direct and indirect impacts are discussed for all present and potentially affected resources under NEPA within Chapter 3 of the EA/MND. Cumulative impacts to resources that are anticipated to have greater than negligible impacts, per the requirements under the BLM NEPA Handbook (Manual H-1790-1, BLM 2008)

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		• Kara Matsumoto, Conservation Lands Foundation • Kelly Herbinson and Cody Hanford, Mojave Desert Land Trust • Preston J. Arrow-weed, Ahumt Pipa Foundation	Center for Biological Diversity v. Dept. of Interior, 623 F.3d 633, 644 (9th Cir. 2010). BLM complies with this mandate "by exercising case-by-case discretion to protect the environment through the process of: (1) approving or rejecting individual mining plans of operation." Id. at 645, quoting Mineral Policy Center, 292 F.Supp.2d at 44: "Mitigation measures fall squarely within the actions the Secretary can direct to prevent unnecessary or undue degradation of the public lands. An impact that can be mitigated, but is not, is clearly unnecessary." 65 Fed. Reg. 69998, 70052 (Nov. 21, 2000) (preamble to BLM's 43 C.F.R. Part 3809 mining regulations). Furthermore, if an UUD cannot be prevented through mitigation measures, BLM must reject the Plan of Operations. Kendall's Concerned Area Residents, 129 IBLA 130, 138 (1994) ("If unnecessary or undue degradation cannot be prevented by mitigation measures, BLM is required to deny approval of the plan."). In undertaking environmental review of this proposed Plan of Operations, BLM must consider whether mitigation measures can protect the species, habitats, soils, cultural and water resources affected by the proposed Plan of Operations in order to prevent UUD. That analysis must include detailed identification of direct and indirect impacts as well as cumulative impacts. It must identify specific mitigation measures that address each impact and also include an analysis of the effectiveness of each measure in order to meet BLM's duties under NEPA as well as FLPMA. As detailed below, the EA/MND fails to adequately address environmental impacts and as a result has also failed to show it has taken steps to prevent UUD.	stating that a cumulative effects analysis is not needed on resources determined to not be impacted by the Proposed Action, alternatives (pg. 57), are also discussed within Chapter 3 for Native American Religious Concerns and Traditional Values, Recreation, Soils, Vegetation, and Wildlife resources.
23.0	23.7	• Lisa Velenky Center for Biological Diversity • Joan Taylor, Sierra Club California/Nevada Desert Committee • Laura Cunningham Western Watersheds Project • Jared Naimark, Earthworks • Isabella Langone, California Native Plant Society • Bradley Angel, Greenaction for Health and Environmental Justice	**E. The Project Fails to Meet the FLPMA and Part 3809 Reclamation and Submittal Requirements and the SMARA requirements** Related to, and part of, the failure to prevent undue impairment and UUD under FLPMA, the Project fails to meet all of the requirements of the 43 CFR Part 3809.420 Performance Standards and the PoO submittal requirements of 3809.401. Those rules require detailed operational and reclamation requirements for all proposed activities. But the EA and the PoO fall far short of these mandates. As one example, the EA says that there will be 65 drill sites (EA at 6). Yet the maps of the drill sites in the PoO show well over 100 sites. *See* PoO Figures 3a-3h. In addition, many, indeed most, of these drill sites do not show any road access, whether existing or proposed. Section 3809.401(b) requires detailed plans for all "drill sites" and "access routes," as well as detailed reclamation plans for all these sites. Yet, while the PoO clearly shows the company's drilling sites, the EA contains no analysis of these additional sites (a NEPA violation as well, as noted below).	The Plan of Operations details proposed reclamation activities within Section 6, and a Reclamation Plan pursuant to SMARA is under review and subject to approval by Imperial County. The Reclamation Plan has also been reviewed and coordinated on with the BLM and with the California Division of Mine Reclamation accordingly. The Proposed Action would entail surface disturbance and exploratory drilling activities for drilling at up to a total of 65 drill sites. The locations shown on Figures 3a through 3h of the Plan of Operations provide only potential drill site locations and are not representative of exact locations, nor do they represent the total number of drill sites that would be explored. While more than 65 potential drill sites are shown as points on the aforementioned figures, these sites represent potential locations for up to 65 drill sites that would be dependent on geology, topography, and findings from initial drilling activities at the start of the Project. Permanent disturbance is not anticipated from access road construction proposed under the Proposed Action. While the EA/MND previously noted that a permanent access road would be constructed for access to the Project Area from

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		• Kara Matsumoto, Conservation Lands Foundation • Kelly Herbinson and Cody Hanford, Mojave Desert Land Trust • Preston J. Arrow-weed, Ahumt Pipa Foundation	Regarding the "reclamation" professed to comply with the 3809 standards, the BLM does not intend to require reclamation of the newly-constructed road coming up from the south from American Girl Wash for 5 or more years. Access to the Oro Cruz Portal would require the construction of 9,640 linear ft (1.8 miles) of new 15-foot-wide road. The road would be secured from unauthorized access for the duration of activity at the portal staging area while assuring access by BLM staff. A gate would be placed across the road accompanied by proper deterrence on either side of the gate (i.e. fence, berm, or large boulder). Reclamation would be implemented at the 2.8-acre portal staging area and all equipment would be removed within the 5-year reclamation monitoring period. PoO at 4. BLM does not explain why reclamation will take 5 years at this site, especially when it would begin concurrently. Nor does BLM why all of the equipment and facilities could not be removed immediately, not just within 5 years. It appears that BLM is keeping this new road open to the portal area (and allowing its construction in the first place) in order to facilitate the company's future mining operations. Indeed, there is no mention of closing the road, even after that 5 years. BLM does not explain why drilling areas 1 and 6 could not occur first, and be fully reclaimed, along with the southern access road. Notably, "The anticipated post-Project land uses are **mining**, recreational uses, and open space." PoO at 20 (emphasis added). As the company has stated: "the Oro Cruz Gold Project hosts many exploration targets in addition to a high-grade oxide gold zone that, based on the historical mine operation records, is amenable to conventional heap leach extractive methods." About Us - Southern Empire Resources at https://smp.gold/about/ (pdf from December 14, 2022) (Attachment 1). Under NEPA and FLPMA, if the post-Project land use is "mining," then this future use should have been analyzed. Further, the EA and project documents available to the public by BLM do not contain the reclamation cost estimate and bonding for all these facilities/activities as required by the Part 3809 rules. This includes the failure to include the operational and reclamation information and analysis for the additional dozens/scores of drill sites noted above, but also for the construction and reclamation of the new southern access route.	the south through to Drill Area 1 for access to the underground Oro Cruz Mine Portal, the text of the EA/MND has been revised to clarify that all areas of surface disturbance resulting from Project-related activities would be reclaimed concurrently throughout the life of the surface exploration Project, except for the proposed new 1.8-mile main access road to the underground portal within Drill Area 1 and staging area, which would be reclaimed following SMP's completion of underground exploration activities, to be completed within five years from Project implementation. Reclamation actions would be closely coordinated with the BLM and a Reclamation Plan is under review for approval by Imperial County and the Division of Mine Reclamation in accordance with the Surface Mining and Reclamation Act. This EA/MND analyzes only the Proposed Action and does not assume future uses. Cumulative impacts have been analyzed including reasonably foreseeable future actions that are associated with plans and/or notices that have been submitted to the BLM, as analyzed within Chapter 3 of the EA/MND. Historic mining is a past use that is present on the existing landscape; following reclamation, the newly disturbed areas would be reclaimed to be consistent with pre-Project disturbance land uses, which include mineral development and exploration, utilities and public purpose, roads, and dispersed recreation. The BLM does not consider any actions that have not submitted notices or applications with a developed plan as a reasonably foreseeable future project. Per 3809.401(d), an operator must submit a reclamation cost estimate at a time specified by the BLM. The BLM will coordinate with the proponent for submittal of the estimate accordingly and will review the estimate to ensure it meets the federal requirements and request a revised estimate if any deficiencies are found. The BLM will further coordinate with Imperial County (the SMARA lead) as to which agency will hold the bond.
23.0	23.8	• Lisa Velenky Center for Biological Diversity	**F. BLM Failed to Comply with the Requirements for Rights of Ways Under FLPMA Title V.** The EA and proposed Project approval fail to meet the strict public interest, environmental protection, and financial requirements of the Federal Land Policy and Management Act (FLPMA).	Pursuant to 43 CFR 3809.401(b)(2)(i), if the section of a proposed road is identified as the access route in the Plan of Operations and its use is reasonably incident to the mining operation (in the case of this Project, exploration operation), then a ROW is not required. New road building or improvements are

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		• Joan Taylor, Sierra Club California/Nevada Desert Committee • Laura Cunningham Western Watersheds Project • Jared Naimark, Earthworks • Isabella Langone, California Native Plant Society • Bradley Angel, Greenaction for Health and Environmental Justice • Kara Matsumoto, Conservation Lands Foundation • Kelly Herbinson and Cody Hanford, Mojave Desert Land Trust • Preston J. Arrow-weed, Ahumt Pipa Foundation	BLM is under the mistaken view that all of the new access roads are governed by "rights" under the 1872 Mining Law and the 43 CFR part 3809 regulations. Although it could be argued that the company has a right for one access road into its claim block, BLM proposes additional new route(s), especially the new road from the south to access drill areas 1 and 6. *See* PoO Figure 2. But as shown in that Figure 2, these drill areas can be accessed from the north, from the existing road along Tumco Wash (with only a slight area of new construction needed). *See also* PoO Figure 3b. With that access from the north, drill areas 1 and 6 can be accessed without the construction of a new road coming up from American Girl Wash. Thus, the new road all the way up from American Girl Wash is not needed to access the claims and drilling areas. As such, the company cannot assert any legitimate "right" under the Mining Law, and that road is not "authorized by the mining laws" under 43 CFR 3809.1(a) and 3809.2(a). In addition, constructing this new, and unneeded, road, violates the protective standards and requirements under the FLPMA undue impairment, UUD, Land Use Plan, and other requirements noted above. Even if it could be constructed, this access road is governed by FLPMA Title V, Section 504, and requires the issuance of a Right-of-Way (ROW) to construct the road across public lands. *See* Alanco Environmental Resources Corp., 145 IBLA 289, 297 (1998) ("construction of a road, was subject not only to authorization under 43 C.F.R. Subpart 3809, but also to issuance of a right-of-way under 43 C.F.R. Part 2800."); Wayne D. Klump, 130 IBLA 98, 100 (1995) ("Regardless of his right of access across the public lands to his mining claims and of his prior water rights, use of the public lands must be in compliance with the requirements of the relevant statutes and regulations [FLPMA Title V and ROW regulations]."). The leading treatise on federal natural resources law confirms this rule: "Rights-of-way must be explicitly applied for and granted; approvals of mining plans or other operational plans do not implicitly confer a right-of-way." George C. Coggins & Robert L. Glicksman, *Pub. Nat. Res. Law*, § 15.21 (2d ed. 2020). BLM may grant a Right-of-Way (ROW) only if it "(4) will do no unnecessary damage to the environment." 43 U.S.C. § 1764(a). Rights of way "shall be granted, issued or renewed … consistent with… any other applicable laws." Id. § 1764(c). A right-of-way that "may have significant impact on the environment" requires submission of a plan of construction, operation, and rehabilitation of the right-of- way. Id. § 1764(d). A Title V SUP/ROW "shall contain terms and conditions which will … (ii) minimize damage to scenic and esthetic values and fish and wildlife habitat and otherwise protect the environment." Id. § 1765(a). In addition, the ROW can only be issued if activities resulting from the ROW: (i)protect Federal property and economic interests; (ii) manage efficiently the lands which are subject to the right-of-way or adjacent thereto and protect the other lawful users of the	not considered casual use activities and must be conducted under a notice or authorized Plan of Operations; however, for mineral leases, a ROW is not required for access on roads within the boundaries of a mineral lease. Per Section 8.8 of the BLM Surface Management Handbook (H-3809-1), if an operator makes use of existing workings, then that operator assumes responsibility for reclaiming those workings. As the proponent would likely continue to use the access road proposed for access to Drill Area 1 for access to the Oro Cruz Mine Portal and staging area for underground exploration activities after the close of exploratory drilling on the surface (i.e., the Proposed Action), access to the portal using such road would be considered reasonably incident after completion of drilling and the proponent would be responsible for securing the portal and its final closure as well as reclamation of the access road at the completion of underground exploration activities. The life of the Project per the Plan of Operations analyzed under the Proposed Action anticipates surface exploration occurring over one to two years, with activities at the portal staging area and portal access road for underground exploration potentially extending beyond the initial one to two years of surface exploration. Reclamation and monitoring of all surface disturbance under the Project would be completed within five years of Project implementation.

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			lands adjacent to or traversed by such right-of-way; (iii) protect lives and property; (iv) protect the interests of individuals living in the general area traversed by the right-of-way who rely on the fish, wildlife, and other biotic resources of the area for subsistence purposes; (v) require location of the right-of-way along a route that will cause least damage to the environment, taking into consideration feasibility and other relevant factors; and (vi) otherwise protect the public interest in the lands traversed by the right-of-way or adjacent thereto. FLPMA, § 1765(b). At least three important potential substantive requirements flow from the FLPMA's ROW provisions. First, BLM has a mandatory duty under Section 505(a) to impose conditions that "will minimize damage to scenic and esthetic values and fish and wildlife habitat and otherwise protect the environment." Id. §1765(a). The terms of this section do not limit "damage" specifically to the land within the ROW corridor. Rather, the repeated use of the expansive term "the environment" indicates that the overall effects of the ROW on wildlife, environmental, scenic and aesthetic values must be evaluated and these resources protected. In addition, the obligation to impose terms and conditions that "protect Federal property and economic interests" in Section 505(b) requires that the BLM must impose conditions that protect not only the land crossed by the right-of-way, but all federal land affected by the approval of the ROW. In this case, as noted herein, BLM failed to evaluate all aspects and ramifications of issuing the ROW for the Ambler Road. At a minimum, the DEIS failed to consider the mineral material/gravel mines and related infrastructure made possible by the ROW. Also as noted herein, the DEIS fails to show how the mineral projects in the Ambler District made possible by the issuance of the ROW meet these FLPMA requirements. Second, the requirements in Section 505(b) mandate a BLM determination as to what conditions are "necessary" to protect federal property and economic interests, as well as "otherwise protect[ing] the public interest in the lands traversed by the right-of-way or adjacent thereto." This means that the agency can only approve the ROW if it "protects the public interest in lands" not only upon which the road would traverse, but also lands and resources adjacent to and associated with the ROW. Third, is the requirement that the right-of-way grant "do no unnecessary damage to the environment" and be "consistent with … any other applicable laws," id. §§ 1764(a)-(c). This means that a grant of a ROW leading to the exploration and mining must satisfy all applicable laws, regulations and policies, including all state and local laws, etc. The federal courts have repeatedly held that the federal land agency not only has the authority to consider the adverse impacts on lands and waters outside the immediate ROW corridor, it has an obligation to protect these resources under FLPMA. In County of Okanogan v. National Marine Fisheries Service, 347 F.3d 1081 (9th Cir. 2003), the court affirmed the Forest Service's imposition	

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			of mandatory minimum stream flows as a condition of granting a ROW for a water pipeline across USFS land. This was true even when the condition/requirement restricted or denied vested property rights (in that case, water rights). Id. at 1085-86. The BLM thus cannot issue a ROW that fails to "protect the environment" as required by FLPMA, including the environmental resource values in and not within the ROW corridor. "FLPMA itself does not authorize the Supervisor's consideration of the interests of private facility owners as weighed against environmental interests such as protection of fish and wildlife habitat. FLPMA *requires* all land-use authorizations to contain terms and conditions which will protect resources and the environment." Colorado Trout Unlimited v. U.S. Dept. of Agriculture, 320 F.Supp.2d 1090, 1108 (D. Colo. 2004)(emphasis inoriginal) appeal dismissed as moot, 441 F.3d 1214 (10th Cir. 2006). The Interior Department, interpreting FLPMA V and its right-of-way regulations, has held that: "A right-of-way application may be denied, however, if the authorized officer determines that the grant of the proposed right-of-way would be inconsistent with the purpose for which the public lands are managed or if the grant of the proposed right-of-way would not be in the public interest or would be inconsistent with applicable laws." Clifford Bryden, 139 IBLA 387, 389-90 (1997) 1997 WL 558400 at *3 (affirming denial of right-of-way for water pipeline, where diversion from spring would be inconsistent with BLM wetland protection standards). Here, allowing access and granting a ROW for the southern route would be "inconsistent with the purpose for which the public lands are managed," as detailed above, and thus cannot be authorized. Similar to the County of Okanogan and Colorado Trout Unlimited federal court decisions noted above, the Interior Department has held that the fact that a ROW applicant has a property right that may be adversely affected by the denial of the ROW does not override the agency's duties to protect the "public interest." In Kenneth Knight, 129 IBLA 182, 185 (1994), the BLM's denial of the ROW was affirmed due not only to the direct impact of the water pipeline, but on the adverse effects of the removal of the water in the first place: > [T]he granting of the right-of-way and concomitant reduction of that resource, would, in all likelihood, adversely affect public land values, including grazing, wildlife, and riparian vegetation and wildlife habitat. The record is clear that, while construction of the improvements associated with the proposed right-of-way would have minimal immediate physical impact on the public lands, the effect of removal of water from those lands would be environmental degradation. Prevention of that degradation, by itself, justified BLM's rejection of the application. 1994 WL 481924 at *3. That was also the case in Clifford Bryden, as the adverse impacts from the removal of the water was considered just as important as the adverse impacts from the pipeline that	

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			would deliver the water. 139 IBLA at 388-89. *See also* C.B. Slabaugh, 116 IBLA 63 (1990) 1990 WL 308006 (affirming denial of right-of-way for water pipeline, where BLM sought to prevent applicant from establishing a water right in a wilderness study area). In King's Meadow Ranches, 126 IBLA 339 (1993), 1993 WL 417949, the IBLA affirmed the denial of right-of-way for a water pipeline, where the pipeline would degrade riparian vegetation and reduce bald eagle habitat. The Department specifically noted that under FLPMA Title V: "[A]s BLM has held, it is not private interests but the public interest that must be served by the issuance of a right-of-way." 126 IBLA at 342, 1993 WL 417949 at *3 (emphasis added). As the IBLA recently held: > The public interest determination is more than a finding that no laws will be violated by granting the ROW. Even if UUD [Unnecessary or Undue Degradation] can be avoided, degradation to public resources posed by a requested ROW may factor into BLM's determination of whether that ROW would be in the public interest. For example, in Sun Studs, we upheld BLM's rejection of a logging road ROW permit based on environmental considerations without any suggestion that the environmental harm rose to the level of unlawful degradation. Klamath-Siskiyou Wildlands Center, IBLA 2019-75, at 9 (April 29, 2019), citing Sun Studs, 27 IBLA at 282-83.	
23.0	23.9	• Lisa Velenky Center for Biological Diversity • Joan Taylor, Sierra Club California/Nevada Desert Committee • Laura Cunningham Western Watersheds Project • Jared Naimark, Earthworks • Isabella Langone, California Native Plant Society • Bradley Angel, Greenaction for Health and Environmental Justice	**II. The EA and Proposed FONSI Violate NEPA** NEPA requires federal agencies to take a "hard look" at the environmental consequences of their Proposed Actions. Kleppe v. Sierra Club, 427 U.S. 390, 410 n.21 (1976); Blue Mountain Biodiversity Project v. Blackwood, 161 F.3d 1208, 1211 (9th Cir. 1998). To take this "hard look," agencies must prepare an EIS for all "major Federal actions significantly affecting the quality of the human environment." 42 U.S.C. § 4332(C). The standard for when an agency must prepare an EIS is a "low standard." Klamath Siskiyou Wildlands Ctr. v. Boody, 468 F.3d 549, 562 (9th Cir. 2006). The Council on Environmental Quality (CEQ) establishes NEPA regulations, which are binding on every federal agency. 40 C.F.R. § 1500.3(a) (2020). The original regulations implementing NEPA were published by CEQ in 1978. See 40 Fed. Reg. 55,978 (Nov. 29, 1978). In 2020, the Trump administration published new CEQ NEPA regulations. See 85 Fed. Reg. 43,304 (July 16, 2020) (codified at 40 C.F.R. Part 1500). The Biden administration has since revised the regulations and is making further revisions. See 87 Fed. Reg. 23,453 (April 20, 2022). The Secretary of the Interior issued Order #3399, on April 16, 2021, which states that: "Bureaus/Offices will not apply the 2020 Rule in a manner that would change the application or	Please see response to Comment #23.1 regarding the BLM determination to prepare an EA in accordance with NEPA and the CEQ implementing regulations. Furthermore, the BLM has determined that no significant impacts would occur to any of the resources determined present under the Proposed Action, and thus has deemed issuance of a FONSI appropriate per the CEQ implementing regulations for NEPA. As analyzed throughout Chapter 3 of the EA/MND, direct and indirect impacts anticipated to occur as a result of the Proposed Action are disclosed for all resources that were determined Present and Potentially Affected. Per the BLM NEPA Handbook (Manual H-1790-1, BLM 2008) guidelines, a cumulative effects analysis is not needed on resources determined to not be impacted by the Proposed Action and alternatives. Resources that may experience minor impacts may require cumulative effects analysis, but negligible impacts are not considered significant as a result of the Proposed Action and action alternatives. As such, a cumulative impacts analysis was prepared and provided for the following resources within their associated analysis sections in Chapter 3 of the EA: Native American Religious Concerns and Traditional Values, Recreation, Soils, Vegetation, and Wildlife Resources.

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		• Kara Matsumoto, Conservation Lands Foundation • Kelly Herbinson and Cody Hanford, Mojave Desert Land Trust • Preston J. Arrow-weed, Ahumt Pipa Foundation	level of NEPA that would have been applied to a Proposed Action before the 2020 Rule went into effect on September 14, 2020." Thus, the 1978 NEPA rules apply here. Under NEPA, if an agency is unsure whether a Proposed Action may have significant environmental effects, it may prepare a shorter "environmental assessment" to determine whether an EIS is necessary. 40 C.F.R. § 1501.4(c) (1978); 40 C.F.R. § 1501.5 (2020). To avoid preparing an EIS, the agency's EA and FONSI must provide a "convincing statement of reasons" why a project's impacts are insignificant. 40 C.F.R. §§ 1501.4, 1508.9, 1508.13 (1978). The scope of NEPA review is broad. BLM must evaluate and disclose the direct, indirect, and cumulative effects of the Proposed Action and its alternatives on ecological, aesthetic, historic, cultural, economic, social, and health interests. 40 C.F.R. §§ 1508.7–1508.8 (1978). That did not happen here. It should also be noted that the EA repeatedly describes the Project lands as "previously disturbed," as one of the grounds to support its truncated FLPMA and NEPA review. "[T]he Project is an exploratory drilling project, that would occur entirely within an area disturbed by historical mining activities. The majority of the Project Area has been disturbed due to these historical mining operations." EA at 114. BLM does not inform the public as to which "majority" Project lands were "previously disturbed" by mineral operations. Yet, even if some, but certainly not most, of the Project lands experienced previous mining activities, under BLM regulations, these lands were satisfactorily "reclaimed." Thus, BLM cannot justify new and significant impacts to public land and resources under the guise that the lands had been "previously disturbed" by mining, as all of those lands have been supposedly reclaimed to support public uses such as for recreation, wildlife, cultural values, etc. – resources that will be impacted by the Project.	The Project is located in a historic mining district, Tumco, the delineated area for which is shown on Figures 3-2, 3-6, and 3-9. Other past mining features and previous disturbance conducted by other operators are present on the landscape within the Project Area. Existing disturbance is also present within the Project Area from existing roads, utilities and public purpose projects, and dispersed recreation as identified in the cumulative impacts analysis within Sections 3.14.6, 3.17.6, 3.18.6, 3.20.6, and 3.23.6 and was compiled based on available land and mineral system reports available in the BLM's Legacy Rehost 2000 and Mineral and Lands Records System. Existing disturbance and/or past reclamation activities from previously authorized projects is outside the scope of this EA/MND.
23.0	23.10	• Lisa Velenky Center for Biological Diversity • Joan Taylor, Sierra Club California/Nevada Desert Committee • Laura Cunningham Western Watersheds Project • Jared Naimark, Earthworks	**A. <u>The EA Failed to Fully Analyze Direct, Indirect and Cumulative Impacts</u>.** The EA fails to conduct the required "hard look" at the Project's impacts, including both the drilling areas and the access route(s) and the Project as a whole. Under NEPA, BLM must consider all direct, indirect, and cumulative environmental impacts of the Proposed Action. 40 CFR §§ 1502.16, 1508.8, 1508.25(c). Direct effects are caused by the action and occur at the same time and place as the proposed project. 40 CFR § 1508.8(a). Indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. 40 CFR § 1508.8(b). Both types of impacts include "effects on natural resources and on the components, structures, and functioning of affected ecosystems," as well as "aesthetic, historic, cultural, economic, social or health [effects]." <u>Id</u>.	Direct and indirect impacts to all resources that were determined to be Present and Potentially Affected are analyzed in Chapter 3, including the following resources stated in the comment here: wildlife (Section 3.23), vegetation or native habitat (Section 3.20), soils (Section 3.18), water resources (Section 3.22), air quality (Section 3.3), ACECs (Section 3.5), cultural resources (Section 3.8), and environmental justice populations (Section 3.10). Consistency with resource management plans and federal, state, and local regulations is discussed within Chapter 1 of the EA/MND, and throughout Chapter 3 as relevant to each resource section's analysis. Figure 3-4 of the EA shows the Environmental Justice Area of Analysis for direct and indirect impacts. Impacts to environmental justice would be negligible under the Proposed Action per the analysis provided in Section 3.10.3, as potential

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		• Isabella Langone, California Native Plant Society • Bradley Angel, Greenaction for Health and Environmental Justice • Kara Matsumoto, Conservation Lands Foundation • Kelly Herbinson and Cody Hanford, Mojave Desert Land Trust • Preston J. Arrow-weed, Ahumt Pipa Foundation	BLM's limited environmental review of the exploratory drilling and road access is inadequate under NEPA. At a minimum, as noted above, the PoO proposed to be approved shows well over 100 drill sites, but the EA is based on only 65 drill sites. EA at 6. Additionally, the likely impacts of use of these public lands by heavy equipment and exploratory drilling that are not adequately disclosed or addressed include, but are not limited to: • Impacts to wildlife; • Impacts to native habitat; • Impacts to soils; • Impacts to groundwater and hydrology; • Impacts to air quality; • Impacts to the ACEC; • Impacts to cultural resources and Environmental Justice; • Consistency with Resource Management Plans. BLM must also fully review the impacts from all "past, present, and reasonably foreseeable future actions." These are the "cumulative effect/impacts" under NEPA. Cumulative effects/impacts are defined as: > [T]he impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. 40 CFR § 1508.7. In a cumulative impact analysis, an agency must take a "hard look" at all actions. > An EA's analysis of cumulative impacts must give a sufficiently detailed catalogue of past, present, and future projects, and provide adequate analysis about how these projects, and differences between the projects, are thought to have impacted the environment. … Without such information, neither the courts nor the public ... can be assured that the [agency] provided the hard look that it is required to provide. Te-Moak Tribe of Western Shoshone v. U.S. Dept. of Interior, 608 F.3d 592, 603 (9th Cir. 2010) (rejecting BLM-issued EA for mineral exploration that had failed to include detailed analysis of impacts from nearby proposed mining operations). NEPA's mandate to analyze cumulative impacts applies to all "past," "present," and "reasonably foreseeable future actions." 40 C.F.R. §1508.7. BLM must include "mine-specific or cumulative	impacts from the Project to noise, dust generation, travel patterns, etc. in the remote Project Area would be realized by communities as a whole and no disproportionate impacts to environmental justice communities would occur. Therefore, a cumulative impacts analysis was not conducted per the BLM NEPA Handbook guidelines. The BLM NEPA Handbook (Manual H-1790-1, BLM 2008) states that a cumulative effects analysis is not needed on resources determined to not be impacted by the Proposed Action and alternatives (pg. 57). Resources that may experience minor impacts may require cumulative effects analysis. The BLM has determined that impacts to air quality, ACECs, climate change, including GHG emissions, National Conservation Lands, cultural resources, environmental justice, noise, travel and transportation, visual resources, and water resources as a result of the Proposed Action would be negligible, CESAs for such resources were not required or developed and therefore were not analyzed under the EA Chapter 3 cumulative effects analysis sections. The CESA boundaries for those resources that were brought forward for a cumulative impacts assessment (Native American Religious Concerns and Traditional Values, Recreation, Soils, Vegetation, and Wildlife Resources) were developed as the boundaries were determined to represent the geographic areas to which cumulative impacts could occur under the Proposed Action. The Proposed Action would entail surface disturbance and exploratory drilling activities for drilling at up to a total of 65 drill sites. The locations shown on Figures 3a through 3h of the Plan of Operations provide only potential drill site locations and are not representative of exact locations, nor do they represent the total number of drill sites that would be explored. While more than 65 potential drill sites are shown as points on the aforementioned figures, these sites represent potential locations for up to 65 drill sites that would be dependent on geology, topography, and findings from initial drilling activities at the start of the Project. Furthermore, the BLM continues to consult with the Quechan and other Tribes and has requested additional information about the nature and extent of the Traditional Cultural Property as part of its Government-to-Government consultation, as well as for Section 106 of the NHPA consultation and relevant to other Executive Orders and regulations. The BLM recognizes the attributes that give Traditional Cultural Properties significance, such as their association with historical events or traditional practices, are often intangible in nature. The status of the Section 106 process, the Traditional Cultural Property and tribal consultation is described in Sections 3. 8, 3.14 and 4.12. As stated in Section 3.8

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			data." Great Basin Resource Watch v. BLM, 844 F.3d 1095, 1105 (9th Cir. 2016), quoting Great Basin Mine Watch v. Hankins, 456 F.3d 955, 973 (9th Cir. 2006). It must provide a detailed "quantified" analysis of other projects' combined environmental impacts, and "identify and discuss the impacts that will be caused by each successive project. Including how the combination of those various impacts is expected to affect the environment" within the area. Great Basin Res. Watch, 844 F.3d at 1105. The EA does not adequately analyze the cumulative impacts from the other proposed activities within the cumulative effects study area on environmental justice, cultural resources and uses, wildlife, recreation, air quality, and other potentially affected resources. The EA contains little, if any, detailed analysis of these and other past, present, and "Reasonably Foreseeable Future Activities" (RFFAs) within the potentially affected areas that may cumulatively affect these resources. BLM simply lists the acreages of these activities, with no detailed impacts analysis. The Ninth Circuit has repeatedly rejected similarly cursory analyses contained in BLM EAs and EISs for mineral operations, holding that listing other projects does not satisfy NEPA: > [S]imply listing all relevant actions is not sufficient. Rather, "some quantified or detailed information is required. Without such information, neither the courts nor the public ... can be assured that the [agency] provided the hard look that it is required to provide." Neighbors of Cuddy Mountain v. U.S. Forest Serv., 137 F.3d 1372, 1379 (9th Cir. 1998). Great Basin Res. Watch, 844 F.3d at 1104. The Ninth Circuit in Great Basin Mine Watch v. Hankins specifically rejected BLM's argument that a list of other projects and their acreages satisfied NEPA's cumulative impacts analysis requirements: "**A calculation of the total number of acres to be impacted by other projects in the watershed is a necessary component of a cumulative effects analysis, but is not a sufficient description of the actual environmental effects that can be expected.**" 456 F.3d at 973 (emph. added). But that's exactly what the EA does here. It provides a general description of other types of projects in the area, and their general impacts, and their acreages. But no details or analysis is provided – not even the names of the RFFA projects. *See* EA Table 3-37 (for the cumulative impacts to wildlife, merely listing the general types of past, present, and RFFAs, and their acreages). EA at 106-07. In addition, the EA fails to even mention other existing and RFFA operations/activities in the cumulative affects study area (CESA). For example, for the Environmental Justice CESA, the EA correctly notes its large area. EA Figure 3-4. Yet there is no discussion, analysis, or even a list, of the other current and RFFA projects in this CESA. As BLM knows, there are a number of mineral projects proposed in this CESA. *See* Imperial Exploration Project (and maps showing the projects within the Environmental Justice CESA for the Oro Cruz Project) (Attachment 2).	of the EA/MND, all known cultural resource sites would be avoided thus minimizing direct impacts. No adverse impacts would occur with avoidance measures implemented. The BLM would require additional mitigation measures to minimize indirect impacts to known cultural resource sites such as a cultural monitoring and inadvertent discovery plan, periodic archaeological monitoring in consultation with the BLM ECFO archaeologist, and safeguarding all known culturally sensitive areas within 100 feet of ground disturbance with periodic archaeological monitoring and barrier fencing, as described in Section 3.8.3 and Appendix F of the EA/MND, resulting in indirect impacts being negligible, short-term, and localized.

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			Regarding the CESAs themselves, the EA improperly restricted the scope of analysis for critical resources such as wildlife, and even more importantly, Native American Cultural/Historical Resources. *See* EA Figures 3-2, 3-12. As discussed in more detail below, BLM is aware, the Tribes and Native communities that have lived and used these areas for millennium consider these mountains, and the Project site, as part of a much larger cultural landscape, which includes Indian Pass and related Trails network (such as the Trail of Dreams). *See* Record of Decision for the Imperial Project, at 10 (discussing Trail of Dreams as a ground for denying the Project)(Attachment 3). BLM cannot avoid its duties to the Tribes, and under NEPA and FLPMA cannot ignore these facts. Here, the adverse impacts from the Project when added to other past, present or reasonably foreseeable future actions is clearly essential to the BLM's determination (and duty to ensure) that the Project complies with all legal requirements and minimizes all adverse environmental impacts. "[W]hen the nature of the effect is reasonably foreseeable but its extent is not, we think that the agency may not simply ignore the effect. The CEQ has devised a specific procedure for 'evaluating reasonably foreseeable significant adverse effects on the human environment' when 'there is incomplete or unavailable information.' 40 C.F.R. § 1502.22." Mid States Coalition for Progress v. Surface Transportation Board, 345 F.3d 520, 549-550 (8th Cir. 2003). The BLM's failure to obtain this information, or make the necessary showings under § 1502.22, for all direct, indirect and cumulative impacts violates NEPA. Thus, BLM failed to fully consider the cumulative impacts from all past, present, and reasonably foreseeable future projects in the region on, at a minimum, environmental justice, water and air quality, recreation, cultural/religious, wildlife, scenic and visual resources, etc. BLM must fully review, and subject such review to public comment in a revised draft EA or EIS, the cumulative impacts from all other past, present and RFFAs including mining/exploration, grazing, recreation, energy development, roads, ORV use, etc., in the region. The EA's failure to include these reviews violates NEPA.	
23.0	23.11	• Lisa Velenky Center for Biological Diversity • Joan Taylor, Sierra Club California/Nevada Desert Committee • Laura Cunningham Western Watersheds Project • Jared Naimark, Earthworks	**B. <u>The EA fails to fully review all baseline conditions.</u>** The establishment of the baseline conditions of the affected environment is a fundamental requirement of the NEPA process whether an EA or EIS is prepared: "NEPA clearly requires that consideration of environmental impacts of proposed projects take place before [a final decision] is made." LaFlamme v. FERC, 842 F.2d 1063, 1071 (9th Cir.1988) (emphasis in original). Once a project begins, the "pre-project environment" becomes a thing of the past, thereby making evaluation of the project's effect on pre-project resources impossible. Id. Without establishing the baseline conditions which exist in the vicinity … before [the project] begins, there is simply no way to determine what effect the	Baseline conditions (i.e., affected environment) are presented within Chapter 3 for all resources that were identified as Present and Potentially Affected and were thus analyzed for potential impacts under the Proposed Action. Baseline conditions for assessing the affected environment were gathered from literature reviews, recently collected and publicly available data, and baseline surveys where required by the BLM. Baseline conditions for Vegetation, including Noxious and Non-Native Invasive Species and Special Status Plant Species is described per baseline studies conducted in March 2021 within Section 3.20.2 of the EA/MND. Baseline conditions for Wildlife, including Migratory Birds, Special Status Species, and Threatened and Endangered Species is described per the baseline studies conducted in 2021 within Section 3.23.2 of the EA/MND.

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		• Isabella Langone, California Native Plant Society • Bradley Angel, Greenaction for Health and Environmental Justice • Kara Matsumoto, Conservation Lands Foundation • Kelly Herbinson and Cody Hanford, Mojave Desert Land Trust • Preston J. Arrow-weed, Ahumt Pipa Foundation	proposed [project] will have on the environment and, consequently, no way to comply with NEPA. Half Moon Bay Fisherman's Mark't Ass'n v. Carlucci, 857 F.2d 505, 510 (9th Cir. 1988). "In analyzing the affected environment, NEPA requires the agency to set forth the baseline conditions." Western Watersheds Project v. BLM, 552 F.Supp.2d 1113, 1126 (D. Nev. 2008). Similarly, the CEQ explained: "The concept of a baseline against which to compare predictions of the effects of the Proposed Action and reasonable alternatives is critical to the NEPA process." Council of Environmental Quality, Considering Cumulative Effects under the National Environmental Policy Act (May 11, 1999). "NEPA requires that the agency provide the data on which it bases its environmental analysis. Such analyses must occur before the Proposed Action is approved, not afterward." Northern Plains v. Surf. Transp. Brd., 668 F.3d 1067, 1083 (9th Cir 2011) (concluding that an agency's "plans to conduct surveys and studies as part of its post-approval mitigation measures," in the absence of baseline data, indicate failure to take the requisite "hard look" at environmental impacts). Baseline information and analysis must be part of the environmental review and be subject to public review and comment under NEPA. Federal courts have repeatedly rejected EAs for mineral exploration project that do not contain detailed analysis of baseline conditions for all potentially affected resources, such as groundwater, wildlife, etc. *See* Gifford Pinchot Task Force v. Perez, 2014 WL 3019165, **27-33 (D. Or. 2014) (BLM EA for mineral exploration failed to analyze baseline ground water conditions); Cascade Forest Conservancy v. Heppler, 2021 WL 641614, *17–20 (D. Oregon 2021); ICL v. U.S. Forest Serv., 2012 WL 3758161, *14–17 (D. Idaho 2012); ICL v. U.S. Forest Serv., 429 F. Supp. 3d 719, 730-32 (D. Idaho 2019). Here, the EA failed to obtain this baseline information on all potentially affected resources, including listed and imperiled plants and animals, other native and non-native vegetation and wildlife, ground and surface waters resources and water quality, air quality, recreation, cultural/religious/historical, and soils.	Baseline conditions for Water Resources, including surface water resources and general groundwater (the Project does not propose use of groundwater) is described per the aquatic resources inventory conducted in 2021 within Section 3.22.2 of the EA/MND. The affected environment for air quality per county and state current conditions and regulations is described within Section 3.3.3 of the EA/MND. The affected environment for recreation based on a desktop review of existing dispersed recreation activities is described within Section 3.17.2 of the EA/MND. A Class III Cultural Resources Inventory Report was prepared in 2021 and accepted by the BLM, and the non-confidential results of such represent the baseline conditions and are described in Section 3.8 of the EA/MND. Finally, existing soil resource conditions per a desktop review and a combination of field observations during baseline studies is described within Section 3.18.2 of the EA/MND. Baseline conditions for all other resources analyzed that are not specifically mentioned in the comment here are provided within Chapter 3 of the EA/MND.
23.0	23.12	• Lisa Velenky Center for Biological Diversity • Joan Taylor, Sierra Club California/Nevada Desert Committee • Laura Cunningham Western Watersheds Project • Jared Naimark, Earthworks	**C. The EA failed to include an adequate mitigation plan under NEPA and BLM mining regulations** As noted herein, the EA fails to have an adequate plan to mitigate the significant impacts to cultural and environmental resources, as required by NEPA, FLPMA, and BLM regulations (e.g., Part 3809). As just one example, the EA fails to analyze mitigation of the dozens/scores of potential drill sites (and access routes), as it fails to analyze their impacts at all. There is also no mitigation for the loss of Native American religious and cultural use and values at and around the Project site. Under NEPA, the agency must have an adequate mitigation plan to minimize or eliminate all potential project impacts. NEPA requires the agency to: (1) "include appropriate mitigation	Mitigation measures would be required for implementation by the BLM in addition to the proponent-committed PDFs and the relevant CMAs under the Proposed Action, as described in Table F-3 of Appendix F of the EA/MND, to minimize impacts to potentially affected resources. Table F-3 includes effectiveness and impacts of the additional required mitigation measures.

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		• Isabella Langone, California Native Plant Society • Bradley Angel, Greenaction for Health and Environmental Justice • Kara Matsumoto, Conservation Lands Foundation • Kelly Herbinson and Cody Hanford, Mojave Desert Land Trust • Preston J. Arrow-weed, Ahumt Pipa Foundation	measures not already included in the Proposed Action or alternatives," 40 CFR § 1502.14(e); and (2) "include discussions of: . . . Means to mitigate adverse environmental impacts (if not already covered under 1502.14(e))." 40 CFR § 1502.16(a)(9). NEPA regulations define "mitigation" as a way to avoid, minimize, rectify, or compensate for the impact of a potentially harmful action. 40 C.F.R. §§1508.1(s). "[O]mission of a reasonably complete discussion of possible mitigation measures would undermine the 'action-forcing' function of NEPA. Without such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects." Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 353 (1989). NEPA requires that the agency discuss mitigation measures, with "sufficient detail to ensure that environmental consequences have been fairly evaluated." Methow Valley, 490 U.S. at 52. An essential component of a reasonably complete mitigation discussion is an assessment of whether the proposed mitigation measures can be effective. *Compare* Neighbors of Cuddy Mountain v. U.S. Forest Service, 137 F.3d 1372, 1381 (9th Cir.1998) (disapproving an EIS that lacked such an assessment) *with* Okanogan Highlands Alliance v. Williams, 236 F.3d 468, 477 (9th Cir.2000) (upholding an EIS where "[e]ach mitigating process was evaluated separately and given an effectiveness rating"). The Supreme Court has required a mitigation discussion precisely for the purpose of evaluating whether anticipated environmental impacts can be avoided. Methow Valley, 490 U.S. at 351–52 (citing 42 U.S.C. § 4332(C)(ii)). A mitigation discussion without at least some evaluation of effectiveness is useless in making that determination. South Fork Band Council v. Dept. of Interior, 588 F.3d 718, 727 (9th Cir. 2009) (rejecting EIS for failure to conduct adequate review of mitigation and mitigation effectiveness in mine EIS). "The comments submitted by [plaintiff] also call into question the efficacy of the mitigation measures and rely on several scientific studies. In the face of such concerns, it is difficult for this Court to see how the [agency's] reliance on mitigation is supported by substantial evidence in the record." Wyoming Outdoor Council v. U.S. Army Corps of Eng'rs, 351 F. Supp. 2d 1232, 1251 n. 8 (D. Wyo. 2005). *See also* Dine Citizens v. Klein, 747 F.Supp.2d 1234, 1258-59 (D. Colo. 2010) (finding "lack of detail as the nature of the mitigation measures" precluded "meaningful judicial review").	
23.0	23.13	• Lisa Velenky Center for Biological Diversity • Joan Taylor, Sierra Club California/Nevada Desert Committee • Laura Cunningham Western Watersheds Project	**D. The agency must fully review all reasonable alternatives** NEPA requires the agency to "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal that involves unresolved conflicts concerning alternative uses of available resources." 42 U.S.C. § 4332(E); 40 CFR § 1502.14. It must "rigorously explore and objectively evaluate all reasonable alternatives" to the Proposed Action. City of Tenakee Springs v. Clough, 915 F.2d 1308, 1310 (9th Cir. 1990). NEPA requires the environmental review to "present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public." League of Wilderness Defs.-Blue Mts. Biodiversity Project v. United States Forest	As discussed in Section 2.3 of the EA/MND, the BLM considered the following three alternatives to the Proposed Action to be reasonable for consideration in accordance with 40 CFR 1501.5 and the requirements of Section 102(2)(E) of NEPA: Access Road Restriction Alternative, Seasonal Restriction Alternative, and Helicopter Access Only Alternative. The consideration for each alternative for analysis is described in each subsection of Section 2.3. All three alternatives that were considered in addition to the Proposed Action and No Action Alternative were deemed infeasible per the justifications provided in Section 2.3 and were eliminated from further analysis in the EA/MND.

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		• Jared Naimark, Earthworks • Isabella Langone, California Native Plant Society • Bradley Angel, Greenaction for Health and Environmental Justice • Kara Matsumoto, Conservation Lands Foundation • Kelly Herbinson and Cody Hanford, Mojave Desert Land Trust • Preston J. Arrow-weed, Ahumt Pipa Foundation	Serv., 689 F.3d 1060, 1069 (9th Cir. 2012). Whether an EA or EIS is prepared, BLM must "rigorously explore and objectively evaluate all reasonable alternatives" including alternatives that are "not within the [lead agency's] jurisdiction. 40 C.F.R. § 1502.14(a), (c)." Id. at 1071. "While a federal agency need not consider all possible alternatives for a given action in preparing an EA, it must consider a range of alternatives that covers the full spectrum of possibilities." Ayers v. Espy, 873 F.Supp. 455, 473 (D. Colo. 1994). In this case, the EA failed to justify its rejection and/or failure to fully consider, at a minimum, the following reasonable alternatives: (1) access to each activity without the construction of new roads or reconstruction/improvement any existing or reclaimed, which could require helicopter access; (2) reduction in the amount, scope, and impact of each activity or group of activities including drilling waste disposal; (3) timing restrictions to protect wildlife; (4) preclusion of any impact to cultural/religious/historical resources, (5) moving the activities further from wildlife core/home ranges and (6) avoidance of rare plants/plant communities and their ecological/hydrological requirements.	
23.0	23.14	• Lisa Velenky Center for Biological Diversity • Joan Taylor, Sierra Club California/Nevada Desert Committee • Laura Cunningham Western Watersheds Project • Jared Naimark, Earthworks • Isabella Langone, California Native Plant Society • Bradley Angel, Greenaction for Health and Environmental Justice • Kara Matsumoto, Conservation Lands Foundation	**III. Failure to Prepare EIS Violates NEPA** BLM's proposed issuance of a FONSI, and failure to prepare an EIS, violates NEPA and FLPMA. At the outset, due to the fundamental NEPA deficiencies in the EA noted above, BLM cannot issue a FONSI. BLM's deficient EA renders its FONSI inadequate. "[I]f the EA is deficient under NEPA in one of the ways Plaintiff has previously argued, then the [agency's] DN/FONSI is necessarily arbitrary and capricious because it relied on the 2012 EA." Gifford Pinchot Task Force v. Perez, 2014 WL 3019165, *40 (D. Or. 2014). This follows a line of well-established Ninth Circuit precedent. *See* Native Ecosystems Council v. Tidwell, 599 F.3d 926, 937 (9th Cir. 2010) (USFS violated NEPA in issuing FONSI based on inadequate analysis); Ctr. for Biological Diversity v. NHTSA, 508 F.3d 1212, 1223-24 (9th Cir. 2007) (When an EA fails to comply with NEPA requirements, it "do[es] not constitute a 'hard look' at the environmental consequences of the action as required by NEPA. Thus, the FONSI is arbitrary and capricious."). Here, BLM's decision not to prepare an EIS was made without the critical information regarding cumulative and other impacts, alternatives, mitigation, and baseline conditions detailed above. As such, the FONSI is consequently invalid. NEPA requires federal agencies to prepare an EIS for "major Federal actions significantly affecting the quality of the human environment." 42 U.S.C. § 4332(C). "If an agency decides not to prepare	Federal agencies, including the BLM, implement NEPA per the procedures developed by the CEQ, which is the agency responsible for developing NEPA guidance for implementation. In line with the CEQ guidelines revised in 2020 and then again in 2022 for implementing regulations of NEPA, which does not mandate particular results or substantive outcomes but rather requires Federal agencies to consider environmental impacts of Proposed Actions, the BLM determined that an EA is the appropriate level of NEPA review for the Proposed Action. In following 40 CFR Section 1501.5(c)(1) and 40 CFR 1501.6(a) per the 2020 and 2022 updates to the NEPA Implementing Regulations under Docket CEQ-2021-0002, the BLM has determined that it has provided sufficient evidence and analysis to deem preparation of an EA followed by issuance of a FONSI appropriate for the Proposed Action. NEPA decisions for projects located elsewhere in the California Desert District are outside the scope of this EA/MND. This EA/MND also does not rely on previous NEPA decisions for projects wherein the geographic and resource conditions are not substantially similar or relevant.

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		• Kelly Herbinson and Cody Hanford, Mojave Desert Land Trust • Preston J. Arrow-weed, Ahumt Pipa Foundation	an EIS, it must supply a convincing statement of reasons to explain why a project's impacts are insignificant." Native Ecosystems Council v. Tidwell, 599 F.3d 926, 937 (9th Cir. 2010) (quotation omitted). It is well established in the Ninth Circuit that an "EIS must be prepared if substantial questions are raised as to whether a project .. . may cause significant degradation of some human environmental factor." Blue Mountains, 161 F.3d at 1212 (quotation omitted). "Thus, to prevail on a claim that the [agency] violated its statutory duty to prepare an EIS, a plaintiff need not show that significant effects will in fact occur." Id. (quotation omitted). "It is enough for the plaintiff to raise substantial questions whether a project may have a significant effect on the environment." Id. (quotation omitted). The Ninth Circuit has regularly described the bar for whether significant effects may occur as a "low standard." *See, e.g.*, League of Wilderness Defenders v. Connaughton, 752 F.3d 755, 760 (9th Cir. 2014); Cal. Wilderness Coal. v. U.S. Dep't of Energy, 631 F.3d 1072, 1097 (9th Cir. 2011); Klamath Siskiyou Wildlands Center v. Boody, 468 F.3d 549, 562 (9th Cir. 2006). Applying these principles, the Ninth Circuit has ordered EISs where plaintiffs raise substantial questions as to whether there may be significant impacts. *See, e.g.*, Blue Mountains, 161 F.3d at 1212–16; Nat'l Parks, 241 F.3d at 732; Ocean Advocates v. U.S. Army Corps of Eng'rs, 402 F.3d 846, 868 (9th Cir. 2005); Bark, 958 F.3d at 873; Envtl. Def. Ctr., 36 F.4th at 882. Courts have ordered an EIS where cursory analysis in an EA—like BLM's analysis here—renders effects highly controversial, unknown, or uncertain and, thus, potentially significant. The Ninth Circuit held that an EA with "data gaps" and "lack of data" concerning potential effects requires an EIS. *See* National Parks, 241 F.3d at 733 (an agency's "lack of knowledge does not excuse the preparation of an EIS; rather it requires the [agency] to do the necessary work to obtain it."); Blue Mountains, 161 F.3d at 1212–16 (lack of supporting data and cursory treatment of environmental effects in EA warranted preparation of EIS). Similarly, in Hausrath v. U.S. Dep't of the Air Force, 491 F. Supp. 3d 770 (D. Idaho 2020), the court found effects were controversial and required preparation of an EIS where plaintiffs "identified serious gaps in the USFAF's analyses concerning the effects of noise from the Proposed Action" to the community and wildlife. Id. at 802. The court also found that an EIS was required because the action in Hausrath had uncertain effects due to "the absence of baseline noise data actually measuring the ambient noise levels in the affected communities." Id. at 802–03. Here, based on the EA's inadequate analysis, the significance of the Project's impacts to public resources, an EIS is required. That was the case recently in the California Desert as found by BLM. For an exploration drilling proposed on Conglomerate Mesa, BLM is requiring an EIS instead of an EA. That was for an exploration drilling project of far fewer drill sites, road construction, and environmental impacts. *See* March 9, 2022 letter from Carl Symons, BLM Ridgecrest Field Manager, to Mojave Precious Metals (Attachment 4). That project at Conglomerate Mesa involves	

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			only 12 acres and 30 drill sites, far less drill sites and surface impacts than are contemplated for this Oro Cruz project. Id. Notably, the Conglomerate Mesa project is within the same California Desert Resource Management Plan for the CDCA, also involves ACEC and CDNCL lands, and other critical public resources as does the much-larger Oro Cruz Project. BLM properly found that an EIS is required for the Conglomerate Mesa proposal, and should make the same finding here.	
23.0	23.15	• Lisa Velenky Center for Biological Diversity • Joan Taylor, Sierra Club California/Nevada Desert Committee • Laura Cunningham Western Watersheds Project • Jared Naimark, Earthworks • Isabella Langone, California Native Plant Society • Bradley Angel, Greenaction for Health and Environmental Justice • Kara Matsumoto, Conservation Lands Foundation • Kelly Herbinson and Cody Hanford, Mojave Desert Land Trust • Preston J. Arrow-weed, Ahumt Pipa Foundation	**A. Biological Resources** *1. Desert Tortoise* The Picacho Area of Environmental Concern (ACEC) was established in part to conserve the declining Mojave desert tortoise (EA at 25). Active burrows and tortoise sign were found in the drill areas (EA at 98). The environmental review must clearly address alternative proposals for avoiding, minimizing, and mitigating the impacts to the desert tortoise and any occupied habitat. Yet the required mitigation measures outlined in Appendix F, Table F-3 simply state that access roads will be fenced with tortoise exclusion fencing in Tumco Wash. An aggressive raven prevention plan also needs to be developed as part of the environmental review and followed during project development and implementation. LUPA-BIO-6 is listed as a mitigation measure, with raven management guidelines, but nothing specific to the project area. More detail of raven management specific to this area needs to be given, including nest management. Ravens are an increasing threat to Mojave desert tortoises range-wide.	The BLM determined after consideration of several alternatives for the Project (Section 2.3 of the EA/MND) that only the Proposed Action and the No Action Alternative would be carried through for analysis within the EA/MND. The BLM required that mitigation measures outlined in Table F-3 of Appendix F would be implemented in addition to the PDFs (i.e., environmental protection measures) that the proponent has committed to, which are outlined in full in Table F-1 of Appendix F. Several measures would be implemented to minimize impacts to desert tortoise as described in Section 3.23.3 Threatened and Endangered Species and Appendix F. Additionally, pre-construction surveys would be conducted prior to surface disturbing activities to identify species presence and any additional impact minimization or avoidance measures that may be necessary would be coordinated with the BLM. Furthermore, per the analysis in Section 3.23.3, impacts to desert tortoise as a result of the Proposed Action are anticipated to be minor, short-term, and localized. The BLM has also engaged in consultation with the USFWS pursuant to Section 7 of the Endangered Species Act for approval of an Activity Request Form under the Programmatic Biological Opinion for Mojave Desert tortoise. Additionally, PDF-27 and PDF-28 within Table F-1 of Appendix F of the EA/MND include measures that the proponent would implement to deter ravens and other predators from entering the Project Area. Per the CMA table provided in Appendix B of the EA/MND, LUPA-BIO-6 would not be required to be implemented in addition to the applicant-committed PDFs.
23.0	23.16	• Lisa Velenky Center for Biological Diversity • Joan Taylor, Sierra Club California/Nevada Desert Committee • Laura Cunningham Western Watersheds Project	*2. Flat-tailed horned lizard and Colorado fringe-toed lizard* Small areas of sand can harbor fringe-toed lizards (*Uma notata*) and fringe-toed lizards (*Phrynosoma mccallii*), and the EA at 79 mentions that surveyors found small sand patches in the western edge of the area of analysis during March 2021 plant surveys. The Plan of Operations states that loose sandy soils are present in the project area. But surveys during the main activity time for reptiles—May and June—were not undertaken. These reptile species may have been dormant in underground burrows in March. Therefore, the presence of these two lizard species needs to be	Per the requirements and assessment for LUPA-BIO-IFS-10 related to flat-tailed horned lizards in the CMA table in Appendix B, habitat is not included in the DRECP flat-tailed horned lizard species distribution model and identified occurrence of this species has not been documented within the Project Area. Furthermore, per Tables 5 and 6 of the Biological Resource Technical Report and Assessment (WestLand 2021), there is no potential of occurrence within the Project Area for flat-tailed horned lizard. Per the baseline report, some habitat does exist within the Project Area for Colorado fringe-toed lizard, however there

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23.0	23.17	• Lisa Velenky Center for Biological Diversity • Joan Taylor, Sierra Club California/Nevada Desert Committee • Laura Cunningham Western Watersheds Project • Jared Naimark, Earthworks • Isabella Langone, California Native Plant Society • Bradley Angel, Greenaction for Health and Environmental Justice • Kara Matsumoto, Conservation Lands Foundation	*3. Golden Eagles* Apparently, no nest surveys were undertaken. Avian surveys found active nesting prairie falcons (EA at 96). Helicopter operations to deliver drilling equipment, water, and other supplies to mountain drill sites could disturb any golden eagles nesting in the area and could lead to take under the Bald and Golden Eagle Protection Act. Golden eagles are also fully protected species under California law and cannot be taken at any time. (Cal. Fish and Game Code §3511(b)(7).) Targeted surveys during the winter nesting season should be undertaken. The EA states at 100: > Should golden eagles or golden eagle nests be identified during pre-clearance surveys, CMA LUPA-BIO-IFS-24 would be implemented to minimize impacts of surface disturbance within one-mile of active golden eagle nests or territories, as included in **Appendix F**. This indicates that no nest surveys were undertaken to determine the location and number of breeding pairs and active nests in the Project Area. This is not acceptable. The Finding of No Significant Impact for the Silicon Exploration Project Environmental Assessment DOIBLM-NV-B020-2020-0017-EA (Attachment 5) states for golden eagles:	Golden eagle nest ground surveys were conducted in March 2021 in accordance with the USFWS recommended golden eagle nest survey protocols. Section 3.23.2 of the EA/MND has been revised to clarify that golden eagle nesting surveys were completed and the results of such noted that golden eagles were not present within the raptor analysis area (two-mile buffer around the Project Area). Per the Biological Resource Technical Report and Assessment (WestLand 2021), the raptor analysis area occurs within the known range of golden eagles; however, no historical records for the species occurs within the analysis area and no evidence of golden eagles or golden eagle nesting was observed during the baseline surveys. Additionally, no golden eagle nests are known to occur within 4.4 miles of the analysis area per Diamond et al.'s 2016 species status and distribution model for golden eagles (Westland 2021). As such, golden eagle take, including loss of productivity, would not occur under the Proposed Action. Per the PDFs, CMAs, and BLM required mitigation measures outlined in Appendix F of the EA/MND, pre-construction surveys would be conducted prior to surface disturbing activities under the Proposed Action in order to identify present of wildlife species and determine whether a change in drill siting must occur and/or additional impact minimization or avoidance measures may be necessary, which would be coordinated directly with the BLM.

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		• Kelly Herbinson and Cody Hanford, Mojave Desert Land Trust • Preston J. Arrow-weed, Ahumt Pipa Foundation	There was one golden eagle nest and five possible golden eagle nests within one mile of the Project Area. None of the nests were occupied during 2019 field surveys; however, one nest was active during 2020 field surveys. To avoid impacts to those nests, AGA would implement the EPM in Section 2.2.6.10 that states Project activities would not be conducted between January 1 and August 31 within one mile of a nest. However, if that is not practicable, a survey would be conducted after March 21 at eagle nest sites that are within one mile of the Project Area to determine occupancy. The timing of the surveys may be adjusted due to winter weather conditions and is subject to approval from the NDOW based on consideration of bighorn sheep (*Ovis canadensis*) lambing activity. If a nest has a bird in an incubating/brooding posture, it would be assumed that the nest is active that year, and a one-mile disturbance buffer would be applied until August 31, or until it has been determined that 1) the nest has failed; or 2) the young have fledged and are no longer dependent on the nest. The buffer sizes may be reduced with approval from the US Fish and Wildlife Service (USFWS). If the nest is not active at the time of the surveys, the one-mile buffer would not apply and Project activities could commence. (FONSI at 6). Ultimately the gold exploration company decided to seek a take permit from US Fish and Wild Service, which was analyzed in a March 2022 Environmental Assessment. (Attachment 6). **<u>This gold exploration project did not use helicopters.</u>** The Service discusses the need for a take permit: This Environmental Assessment (EA) analyzes the environmental consequences of the United States (U.S.) Fish and Wildlife Service (Service) issuing an incidental take permit for the take of golden eagles (*Aquila chrysaetos*) associated with the Silicon Exploration Project (Project) pursuant to the National Environmental Policy Act (NEPA) (42 United States Code [U.S.C.] §§ 4321–4347). Issuance of an eagle take permit by the Service for take that is incidental to otherwise lawful activities under the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. §§ 668–668d and 50 Code of Federal Regulations [CFR] § 22.26) constitutes a discretionary federal action that is subject to NEPA. This EA assists the Service in ensuring compliance with NEPA, and in making a determination as to whether any "significant" impacts could result from the analyzed actions that would require preparation of an Environmental Impact Statement (EIS). This EA evaluates the effects of alternatives for the Service's decision whether to issue an eagle take permit. (EA at 1) The Service issued a take permit for eagles for the Silicon Exploration Project. (*See* Attachment 5). Without proper eagle nest surveys, the Oro Cruz applicant may unintentionally harass golden eagles that might be nesting in the mountains around the drill areas, especially with the use of helicopters. This could result in the loss of productivity of eagles in the region.	
23.0	23.18	• Lisa Velenky Center for Biological Diversity	*4. Desert Bighorn Sheep*	Biological baseline surveys were conducted in March 2021 to ascertain the most current presence of wildlife species in the area of analysis. The baseline data

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		• Joan Taylor, Sierra Club California/Nevada Desert Committee • Laura Cunningham Western Watersheds Project • Jared Naimark, Earthworks • Isabella Langone, California Native Plant Society • Bradley Angel, Greenaction for Health and Environmental Justice • Kara Matsumoto, Conservation Lands Foundation • Kelly Herbinson and Cody Hanford, Mojave Desert Land Trust • Preston J. Arrow-weed, Ahumt Pipa Foundation	Currently desert bighorn sheep are not known to be present in the Cargo Muchacho mountains, but the proposed project area is within the desert bighorn Wildlife Habitat Management Area designated in BLM's 2002 Northern and Eastern Colorado Desert Plan Amendment. Repatriating the desert bighorn sheep in the Cargo Muchacho Mountains is a key goal to sustaining the desert bighorn sheep metapopulation particularly as the effects of climate change advance. The environmental review must analyze the impacts to bighorn sheep habitat from the proposed project and whether it could impact future recovery efforts. The EA at 95 states that no known guzzlers are in the area, but otherwise the EA does not analyze potential bighorn sheep habitat here, nor future recovery efforts.	collected was used to analyze impacts to present or potentially present wildlife species as a result of the Proposed Action. Bighorn sheep were not observed during the baseline surveys in the survey area, and no historical bighorn sheep occurrence records exist for the survey area. Additional literature and information from recent surveys and the California Natural Diversity Database were reviewed to support the conclusions made in the baseline report. Pre-construction surveys would be conducted prior to surface disturbance under the Proposed Action per the PDFs, CMAs, and BLM required mitigation measures outlined in Appendix F of the EA/MND. Should bighorn sheep or other additional wildlife species not previously present be observed, SMP would coordinate additional avoidance or mitigation measures with the BLM as necessary. Per the analysis in Section 3.23.3 of the EA/MND, potential impacts to big game species, including bighorn sheep should they become present, that may use the Project Area for available forage would be an increase in potential habitat fragmentation and less available forage; however, given the minimal distribution of individual species and populations within the area of analysis, impacts to big game habitat under the Proposed Action would be minor, short-term, and localized. Impacts to individual large and small mammal species may be realized as a result of surface disturbance and potential vehicular mortality may occur from overland travel and access road construction and improvements; however, impacts would not affect species populations. Further assessment of future recovery efforts of bighorn sheep populations is outside the scope of this EA/MND.
23.0	23.19	• Lisa Velenky Center for Biological Diversity • Joan Taylor, Sierra Club California/Nevada Desert Committee • Laura Cunningham Western Watersheds Project • Jared Naimark, Earthworks • Isabella Langone, California Native Plant Society • Bradley Angel, Greenaction for Health	*5. Burro Deer* The EA at 97 states that mule deer were observed during 2021 desert tortoise surveys. This narrow endemic mule deer subspecies (*Odocoileus hemionus eremicus*) is only found in the Colorado Desert of southeastern California. Measures should be outlined that avoid disturbing these deer populations.	While some mule deer distributions exist within the Project area, population statistics are not well known (WestLand 2021), populations fluctuate year-to-year likely due to low water and forage availability, and no known migration corridors exist within the area of analysis. Potential impacts to big game species that may use the Project Area for available forage would be an increase in potential habitat fragmentation and less available forage; however, given the minimal distribution of individual species and populations within the area of analysis, impacts to big game habitat under the Proposed Action would be minor, short-term, and localized. Impacts to individual large and small mammal species may be realized as a result of surface disturbance and potential vehicular mortality may occur from overland travel and access road construction and improvements; however, impacts would not affect species populations. To minimize potential impacts from vehicular collisions and/or mortality, SMP would implement 20 mile per hour speed limits along all routes within the Project Area as outlined in Appendix F of the EA/MND.

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		and Environmental Justice • Kara Matsumoto, Conservation Lands Foundation • Kelly Herbinson and Cody Hanford, Mojave Desert Land Trust • Preston J. Arrow-weed, Ahumt Pipa Foundation		
23.0	23.20	• Lisa Velenky Center for Biological Diversity • Joan Taylor, Sierra Club California/Nevada Desert Committee • Laura Cunningham Western Watersheds Project • Jared Naimark, Earthworks • Isabella Langone, California Native Plant Society • Bradley Angel, Greenaction for Health and Environmental Justice • Kara Matsumoto, Conservation Lands Foundation • Kelly Herbinson and Cody Hanford, Mojave Desert Land Trust • Preston J. Arrow-weed, Ahumt Pipa Foundation	*6. Rare Plants* Although several rare plants are known in this area and some are identified in the EA/MND (at 79), it is unclear when plant surveys were conducted and whether they were seasonally appropriate to find certain plants. Therefore other rare plants may have been missed. Without more information it appears that the conclusions in the EA/MND that rare plants will not be significantly impacted is unsupported.	Biological baseline surveys, including vegetation surveys, were conducted in March 2021, as described in Section 3.20.2 of the EA/MND. The timing of baseline surveys was coordinated with the BLM and the baseline report was deemed complete and approved in June 2021. Additional literature, information from recent surveys, and the California Natural Diversity Database were reviewed to support the conclusions made in the baseline report. Per the impact analysis in Section 3.20.3 and the reclamation measures that would be conducted on all disturbed surfaces, long-term impacts from habitat removal would be reduced. Per the PDFs, CMAs, and BLM required mitigation measures outlined in Appendix F of the EA/MND, pre-construction surveys would be conducted prior to surface disturbing activities under the Proposed Action and any further impact minimization or avoidance measures would be coordinated with the BLM as necessary and appropriate based on the findings of the surveys. Furthermore, should special status plants be identified during pre-construction surveys, barrier fencing would be required to be implemented around individual plants to minimize impacts to special status species.
23.0	23.21	• Lisa Velenky Center for Biological Diversity	**B. Cultural Resources** The Proposed Action would adversely affect the sacred Tribal Cultural Landscape that consists of the ancient trail network, called Trail of Dreams or Xam Kwatchan Trail Network, which extends	Please refer to the response to Comment #23.10, which describes the Section 106 of the NHPA consultation process wherein the BLM requested additional information about the nature and extent of the Traditional Cultural Property. The updated status of the Section 106 process and tribal consultation is in the EA in

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		• Joan Taylor, Sierra Club California/Nevada Desert Committee • Laura Cunningham Western Watersheds Project • Jared Naimark, Earthworks • Isabella Langone, California Native Plant Society • Bradley Angel, Greenaction for Health and Environmental Justice • Kara Matsumoto, Conservation Lands Foundation • Kelly Herbinson and Cody Hanford, Mojave Desert Land Trust • Preston J. Arrow-weed, Ahumt Pipa Foundation	from Avi Kwa Ame (Spirit Mountain, Nevada) to the Avi Kwlal (Pilot Knob, California). The area that would be disturbed by the Oro Cruz exploration project is included in this Tribal Cultural Landscape. (*See* Figure 2 (map) Attachment 7). The EA has failed to analyze the impact on this Tribal Cultural Landscape held sacred by six native American Tribes in the region. Comments submitted by the Quechan Tribe are referenced in the EA (section 3.14.3): > The proposed Project location is sited within a region that is highly significant to the Fort Yuma Quechan Indian Tribe. This is a location that the Tribe attaches great cultural, religious and spiritual significance to. The Fort Yuma Quechan Indian Tribe objects to the proposed mining project and the proximity of the operation to a significant cultural landscape and items of cultural patrimony which are integral to the spiritual and everyday lives of the Quechan people. However, the EA states (section 3.14.3) states that "Currently, not enough information has been provided to understand the nature, extent and use of the resource, and therefore to fully assess impacts or determine if there are minimization or avoidance measures that would apply." Not having enough information to analyze the impacts on the Tribal Cultural Landscape is not sufficient grounds to determine the project would have no significant impacts on Native American Religious Concerns and Traditional Values. Instead, the BLM should require an EIS to analyze these impacts in detail. Furthermore, BLM pursuant to the 2019 Dingell Act the BLM was required to develop and implement a cultural resources management plan for the Xam Kwatchan Trail Network: > Not later than 2 years after the date of enactment of the John D. Dingell, Jr. Conservation, Management, and Recreation Act [enacted March 12, 2019], the Secretary shall develop and implement a Tribal cultural resources management plan to identify, protect, and conserve cultural resources of Indian Tribes associated with the Xam Kwatchan Trail network extending from Avikwaame (Spirit Mountain, Nevada) to Avikwlal (Pilot Knob, California). 16 U.S.C.S. § 410aaa-75. That plan is overdue and BLM cannot authorize mine exploration activities on lands associated with the Xam Kwatchan Trail Network until it completes the tribal cultural resources management plan which is needed to ensure protection and conservation of these resources.	Sections 3. 8, 3.14 and 4.12. The Department of the Interior's development of a cultural resources management plan for the Xam Kwatchan Trail network is outside the scope of the project or the EA analysis. Furthermore, as stated in the response to Comment #23.1, the BLM has determined an EA is the appropriate level of NEPA analysis per the implement NEPA in accordance with 40 CFR Section 1501.5(c)(1) and 40 CFR 1501.6(a) per the 2020 and 2022 updates to the NEPA Implementing Regulations under Docket CEQ-2021-0002. Additionally, the BLM has determined that it has provided sufficient evidence and analysis to deem preparation of an EA followed by issuance of a FONSI appropriate for the Proposed Action per the analysis in the EA/MND that no significant impacts would occur under the Proposed Action.
23.0	23.22	• Lisa Velenky Center for Biological Diversity • Joan Taylor, Sierra Club California/Nevada Desert Committee	**C. Additional Resource Issues** The environmental review must provide sufficient information to evaluate serious aspects of the project and raise many questions, which if answered, might expose environmental impacts.	The Proposed Action would purchase water from vendors as needed to support exploration drilling and dust suppression activities. The Plan of Operations provided details of the amount of water needed for the life of the project based on a preliminary water supply assessment. Groundwater pumping is not proposed under the Project. Water utilized for Project activities would be provided by a

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		• Laura Cunningham Western Watersheds Project • Jared Naimark, Earthworks • Isabella Langone, California Native Plant Society • Bradley Angel, Greenaction for Health and Environmental Justice • Kara Matsumoto, Conservation Lands Foundation • Kelly Herbinson and Cody Hanford, Mojave Desert Land Trust • Preston J. Arrow-weed, Ahumt Pipa Foundation	***1. Source of Groundwater and Impacts*** The EA, at 87-92, states that 2,000 gallons of water per day will be required for drilling and dust suppression. The water would be procured from Gold Rock Ranch and/or another local water purveyor. A mobile water truck would be utilized onsite for dust suppression, and applied water would either naturally evaporate or infiltrate into the ground. The impact of taking that water from existing wells is not addressed despite the drought conditions in the area. And even though the specific source of water is not known, the EA/MND at 92 claims that the "Project would not consume groundwater from the Imperial Valley Groundwater Basin" – there is no support for this statement. In addition, because the groundwater in this area is connected to the Colorado River, taking any water from the water table must be strictly accounted for under the law of the river. (*See* Map 7 in Attachment 8). The EA/MND fails to analyze how groundwater pumping from off-site sources may impact the Imperial Valley groundwater district and the Colorado River accounting surface (as noted above). Because the identification and analysis of groundwater resources, including the source of water and the impacts of its extractions, are not adequately disclosed or addressed the EA/MND violates NEPA and CEQA.	local water purveyor, Gold Rock Ranch and/or City of Yuma, which may be sourced from groundwater or the Colorado river. Sourcing is dependent on the purveyors and all water rights are secured by those entities, thus, groundwater pumping for the water that would be purchased is outside the scope of the analysis of this EA/MND. The estimated amount of water needed for the life of the Project is approximately 0.736 acre-feet or 0.0000098 percent of the total current level of Lake Mead. The natural groundwater recharge of the Ogilby Valley Groundwater Basin is 250 acre-feet per year (California's Groundwater Bulletin 118) and the Project estimated water amount is 0.30 percent of the natural recharge rate. Based on the Plan of Operations and EA analysis, a detailed Water Supply Assessment was not required. As stated in Section 3.22 of the EA/MND, impacts to surface and groundwater resources would be negligible.
23.0	23.23	• Lisa Velenky Center for Biological Diversity • Joan Taylor, Sierra Club California/Nevada Desert Committee • Laura Cunningham Western Watersheds Project • Jared Naimark, Earthworks • Isabella Langone, California Native Plant Society • Bradley Angel, Greenaction for Health and Environmental Justice	***2. Surface Disturbance*** The EA/MND (at 5) calculates the surface disturbance at 20.54 acres – but it is unclear if that calculation accounts for additional for turnaround spaces for the large trucks and heavy equipment, sumps, and overburden. All the road segments and drill pads must be considered new ground disturbances regardless of being on top of the roads and pads of previous mining/drilling/disturbed areas. Use of all road segments and pads for the proposed project will cause new disturbances. The EA/MND attempts to waive away the significance of these new surface disturbances on previously reclaimed areas, undermining the environmental review.	The total 20.54 acres of surface disturbance proposed under the Project and analyzed under the Proposed Action includes all aspects of surface disturbance, including road improvements, construction of new access roads, construction of the staging area, and all 65 drill sites and associated drill pads, as outlined in Section 2.1 of the EA/MND and specifically calculated in Table 2-1. All surface disturbance would be reclaimed concurrently within the drill areas, except for the staging area and new access road that connects to the Oro Cruz Mine Portal, which would be reclaimed after completion of underground exploration and other post-closure reclamation and monitoring activities, which would be completed within the total five year life of the Project.

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		• Kara Matsumoto, Conservation Lands Foundation • Kelly Herbinson and Cody Hanford, Mojave Desert Land Trust • Preston J. Arrow-weed, Ahumt Pipa Foundation		
23.0	23.24	• Lisa Velenky Center for Biological Diversity • Joan Taylor, Sierra Club California/Nevada Desert Committee • Laura Cunningham Western Watersheds Project • Jared Naimark, Earthworks • Isabella Langone, California Native Plant Society • Bradley Angel, Greenaction for Health and Environmental Justice • Kara Matsumoto, Conservation Lands Foundation • Kelly Herbinson and Cody Hanford, Mojave Desert Land Trust • Preston J. Arrow-weed, Ahumt Pipa Foundation	***3. Reclamation Plan is Not Provided*** The EA/MND refers to a Reclamation Plan (Sespe 2022) (at 8), but it is not provided with the EA/MND. Instead the EA/MND provides only a summary: "A summary of the Reclamation Plan is provided below, and complete details are provided in SMP – Oro Cruz Exploration Project Reclamation Plan (Sespe 2022), on file with Imperial County (Reclamation Plan #21-0001)." EA/MND at 8-10. A copy of the plan should have been circulated to the public during the comment period. Several important recommendations for reclamation from scoping comments do not appear to have been addressed in the EA/MND: • Prohibit blading of road segments or the staging area. Mow or hand cut vegetation to within inches of the ground on the road segments and then drive over them to the drill pad, creating a 2-track path and leaving the roots intact. Vegetation will grow back faster from root stock than from seed. • Prohibit tracked vehicles and require only vehicles equipped with oversized, balloon tires to minimize soil compaction and to speed revegetation. • Topsoil is thin in the desert and what is scraped off for reclamation may blow away, if not covered. That topsoil needs to be protected by stockpiling at appropriate height to prevent composting from occurring which would kill off propagules and soil fauna. • Plant seedlings and require reseeding only in the fall. Do not use hydroseeding methods. • The seed source for reseeding must contain *locally* sourced native species only. The grasses should be grasses that are native to the project site. • The BLM or an independent botanist needs to survey all of the drill sites and roads to them annually starting after the drilling ends, to determine whether SMP Gold Corporation has complied with the reclamation requirements. This information should be shared with the public. Issue a notice of violation if the results are substandard. • Require an annual report in the fall on how the revegetation is progressing and the presence of and removal of all noxious weeds. • Establish criteria for "successful reclamation". Including the density and diversity of species • Require remediation if plants aren't established after three years.	A Reclamation Plan has been prepared for the Project in accordance with the requirements under SMARA and has been coordinated between Imperial County, BLM, and the Division of Mine Reclamation. The proposed exploration operations and site reclamation of the Project is evaluated within this EA/MND pursuant to CEQA. A summary of the Reclamation Plan is provided within Section 2.1.2, and the Reclamation Plan is on file with Imperial County (Reclamation Plan #21-0001) and available by public request.

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			• Identify who will be responsible for the monitoring after three years if the goals have not been met and funding from the project proponent to be sure it continues. • Clean vehicles before entering the project site if they have been driven where they could pick up non-native plant propagules on their vehicle. Because these important issues regarding reclamation raised in scoping were not addressed in the EA/MND, and a copy of the full Reclamation Plan is not provided for public review, the document is inadequate as an informational document under NEPA and CEQA.	
23.0	23.25	• Lisa Velenky Center for Biological Diversity • Joan Taylor, Sierra Club California/Nevada Desert Committee • Laura Cunningham Western Watersheds Project • Jared Naimark, Earthworks • Isabella Langone, California Native Plant Society • Bradley Angel, Greenaction for Health and Environmental Justice • Kara Matsumoto, Conservation Lands Foundation • Kelly Herbinson and Cody Hanford, Mojave Desert Land Trust • Preston J. Arrow-weed, Ahumt Pipa Foundation	**IV. The Mitigated Negative Declaration is Inadequate to Fulfill the Requirements of SMARA or CEQA.** **A. SMARA and the County Ordinance Require the County to Evaluate Both the Mining Exploration Project and the Reclamation Plan** Imperial County is identified as the lead agency for both SMARA and CEQA. EA/MND at 2. As the court explained in Nelson v. County of Kern, 190 Cal. App. 4th 252 (2010): > The Legislature declared that its intent in enacting SMARA was "to create and maintain an effective and comprehensive surface mining and reclamation policy with regulation of surface mining operations so as to assure that: [¶] (a) Adverse environmental effects are prevented or minimized and that mined lands are reclaimed to a usable condition which is readily adaptable for alternative land uses[; and ¶] (b) The production and conservation of minerals are encouraged, while giving consideration to values relating to recreation, watershed, wildlife, range and forage, and aesthetic enjoyment." (§ 2712, subds. (a) & (b).) "To achieve those goals, SMARA requires that persons conducting surface mining operations obtain a permit and obtain approval of a reclamation plan from a designated lead agency for areas subjected to post-January 1, 1976, mining. (§§ 2770, 2776.)" (*Hansen Brothers Enterprises, Inc. v. Board of Supervisors* (1996) 12 Cal.4th 533, 547, fn. omitted.) In particular, SMARA provides: "[N]o person shall conduct surface mining operations unless a permit is obtained from, a reclamation plan has been submitted to and approved by, and financial assurances for reclamation have been approved by, the lead agency for the operation pursuant to this article." (§ 2770, subd. (a).) This section, including the requirement that a surface mining permit be obtained from the lead agency, has been described as "'[a]t the heart of SMARA.' " (*People ex rel. Dept. of Conservation v. El Dorado County* (2005) 36 Cal.4th 971, 984.) > To facilitate the enforcement of SMARA, section 2774 states that "[e]very lead agency shall adopt ordinances in accordance with state policy that establish procedures for the review and approval of reclamation plans and financial assurances and the issuance of a permit to conduct surface mining operations . . ." (§ 2774, subd. (a).)	As stated above, a Reclamation Plan has been prepared for the Project in accordance with the requirements under SMARA and has been coordinated between Imperial County, BLM, and the Division of Mine Reclamation (DMR). The proposed exploration operations and site reclamation associated with the Project was evaluated in its entirety within this EA/MND pursuant to CEQA. A detailed summary of the Reclamation Plan is provided within Section 2.1.2, and the Reclamation Plan is on file with Imperial County (Reclamation Plan #21-0001) and available by public request. Note that the site reclamation activities required in the Reclamation Plan as described and evaluated in full within the EA/MND. The Reclamation Plan has also been submitted to the DMR, to which the agency has determined the document conforms to the requirements of SMARA. Additionally, onsite reclamation activities also described in the Reclamation Plan were described in detail within the Plan of Operations, which was included as Appendix A within the EA/MND. The BLM is the sole owner of the land where the project is proposed, and therefore Imperial County only has discretionary authority over the Reclamation Plan and reclamation activities described therein pursuant to SMARA. Nonetheless, consistent with the Nelson v. County of Kern court decision, Imperial County and the BLM opted to prepare a joint EA/MND document to ensure that the potential environmental effects of both mining/exploration activities as well as reclamation activities were fully evaluated under CEQA and NEPA. Lastly, consistent Title 9, Div. 20: Surface Mining & Reclamation of the Imperial County Ordinance, the Planning Commission will hold a noticed public hearing prior to approval of the Reclamation Plan, at which point the public, as well as the Department of Conservation, will again have the opportunity to comment on the Project's proposed Reclamation Plan prior to approval of the document/Project pursuant to SMARA.

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			Under the Imperial County Ordinance, exploratory mining activities fall within the definition of Surface Mining Operations (Title 9, Div. 20: Surface Mining & Reclamation (hereinafter "Title 9") § 92001.01.) The County Ordinance prohibits mining activities without first obtaining County approval of "a Permit, Reclamation Plan, and financial assurances for reclamation," subject to narrow exceptions which are not relevant here. Title 9 § 92001.03. The EA/MND acknowledges that Imperial County must approve the reclamation plan (at 2), but fails to acknowledge that a permit approval is also needed. Just as in Nelson, here, the is no question that the County, as lead agency, "is responsible under SMARA and the local ordinance to evaluate the entire [] proposal and to determine *both* whether to issue a permit for mining operations and whether to approve the reclamation plan." Nelson, 190 Cal. App. 4th at 269 (emphasis in original; citing Pub. Res. Code §§ 2770, subd. (a), 2774, subd. (a)). And as in Nelson, "[t]hat being the case, it was improper for County to sever the mining operations from the scope of its review under SMARA." Id. 190 Cal. App. 4th at 269. As noted above, a complete copy of the reclamation plan was not provided to the public during this comment period. On this basis, the conservation groups reserve the right to provide additional comments once a complete copy of the reclamation plan is provided. The summary provided in the EA/MND is insufficient for the public or decision makers to determine if the reclamation plan is adequate to meet SMARA standards, and because the reclamation plan is a key part of the mitigation for the project, the failure to provide the public with all relevant studies and information also fails CEQA and fails to show that an MND is appropriate.	
23.0	23.26	• Lisa Velenky Center for Biological Diversity • Joan Taylor, Sierra Club California/Nevada Desert Committee • Laura Cunningham Western Watersheds Project • Jared Naimark, Earthworks • Isabella Langone, California Native Plant Society • Bradley Angel, Greenaction for Health and Environmental Justice	**B. CEQA requires the County to consider the whole of the action in an EIR.** The joint EA/MND section "3.2 CEQA Checklist and Impact Analysis" is insufficient in several ways as detailed below and an EIR is needed. The purpose of CEQA is to provide decision-makers and the public with environmental information before decisions are made, not after. As the California Supreme Court observed in Laurel Heights I, "[i]f post-approval environmental review were allowed, [CEQA analyses] would likely become nothing more than post hoc rationalizations to support action already taken. We have expressly condemned this [practice]." Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal. ("Laurel Heights I"), (1988) 47 Cal. 3d 376, 394 (citation omitted). Accordingly, "public agencies shall not undertake actions concerning the proposed public project that would have a significant adverse effect or limit the choice of alternatives or mitigation measures, before completion of CEQA compliance." CEQA Guidelines § 15004(b)(2). In particular, an agency shall not "take any action which gives impetus to a planned or foreseeable project in a manner that forecloses alternatives or mitigation measures that would ordinarily be part of CEQA review of that public project." CEQA Guidelines § 15004(b)(2)(B). CEQA requires the preparation of environmental review documents "as early as feasible in the planning process to enable environmental considerations to influence project program and design	Consistent with the CEQA statutes, if a project is found to have no adverse effects, or if the potential effect can be reduced to a level that is less than significant through project revisions/mitigations, a Negative Declaration or MND can be adopted (§21080). Specifically, the statute provides that MNDs may be used, "when the initial study has identified potentially significant effects on the environment, but (1) revisions in the project plans or proposals made by, or agreed to by, the applicant before the proposed negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur, and (2) there is no substantial evidence in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment" (§21064.5). In summary, if all potential significant impacts can be eliminated or reduced to less than significant, a MND can be prepared in lieu of an EIR. Through preparation of a detailed initial study, as well as a detailed suite of technical studies, Imperial County determined that an MND was the appropriate project document under CEQA. The County held an Environmental Evaluation Committee (EEC) meeting on November 17th, 2022, where a draft version of the initial study/MND was presented to the public, and to a seven-

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		• Kara Matsumoto, Conservation Lands Foundation • Kelly Herbinson and Cody Hanford, Mojave Desert Land Trust • Preston J. Arrow-weed, Ahumt Pipa Foundation	and yet late enough to provide meaningful information for environmental assessment." Laurel Heights I, 47 Cal. 3d at 395; *see also* CEQA Guidelines § 15004(b). Only when "there is no substantial evidence in light of the whole record before the public agency that the project . . . may have a significant effect on the environment" may an agency prepare a negative declaration or mitigated negative declaration instead of an EIR. (Public Res. Code § 21064.5; *see also id.* §§ 21064, 21080(c).). A mitigated negative declaration, in particular, is prepared "when the initial study has identified potentially significant effects on the environment, but . . . revisions in the project plans or proposals . . . would avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur" and there is no substantial evidence the project may have a significant effect on the environment. (Id. § 20164.5.) If there is substantial evidence that a project may have a significant effect on the environment, an agency must prepare an EIR. (Id. § 21080(d).) If an agency is presented with so much as "a fair argument that a project may have a significant effect on the environment, the lead agency shall prepare an EIR even though it may also be presented with other substantial evidence that the project will not have a significant effect." (CEQA Guidelines § 15064(f)(1); *see also* No Oil, Inc. v. Los Angeles (1974) 13 Cal.3d 68, 75. By contrast, negative declarations are appropriate only when there is no substantial evidence in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment. Pub. Resources Code, § 21064.5; *see also* § 21080, subd. (c); CEQA Guidelines §§ 15006, subd. (h), 15064, subd. (f)(2), 15070, subd. (b), 15369.5. Where, as here, there is a fair argument that the proposed project – the proposed mine exploration activities including new and expanded access roads and a reclamation plan—may have a significant effect on the environment, preparation of an EIR is required. Public Resources Code §§ 21100, 21151; CEQA Guidelines § 15064(a)(1); No Oil, Inc. v. City of Los Angeles (1974) 13 Cal. 3d 68, 82. No such determination can be made in this instance as detailed in this letter, there are potentially significant impacts to wildlife, water, air, cultural resources, and other resources. Furthermore, under CEQA, an EIR must be prepared even if the lead agency can point to substantial evidence in the record supporting its determination that no significant effect will occur. Architectural Heritage Assn. v. County of Monterey (2004) 122 Cal. App. 4th 1095, 1110. The lead agency may not dismiss evidence because it believes that there is contrary evidence that is more credible. Pocket Protectors v. City of Sacramento (2005) 124 Cal. App. 4th 903, 935. Either there is substantial evidence showing the possibility of a significant environmental effect or there is not. If there is, then the lead agency must prepare an EIR. Architectural Heritage Assn., 122 Cal. App. 4th at 1109-1110. Importantly, the "fair argument" test "establishes a low threshold for initial	member panel representing various County agencies/organizations. The hearing/Project was also properly noticed as part of the EEC process, and County Planning Staff consulted with all appropriate County Departments, as well as all applicable local, state and federal agencies. Through this public process, the EEC determined that the mitigations measures as proposed would reduce the significant effects to a less than significant level, or project design features as included would avoid them all together. For these reasons, the County found that an MND was the appropriate CEQA level of review/documentation for the Project. As discussed above, although Imperial County only has discretionary authority over the Reclamation Plan and reclamation activities described therein pursuant to SMARA, Imperial County and the BLM opted to prepare a joint EA/MND document to ensure that the potential environmental effects of both mining/exploration activities as well as reclamation activities were fully evaluated under CEQA and NEPA. Both the public and the County EEC panel members reviewed the entirety of the joint CEQA/NEPA document when rendering the decision to prepare an EA/MND for the Project.

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			preparation of an EIR, which reflects a preference for resolving doubts in favor of environmental review." Id. at 1110. The County is required to consider the whole of the action in its CEQA review. CEQA Guidelines, Section 15378. The definition of "project" is "given a broad interpretation in order to maximize protection of the environment." Lighthouse Field Beach Rescue v. City of Santa Cruz (2005) 131 Cal.App.4th 1170, 1180 (internal quotation omitted); *see also,* Muzzy Ranch Co. v. Solano County Airport Land Use Com. (2007) 41 Cal.4th 372, 381-83; Fullerton Joint Union High Sch. Dist. v. State Bd. of Educ. (1982) 32 Cal.3d 779, 796-97; Bozung v. Local Agency Formation Com. (1975) 13 Cal.3d 263, 277-81.) A "project" is "the whole of an action" directly undertaken, supported, or authorized by a public agency "which may cause either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment." (Public Resources Code § 21065; CEQA Guidelines § 15378(a).) Under CEQA, "the term 'project' *refers to the underlying activity* and not the governmental approval process." California Unions for Reliable Energy v. Mojave Desert Air Quality Mgmt. Dist. (2009) 178 Cal.App.4th 1225, 1241, (quoting Orinda Assn v. Bd. of Supervisors (1986) 182 Cal.App.3d 1145, 1171-72 [emphasis added].) (CEQA Guidelines, § 15378(c) ["The term 'project' refers to the activity which is being approved and which may be subject to several discretionary approvals by governmental agencies. The term 'project' does not mean each separate governmental approval."]. As the court concluded in Nelson, 190 Cal. App. 4th at 272 "the entire CEQA project that had to be reviewed by County included both the mining operations and the reclamation plan. Both aspects were integrally related and constituted the whole of the action or the entire activity for which approvals were being sought." Put another way, "CEQA required County to engage in an environmental review of both the mining operations and the reclamation plan—the entire project." Id. Under the County Ordinance, before a permit or reclamation plan can be approved, the site plan and reclamation plan must be found to meet the requirements of SMARA and other state statutes and regulations including CEQA. *See* Title 9 § 92002.03. Unfortunately, the County's ordinance does not fully describe the County's CEQA obligations because it only expressly mentions CEQA in the context of approval of the reclamation plan. Title 9 § 92002.03(B)(4). Here, the County does not acknowledge the need for a permit for all operations and the IS/MND fails to address several potentially significant impacts, rendering it inadequate.	
23.0	23.27	• Lisa Velenky Center for Biological Diversity • Joan Taylor, Sierra Club California/Nevada Desert Committee • Laura Cunningham Western Watersheds Project	As detailed above, the Project may have significant direct and indirect impacts on listed species (desert tortoise), fully protected species (golden eagles), as well as other wildlife species of special concern (flat-tailed horned lizard and Colorado fringe-toed lizard), therefore, an EIR is required. *See, e.g.,* CEQA Guidelines §15065(a)(1) (mandatory findings of significance). Impacts to habitat for rare flora and fauna are significant under section 15065 and require full evaluation under CEQA. *See* Mira Monte Homeowners Association v. Ventura County, 165 Cal.App.3d 357, 363-364. In addition, the EA/MND fails to show that all needed plant surveys were undertaken, particularly fall plant surveys. On this basis as well the EA/MND is inadequate.	Please refer to response to Comments #23.15 and Section 3.23.5 of the EA/MND regarding impacts to desert tortoise. Please refer to response to Comment# 23.16 regarding determination of non-presence, and Section 3.23.5 regarding impacts to reptile species. Please refer to response to Comment #23.17 regarding determination of non-presence and impacts to golden eagles. Furthermore, please refer to the detailed response to Comment #23.1 regarding the determination to prepare an IS/MND for the Project.

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		• Jared Naimark, Earthworks • Isabella Langone, California Native Plant Society • Bradley Angel, Greenaction for Health and Environmental Justice • Kara Matsumoto, Conservation Lands Foundation • Kelly Herbinson and Cody Hanford, Mojave Desert Land Trust • Preston J. Arrow-weed, Ahumt Pipa Foundation		
23.0	23.28	• Lisa Velenky Center for Biological Diversity • Joan Taylor, Sierra Club California/Nevada Desert Committee • Laura Cunningham Western Watersheds Project • Jared Naimark, Earthworks • Isabella Langone, California Native Plant Society • Bradley Angel, Greenaction for Health and Environmental Justice • Kara Matsumoto, Conservation Lands Foundation	As detailed above, the analysis of impacts to water resources is woefully incomplete. EA/MND states that Project water use overall will be up to 2,000 gallons per day and approximately 240,000 gallons of water over the life of the Project (EA/MND at 90) and that the water would be trucked in from existing wells but does not identify which wells (at 92). And even though the specific source of water is not known, the EA/MND at 92 claims that "Project would not consume groundwater from the Imperial Valley Groundwater Basin" – there is no support for this statement. Further, the EA/MND at 92 admits "Groundwater may be encountered during the course of exploratory drilling within the Drill Pads." But the EA/MND fails to quantify the amount of groundwater that may be affected if it is encountered. This also contradicts the premise in the EA/MND that no groundwater on site would be affected. The IS/MND notes that the area is not an adjudicated basin but provides no analysis to support the determination that this level of groundwater use is not significant in this arid environment that is currently in drought conditions. Water, especially in the desert and even more so in the time of chronic drought in California is a key resource that needs to have a full analysis in an EIR for this proposed project. The County should have fully addressed those potentially significant impacts but did not, on this basis as well an EIR is needed. In addition, as noted above, groundwater in this area is limited because it's use may draw water from the Colorado River, the CEQA review did not disclose whether a water right is needed. Because the EA/MND fails address this potentially significant impact to Colorado River water resources, it is inadequate on this basis as well. Because the IS/MND failed to fully identify and analyze impacts of groundwater use by the Project it fails to comply with CEQA.	The Proposed Action would purchase water from vendors as needed to support exploration drilling and dust suppression activities. Water for the Project would be trucked in and would be procured from the nearby Gold Rock Ranch RV Resort, a local water purveyor, and/or the City of Yuma, using water that is already permitted for pumping/use and available for sale. Sourcing is dependent on the purveyors and all water rights are secured by those entities, thus, groundwater pumping for the water that would be purchased is outside the scope of the analysis of this EA/MND. The Proposed Action itself would not include pumping activities. Furthermore, no groundwater wells are present within the Project Area per the affected environment discussion in Section 3.22.2, and the State of California does not permit groundwater rights or require groundwater use monitoring for the basin within which the Project Area sites. The estimated amount of water needed for the life of the Project is approximately 0.736 acre-feet or 0.0000098 percent of the total current level of Lake Mead. The natural groundwater recharge of the Ogilby Valley Groundwater Basin is 250 acre-feet per year (California's Groundwater Bulletin 118) and the Project estimated water amount is 0.30 percent of the natural recharge rate. SMP would not be required to retain any water rights as the Project does not propose groundwater or surface water pumping for use. Per the analysis described in Section 3.22.1 and 3.22.5 and pursuant to CEQA, the Project would have No Impact to a Less Than Significant Impacts on hydrology and water quality.

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		• Kelly Herbinson and Cody Hanford, Mojave Desert Land Trust • Preston J. Arrow-weed, Ahumt Pipa Foundation		
23.0	23.29	• Lisa Velenky Center for Biological Diversity • Joan Taylor, Sierra Club California/Nevada Desert Committee • Laura Cunningham Western Watersheds Project • Jared Naimark, Earthworks • Isabella Langone, California Native Plant Society • Bradley Angel, Greenaction for Health and Environmental Justice • Kara Matsumoto, Conservation Lands Foundation • Kelly Herbinson and Cody Hanford, Mojave Desert Land Trust • Preston J. Arrow-weed, Ahumt Pipa Foundation	CEQA also requires that environmental review must analyze the effects of any proposed mitigation measures and their likely efficacy. CEQA Guidelines § 15126.4(a)(1)(D) ("If a mitigation measure would cause one or more significant effects in addition to those that would be caused by the project as proposed, the effects of the mitigation measures shall be discussed"); Save Our Peninsula Comm. v. Monterey Board of Supervisors (2001) 87 Cal.App.4th 99, 130 ("An EIR is required to discuss the impacts of mitigation measures"). An agency's determination that a proposed mitigation measure will effectively mitigate an impact must be supported by substantial evidence. City of Irvine v. County of Orange (2015) 238 Cal.App.4th 526.	Mitigation measures would be required for implementation by the BLM in addition to the proponent-committed PDFs and the relevant CMAs under the Proposed Action, as designated in Table F-3 of Appendix F of the EA/MND, to minimize impacts to potentially affected resources. The Imperial County Planning Department is in agreement with the BLM required additional mitigation measures that would be implemented. Table F-3 includes effectiveness and impacts of the additional required mitigation measures.

23.0	23.30	• Lisa Velenky Center for Biological Diversity • Joan Taylor, Sierra Club California/Nevada Desert Committee • Laura Cunningham Western Watersheds Project • Jared Naimark, Earthworks • Isabella Langone, California Native Plant Society • Bradley Angel, Greenaction for Health and Environmental Justice • Kara Matsumoto, Conservation Lands Foundation • Kelly Herbinson and Cody Hanford, Mojave Desert Land Trust • Preston J. Arrow-weed, Ahumt Pipa Foundation	The IS/MND suggests several mitigation measures that may themselves have impacts which are not analyzed. For example, the IS/MND acknowledges for air quality that the area is in nonattainment for PM10 (at 17), and that the project will cause emissions and relies on standard "project design features ("PDFs") incorporating the local air district rules for fugitive dust emissions and GHG emissions to mitigate impacts to PM10 air quality (at 19). However, those PDFs which would potentially reduce impacts to air quality, which address mitigation measures for air quality relied on in the IS/MND, would use potentially significant amounts of water and the mitigation measures are very general. PDF-7 for Air Quality only states that "The Project would comply with applicable State of California and Imperial County Air District rules for fugitive dust emissions and greenhouse gas emissions." It does not provide details of those rules. Compliance with the law alone is not sufficient evidence to support a finding of no significant impact under the CEQA. *See* Oro Fino Gold Mining Corp. v. County of El Dorado (1990) 225 Cal. App. 3d 872, 881–882. The IS/MND assumes that compliance with other regulations and programs will mitigate the air quality impacts to less-than-significant levels. The IS/MND lacks any project-specific analysis of the potential impacts and the effect that regulatory compliance could have on those impacts. Because the Project does not disclose the specifics of the Project's impacts in the first instance, nor provide any specifics on these regulatory programs, the IS/MND lacks a basis to conclude that these regulatory programs in and of themselves will reduce the environmental impacts *of this project* to less-than-significant levels. Accordingly, the IS/MND's conclusion that air quality impacts will be mitigated to less-than-significant levels is unsupported. Further, although EA/MND at 91 and Appendix F Table F-1, PDF-3 state "Water used for dust control would be kept to a practicable minimum . . .", the EA/MND elsewhere states that Project water use overall will be up to 2,000 gallons per day and approximately 240,000 gallons of water over the life of the Project (EA/MND at 90) and that the water would be trucked in from existing wells but does not identify which wells (at 92). As explained above, this discussion of the groundwater use is in adequate. Because the mitigation measure to address potential impacts to air quality may have potentially significant impacts to water resources, the MND should have fully addressed those potentially significant impacts but did not. In addition, as noted above, groundwater in this area is limited because it's use may draw water from the Colorado River, the CEQA review did not disclose whether a water right is needed. Because the EA/MND fails to mention this additional potential limit on water availability for the mitigation measure it relies on, it is inadequate on this basis as well. Because the IS/MND failed to address the impacts of the water use for the air quality mitigation measure the MND cannot be relied on and the County has failed to comply with CEQA.	The Imperial County Air Pollution Control District's (ICAPCD) Fugitive Dust Rules 800 can be found on the ICAPCD's website under Regulation VIII – Fugitive Dust Rules. https://apcd.imperialcounty.org/rules-and-regulations/ As stated in Section 3.3.5, the Project would specifically comply with the Imperial County Air Pollution Control District (ICAPCD) Regulation VIII – Fugitive Dust Rules, specifically Rules 800 through 806, which prescribe measures for the management of windblown dust. Additionally, consistent with ICAPCD Rule 801, SMP would develop a site-specific Operation Dust Control Plan, which would be submitted to the ICAPCD, and consistent with Rule 801 requirements, approval would be obtained a minimum of 10 days prior to the first ground disturbing activities as a result of the Project. The Operation Dust Control Plan would also be subject to approval by the BLM. The ICAPCD Fugitive Dust Rules have been reviewed and approved by the California Air Resource Board and the Environmental Protection Agency. These rules are in compliance with both state and federal law and are used as the main guidance document for fugitive dust suppression in the County of Imperial. All projects of this scale and nature occurring in the County of Imperial must conduct an Air Emissions Analysis to determine whether the project meets National Ambient Air Quality Standards (NAAQS). An air quality analysis was conducted as part of the EA/MND, and is summarized under Section 3.3.3 and determined that the Project would fall below all emission thresholds (as defined by the EPA and ICAPCD). The PDFs found in Appendix F and the ICAPCD Rule 800 documents provide standard procedures to reduce the emissions of the project. It's also important to note that these emissions estimates did not take into account standard emissions/dust controls or other regulatory programs that the Project would implement. Specifically, as stated in Section 3.3.3 and 3.3.5 in the EA/MND, the emissions estimates presented in Table 3-6 and Table 3-7 did not account for the implementation of standard mitigation measures for construction combustion equipment from the ICAPCD CEQA Air Quality Handbook (ICAPCD 2017), and therefore represented a conservative overestimate of Project impacts. Groundwater Rights and Surface Water Rights are defined separately by the State of California, Supreme Court cases and the State Water Resource Control Board. Groundwater rights are not regulated by the State of California and are subject to overlying landowners' discretion within "reasonable use" in a groundwater basin. Surface Water rights is a highly regulated permitting process and involves any form of water above land.

				SMP identified two sources of water for the project: Gold Rock Ranch RV Resort and the City of Yuma. Gold Rock Ranch RV Resort lies within the Ogilby Valley Groundwater Basin (CA) and the City of Yuma lies within the Yuma Groundwater Basin (AZ). Gold Rock Ranch is a privately owned RV resort and is the overlying landowner of its property. Any water wells permitted to Gold Rock Ranch are owned and maintained by Gold Rock Ranch. Neither the BLM nor the County has jurisdiction over Gold Rock Ranch's use of groundwater unless the ECFO BLM has identified that there is not a "reasonable use" to the groundwater and proceeds with adjudication of groundwater. The analysis conducted in 3.22.2 has shown that impacts to groundwater basin and water resources is negligible, short-term, and localized. Lastly, Section 2.1.1 (Water Management) within the EA/MND states that "water for both drilling and dust suppression would be provided by the drilling company via a water truck and would be procured from the nearby Gold Rock Ranch RV Resort, a local water purveyor, and/or the City of Yuma" and further states in Section 3.22.3 that "Project does not anticipate using Groundwater". The Project estimates a total of 240,000 gallons of water to be used over the life of the project, which equates to approximately 0.736 acre-feet of water being used for the life of the Project. These minimal quantities of water purchased from a third-party and delivered to the site would not impact groundwater supplies, nor result in overdraft, as the operator would only purchase water from those purveyors with the capacity to service the Project. Additionally, the USGS estimates the Ogilby Valley Groundwater Basin, within which the Project Area is located, to have a natural recharge rate of 250 acre-feet per year (California's Groundwater Bulletin 118). The natural recharge rate would supersede the lifetime water use of the Project and impacts would be negligible, short-term, and localized.

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23.0	23.31	• Lisa Velenky Center for Biological Diversity • Joan Taylor, Sierra Club California/Nevada Desert Committee • Laura Cunningham Western Watersheds Project • Jared Naimark, Earthworks • Isabella Langone, California Native Plant Society • Bradley Angel, Greenaction for Health and Environmental Justice • Kara Matsumoto, Conservation Lands Foundation • Kelly Herbinson and Cody Hanford, Mojave Desert Land Trust • Preston J. Arrow-weed, Ahumt Pipa Foundation	Here, there are several potentially significant impacts that are not shown to be fully mitigated including impacts to wildlife, cultural resources, air quality and ground water and there are potentially significant impacts to the environment that are not adequately identified and analyzed including inconsistencies with the governing land use management plan (as detailed above). Therefore, the County must prepare an EIR and cannot rely on a mitigated negative declaration.	Several mitigation measures have been included in Table F-3 of Appendix F of the EA/MND that would be required for implementation in addition to applicant-committed PDFs to further minimize potential impacts to wildlife, noise, recreation, air quality, soils, cultural resources, and vegetation. Furthermore, the Project would be in conformance with all applicable land use plans, as described in Section 1.3 of the EA/MND. Please refer to the response to Comment #23.1 regarding Imperial County's determination that preparation of an IS/MND was the appropriate CEQA documentation for the proposed Project.
23.0	23.32	• Lisa Velenky Center for Biological Diversity • Joan Taylor, Sierra Club California/Nevada Desert Committee • Laura Cunningham Western Watersheds Project • Jared Naimark, Earthworks • Isabella Langone, California Native Plant Society	The proposed mining exploration project may also have significant impacts to cultural resources. Imperial County claims it has fulfilled its obligations under AB 52 with a letter to a single tribe that went unanswered (EA/MND at 49). This fails to comply with the spirit of consultation requirement cannot excuse the County's failure to consider cultural resources and information tribal representatives have provided to BLM regarding the Project's potentially significant effects on cultural resources. On this basis as well, an EIR is needed.	On September 9, 2021, the County distributed an AB 52 consultation letter for the proposed Project. Specifically, Project information, a map, and contact information was sent to the Fort Yuma Quechan Indian Tribe. Due to the geographic location of the Project, the Fort Yuma Quechan Indian Tribe is the only Native American tribe that has claimed traditional and cultural affiliation with the Project Area and is therefore the only tribal entity required to be notified of the Project by Imperial County pursuant to AB 52. No response letter was received by Imperial County from the Fort Yuma Quechan Indian Tribe; however, since March 2021, the BLM and County have had extensive consultation meetings with the Fort Yuma Quechan Indian Tribe in accordance with Section 106 of the National Historic Preservation Act (see Sections 3.14 and 4.1 of the EA/MND). Additionally, the BLM has and continues to consult with the Fort Yuma Quechan Indian Tribe to ensure that potential concerns regarding tribal cultural resources are properly addressed.

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		• Bradley Angel, Greenaction for Health and Environmental Justice • Kara Matsumoto, Conservation Lands Foundation • Kelly Herbinson and Cody Hanford, Mojave Desert Land Trust • Preston J. Arrow-weed, Ahumt Pipa Foundation		
23.0	23.33	• Lisa Velenky Center for Biological Diversity • Joan Taylor, Sierra Club California/Nevada Desert Committee • Laura Cunningham Western Watersheds Project • Jared Naimark, Earthworks • Isabella Langone, California Native Plant Society • Bradley Angel, Greenaction for Health and Environmental Justice • Kara Matsumoto, Conservation Lands Foundation • Kelly Herbinson and Cody Hanford, Mojave Desert Land Trust • Preston J. Arrow-weed, Ahumt Pipa Foundation	Based on the number of imperiled species with potential to be affected by the proposed mining exploration, lack of adequate biological surveys, and because potential impacts to water resources and air quality that have not been fully identified or analyzed in the EA/MND, an EIR is required. **Conclusion** Due to the numerous violations of FLPMA, NEPA, and other laws, BLM cannot approve the Project based on the EA and must prepare an EIS. Due to Imperial County's failure to comply with SMARA, CEQA and other laws and regulations, and because there is a fair argument that the Project will significantly impact the environment Imperial County cannot approve the Project based on the IS/MND and must prepare an EIR.[1] Please keep us informed of all notices associated with this project. Respectfully, Lisa Belenky, Senior Attorney Hallie Kutak, Staff Attorney Center for Biological Diversity lbelenky@biologicaldiversity.org hkutak@biologicaldiversity.org Joan Taylor, Chair Sierra Club California/Nevada Desert Committee Laura Cunningham California Director Western Watersheds Project lcunningham@westernwatersheds.or Jared Naimark, California Minin Organizer EARTHWORKS jnaimark@earthworksaction.org	Please refer to the response to Comment #23.1 and regarding the determination to prepare an EA/MND pursuant to NEPA and CEQA implementing regulations. The BLM and Imperial County confirm that the Center for Biological Diversity, the Sierra Club California/Nevada Desert Committee, Western Watersheds Projects, Earthworks, California Native Plant Society, Greenaction for Health and Environmental Justice, Conservation lands Foundation, Desert Land Trust, and Ahumt Pipa Foundation are on the interested parties list.

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			Kara Matsumoto, Public Lands Policy Director Conservation Lands Foundation kara@conservationlands.org Kelly Herbinson and Cody Hanford Joint Executive Directors Mojave Desert Land Trust kelly@mdlt.org Isabella Langone, J.D. Conservation Program Manager California Native Plant Society ilangone@cnps.org Bradley Angel Greenaction for Health and Environmental Justice bradley@greenaction.org Preston J. Arrow-weed, President Ahmut Pipa Foundation ahmut@earthlink.net **Attachments:** • Attachment 1: About Us - Southern Empire Resources at https://smp.gold/about/ (pdf from December 14, 2022) • Attachment 2: EXPLORATION PLAN OF OPERATION for the IMPERIAL EXPLORATION PROJECT IMPERIAL COUNTY, CA, revised Oct. 2020 • Attachment 3: Record of Decision for the Imperial Project Gold Mine Proposal Imperial County, California, U.S. Department of Interior, BLM Case File No. CA 670-41027 OEPC #DES-97-43 and #DES-99-8 OEPC #FES-00-50, Signed by the Secretary of Interior, January 17, 2001 • Attachment 4: March 9, 2022 letter from Carl Symons, BLM Ridgecrest Field Manager, to Mojave Precious Metals • Attachment 5: FONSI for the Silicon Exploration Project Plan of Operations Nevada Reclamation Permit Application DOI-BLM-NV-B020-2020-0017-EA available at https://www.fws.gov/media/silicon-exploration-project-eagle-permit-nepa-documents ; https://eplanning.blm.gov/public_projects/1505119/200366575/20022705/250028909/20200724_Silicon_FONSI_Final_Signed.pdf • Attachment 6: Environmental Assessment for the Issuance of an Eagle Take Permit for the Silicon Exploration Project, U.S. Fish and Wildlife Service, March 2022 available at https://www.fws.gov/sites/default/files/documents/EA-silicon-exploration-project-eagle-permit.pdf	

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			• Attachment 7: Cleland, James H. 2008. Ethnographic Trail Systems as Large-Scale Cultural Landscapes: Preservation and Management Issues in Preserving the Boundaries of Historic Landscape Preservation, edited by Cari Goetcheus and Eric MacDonald (Clemson, SC: Clemson University Digital Press, 2008), [6]+208 pp. Paper (out of print). ISBN 978-0-9796066-5-6 available at https://tigerprints.clemson.edu/cgi/viewcontent.cgi?article=1003&context=cudp_environment • Attachment 8: Wiele, S.M., Leake, S.A., Owen-Joyce, S.J., and McGuire, E.H., 2009, Update of the accounting surface along the lower Colorado River: U.S. Geological Survey Scientific Investigations Report 2008-5113, version 1.1, 16 p., 3 plates in pocket. Available at https://pubs.usgs.gov/sir/2008/5113/sir2008-5113_text.pdf	
24.0	24.1	Individual	I am submitting these comments in response to the Bureau of Land Management evaluation of the proposed Oro Cruz mineral exploration mining project. I have extensive experience with a variety of bat research and monitoring projects in southwestern deserts and elsewhere. My thesis work evaluated California leaf-nosed bat (MACA) and Townsend's big-eared bat (COTO) use of habitat along the Lower Colorado River (LCR), including sites adjacent to the Cargo Muchacho Mountains in Mojave Desert habitat. I have also worked as a bat biologist in military training areas where shooting of guns, explosive detonation, and drilling exploration activities took place. In addition, I have also worked as a Wildlife Lead Planner in desert habitats that to a great extent included the same wildlife species that currently inhabit the proposed project area. I am particularly concerned about how the Proposed Action will affect the maternity roosts colonies of MACA, and desert tortoises which have been known to use mines to hibernate in the winter (Dr. Pat Brown pers. comm.) and in the summer months in the proposed project area. It is not uncommon to encounter tortoises in shallow and deeper locations inside mines. I have personally witnessed one Desert tortoise inside a mine of the Cargo Muchacho Mountains. This is not one isolated event as stated by Mistcehnko, "During the hot season, much of the desert wildlife spend daylight hours underground. We found rattlesnakes, desert tortoises, rats, and bee honeycombs underground." See pictures below. (https://calconservation.blog/2018/10/26/its-california-bat-week-october-24-31-2018/). I believe that BLM's classification of Criteria d and f (as shown in Table 3-32 of the EA) as "Less than Significant Impact" is inappropriate and should have been instead classified as "Potentially Significant Impact Unless Mitigation Incorporated". My reasons are as follows.	Thank you for your comment. Baseline surveys for wildlife and vegetation were conducted in March 2021, and desert tortoise surveys were conducted in January 2021, and are discussed in Section 3.23.2 of the EA/MND. As stated within this section for Threatened and Endangered Species, eight desert tortoise burrows were documented during the baseline surveys. The BLM did not require baseline surveys to include underground mine workings. The EA/MND analyzes effects resulting from surface disturbance only. Underground exploration is not analyzed in the EA/MND as it is not subject to permitting under the 43 CFR 3809 Surface Management regulations and is therefore not under the decision-making realm of the BLM as it pertains to the proposed Project. However, the proponent has voluntarily conducted LiDAR mapping of the historic Oro Cruz Mine underground mine workings to inform the underground exploration activities; the proponent would use all available LiDAR data to make the best effort to avoid drilling through voids in underground workings. The LiDAR data would also support the technical and economic feasibility of surface drill siting in order to avoid the known voids in the underground workings, which may include areas where various wildlife species may be present, including desert tortoise and/or bat species. The PDF-11 to implement a 500-foot avoidance buffer for surface drilling around features with evidence of use by BLM sensitive bat species is in compliance with Volume IV Section 7 Biological Resources in the DRECP Final EIS (BLM 2015) for implementing an avoidance setback of 500 feet around known bat roosts. Also, several mitigation measures have been included in Table F-3 of Appendix F of the EA/MND that would be required for implementation in addition to applicant-committed PDFs to further avoid potential impacts to wildlife. Further, please note that Table 3-32 contains the environmental checklist for biological resources pursuant to CEQA and is a part of the Initial Study analyzed

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				by Imperial County. This analysis was conducted in accordance with CEQA per Imperial County processes for analysis in an Initial Study. The Imperial County EEC has approved of the Initial Study determinations included within the EA/MND to move forward to an MND per the analysis conducted in Section 3.23.5. BLM impact analysis criteria for wildlife is discussed in Section 3.23.3.
24.0	24.2	Individual	1) BLM proposes a 500-foot surface disturbance buffer around maternity roosts serves. I am concerned that this will not adequately ameliorate or mitigate the underground effects the Proposed Action could have on potentially pregnant bat females and even desert tortoises. Mainly because the disruption isn't so much about noise per se but rather particle vibration and the way sound or energy moves through earth. This varies significantly depending on the local geology and soils in the area. Therefore, it is wrong to assume that this is a one size fits all mitigation effect. Forced vibrations can create an inhospitable environment if Reverse Circulation (RC) drillings do not observe an underground buffer zone. Reverse Circulation drillings usually create 6-inch diameter holes (Fred Croxen, AWC Geology Professor pers comm). This is particularly important to consider in Drill Area 3 where previous underground workings may have incidentally created subterranean habitat for bats and Desert tortoises. Drilling can create disturbance not only through noise and simple vibration, but also through resonance. This occurs when a system is continuously driven by an external agency. Resonance occurs when the riving frequency approaches the natural frequency of free vibrations. The result is a rapid take-up of energy by the vibrating system, with an attendant growth of the vibration amplitude. Ultimately, the growth in amplitude is limited by the presence of damping, but the response can, in practice, be very great. It is said that soldiers marching across a bridge can set up resonant vibrations sufficient to destroy the structure (Encyclopedia Britannica). It is predicted that Desert Tortoises can perceive a wide variety of military sound sources and would be more sensitive to lower frequency sounds and vibrations (Delaney, D.K. 2002. Prioritization of Threatened and Endangered Species Sound Research on Army Corps of Engineers, Engineer Research and Development Center and the Construction Engineering Research Laboratory (ERDC/CERL TR-03-30). Bowles et al. (1999) tested tortoise sensitivity to ground-borne vibrations below 200 Hz and found that tortoises could still perceive vibrations down to 50 Hz. These data imply that tortoises can perceive a large portion of sound energy from military sound sources, especially in the lower portion of the frequency range. These may be the same frequencies that would be expected from the proposed drilling activities.	The PDF-11 states implementing a 500-foot avoidance buffer for surface drilling around features with evidence of use by BLM sensitive bat species is in compliance with Volume IV Section 7 Biological Resources in the DRECP Final EIS (BLM 2015) for implementing an avoidance setback of 500 feet around known bat roosts. Additionally, pre-construction desert tortoise surveys would be conducted by a BLM-approved Authorized or Qualified Biologist within the area to be disturbed, plus a 500-foot buffer, and the BLM-approved Authorized or Qualified Biologist would be onsite during Project activities. Additionally, several mitigation measures have been included in Table F-3 of Appendix F of the EA/MND that would be required for implementation in addition to applicant-committed PDFs to further ensure potential impacts to wildlife would be less than significant. The proponent has voluntarily conducted LiDAR mapping of the historic Oro Cruz Mine underground workings to inform the underground exploration activities. The proponent would use all available LiDAR data to make the best effort to avoid surface drilling through voids in underground workings (including roosts, mine shafts, and adits that may support bat species) and to use all available LiDAR data to inform surface drill siting. Furthermore, surface drill siting has been preliminarily located in the Plan of Operations based on geologic mapping and would be further developed should the Proposed Action be approved. Surface drilling relies on a constant circulation of fluids to lubricate the drill rig and bring samples to the surface; as such, lost circulation of the fluids would result in a lost drill hole at the depth at which an open cavity is encountered, should the drill rig go through a void, such as an area with an open underground mine working. Surface drilling would not intersect with underground workings due to not only technical infeasibility, but also economic infeasibility given the potential loss of productivity of a drill site if it were to be sited in an area that would potentially intersect with an underground mine working. Acoustic modeling was conducted to determine the furthest distance that noise generated by the Proposed Action would travel, attenuating at 25 dBA, a nearly imperceptible level of noise to the human ear (Saxelby 2022). The BLM did not identify wildlife sensitive receptors during baseline data collection for noise and/or vibrational impacts as a result of drilling activities. The Project would be

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				temporary and not stationary to one location as Project activities would move between each Drill Area. CMA LUPA-BIO-12 would also be implemented to mitigate noise impacts to BLM special status and sensitive wildlife species (including threatened and endangered species), as described in Appendix F of the EA/MND. Potential impacts to Mojave Desert tortoise under the Proposed Action are anticipated to be either avoided or mitigated to less than significant levels through the implementation of the measures described in Appendix F of the EA/MND. Furthermore, the BLM has engaged in consultation with the USFWS pursuant to Section 7 of the Endangered Species Act for approval of an Activity Request Form under the Programmatic Biological Opinion for Mojave Desert tortoise.
24.0	24.3	Individual	2) I feel there needs to be a better knowledge of species presence or absence at targeted areas to better estimate the real impacts that the Proposed Action may have on current and future bat populations. At Drill Area 1, there need to be measures to ensure that drill rods will not perforate through previously created holes that may currently be used by bats and desert tortoises as well as other wildlife habitat. According to Professor Fred Croxen "Drill Area 1 is adjacent to the open pit and drill holes could likely encountered old buried underground workings." An updated underground map needs to be created to show potential habitat areas near the Proposed Actions. Wildlife surveys should then be conducted to determine areas that are currently occupied.	Please refer to the response to Comment #24.2 regarding the use of LiDAR mapping to assist with surface drill siting. The proponent would use all available LiDAR data to make the best effort to avoid surface drilling through voids in underground workings and to use all available LiDAR data to inform surface drill siting. Additionally, pre-construction surveys would be conducted prior to all surface disturbance to identify any wildlife, including special status species presence and determine any addition impact minimization or avoidance measures that may be required at the time of drilling. Underground surveys are not determined to be required at this time, and underground activities are outside the scope of this EA/MND, which analyzes impacts of surface disturbance under the BLM's jurisdiction over the Plan of Operations pursuant to 43 CFR 3809 Surface Management Regulations, and Imperial County's jurisdiction over the Reclamation Plan pursuant to SMARA.
24.0	24.4		3) I also believe that the assumption (page 106 on the EA) that MACA bat species may likely benefit from light sources the machinery and actions will bring to the area is erroneous. To my knowledge, MACA are not found to forage around lights sources that are concurrently used by drilling operations. These bat species have feeding habits that differ from other insectivorous bats feeding behaviors. In addition, MACA are particularly susceptible to disturbance and development and would not be expected to benefit from these types of artificial structures.	Although some of the known bat species with potential to be present within the Project Area do not depend on "hawking" insects from the air and therefore would likely not be drawn to insect population that may be attracted to nighttime drill lighting, there is a potential for some foraging bat species to be present that do rely on "hawking" insects rather than foraging from the ground and/or vegetation; therefore, the creation of a source of light that would attract insects and thus some species of foraging bats is considered a potential impact under the Proposed Action. Shielded lights on drilling equipment is a standard equipment feature that would be used during nighttime drilling to limit visual impacts from night lighting in the Project Area and is not included as a mitigation measure.

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24.0	24.5	Individual		Impacts to the Picacho ACEC anticipated to occur under the Proposed Action are described under Section 3.5.3 of the EA/MND, and would be negligible, short-term, and localized with the implementation of the PDFs and relevant CMAs per Appendix F of the EA/MND. Additionally, cumulative impacts to wildlife species are analyzed under Section 3.23.6. Existing past, present, and reasonably foreseeable future actions analyzed by the BLM include those that are tangible in analyzing cumulative surface disturbance impacts, including mineral development and exploration projects, utilities and infrastructure public purpose projects, oil and gas pipelines, roads and railroads, and dispersed recreation. Direct and indirect impacts as a result of several aspects of the Proposed Action are disclosed under Section 3.23.3. Overall, impacts to wildlife species, including threatened and endangered species (i.e., desert tortoise) would be minor, short-term, and localized.

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			  My other more general observations of this Proposed Action are that I am concerned that BLM would consider exploration mining and drilling activities in lands designated as Area of Critical Environmental Concern (ACEC). Also, the effects of the Proposed Actions should be considered in light of the cumulative effects of other factors that wildlife in the area are currently facing. These include habitat fragmentation, habitat degradation, climate change, other non-related anthropogenic effects, disease, vandalism, soil erosion, and environmental pollution. Thank you for the opportunity to provide comments on this important project.	
25.0	25.1	Quechan Indian Tribe	**RE**: SMP Gold Corp. – Environmental Assessment / Mitigated Negative Declaration for the Proposed Oro Cruz Exploration Project, Imperial County, California Dear Ms. Sahagun: We would like to provide the following comments on the above referenced project. The proposed project location is sited within an area that is highly significant to the Quechan Tribe. This is a location that the Tribe attaches great cultural, religious and spiritual significance to. The Quechan Tribe objects to the proposed mining project and the proximity of the operation to a	Thank you for your comment. The Fort Yuma Quechan Indian Tribe identified that the proposed Project is located within a larger landscape they consider a Traditional Cultural Property; the BLM requested additional information about the nature and extent of the Traditional Cultural Property as part of its Government-to-Government consultation, as well as for Section 106 of the NHPA consultation and relevant to other EOs and regulations. The BLM recognizes the attributes that give Traditional Cultural Properties significance, such as their association with historical events or traditional practices, are often intangible in nature. As stated in Section 3.8 of the EA/MND, all known cultural resource sites would be avoided thus minimizing direct impacts. No adverse

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			significant cultural landscape and Traditional Cultural Place (Traditional Cultural Property), that is essential to the cultural patrimony of the Quechan people and will directly impact the religious, spiritual, and everyday lives of the Quechan people. Although the proposed project will be utilizing locations that have been disturbed by previous mining activities, the project location is within the Picacho Area of Critical Environmental Concern, which contains significant religious, cultural and biological resources for the Tribe. These cultural and biological resources are still integral to the Quechan culture, religion, and spiritual practices and therefore, any impact to the area would cause great harm to the overall cultural practices of the Tribe. The location holds its significance to the Quechan People as a part of a greater cultural, religious and spiritual landscape that is entwined with origin stories, traditions and ceremonies, and the cultural patrimony of the Quechan People. The Quechan Tribe considers this landscape a Traditional Cultural Place (Traditional Cultural Property). This location has a specific name within the Quechan language. As stated previously, this landscape is associated with the cultural practices, religious beliefs and history that are important to the Tribe to continue and maintain the Tribe's cultural identity. The large number of trails, geoglyphs, ceramics, etc. in this location is proof of the long-term history, continued use and significance of this area to the Quechan people and the connection of this location to the broader cultural landscape in this region. The Quechan people still utilize this area today in various cultural capacities. The preservation of this area is essential to continue the cultural, religious and traditional practices and teaching of future generations of Quechan youth. This location is tied to the origins of song cycles which live within this landscape. These songs specifically reference and speak of the landscape contained within the proposed project area. These songs are still sung today by the Quechan people. Therefore, they are still a part of everyday life and tie the Quechan people to these places. Use of this landscape for the proposed project would be a direct assault on the preservation of the history, culture and religion of the Quechan people, and for that reason this landscape must be preserved for the Quechan culture to continue. We feel that the NEPA assessment of this project should be elevated to an Environmental Impact Statement due to the potential significant adverse impacts this project will create. A more thorough environmental review is required to assess the impacts to the ACEC, ESA species, cultural resources and the Traditional Cultural Place named by the Quechan Tribe	impacts would occur with avoidance measures implemented. The BLM would require additional mitigation measures to minimize indirect impacts to known cultural resource sites, as described in Section 3.8.3 and Appendix F of the EA/MND, resulting in indirect impacts being negligible, short-term, and localized. Furthermore, federal agencies, including the BLM, implement NEPA per the procedures developed by CEQ. In line with the CEQ guidelines revised in 2020 and then again in 2022 for implementing regulations of NEPA, which does not mandate particular results or substantive outcomes but rather requires Federal agencies to consider environmental impacts of Proposed Actions, the BLM determined that an EA is the appropriate level of NEPA review for the Proposed Action. In following 40 CFR Section 1501.5(c)(1) and 40 CFR 1501.6(a) per the 2022 updates to the NEPA Implementing Regulations under Docket CEQ-2021-0002, the BLM has determined that it has provided sufficient evidence and analysis to deem preparation of an EA followed by issuance of a FONSI appropriate for the Proposed Action.
25.0	25.2	Quechan Indian Tribe	**EA/NMD Comments** • **Section 3.8.2 Affected Environment - Delineation of the Area of Potential Effect (APE) and Visual, Auditory, and Atmospheric Effects (VAA) -** We disagree with the physical APE and the VAA APE as determined by the BLM. The VAA was determined by BLM ECFO and Stantec Consulting without any input from the Quechan Tribe	The VAA APE was developed through a combination of the Visual and Auditory APEs. The BLM determined that the Visual and Auditory APEs would encapsulate potential Atmospheric effects as well. The viewshed analysis to develop the VAA APE utilized topographic maps, aerial imagery, ArcGIS software, publicly available Digital Elevation Model (DEM) surface data, and the proposed Project's layout, as further described in Section 3.21 of the EA/MND

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			regarding identification of sites or locations potentially deemed sacred or traditionally important to the Quechan Tribe. Why was the VAA APE determined by Stantec and the BLM without consultation with the Quechan Tribe? How can Stantec and the BLM determine traditional, religious and culturally significant sites for the Quechan Tribe? The VAA must include input from the Tribe to accurately assess the effects/impacts of the proposed project to the Quechan people. Consequently, the results of the VAA are irrelevant, because there was no input on the cultural, religious, and spiritual effects of this project on the Quechan people. Further, the VAA APE does not include all sites that have been previously identified within the VAA, some of which are eligible for the NRHP. Additionally, the BLM has not assessed the impacts of the proposed project on the Traditional Cultural Property named by the Quechan Tribe.	and the Oro Cruz Indirect Visual APE Memo (Stantec 2022a). The noise modeling to develop the Auditory APE utilized noise modeling software to detail the furthest distance where potential Project noise would attenuate to an imperceptible or nearly imperceptible level with the maximum drilling activities being conducted, as described in Section 3.15 of the EA/MND and the Oro Cruz Indirect Auditory APE Memo (Stantec 2022b). The VAA APE took into account the scale and nature of the undertaking relative to known cultural/historic properties of concern and accounted for site-specific variables such as topography and height of the equipment proposed for the Project. The VAA APE and associated analysis of known cultural and historic properties was included in the Class III Cultural Resources Inventory Report and provided to all Section 106 of the NHPA consulting parties, including Tribes, for a 30-day review and consultation period. As a result of this consultation, and specifically due to the information provided by the Quechan Indian Tribe, the sites included within the VAA APE was updated. These sites, the Traditional Cultural Property and the sites within the physical effect APE were included in the BLM's findings and determinations under Section 106 and a no adverse effect determination was the outcome. The status of the Section 106 process and tribal consultation is discussed in Sections 3. 8, 3.14 and 4.12.
25.0	25.3	Quechan Indian Tribe	**Section 3.8.3 – BLM Required mitigation measures – Page 33 -** The proposed periodic archaeological monitoring should be conducted by the Quechan Tribe. The full impact of the Proposed Actions can only be adequately assessed by the Tribe and therefore, a Quechan Tribal Cultural Monitor should be conducting the monitoring during any project activities.	Should the Proposed Action be approved and, as such, the cultural monitoring commences upon Project initiation, the BLM will contact all tribes that have engaged in Government-to-Government consultation with the opportunity to participate as Tribal Cultural Monitors to conduct the BLM-required archaeological monitoring.
25.0	25.4	Quechan Indian Tribe	**Section 3.85 – 3.146 Impact Analysis (CEQA) –** The CEQA analysis conducted by Imperial County is inadequate and does not assess the impacts to Tribal Cultural Resources. The EA/MND asserts that the Quechan Tribe did not respond to the AB 52 consultation notification, however this is an incorrect statement. The Quechan Tribe did notify Imperial County of their desire to engage in consultation for this project.	The Imperial County Planning Department distributed an AB 52 consultation letter for the proposed Project on September 9, 2021. Specifically, Project information, a map, and contact information was sent to the Fort Yuma Quechan Indian Tribe. Due to the geographic location of the Project, the Fort Yuma Quechan Indian Tribe is the only Native American tribe that has claimed traditional and cultural affiliation with the Project Area and is therefore the only tribal entity required to be notified of the Project by Imperial County pursuant to AB 52. Imperial County did not receive a response to this consultation letter from the Fort Yuma Quechan Indian Tribe; however, Imperial County has participated in the Section 106 of the NHPA process being conducted by the BLM.
25.0	25.5	Quechan Indian Tribe	**Section 3.14 Native American Religious Concerns and Traditional Values -** This section does not include any of the information the Quechan Tribe has provided to the BLM ECFO regarding the Tribes' cultural and religious connections to this area. Additionally, the BLM ECFO is in possession of ethnographic materials which contain information on the significance of this location to the Quechan Tribe. However, none of that information is included. BLM ECFO continues to request that the Quechan Tribe provide additional information on their connections to the area and the	Please refer to the response to Comment #25.1. The status of tribal consultation and the Section 106 process is located in Sections 3. 8, 3.14 and 4.12. The BLM utilized the information provided regarding the Traditional Cultural Property to update the EA and make its findings and determinations under Section 106.

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			significance of the area to the Tribe without first reviewing the information that the Tribe has provided over several decades. This fact speaks to the lack of adequate review and analysis of pertinent project information provided by the Quechan Tribe to the BLM ECFO. Therefore, this EA/MND is wholly inadequate.	
25.0	25.6	Quechan Indian Tribe	**Table 3-19 BLM and Tribal Meetings on the Proposed Action to Date –** Please explain why this table includes monthly project coordination meeting between the BLM ECFO archaeologist and the Quechan Tribe HPO? Although the listed meetings were conducted, these meetings were not specific to this project and new information on the project was rarely provided during these meetings.	All meetings included in Table 3-19 are a part of the BLM's consultation processes for the Project including consultation under Section 106 of the NHPA. The monthly project consultation meetings provide important cultural resources information sharing opportunities about this Project as well as others that the Quechan Indian Tribe is interested in.
25.0	25.7	Quechan Indian Tribe	**Section 3.14.5, page 50, paragraph 5 –** The first sentence of this paragraph states that SMP has engaged with the Fort Yuma Quechan Indian Tribe regarding the Project. Please explain this statement. The proponent has not specifically engaged in any way with the Quechan Tribe. This statement should be removed from the document.	SMP has reached out to engage in informal consultation with the Quechan Tribe outside of the BLM's Section 106 of the NHPA consultation process. Emails were sent in April, June, and July 2021 by SMP to the Quechan Tribe, and in October, a member of the Tribe accompanied the Class III Cultural Resources Inventory field survey. In January 2022, SMP present the proposed Project to the Quechan Cultural Committee via a virtual meeting, and email correspondence continued in January and March 2022 regarding potential site visits and presentation follow up. SMP conducted a site visit in September 2022 with the Quechan Cultural Committee, and attended a virtual meeting with SHPO, BLM, and Quechan Cultural Committee also in September 2022.
25.0	25.8	Quechan Indian Tribe	**Figures 1-1 through 3-14 -** Many of these maps do not contain a legend. We have no idea what these maps are depicting and therefore cannot properly review these items and their context with the NEPA/CEQA analysis	A legend is present in the lower right corner of the map extent in all figures included in the EA/MND.
25.0	25.9	Quechan Indian Tribe	**Appendix F: Project Design Features, Conservation Management Actions and Mitigation Measures** – These actions and mitigation measures were created without input from the Quechan Tribe. Given that the impacts will directly affect the Quechan Tribe, specific input from the Tribe should have been requested during the creation of any conservation actions or mitigation measures.	Throughout the Section 106 consultation process and during the NEPA analysis, the BLM has determined that the additional mitigation measures that would be required under the Proposed Action in addition to the applicant-committed PDFs and the land use plan required CMAs would be sufficient in ensuring that no adverse impacts would occur to any of the resources identified to require additional mitigation. Mitigation measures, described fully in Appendix F of the EA/MND, include development of a cultural monitoring and inadvertent discovering plan, a safeguard that all known culturally sensitive areas within 100 feet of ground disturbance and access roads will be monitored and protected by barrier fencing, and periodic archaeological monitoring that is recommended for participation by Tribes in addition to the contracted archaeologist.
25.0	25.10	Quechan Indian Tribe	**Appendix F –** NLCS-CUL-1, ACEC-CUL-6 – Please explain how Section 106 will be implemented in reference to these two CMAs.	NLCS-CUL-1 is a CMA required for implementation in accordance with the DRECP LUPA. The BLM has concluded its Section 106 consultation process and determined that there are no adverse effects to Historic Properties. Please refer to the Section 106 status updates and tribal consultation information located in Sections 3. 8, 3.14 and 4.12. ACEC-CUL-6 is also a CMA required for implementation in accordance with the DRECP LUPA. The proponent has committed to avoidance of all known cultural resource sites, and the BLM

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				developed additional mitigation measures (M-5 through M-7) that would be required for implementation under the Proposed Action, as outlined in Table F-3 of Appendix F of the EA/MND.
25.0	25.11	Quechan Indian Tribe	**Appendix F, Table F-3: Required Mitigation Measures** – The proposed monitoring should be conducted by the Quechan Tribe not archaeologists. Any impacts from this project would be best assessed by the Tribe as this area is culturally and religiously significant to the Tribe.	The BLM acknowledges that the Fort Yuma Quechan Indian Tribe requests to be involved in archaeological monitoring for the proposed Project, as described in Mitigation Measure 7 (M-7). Should the Project be approved, the BLM would coordinate with SMP accordingly to contract with the appropriate archaeologists and tribal contacts to conduct the required monitoring.
25.0	25.12	Quechan Indian Tribe	**Appendix G: Issues Considered as Part of the NEPA Analysis –** This table does not include an analysis of the Traditional Cultural Property. Additionally, the assessments of the ACEC, Cultural Resources and Native American Religious Concerns are inadequate. BLM ECFO and Imperial County have not engaged in consultation with the Quechan Tribe regarding the Traditional Cultural Property, ACEC, and Native American Religious Concerns. Although the Tribe has provided ample information on the significance of the project location to the Tribe, provided comments on the Cultural Resources Survey Report, and provided information via letters and meetings to BLM, they have failed to address the concerns raised by the Tribe or respond to the comments and concerns that the Tribe has provided.	Please refer to the response to Comment #25.1 and the updated information located in Sections 3.8, 3.14 and 4.12.
25.0	25.13	Quechan Indian Tribe	We would like to point out that this letter does not contain a comprehensive review of the EA/MND by the Historic Preservation Office (HPO). This office requested additional time to review this document due to internal issues that limited the review process time frame, however BLM ECFO refused to grant the requested two additional weeks for the HPO to have time to completely review the document. The Fort Yuma Quechan Tribe would like to continue consultation on this project with the BLM. More discussion on the effects of this project and its impact to the Quechan Tribe must occur before any further decisions on this project are made. If you have any questions or need additional information, please feel free to contact the Historic Preservation Office. Sincerely, H. Jill McCormick Historic Preservation Officer	The BLM adhered to the timeline for the public comment period, which was a 31-day public comment period from November 16 through December 16, 2022 and which took into account the Thanksgiving holiday. The BLM will continue to engage with the Fort Yuma Quechan Indian Tribe through Government-to-Government consultation.
26.0	26.1	California Native Plant Society	**Re: California Native Plant Society Comments on Oro Cruz Exploration Project** **DOI-BLM-CA-D070-2022-0012-EA** Dear Ms. Martinez: Thank you for the opportunity to comment on the Environmental Assessment/Mitigated Negative Declaration (EA/MND) for the Oro Cruz Exploration Project. The following comments are submitted on behalf of the California Native Plant Society (CNPS), anon-profit environmental organization with over 12,000 members in 36 Chapters across California and Baja California, Mexico. CNPS's mission is to protect California's native plant heritage and preserve it for future	Thank you for your comment. As stated in Section 3.5.3 of the EA/MND, the Project would avoid the resources the Picacho ACEC was designated to protect, including biological and cultural resources. Additional CMAs and mitigation measures would be required by the BLM to minimize impacts, as outlined in Appendix F of the EA/MND, and impacts to the Picacho ACEC would be negligible, short-term, and localized. Baseline conditions (i.e., affected environment) are presented within Chapter 3 for all resources that were identified as Present and Potentially Affected and were

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			generations through the application of science, research, education, and conservation. We work closely with decision-makers, scientists, and local planners to advocate for well-informed policies, regulations, and land management practices. This EA/MND claims that the impacts from this project are expected to be negligible, short-term, and localized, but the project does not adhere to Area of Critical Environmental Concern (ACEC) management requirements or local ordinances, fails to adequately establish baseline conditions on the project site, and does not consider impacts to seasonal waterways and sensitive natural communities. Approving exploration would lay the groundwork for future mining projects in this area and this exploratory project should not be pursued. At a minimum, the BLM needs to properly establish baseline conditions for special-status and locally protected plant species through protocol-level floristic surveys and circulate a revised environmental review document. Given the potentially significant impacts and unique ecological and cultural resources in the area, the BLM should prepare an EIS that accurately analyzes the project's potential impacts to botanical resources.	thus analyzed for potential impacts under the Proposed Action. Baseline conditions for assessing the affected environment were gathered from literature reviews, recently collected and publicly available data, and baseline surveys where required by the BLM. Impacts to surface and groundwater under the Proposed Action, including water quality, would be negligible, short-term, and localized per the analysis provided in Section 3.22.3. Additionally, the Project would acquire the necessary waters of the state permitting, including the Lake and Streambed Alteration Agreement with the California Department of Fish and Wildlife, and a Construction Stormwater General Permit with the Regional Water Quality Board pursuant to California State Water Resources Control Board requirements. Biological baseline surveys, including vegetation surveys, were conducted in March 2021, as described in Section 3.20.2 of the EA/MND. The timing of baseline surveys was coordinated with the BLM and the baseline report was deemed complete and approved in June 2021. Impacts to vegetation were analyzed accordingly based on baseline conditions under Sections 3.20.3, 3.20.5, and 3.20.6 in the EA/MND. Federal agencies, including the BLM, implement NEPA per the procedures developed by the CEQ. In line with the CEQ guidelines revised in 2020 and then again in 2022 for implementing regulations of NEPA, which does not mandate particular results or substantive outcomes but rather requires Federal agencies to consider environmental impacts of Proposed Actions, the BLM determined that an EA is the appropriate level of NEPA review for the Proposed Action. In following 40 CFR Section 1501.5(c)(1) and 40 CFR 1501.6(a) per the 2022 updates to the NEPA Implementing Regulations under Docket CEQ-2021-0002, the BLM has determined that it has provided sufficient evidence and analysis to deem preparation of an EA followed by issuance of a FONSI appropriate for the Proposed Action.
26.0	26.2	California Native Plant Society	**Picacho Area of Critical Environmental Concern** While mineral exploration and development is not prohibited in the Picacho ACEC, introducing mining would not align with the management objectives of protecting critical desert tortoise habitat and other biological resources and preserving the wilderness character of the area. The Federal Land Policy and Management Act of 1976 (FLPMA) (43 U.S.C. § 1712 Sec. 202 (c)(3)) requires the BLM to prioritize the protection of ACECs. As defined, ACECs are "public lands where special management attention is required to protect and prevent irreparable damage." This exploratory action could lead to a full scale mining operation which would have much greater impacts than exploration alone. Allowing exploration opens the door to future mining in this area, which would	As analyzed under Section 3.5.3 of the EA/MND, impacts to the Picacho ACEC would be negligible, short-term, and localized. In addition to the applicant-committed PDFs to avoid the resources that the Picacho ACEC was designated to protect, the relevant CMAs in compliance with the DRECP LUPA would be implemented, as outlined in Appendix F of the EA/MND. This EA/MND analyzes only the proposed exploratory drilling activities associated with the Oro Cruz Exploration Project. Cumulative impacts have been analyzed including reasonably foreseeable future actions that are associated with plans and/or notices that have been submitted to the BLM, as analyzed within Chapter 3 of the

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			contradict the mandate to prioritize protection or uphold the initial intent of the designation of this ACEC. We urge the BLM to prioritize the conservation of the biological resources in the Picacho ACEC and to not jeopardize its ecological values by re-introducing mining operations into the area.	EA/MND. The BLM does not consider any actions that have not submitted notices or applications with a developed plan as a reasonably foreseeable future project. Any future proposed additional surface disturbance and/or project plans outside of the current analysis would be subject to individual future NEPA analysis at a level deemed appropriate by the BLM.
26.0	26.3	California Native Plant Society	**Special-Status Plant Species** The plant lists from the WestLand and Stantec surveys are inconsistent with each other, and both include inaccurate scientific names and may have potentially misidentified *Prosopis juliflora* (which does not appear to be native to this area). In light of these flaws, neither survey effort seems to be accurate or comprehensive enough to establish baseline conditions. The EA/MND concludes that the project will result in disturbance of 20.54 acres of potential habitat for special status plant species, but that "no direct impact to sensitive plant species would occur from direct removal of individuals or populations." (Section 3.20.2, p. 79). This conclusion apparently is based on the statement that "No special status plant species have been identified within the Project Area," which is based on an inaccurate baseline setting and is contradicted by the evidence provided in the EA/MND. The EA/MND states that no special-status plant species have been identified in the project area, however pink fairyduster (*Calliandra eriophylla*) was identified during the WestLand Resources survey in tables 1 and 6, although it was mis-spelled as *Cylindropuntia eriophylla* in table 1. The map in figure 7 appears to show the pink fairyduster being located in drill area 2. These surveys are insufficient to conclude that additional habitat assessments or surveys would not be required, as stated in LUPA BIO-1. It is unlikely that project work would occur at a time that monitors would be able to accurately identify special status plant species, as described in PDF-33, and therefore it is unlikely that impacts to occurrences of this species will be adequately avoided or minimized. An EIS should be prepared that includes appropriate botanical surveys, so that the analysis of potential impacts can be based on an accurate environmental baseline. As stated by WestLand on page ES-1 "Plant species observations do not represent a complete floristic survey." According to the California Department of Fish and Wildlife's (CDFW) Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities (protocols),[1] "Botanical field surveys and subsequent reporting should be comprehensive and floristic in nature and not restricted to or focused only on a list." The EA/MND should describe the baseline physical conditions on the project site through which the lead agency will determine whether an impact is significant (CEQA Guidelines, § 15125(a)(1)), and shall succinctly describe the environment of the area(s) to be affected (NEPA Guidelines, § 1502.15). The failure to conduct floristic surveys precludes the agency from being able to accurately establish the baseline physical conditions, and thereby precludes the EA/MND from meeting the CEQA and NEPA mandates of making an evidence-based determination of the project's impacts to botanical resources and mitigating those impacts if they are significant. The CDFW protocols recommend the following regarding the extent, timing, and number of surveys that would be needed to capture baseline conditions:	No BLM special status plant species were found within the Project Area or the vegetation area of analysis (the Project Area plus a 500-foot buffer) during the March 2021 biological baseline surveys, which included vegetation baseline surveys (WestLand 2021). All data sheets are included within the Biological Resource Technical Report and Assessment appended to the EA/MND. The January 2021 desert tortoise baseline surveys included incidental vegetation sightings while in the field but did not include a complete habitat evaluation or vegetation inventory as such work was outside the scope of the desert tortoise surveys (Stantec 2021). The pink fairyduster plant is listed as a CEQA special status species and is not a BLM special status species, as delineated in the biological baseline report (WestLand 2021). Figure 7 of the Biological Resource Technical Report and Assessment shows historical occurrences of special status species within the analysis area. During the field survey to validate the desktop analysis, pink fairyduster (*Calliandra eriophylla*) was identified in low densities within the central portion of the proposed Project area within the desktop delineated micro *Parkinsonia florida—Olneya tesota* vegetation category. Additional clarifying text has been added to Section 3.20.2 of the EA/MND, and Figure 3-8 of the EA/MND was revised to visualize the desktop-delineated vegetation categories as well. According to Imperial County Ordinance code 12.48.40 & 12.48.50 "it is unlawful for any person, firm or corporation to dig up, remove, mutilate, or destroy any [species] of the following varieties....growing upon public or private land in the county of Imperial, without a permit issued by the board of supervisors of Imperial County, **EXCEPT** by the owner of such land, or with the written consent of such owner.". The BLM is the sole owner of the land where the project is proposed. The signing of the FONSI and Decision Record is written consent of the BLM to the project proponent to conduct their project within the parameters of the Plan of Operations and in accordance with applicable CMAs. LUPA-BIO-7 states that DRECP vegetation types of Focus that may be affected by ground-disturbance and/or vegetation removal would be restored including but not limited to "Salvage and relocate cactus, nolina, and yucca from the site prior to

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			Survey Extent - "Botanical field surveys should be comprehensive over the entire project area, including areas that will be directly or indirectly impacted by the project. Adjoining properties should also be surveyed where direct or indirect project effects could occur, such as those from fuel modification, herbicide application, invasive species, and altered hydrology. Surveys restricted to known locations of special status plants may not identify all special status plants and sensitive natural communities present, and therefore do not provide a sufficient level of information to determine potential impacts." Timing and Number of Visits - "Conduct botanical field surveys in the field at the times of year when plants will be both evident and identifiable. Usually this is during flowering or fruiting. Space botanical field survey visits throughout the growing season to accurately determine what plants exist in the project area. This usually involves multiple visits to the project area (e.g., in early, mid, and late-season) to capture the floristic diversity at a level necessary to determine if special status plants are present. The timing and number of visits necessary to determine if special status plants are present is determined by geographic location, the natural communities present, and the weather patterns of the year(s) in which botanical field surveys are conducted." The BLM's Survey Protocols Required for NEPA and ESA Compliance for BLM Special Status Plant Species (CA IB-2010-012) echo many of the CDFW guidelines, and should be followed to identify special status plant species in this DEIR. "A single inventory on a single date will seldom suffice. For example, when one special status plant species suspected to be in the inventory can only be found and identified in April and another species can only be located and identified in August, at least two inventories are necessary." "In advance of the project site inventory, contractors should visit known populations of the target species in similar habitat conditions to determine current-year growth conditions and phenology. If, based on these visits to known populations, it appears likely that the project site inventory will fail to detect occurrences because of drought conditions (as may be the case for annual plant species or geophytic plants), BLM may require contractors to perform additional inventories in the following year." There is no indication that reference sites of known populations were used to verify that special-status populations would be detectable. The Stantec surveys were conducted in January and the WestLand surveys were conducted in March. The March survey may have been able to identify many species, however this survey was on the leading edge of the bloom period for *Croton wigginsii* and *Pholisma sonorae*, and without establishing reference sites it is unsure whether these species would have been identifiable during these surveys. A nine-quad CNPS Rare Plant Inventory search of the surrounding area showed that *Colubrina californica*, *Koeberlinia spinosa var.*	disturbance using BLM protocols." SMP's reclamation plan incorporates reclamation of temporary access roads created by the Project and SMP would follow all applicable CMAs and PDFs. No BLM special status species were identified within the vegetation area of analysis. A habitat assessment in accordance with LUPA-BIO-1 was conducted as part of the biological baseline report (WestLand 2021) for species with potential to occur or may have suitable habitat in the Project Area or vicinity; therefore, this CMA would not be required to be implemented under the Project in addition to the applicant-committed PDFs, additional CMAs, and BLM required additional mitigation (outlined in Appendix F of the EA/MND). Please refer to response to Comment# 26.1 regarding the BLM's determination to prepare an EA and issue a FONSI. Plant species observed in the field during the March 2021 biological baseline surveys do not represent a complete floristic inventory as it is representative of the species that were identified during the surveys and may not be representative of species that are present year-round. The text of the BLM required mitigation measures in Table F-3 of Appendix F of the EA/MND, M-8 and PDF-34 has been clarified to state the pre-construction surveys conducted prior to surface disturbance would include vegetation surveys to ensure that no special status plants are present within areas proposed for disturbance. Appropriate biological monitoring and avoidance measures would be coordinated with the BLM should special status plants be identified during Project implementation. Please note that per Appendix B and Table F-2 of Appendix F of the EA/MND, LUPA-BIO-2 would not be required for implementation under the Proposed Action as required pre-construction surveys and continued monitoring would take place during all phases of the Proposed Action by a BLM Authorized Biologist.

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			tenuispina, and *Panicum hirticaule ssp. hirticaule* all have the potential to occur here, and all bloom outside of the window of the surveys. These surveys need to be conducted not only during times when plant species would be identifiable, but also in years with sufficient rain that they would be identifiable, as verified by reference sites. Chapter 12.48 of the County Code of Ordinances prohibits the destruction (e.g., dig up, remove, mutilate, or destroy) or disturbance of specific tree and flower species. Though the EA states that none of these species were found in the project area, two of these species appear in table 1 (Plant species observed in the Analysis Area during the field survey) of the WestLand Resources Biological Resources Technical Report. The beavertail pricklypear (*Opuntia basilaris*) and ocotillo (*Fouquieria splendens*) are both protected from destruction or disturbance. The locations of these species should be recorded during the floristic surveys recommended above, along with any other locally protected or special-status species that are discovered. Any additional protected or special-status species should be analyzed for potential impacts and added to figure 7. The description of pre-construction surveys performed pursuant to CMA LUPA-BIO-2 should be clarified to reflect that special-status plants would be identified and PDF-33 should be amended to include a requirement that pre-construction or pre-construction surveys be conducted to identify botanical resources.	
26.0	26.4	California Native Plant Society	**Sensitive Natural Communities** Though the 2021 baseline surveys done by WestLand stated that there were no streams or riparian areas located in the project area (page 102 of EA/MND), the map in figure 2-1 clearly shows a stream running directly through the project area. The road improvements running south from the existing access road into drill area 4 crosses through ephemeral streams and washes of Tumco wash and the new permanent access road would impact the American Girl wash. The construction and improvement of these roads should be evaluated for impacts to these habitats, including the potential for introducing illegal OHV use to this area. Additionally WestLand identified Blue paloverde-ironwood alliance in xeroriparian habitat across 2% of the project area; this natural community is classified as sensitive by the CDFW. Creosote-brittlebush alliance covers 74% of the project area and is also listed by CDFW as a sensitive natural community. The potential impacts to the seasonal streams illustrated in figure 3.1 and the sensitive natural communities that make up the vast majority of the project area need to be addressed in an EIS. The Picacho ACEC is covered by the Desert Renewable Energy Conservation Plan (DRECP), and therefore the project must comply with all applicable Conservation and Management Actions (CMAs). LUPA-BIO-SVF-1 states that "For activity-specific NEPA analysis, a map delineating potential sites and habitat assessment of the following special vegetation features is required: Yucca clones, creosote rings, Saguaro cactus, Joshua tree woodland, microphyll woodland, Crucifixion thorn stands" and goes on to state that "Resource not found on the project site" although areas of microphyll woodland are present and would likely be impacted by the road improvements and by	The Tumco Wash, depicted on Figure 2-1 of the EA/MND is an ephemeral stream and conveys water only during storm events, as stated in Section 3.22.3 of the EA/MND. The Project would require a Construction Stormwater General Permit (CGP) pursuant to the Regional Water Resources Control Board National Pollutant Discharge Elimination System requirements, and a BLM approved SWPPP would be developed and implemented to control sedimentation from disturbance associated with Project activities. The Project would also require a Lake and Streambed Alteration Agreement with the CDFW pursuant to California Fish and Game Code Section 1602. Potential impacts to surface water quality would be minimized by the implementation of the PDFs outlined in Appendix F, as well as incremental reclamation. Additional CMAs would also be implemented to minimize resource conflicts and water quality impacts, described in Appendix F. The Proposed Action would have a negligible, short-term, and localized impact on surface water resources. All Project access roads would be used strictly for Project support vehicles to access the exploration Drill Areas, and they would be signed as having limited access to prevent public use. Please note that the text of the EA/MND has been clarified to state the proposed new access road leading to Drill Area 1 would not be permanent – it would remain as a post-surface exploration feature for reclamation, monitoring, and underground exploration activities until complete,

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			the new permanent access road. Despite being identified, the required map identifying microphyll woodlands is not included in the EA/MND. LUPA-BIO-SVF-6 goes on to say that "impacts to microphyll woodlands will be avoided, except for minor incursions," citing the Glossary of Terms to define "microphyll woodlands" and "minor incursions" however this glossary does not appear to have been included in this document. The meaning of "minor incursion" is key to understanding the potential impacts to microphyll woodlands. The EA/MND fails to show that these CMAs have been followed.	which would occur within five years from Project implementation. Additionally, pre-construction surveys would be conducted prior to any surface disturbance activity, which would include vegetation surveys. Any results from the pre-construction surveys that may require additional impact minimization or avoidance measures would be coordinated with the BLM. As stated in Appendix B, LUPA-BIO-SVF-1 would be required to be implemented. Special status vegetation species specified have not been identified within the Project Area; however, a habitat assessment identified some limited areas of microphyll woodland, however, direct impacts from project disturbance to this habitat is not anticipated. Pre-construction surveys would occur prior to any surface disturbing activities as outlined in the measures in Appendix F of the EA/MND, and this CMA would be implemented as necessary in coordination with the BLM. Per Appendix B, LUPA-BIO-SVF-6 would be required for implementation upon identification of microphyll woodland occurrences during pre-construction surveys. Analysis of the provisions of the CMAs or associated CMA-developed documentation per the DRECP is out of the scope of this EA/MND and is thus not included as documentation; however, the DRECP Glossary of Terms has been included within Appendix B to supplement the CMA table. Microphyll Woodland consists of drought-deciduous, small-leaved (*microphyllus*), mostly leguminous trees and occurs in bajadas and washes where water availability is somewhat higher than the plains occupied by creosote bush and has been called the "riparian phase" of desert scrub (Webster and Bahre 2001). The BLM would require implementation of the relevant CMAs that were developed as part of the DRECP LUPA; those CMAs that would be relevant for implementation under the Proposed Action are identified in Appendix F of the EA/MND. The relevant CMAs would be implemented under the Proposed Action should the Project be approved by the BLM. t. An additional mitigation measure would be required by the BLM as listed in Table F-3 of Appendix F to avoid minor incursions to microphyll woodland during construction of the temporary portal access road, as potential presence of microphyll woodland may overlap with proposed disturbance of the road. Figure 3-8 of the EA/MND has been revised to show the mapped vegetation classifications delineated during the biological baseline surveys, as described below. Three CNPS vegetation categories were identified during pedestrian surveys: the *Parkinsonia florida—Olneya tesota* alliance, the *Larrea tridentata—Encelia farinosa* alliance, and the *Brassica* (*nigra*) and other mustards semi-natural stands 'alliance'. A machine learning assisted analysis of the vegetation using the Supervised Classification tool in ArcGIS Pro 2.7 was performed on NAIP 2020

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				imagery to help estimate the approximate horizontal space occupied by these three CNPS categories, keeping in mind that this kind of visualization exercise is not a perfect representation of the complex ecological reality on the ground. The CNPS vegetation categories were designed to provide nomenclatural frameworks for characterizing these complex vegetative realities and thus using them in a near-quantitative way should be accompanied with the caveat that a high level of abstraction and compression is occurring in the final data product. Consistent categorization would be expected if the classification were to be repeated using the same three CNPS vegetation categories with training input from a human interpreter/supervisor. The micro *Parkinsonia florida—Olneya tesota* vegetation category provides an estimate of the maximum extent of this habitat type within the analysis area. This vegetation category represents areas of potential microphyll woodland occurrences, as well as the area with the highest density of the pink fairy duster, a CEQA special status species.
26.0	26.5	California Native Plant Society	We urge the BLM to not approve this application for exploratory drilling, as mining is not a desirable use for the area given the extensive environmental risks it poses to the natural resources, and mining is inconsistent with the management and protection of critical habitat and resources in the ACEC. The project should also not be approved until an EIS is produced to correct the errors in the botanical resources analysis and adequately describe the baseline conditions of the project site. Thank you for the opportunity to comment on this project and please contact me if you have any questions. Sincerely, Brendan Wilce Conservation Program Coordinator California Native lant Society bwilce@cnps.org Attachment 1 CDFW 2018 Protocols	Please refer to the response to Comment #26.1 regarding the BLM's determination that an EA is the appropriate level of analysis for the Proposed Action.
27.0	27.1	Native American Land Conservancy	**RE: Public comment period for the Oro Cruz exploration project** Dear Ms. Martinez, I write on behalf of the Native American Land Conservancy to express serious concerns about the proposed SMP Gold Corp. Oro Cruz Exploration Project within the Picacho Area of Critical Environmental Concern. This excavation would take place at Indian Pass, the traditional cultural homelands of the Fort Yuma Quechan Tribe and a place of great spiritual significance. The Native American Land Conservancy (NALC) is a nonprofit, intertribal organization. Our mission is to acquire, preserve, and protect our sacred lands. We do this through land acquisition, education, cultural programming, and the survey and monitoring of Tribal historic properties. The	Thank you for your comment. The Indian Pass area is located outside the vicinity of the Project Area. The Project Area is located in the Cargo Muchacho Mountains. The BLM is currently engaged in Section 106 of the NHPA consultation with the Fort Yuma Quechan Indian Tribe, and consultation will be ongoing through the life of the Project. As a result of the Proposed Action, impacts to surface and groundwater resources would be negligible, short-term, and localized (Section 3.22.3 of the EA/MND). Potential impacts to air quality were found to be negligible, short-term and localized (Section 3.3.3 of the EA/MND), and Project emissions were below

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			NALC provides culturally appropriate protective management and stewardship of natural and cultural areas, engaging Tribal communities in California, Arizona, and Nevada. Through our Learning Landscapes program, we inspire Tribal youth to engage with their history and culture on the land. Indian Pass is of paramount importance to the continued health and wellbeing of the Quechan people. It is part of a greater interconnected landscape which they term a Tribal Cultural Place, and it is central to their day-to-day life and religion. It contains ancestral trails, cultural sites, sleeping circles, and other evidence of the Quechan people's historic and continued presence in the area. The Oro Cruz Exploration Project would put future generations of Quechan people and their cultural survival in jeopardy. The processes required for gold mining - such as extensive topsoil removal - create irreparable and permanent harm to the land. Gold mines leak, despite assurances by companies to say otherwise, and they release contaminates such as arsenic, cyanide, and other hazardous materials. The 2015 Gold King Mine disaster, which contaminated the Animas River and endangered multiple Tribal communities, is just one example of the catastrophic consequences resulting from gold mining. The Oro Cruz Exploration Project would negatively impact the landscape's water, air, and soil quality, creating dangerous outcomes for plants, animals, insects, and nearby communities long into the future. The Picacho Area of Critical Environmental Concern is also critical habitat for the threatened Mojave Desert Tortoise. The Oro Cruz Exploration Project threatens the entire ecosystem at Indian Pass, as well as the cultural heritage and religious values of the Quechan people. For centuries, Indigenous peoples across the United States have been greatly impacted by the damages caused by mining projects. This proposal, if approved, would continue this harmful legacy and cause irreversible damage to a landscape of great cultural, religious, and spiritual importance. Indian Pass is a sacred place of healing, growth, and learning for the Quechan people, and it must be protected for all future generations. NALC stands with the Fort Yuma Quechan Tribe in opposing the Oro Cruz Exploration Project proposal. Additionally, we request the Bureau of Land Management to require an Environmental Impact Statement to evaluate the comprehensive impacts of this proposal. Thank you for your consideration of this request. Please feel free to contact me at rprzeklasa@nativamericanland.org if you have any additional questions. Sincerely, T. Robert Przeklasa, Ph. D. Executive Director	applicable Federal and Imperial County thresholds. Although potential impacts were found to be less than significant, air quality and GHG emissions would be further mitigated by following the Project Design Features outlined in Appendix F of the EA. Impacts to soils would be minor, short-term, and localized (Section 3.18.3 of the EA/MND). Additionally, impacts to wildlife resources, including Mojave Desert tortoise, would be minor, short-term, and localized (Section 3.23.3 of the EA/MND), and impacts to vegetation would be minor, short-term, and localized (Section 3.20.3 of the EA/MND). All surfaces that would be disturbed under the Proposed Action would be reclaimed to pre-Project conditions. Federal agencies, including the BLM, implement NEPA per the procedures developed by the CEQ. In line with the CEQ guidelines revised in 2020 and then again in 2022 for implementing regulations of NEPA, which does not mandate particular results or substantive outcomes but rather requires Federal agencies to consider environmental impacts of Proposed Actions, the BLM determined that an EA is the appropriate level of NEPA review for the Proposed Action. In following 40 CFR Section 1501.5(c)(1) and 40 CFR 1501.6(a) per the 2022 updates to the NEPA Implementing Regulations under Docket CEQ-2021-0002, the BLM has determined that it has provided sufficient evidence and analysis to deem preparation of an EA followed by issuance of a FONSI appropriate for the Proposed Action.

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28.0	28.1	California Department of Fish and Wildlife	Dear Mr. Abraham: The California Department of Fish and Wildlife (CDFW) received a Notice of Intent to Adopt an MND/EA from Imperial County Planning and Development Services Department (Imperial County) for the Project pursuant the California Environmental Quality Act (CEQA) and CEQA Guidelines. Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code. **CDFW ROLE** CDFW is California's **Trustee Agency** for fish and wildlife resources and holds those resources in trust by statute for all the people of the State. (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a).) CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. (Id., § 1802.) Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources. CDFW is also submitting comments as a **Responsible Agency** under CEQA. (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381.) CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW's lake and streambed alteration regulatory authority. (Fish & G. Code, § 1600 et seq.) Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), the project proponent may seek related take authorization as provided by the Fish and Game Code. [This comment letter included a summary of the Proposed Action per the Plan of Operations and EA/MND. This summary has not been re-transcribed here and does not include a comment on the decision under review.]	Thank you for your comment. Imperial County confirms that the California Department of Fish and Wildlife (CDFW) is a responsible agency under CEQA and recognizes that the CDFW may exercise its own regulatory authority over certain aspects of the Project pursuant to the Fish and Game Code.
28.0	28.2	California Department of Fish and Wildlife	**COMMENTS AND RECOMMENDATIONS** CDFW has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (i.e., biological resources). CDFW offers the comments and recommendations below to assist Imperial	Regarding CDFW's comment on whether the EA/MND is the appropriate level of environmental documentation for the Project, as discussed under Comment #23.1 above, consistent with the CEQA statutes, if a project is found to have no adverse effects, or if the potential effect can be reduced to a level that is less than significant through project revisions/mitigations, a Negative Declaration or MND

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			County in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources. The MND/EA has not adequately identified and disclosed the Project's impacts (i.e., direct, indirect, and cumulative) to biological resources and whether those impacts are less than significant. Moreover, CDFW is concerned that an MND/EA may not be appropriate for the Project because of the potential for significant impacts that have not been mitigated to a level that is less than significant. CDFW's comments and recommendations on the MND/EA are explained in greater detail below and summarized here.	can be adopted (§21080). Specifically, the statute provides that MNDs may be used, "when the initial study has identified potentially significant effects on the environment, but (1) revisions in the project plans or proposals made by, or agreed to by, the applicant before the proposed negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur, and (2) there is no substantial evidence in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment" (§21064.5). In summary, if all potential significant impacts can be eliminated or reduced to less than significant, a MND can be prepared in lieu of an EIR. Through preparation of a detailed initial study, as well as a detailed suite of technical studies, Imperial County determined that an MND was the appropriate project document under CEQA. The County also held an Environmental Evaluation Committee (EEC) meeting on November 17th, 2022, where a draft version of the initial study/MND was presented to the public, and to a seven-member panel representing various County agencies/organizations. The hearing/Project was also properly noticed as part of the EEC process, and County Planning Staff consulted with all appropriate County Departments, as well as all applicable local, state and federal agencies. Through this public process, the EEC determined that the mitigation measures as proposed would reduce the significant effects to a less than significant level, or project design features as included would avoid them all together. For these reasons, the County found that an MND was the appropriate CEQA level of review/documentation for the Project.
28.0	28.3	California Department of Fish and Wildlife	<u>Project Description</u> CEQA is predicated on a complete and accurate description of the proposed Project. Without a complete and accurate project description, the MND/EA likely provides an incomplete assessment of Project-related impacts to biological resources. CDFW has identified gaps in information and discrepancies related to the project description. The MND/EA (Section 3.22.5) states the "Project would not consume groundwater from the Imperial Valley Groundwater Basin." However, a contradictory statement appears in Section 3.22.5, which indicates "groundwater may be encountered during the course of exploratory drilling within the Drill Pads," and no groundwater on-site will be affected. Groundwater is critical for the sustainability of natural ecosystems. However, if the connection between groundwater-dependent ecosystems and groundwater is lost from unsustainable pumping practices, the result could be depleted streams, wetlands, and springs and vulnerable species that depend on them (Rohde et al. 2019). The MND/EA should quantify the amount of groundwater that may be affected along with the adverse impacts on groundwater-dependent species and surface water resources affected from	As discussed above, the Project would purchase water from vendors as needed to support exploration drilling and dust suppression activities. The Project estimates a total of 240,000 gallons of water to be used over the life of the Project, which equates to approximately 0.736 acre-feet of water being used for the life of the Project. The USGS estimates the Ogibly Valley Groundwater Basin, within which the Project Area is located, to have a natural recharge rate of 250 acre-feet per year (California's Groundwater Bulletin 118). The Project estimated need for water compared to the natural recharge rate of the Ogilby Valley Groundwater Basin is approximately 0.0029% of the annual natural recharge rate. In relation to the Colorado River, the estimated 0.736 acre-feet of water needed for the life of the Project equates to 0.00013 percent of the total current level of Lake Powell (5,462,412 acre-feet) and 0.0000098 percent of the total current level of Lake Mead amount (7,449,000 acre-feet). Thus it was deemed that LUPA-SW-17 was not applicable. However, with this assessment to confirm that cumulative groundwater use would not be above the perennial yield of the basin, LUPA-SW-5 was deemed applicable and Appendix B and F have been revised accordingly

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			groundwater discharge. Species that have the potential to be directly impacted (i.e., some or all of their water needs) by groundwater depletion include vegetation, toads, frogs, and fish. Species that have to potential to be indirectly impacted (i.e., support habitat and foraging requirements) by groundwater depletion include snakes, birds, rodents, and large game. In addition, the MND/EA (Section 3.22.5) states the water required for drilling and dust suppression "would be procured from Gold Rock Ranch and/or a local water purveyor," but does not disclose whether a water right is needed or if a water right is in place due to the proximity to the Colorado River. Instead, the MND/EA proposes application for water rights on a case-by-case basis at the time of Project activities and defers analysis of impacts and development of species-specific mitigation to that time. CDFW is concerned that the conservation management actions proposed in the MND/EA (Appendix B) that were deemed to be inapplicable (LUPA-SW-5, LUPA-SW-15, LUPA-SW-16, LUPA-SW-17 through 32, and NLCS-SW-1) have not been analyzed to determine if groundwater impacts could occur. Without the proper environmental assessment, the MND/EA likely provides an incomplete or inaccurate analysis of Project-related environmental impacts and whether those impacts have been mitigated to a level that is less than significant. CDFW recommends that a complete analysis of groundwater use and impacts to biological resources be included in a revised MND/EA or other CEQA document.	in the Revised EA/MND to incorporate the CMA. Gold Rock Ranch RV Resort and the City of Yuma are the sole parties responsible for acquiring permitting and water rights by the appropriate authorities to access groundwater or surface water resources (I.e., Imperial County or AZ water agency). The Project does not entail diverting any surface water sources to supply the Project activities and thus LUPA-SW-16 was deemed not applicable. The total amount permitted has already been considered within the total water budget available for pumping and the Project would be purchasing via an agreement with the seller for an amount within the seller's allowable acre-feet) and available for sale. Under Section 3.22.2 of the EA/MND, no floodplains were mapped in the Project Area (FEMA 2021) thus LUPA-SW-15 was deemed not applicable. As such, the Project itself would not include active groundwater pumping activities. Water utilized for Project activities would be provided by a local water purveyor, Gold Rock Ranch and/or City of Yuma, which may be sourced from groundwater or the Colorado river. Sourcing is dependent on the purveyors and all water rights are secured by those entities, thus, groundwater pumping for the water that would be purchased is outside the scope of the analysis of this EA/MND. LUPA-SW-18 through 32 were deemed not applicable due to the above reasons as well as the NEPA analysis under Section 3.22.2 of the EA/MND. Furthermore, no groundwater wells are present within the Project Area per the affected environment discussion in Section 3.22.2, and the State of California does not permit groundwater rights or require current groundwater use monitoring for the basin under a Groundwater Management Plan within which the Project Area is located. Therefore, groundwater pumping for water that would be purchased from an appropriate third-party purveyor is outside the scope of the analysis of this EA/MND. The Project does not propose active groundwater pumping. As stated in Section 3.22 of the EA/MND, impacts to surface and groundwater resources would be negligible. Furthermore, while minimal quantities of groundwater may be encountered through the course of exploratory drilling, as discussed in the EA/MND any water encountered or generated by drilling (e.g., drilling mug) would be fully contained within the drill sumps, and would be managed at each drill site by either recirculating it for use in the drilling process to the extent feasible, removing the water and hauling it away, or by evaporation and allowing solids to settle in excavated mud pits or sumps at the drill site. It's expected that groundwater encountered during the drilling process would be minimal, and the majority would be recirculating or allowed to naturally reinfiltrate into the ground. Therefore, any groundwater loss due to evaporation would be de minimis.

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				Furthermore, the sumps for drilling mud would be designed with a slope ratio of approximately 2H:1V (horizontal to vertical) on one side to allow for wildlife egress out of the sump, if needed.
28.0	28.4	California Department of Fish and Wildlife	There is a discrepancy between the MND/EA and the Biological Resources Assessment (Appendix E of the MND/EA, as indicated in the Table of Contents), which estimates surface disturbance to be 20.54 acres from Drill Areas 1-7, staging area, new access roads, and improvements to existing roads. The Biological Resources Assessment (Appendix E, Section I) estimates surface disturbance to be 21.1 acres. Also, the MND/EA is unclear if these estimations include all 65 proposed drilling locations, spaces and turnarounds for large trucks, heavy equipment, and sumps. The MND/EA should clarify the correct estimation of surface disturbance and provide an accurate description of the accompanying Project activities.	As discussed above, the total 20.54 acres of surface disturbance proposed under the Project was analyzed in the EA/MND, and the analysis accounted for all aspects of surface disturbance, including road improvements, construction of new access roads, construction of the staging area, and all 65 drill sites and associated drill pads, as outlined in Section 2.1 of the EA/MND and specifically calculated in Table 2-1. While the exact locations of drill sites are flexible within the Plan boundary as well as the associated temporary access roads, the acres of surface disturbance for such would be within the 20.54-acre surface disturbance total analyzed in the EA/MND, per the activities outlined in Table 2-1 of the EA/MND. All surface disturbance would be reclaimed concurrently within the drill areas, except for the staging area and new access road that connects to the Oro Cruz Mine Portal, which would be reclaimed after completion of underground exploration and other post-closure reclamation and monitoring activities, anticipated within five years. Note that while the Biological Resources Assessment (Appendix E of the MND/EA) noted a slightly larger surface area of disturbance, 20.54 acres is the correct proposed acres of disturbance per the Plan of Operations deemed complete by the BLM, and the entirety of this proposed surface disturbance area was evaluated within the Biological Resources Assessment.
28.0	28.5	California Department of Fish and Wildlife	Finally, the MND/EA (Appendix A, Section 4.1) includes an estimated time frame for Project mobilization, road construction, drilling, and borehole abandonment to be completed within 12 to 24 months following mining exploration. However, the MND/EA fails to state the estimated period for mining exploration to begin. The MND/EA should clearly state the timing of the entire window of Project activities. In addition, the MND/EA (Appendix A, Section 4.1) states that "drill areas would be potentially revisited a second and third time based on findings," but fails to consider that repeated focused and/or preactivity biological surveys would need to be completed before Project areas are revisited. Due to the unclear timing of the entire project window, revisiting sites without the proper environmental assessment could result in Project-related environmental impacts that cannot be mitigated to a level that is less than significant.	Project activities will commence once the necessary approvals are obtained from both Imperial County and the BLM, as well as other relevant responsible agencies, such as the CDFW, which is currently estimated to occur in the 3rd Quarter of 2023. In general, each drill pad/area would be reclaimed and revegetated following the completion of exploration activities. As discussed in Section 3.23.3 of the EA/MND, interim and concurrent reclamation would be maximized to the extent possible to accelerate revegetation of disturbed areas and would help re-establish wildlife habitat in the short-term; however, reclamation would only commence in those drill areas that would not be revisited. The biological resource surveys and avoidance measures would apply throughout the entirety of the Project, and applicable measures would be implemented as needed if/when certain drill areas are revisited to conduct additional drilling operations. Specifically, a BLM Approved Authorized or Qualified biologist would be onsite anytime equipment is relocated to a new location to ensure potential impacts to desert tortoises are avoided, including if a previously utilized drill area is revisited. The onsite biologist would also survey for special status

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				plants and noxious weeds as needed. See the complete list of PDFs for avoidance and minimization of impacts to wildlife species as provided in Appendix F of the EA/MND.
28.0	28.6	California Department of Fish and Wildlife	Existing Environmental Setting Compliance with CEQA is predicated on a complete and accurate description of the environmental setting that may be affected by the proposed Project. CDFW is concerned that the assessment of the existing environmental setting has not been adequately analyzed in the MND/EA. CDFW is concerned that without a complete and accurate description of the existing environmental setting, the MND/EA likely provides an incomplete or inaccurate analysis of Project-related environmental impacts and whether those impacts have been mitigated to a level that is less than significant. The MND/EA bases its analysis of impacts to biological resources on three reports: (1) WestLand Resources Inc., which conducted a field assessment of the Project site in March 2021 (Appendix E of the MND/EA); (2) Tetra Tech, Inc., which conducted a biological resources assessment in October 2011 (referenced in Appendix A and Appendix E of the MND/EA); and (3) a focused desert tortoise survey conducted by Stantec Consulting Services Inc., on January 8 through 15, 2021 (Appendix E of the MND/EA). However, the MND/EA (Appendix E, Section 5.1.2) indicates that vegetation mapping validation, diurnal raptor surveys, and habitat suitability assessments for Colorado Desert fringe-toed lizard, western burrowing owl, flat-tailed horned lizard, and bat species were all performed during the single field visit conducted by WestLand Resources. In addition, no focused, protocol level surveys were conducted for special-status plant or animal species aside from the focused survey for desert tortoise, which is currently outdated. CDFW is concerned that the field assessments are outdated and were not conducted at the appropriate time(s) of year or using standard protocols to detect all special-status species on-site. CDFW generally considers biological field assessments for wildlife to be valid for a one-year period, and assessments for rare plants may be considered valid for a period of up to three years. Therefore, CDFW recommends that a revised MND/EA or other CEQA document include the results of a complete, recent inventory of rare, threatened, endangered, and other sensitive species located within the Project footprint and within off-site areas with the potential to be affected by Project activities (see "Assessment of Biological Resources" section below).	As discussed under Comment #26.1, biological baseline surveys, including vegetation surveys, were conducted in March 2021, as described in Section 3.20.2 of the EA/MND. The timing of baseline surveys was coordinated with the BLM and the baseline report was deemed complete and approved in June 2021. Impacts to vegetation were analyzed accordingly based on baseline conditions under Sections 3.20.3, 3.20.5, and 3.20.6 in the EA/MND. In addition to the baseline studies conducted in coordination with the BLM, the Project has also incorporated numerous avoidance and minimization measures to ensure that Project activities do not adversely impact threatened, endangered, or other sensitive species. Specifically, detailed desert tortoise avoidance measures (17 total), summarized within the Plan of Operations (Appendix A of the EA/MND), would be implemented onsite. These include but are not limited to pre-construction tortoise surveys, onsite monitoring during tortoise active season, and employee training. Additionally, as discussed in Section 3.23.3 of the EA/MND, SMP has committed to conducting pre-construction surveys within 48 hours of surface disturbance within the species-specific buffers outlined in Appendix F of the EA/MND from the area to be disturbed in order to avoid impacts to migratory birds. Should active nests be identified during the pre-construction surveys, SMP would implement appropriate avoidance buffers around the nest in coordination with the BLM based on the nest species identified. Additionally, Project design features would also be implemented to avoid impacts to other avian, mammalian, and plant species, including the use of avoidance buffers and pre-construction surveys to reduce impacts to less than significant levels during the applicable breeding seasons. A complete list of Project design features for avoidance and minimization of impacts to wildlife species was provided in Appendix F of the EA/MND.
28.0	28.7	California Department of Fish and Wildlife	***Assessment of Impacts to Biological Resources*** Assessment of Biological Resources CDFW is concerned about the potential for special-status species to occur on the Project site. The MND/EA acknowledges the potential for the following special-status species to occur: desert tortoise (*Gopherus agassizii*), burrowing owl (*Athene cunicularia*), prairie falcon (*Falco mexicanus*), peregrine falcon (*Falco peregrinus*), golden eagle (*Aquila chrysaetos*), black-tailed	As discussed under Comment #26.1 and #28.6 above, biological baseline surveys, including vegetation surveys, were conducted in March 2021, as described in Section 3.20.2 of the EA/MND. The timing of baseline surveys was coordinated with the BLM and the baseline report was deemed complete and approved in June 2021. Impacts to vegetation were analyzed accordingly based on baseline conditions under Sections 3.20.3, 3.20.5, and 3.20.6 in the EA/MND.

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			gnatcatcher (*Poliptila melanura*), loggerhead shrike (*Lanius ludovicianus*), Crissal thrasher (*Taxostoma crissale*), Le Conte's thrasher (*Taxostoma lecontei*), nesting birds, Townsend's big-eared bat (*Corynorhinus townsendii*), pallid bat (*Antrozous pallidus*), greater western mastiff bat (*Eumops perotis californicus*), cave myotis (*Myotis velifer*), small-footed myotis (*Myotis ciliolabrum*), California leaf-nosed bat (*Macrotus californicus*), pocketed free-tailed bat (Nyctinomops femorosaccus), desert bighorn sheep (*Ovis canadensis nelsoni*), mule deer (*Odocoileus hemionus eremicus*), flattailed horned lizard (*Phrynosoma mccallii*), and Colorado Desert fringe-toed lizard (*Uma notata*). A query of California Natural Diversity Database (CNDDB) and the Biogeographic Information and Observation System (BIOS) also indicates potential for other special-status species to occur in the Project area, such as Gila woodpecker *(Melanerpes uropygialis*). The MND/EA lacks a recent general assessment of biological resources and surveys for rare, threatened, endangered, and other special-status species located within the Project footprint and surrounding areas. CDFW is concerned that the MND/EA does not include a complete and accurate description of the existing environmental setting. This may result in the MND/EA having an incomplete or inaccurate analysis of Project-related environmental impacts and whether those impacts have been mitigated to a level that is less than significant. To establish the existing environmental setting, the MND/EA should include a complete assessment of the flora and fauna within and adjacent to the Project footprint, with particular emphasis on identifying rare, threatened, endangered, and other special-status species and their associated habitats and an analysis of the level of impacts the Project will have on these resources. No recent, focused, protocol-level surveys were conducted for special-status plant or animal species aside from the focused survey for desert tortoise, which is currently outdated. Absent this information, CDFW cannot conclude that the Project will not have a significant effect on fish and wildlife resources. CDFW recommends that the MND/EA be revised to include the following: A complete, *recent* inventory of rare, threatened, endangered, and other sensitive species located within the Project footprint and within offsite areas with the potential to be affected, including California Species of Special Concern (CSSC) and California Fully Protected Species (Fish and Game Code § 3511). Species to be addressed should include all those which meet the CEQA definition (CEQA Guidelines § 15380). The inventory should address seasonal variations in use of the Project area and should not be limited to resident species. Focused species-specific surveys, completed by a qualified biologist and conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, are required. Acceptable species-specific survey procedures should be developed in consultation with CDFW and the U.S. Fish and Wildlife Service, where necessary. Note that CDFW generally considers biological field assessments for wildlife to be valid for a one-year period, and assessments for rare plants may be considered valid for a period of up to three years. Some aspects of the proposed Project may warrant periodic updated surveys for certain sensitive taxa, particularly if the	Additionally, as discussed under Comment #28.5 above, extensive pre-construction surveys will be conducted on and adjacent to the Project site by a qualified biologist, prior to any new disturbance. These pre-disturbance surveys will ensure that any wildlife species that may have migrated into the Project area following completion of the baseline surveys will be properly avoided and/or effects fully mitigated in accordance with State and Federal law.

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			Project is proposed to occur over a protracted time frame, or in phases, or if surveys are completed during periods of drought. CDFW is also concerned about the potential for special-status species to occur on the Project site over the duration of the Project. A complete assessment of the flora and fauna within and adjacent to the Project footprint should be conducted at each Drill Area prior to mining and reclamation activities. CDFW suggests this information, and any necessary mitigation measures, be addressed in a revised MND/EA or other CEQA document.	
28.0	28.8	California Department of Fish and Wildlife	California Endangered Species Act (CESA) CESA prohibits the take (under Fish & G. Code, § 86, "take" means to hunt, pursue, catch, capture, or kill, or to attempt to hunt, pursue, catch, capture, or kill) of any endangered, threatened, or candidate species that results from a proposed project, except as authorized by state law (Fish & G. Code, §§ 2080, 2085). Consequently, if Project construction or any Project-related activity during the life of the proposed Project would result in take of a CESA-listed species, CDFW recommends that the Project applicant seek appropriate take authorization under CESA prior to implementing the proposed Project. Appropriate authorization from CDFW may include an Incidental Take Permit (ITP), a consistency determination, or other permitting options (Fish and G. Code, §§ 2080.1, 2081, subds. (b), (c)). CDFW encourages early consultation, as significant modification to the proposed Project and avoidance, minimization, and mitigation measures may be necessary to obtain a CESA ITP. Proposed avoidance, minimization, and mitigation measures must be sufficient for CDFW to conclude that the Project's impacts are fully mitigated. CDFW is responsible for ensuring appropriate conservation of fish and wildlife resources including threatened, endangered, and/or candidate plant and animal species, pursuant to CESA. CESA ITPs are issued to conserve protect, enhance, and restore state-listed CESA species and their habitats. More information on ITPs can be found at: https://wildlife.ca.gov/Conservation/CESA/Permitting/Incidental-Take-Permits. Species protected under CESA have the potential to occur within the Project site, such as desert tortoise.	As noted in Section 3.23 of the EA/MND, a biological analysis was conducted that analyzed both the broader Project Area and proposed disturbance footprint to determine the presence of threatened and endangered species covered under the California Endangered Species Act (CESA). Based upon the results of the biological analysis baseline surveys, it was determined that potential impacts to threatened or endangered species covered under CESA, including the desert tortoise, would be avoided through the implementation of avoidance and minimization measures. Specifically, Project activities would be monitored throughout the life of the Project to avoid potential impacts to Mojave Desert tortoise habitat year round. Pre-construction desert tortoise surveys would be conducted by an Authorized or Qualified Biologist within the area to be disturbed, plus a 500-foot buffer, and the Authorized or Qualified Biologist would be onsite within 24 hours of commencement of Project activities. Per the PDFs, CMAs, and BLM required mitigation measures outlined in Appendix F of the EA/MND, pre-construction surveys would be conducted prior to surface disturbing activities under the Proposed Action in order to identify present of wildlife species and determine whether a change in drill siting must occur and/or additional impact minimization or avoidance measures may be necessary, which would be coordinated directly with the BLM. If future site biological surveys indicate additional permits are required, SMP will work with both the CDFW and BLM to ensure that all State and Federal laws are adhered to.
28.0	28.9	California Department of Fish and Wildlife	Special-Status Plants Based on review of the California Natural Diversity Database (CNDDB) and the Biogeographic Information and Observation System (BIOS), plant species that are state and/or federally listed as endangered and plant species with California Rare Plant Ranks of 1B and 2B have the potential to occur in the Project area. The California Rare Plant Rank 1B indicates plants that are rare, threatened, or endangered in California and elsewhere, and California Rare Plant Rank 2B indicates plants that are rare, threatened, or endangered in California but more common elsewhere. Impacts to	As discussed in Sections 3.23.2 and 3.25.5 of the EA/MND, The USFWS and the CDFW were contacted to obtain a list of threatened and endangered and sensitive species that have the potential to occur within the Project Area (the Project Area plus a 500-foot buffer). The most recent BLM Sensitive Species List was also obtained, which includes threatened and endangered species, and evaluated to determine if any species had the potential to occur within the area of analysis. WestLand evaluated the potential for special-status species to occur in the Project Area. WestLand identified three California Native Plant Society (CNPS) vegetation categories that occur in the Project Area – black mustard (*Brassica*

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			these species must be analyzed during preparation of environmental documents relating to CEQA because they meet the definition of rare or endangered under CEQA Guidelines §15125 (c) and/or §15380. The MND/EA (Section 3.20.2) indicates that "impacts to special status plant species would include the disturbance of up to 20.54 acres of vegetation communities." The MND/EA continues to state that direct impacts to sensitive plant species would occur because "surface disturbance could occur at any location throughout the Project Area as exploration activities progress through the life of the Project." CDFW is concerned that the habitat assessments were not conducted at the appropriate time(s) of year to detect all special status plants on the Project site and did not follow the standard protocol to detect special status plants. The MND/EA (Section 3.20.2) and CNDDB/BIOS indicates that the following special-status plants have historically occurred near the Project site or have the potential to occur: Wiggin's croton (*Croton wigginsii*), sand foot (*Pholisma sonorae*), Munz cholla (*Cylindropuntia munzii*), flat-seeded spurge (Euphorbia platysperma), pink fairy-duster (*Calliandra erophylla*), and glandular ditaxis (*Ditaxis claryana*). The MND/EA includes mitigation measures (PDF-33, LUPA-BIO-PLANT-2, LUPA-BIOSVF-6, LUPA-BIO-VEG-1, and M-8) to address surveys and protections for special-status plants. However, the MND/EA has not provided a complete and accurate analysis of the current environmental setting for the Project site. CDFW recommends that a revised MND/EA or other CEQA document include a thorough, recent, floristic-based assessment of special-status plants completed at the appropriate time(s) of year before Imperial County adopts the MND/EA. CDFW generally considers biological field assessments for rare plants to be valid for a period of up to three years. The results of this assessment should be included in a revised MND/EA or other CEQA document. If any rare, threatened, endangered, or other sensitive plant species are located within the Project site, CDFW recommends that the MND/EA be revised to include appropriate avoidance, minimization, and mitigation measures. For unavoidable impacts to special-status species, on-site habitat restoration and/or enhancement and preservation should be evaluated and discussed in detail. Where habitat preservation is not available on-site, off-site land acquisition, management, and preservation should be evaluated and discussed in detail in a revised MND/EA or other CEQA document. CDFW recommends inclusion of the following mitigation measure: **MM BIO-[A]: Special-Status Plants** **Prior to the adoption of the CEQA document and prior to mining and reclamation activities at each Drill Area and construction site, a thorough floristic-based assessment of special-status plants and natural communities, following CDFW's Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Natural Communities (CDFW 2018 or most recent version) shall be performed by a qualified biologist. Should any state-listed plant species be present in**	*nigra*) and other mustards seminatural stands, blue palo verde (*Parkinsonia florida*)-ironwood alliance, and creosote-brittlebush alliance – as well as three special status plant species – Munz cholla (*Cylindropuntia munzii*), Flat-seeded spurge (*Euphorbia platysperma*), and Pink fairy-duster (*Calliandra erophylla*) – that were determined to have a possible presence or a high potential to occur in the Project Area (WestLand 2021). Note, as discussed in Section 3.20.2 of the EA/MND, these three plant communities are classified as sensitive by the CDFW. Biological baseline surveys, including vegetation and rare plant community surveys, were conducted in March 2021, as described in Section 3.20.2 of the EA/MND. The timing of baseline surveys was coordinated with the BLM and the baseline report was deemed complete and approved in June 2021. Additionally, the timing of the baseline flora surveys was strategically chosen to coincide with the flowering seasons of potential species of concern. Although the three sensitive species above were noted to have the potential to occur within the Project Area, through their onsite surveys WestLand found that vegetation is sparse in both the upland and xeroriparian habitats of the Project area. The uplands consist of a very low-density shrub community dominated by creosote (*Larrea tridentata*) and brittlebush (*Encelia farinose*). In addition, large portions of the Project Area consist of disturbed habitats dominated by non-native annual plants. The xeroriparian habitat generally consists of the same sparse shrub community and includes widely spaced upland trees and ocotillo (*Fouquieria splendens*). In summation, WestLand found that vegetation in the Project Area is uniformly sparse and consists of very low density shrublands, upland trees and highly disturbed habitats. In addition to the CNPS vegetation categories, as discussed under Comment #26.3 above, no BLM special status species have been identified within the Project Area or the vegetation area of analysis per the March 2021 biological baseline surveys, which included vegetation baseline surveys (WestLand 2021). The January 2021 desert tortoise baseline surveys included incidental vegetation sightings while in the field but did not include a complete habitat evaluation or floristic inventory as such work was outside the scope of the desert tortoise surveys (Stantec 2021). The pink fairyduster plant is listed as a CESA special status species and is not a BLM special status species, as delineated in the biological baseline report (WestLand 2021). . Additionally, as outlined in Table 3-36 of the EA/MND, no plant species protected under Imperial County Code are present within the Project Area or vegetation area of analysis. A habitat assessment in accordance with LUPA-BIO-1 was conducted as part of the

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			the Project area, the Project proponent shall obtain an Incidental Take Permit for those species prior to the start of Project activities. Should other special-status plants or natural communities be present in the Project area, the Project proponent shall either fully avoid the plant(s), with an appropriate buffer established by a qualified botanist and marked in the field (i.e., fencing or flagging), or mitigate the loss of the plant(s) through the purchase of mitigation credits from a CDFW-approved bank, or the acquisition and conservation of land approved by CDFW at a minimum 3:1 (replacement-to-impact) ratio. Pursuant to the CEQA Guidelines, section 15097(f), CDFW has prepared a draft mitigation monitoring and reporting program (MMRP) for proposed MM BIO-A–L (see Attachment 1).	biological baseline report (WestLand 2021) for species with potential to occur or may have suitable habitat in the Project Area or vicinity; therefore, this CMA would not be required to be implanted under the Project in addition to the applicant-committed PDFs, additional CMAs, and BLM required additional mitigation (outlined in Appendix F of the EA/MND). Although based on the analysis in the EA/MND summarized above indicate the potential for the Project to impact special-status plant species covered under the CESA would be avoided through the implementation of avoidance and minimization measures, plant species observed in the field during the March 2021 biological baseline surveys do not represent a complete floristic inventory as it is representative of the species that were identified during the surveys and may not be representative of species that are present year-round. As such, the text of the required mitigation measures in Table F-3 of Appendix F of the EA/MND, M-8 and PDF-34 has been clarified to state the pre-construction surveys conducted prior to surface disturbance would include vegetation surveys to ensure that no special status plants are present within areas proposed for disturbance. Appropriate biological monitoring and avoidance measures would be coordinated with the BLM should special status plants be identified during Project implementation. Please note that per Appendix B and Table F-2 of Appendix F of the EA/MND, LUPA-BIO-2 would not be required for implementation under the Proposed Action as required pre-construction surveys and continued monitoring would take place during all phases of the Proposed Action by a BLM Authorized Biologist. Specifically, the following PDFs and CMAs, which are similar in nature to CDFW's suggested MM BIO-[A], will be implemented to ensure potential impacts to special-status species are fully avoided: • PDF-34: Pre-construction vegetation surveys, including for noxious and non-native invasive species and special status species, would be conducted in tandem with the pre-construction migration bird surveys described above. Should special status plant species be identified during Project activities, the BLM would require SMP to implement temporary barrier fencing around the individual plants for avoidance and to minimize impacts throughout the life of the Project. • LUPA-BIO-PLANT-2: Implement an avoidance setback of 0.25 mile for all Focus and BLM Special Status Species occurrences. Setbacks will be placed strategically adjacent to occurrences to protect ecological processes necessary to support the plant Species (see

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				Appendix Q, Baseline Biology Report, in the Proposed LUPA and Final EIS [2015], or the most recent data and modeling). • M-8: Should special status plant species be identified during Project activities, the BLM would require SMP to implement temporary barrier fencing around the individual plants for avoidance and to minimize impacts throughout the life of the Project. Through the required pre-construction surveys, including onsite surveys anytime construction equipment is moved to a new location, as well as the implementation of PDFs and CMAs (Appendix F), impacts to special status plants are expected to be avoided and no direct or indirect adverse effects would occur. Nonetheless, if special status plants are observed during the pre-construction surveys that cannot be avoided, SMP would work with CDFW and the appropriate agencies to minimize impacts.
28.0	28.10	California Department of Fish and Wildlife	Nesting Birds It is the Project proponent's responsibility to comply with all applicable laws related to nesting birds and birds of prey. Fish and Game Code sections 3503, 3503.5, and 3513 afford protective measures as follows: Fish and Game Code section 3503 states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by Fish and Game Code or any regulation made pursuant thereto. Fish and Game Code section 3503.5 makes it unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by Fish and Game Code or any regulation adopted pursuant thereto. Fish and Game Code section 3513 makes it unlawful to take or possess any migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. § 703 et seq.). The MND/EA (Section 3.23.2) acknowledges that "twenty avian species have the potential to occur within or near the area" and "17 avian species were documented during the 2021 biological baseline surveys." CDFW is concerned about impacts to nesting birds throughout all phases of the proposed Project activities. Although the MND/EA includes information about performing nesting bird surveys (Appendix F) and offers mitigation measures (PDF-10 and LUPA-BIO-IFS-24), the timing and scope are insufficient to protect nesting birds. CDFW recommends the revised MND/EA or other CEQA document include specific avoidance and minimization measures to ensure that impacts to nesting birds do not occur. Project-specific avoidance and minimization measures may include, but are not limited to, Project phasing and timing, monitoring of Project-related noise (where applicable), sound walls, and buffers, where appropriate. CDFW recommends that disturbance of occupied nests of migratory birds and raptors within the Project site be avoided any	As discussed under #23.17 above, per the PDFs, CMAs, and BLM/County required mitigation measures outlined in Appendix F of the EA/MND, pre-construction surveys for nesting birds would be conducted prior to surface disturbing activities under the Project in order to identify the presence of avian wildlife species and determine whether a change in drill siting must occur and/or additional impact minimization or avoidance measures may be necessary, which would be coordinated directly with the BLM. Specifically, the following PDFs and CMAs, which are similar in nature to CDFW's suggested MM BIO-[B], will be implemented to ensure potential impacts to nesting birds are properly mitigated: • PDF-10: Prior to project activities, pre-construction migratory bird surveys would be conducted by a BLM approved Qualified Biologist within 48 hours of proposed disturbance during the migratory bird breeding season (February 15 to August 31). Should active nests be identified during the pre-construction surveys, the following species-specific avoidance buffers would be implemented: 200 feet for non-ESA listed species; 300 feet for ESA listed species; and 500 feet for raptor species. No work would be conducted within the avoidance buffer areas until a BLM-approved Qualified Biologist determines that the nest is no longer active, fledglings are independent of the nest, the nest has failed, or the BLM approves a buffer reduction deemed appropriate by the Qualified Biologist. If an avoidance buffer needs to be reduced, SMP would contact the U.S. Fish and Wildlife Service (USFWS) and BLM and provide the necessary survey information to support the buffer reduction.

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			time birds are nesting on-site. Pre-activity nesting bird surveys shall be performed within 3 days prior to Project activities to determine the presence and location of nesting birds. As a result, CDFW recommends adding the following mitigation measure: **MM BIO-[B]: Avoidance of Nesting Birds** **Prior to commencing Project activities at each Drill Area and construction site, nesting bird surveys shall be performed by a qualified avian biologist no more than (3) days prior to vegetation removal or ground-disturbing activities. Pre-activity surveys shall focus on both direct and indirect evidence of nesting, including nest locations and nesting behavior. The qualified avian biologist will make every effort to avoid potential nest predation as a result of survey and monitoring efforts. If active nests are found during the pre-activity nesting bird surveys, a qualified biologist shall establish an appropriate nest buffer to be marked on the ground. Nest buffers are species specific and shall be at least 300 feet for passerines and 500 feet for raptors. A smaller or larger buffer may be determined by the qualified biologist familiar with the nesting phenology of the nesting species and based on nest and buffer monitoring results. Established buffers shall remain on-site until a qualified biologist determines the young have fledged or the nest is no longer active. Active nests and adequacy of the established buffer distance shall be monitored daily by the qualified biologist until the qualified biologist has determined the young have fledged or the Project has been completed. The qualified biologist has the authority to stop work if nesting pairs exhibit signs of disturbance.**	Through the required pre-construction surveys, including onsite surveys anytime construction equipment is moved to a new location, as well as the implementation of PDFs and CMAs (Appendix F), impacts to nesting bird species are expected to be properly avoided. Additionally, as described in Section 3.23.3 of the EA/MND, SMP has committed to conducting pre-construction surveys within 48 hours of surface disturbance within the species-specific buffers outlined in Appendix F of the EA/MND from the area to be disturbed in order to avoid impacts to migratory birds. Should active nests be identified during the pre-construction surveys, SMP would implement appropriate avoidance buffers around the nest in coordination with the BLM based on the nest species identified. As such, any potential impacts to migratory birds and raptors would be minor, short-term, and localized, and would generally be avoided through pre-construction nesting bird surveys.
28.0	28.11	California Department of Fish and Wildlife	<u>Burrowing Owl (*Athene Cunicurlaria*)</u> Burrowing owl is a California Species of Special Concern (SSC). Take of individual burrowing owls and their nests is defined by Fish and Game Code section 86, and prohibited by sections 3503, 3503.5, and 3513. Fish and Game Code section 3513 makes it unlawful to take or possess any migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. § 703 et seq.). The MND/EA (Section 3.23.2) acknowledges that "potentially suitable habitat exists within the area" for western burrowing owl. Burrowing owls are known to occupy burrows created by ground squirrels, which were observed during the field assessments (Table 3-34). Also, CNDDB/BIOS indicates that burrowing owl have historically occurred near the Project site. Although the MND/EA includes mitigation measures (LUPA-BIO-IFS-12, LUPA-BIO-IFS-13, and LUPA-BIO-IFS-14) for burrowing owl, the timing and scope are insufficient to protect burrowing owls. CDFW recommends that prior to adoption of the MND/EA, a focused survey for burrowing owl following	As discussed in Section 3.23.2 of the EA/MND, while during WestLand's biological baseline surveys, suitable habitat was documented in the western and southern portions of the area of analysis, but no individuals or sign were physically observed (WestLand 2021). Per the PDFs, CMAs, and BLM required mitigation measures outlined in Appendix F, while there is a low potential for burrowing owl occurrence within the Project Area, should burrowing owls be identified during pre-construction, surveys, the CMA's, LUPA-BIO-IFS-12 through 14 identified in the EA/MND, would be implemented in additional the PDFs and mitigation measures already prescribed within Appendix F of the EA/MND. Specifically, the following PDFs and CMAs, which are similar in nature to CDFW's suggested MM BIO-[C], will be implemented to ensure potential impacts to burrowing owls are properly avoided and/or mitigated: • LUPA-BIO-IFS-12: If burrowing owls are present, a designated biologist (see Glossary of Terms) will conduct appropriate activity specific biological monitoring (see Glossary of Terms) to ensure avoidance of occupied burrows and establishment of the 656 feet (200

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			the recommendations and guidelines provided in the Staff Report on Burrowing Owl Mitigation (CDFG 2012 or most recent version) should be conducted by a qualified biologist. The Staff Report on Burrowing Owl Mitigation specifies that project impact evaluations include the following steps: (1) habitat assessment, (2) surveys, and (3) an impact assessment. The three progressive steps are effective in evaluating whether a project will result in impacts to burrowing owls. The focused survey should be repeated prior to commencement of Project-related activities at each site. Preactivity surveys should also be conducted prior to commencement of Project-related activities at each borrow site. CDFW recommends the revised MND/EA or other CEQA document include specific avoidance and minimization measures to ensure that impacts to burrowing owls do not occur. As a result, CDFW recommends adding the following mitigation measure which includes both focused and pre-activity surveys: **MM BIO-[C]: Burrowing Owl Surveys** **Suitable burrowing owl habitat has been confirmed on the site; therefore, focused burrowing owl surveys shall be conducted in accordance with the Staff Report on Burrowing Owl mitigation (2012 or most recent version) prior to adoption of the CEQA document and no less than 30 days prior to the start of Project activities at each Drill Area and construction site. If burrowing owls are detected during the focused surveys, the qualified biologist and Project Applicant shall prepare a Burrowing Owl Plan that shall be submitted to CDFW for review and approval prior to commencing Project activities. The Burrowing Owl Plan shall describe proposed avoidance, monitoring, relocation, minimization, and/or mitigation actions. The Burrowing Owl Plan shall include the number and location of occupied burrow sites, acres of burrowing owl habitat that will be impacted, details of site monitoring, and details on proposed buffers and other avoidance measures if avoidance is proposed. If impacts to occupied burrowing owl habitat or burrow cannot be avoided, the Burrowing Owl Plan shall also describe minimization and compensatory mitigation actions that will be implemented. Proposed implementation of burrow exclusion and closure should only be considered as a last resort, after all other options have been evaluated as exclusion is not in itself an avoidance, minimization, or mitigation method and has the possibility to result in take. The Burrowing Owl Plan shall identify compensatory mitigation for the temporary or permanent loss of occupied burrow(s) and habitat consistent with the "Mitigation Impacts" section of the 2012 Staff Report and shall implement CDFW-approved mitigation prior to initiation of Project activities. If impacts to occupied burrows cannot be avoided, information shall be provided regarding adjacent or nearby suitable habitat available to owls. If no suitable habitat is available nearby, details regarding the creation and funding of artificial burrows (numbers, location, and type of burrows) and management activities for relocated owls shall also be included in the Burrowing Owl Plan. The	meter) setback to sufficiently minimize disturbance during the nesting period on all activity sites, when practical. • LUPA-BIO-IFS-13: If burrows cannot be avoided on-site, passive burrow exclusion by a designated biologist (see Glossary of Terms) through the use of one-way doors will occur according to the specifications in Appendix D or the most up-to-date agency BLM or CDFW specifications. Before exclusion, there must be verification that burrows are empty as specified in Appendix D or the most up-to-date BLM or CDFW protocols. Confirmation that the burrow is not currently supporting nesting or fledgling activities is required prior to any burrow exclusions or excavations. • LUPA-BIO-IFS-14: Activity-specific active translocation of burrowing owls may be considered, in coordination with CDFW. Through the required pre-construction surveys, including onsite surveys anytime construction equipment is moved to a new location, as well as the implementation of PDFs and CMAs (Appendix F), impacts to nesting bird species are expected to be properly avoided. Therefore, through the implementation of the pre-construction surveys and CMAs/PDFs approved by the BLM, the Project would have less than significant impacts to burrowing owls.

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			Permittee shall implement the Burrowing Owl Plan following CDFW review and approval. **At each Drill Area and construction site, pre-activity burrowing owl surveys shall be conducted no less than 14 days prior to the start of Project-related activities and within 24 hours prior to ground disturbance, in accordance with the Staff Report on Burrowing Owl Mitigation (CDFG 2012 or most recent version). Pre-activity surveys should be performed by a qualified biologist following the recommendations and guidelines provided in the Staff Report on Burrowing Owl Mitigation. If the pre-activity surveys confirm occupied burrowing owl habitat, Project activities shall be immediately halted. The qualified biologist shall coordinate with CDFW and USFWS to conduct an impact assessment to develop avoidance and minimization measures to be approved by CDFW prior to commencing Project activities.**	
28.0	28.12	California Department of Fish and Wildlife	<u>Bats</u> Bats are considered non-game mammals and are afforded protection by State law from take and/or harassment (Fish & G. Code, § 4150; Cal. Code of Regs, § 251.1). Several bat species are considered SSC (CDFW 2022). Impacts on SSC could require a mandatory finding of significance under CEQA (CEQA Guidelines, § 15065). Impacts on bats, either directly or indirectly through disturbances to roosts and loss of habitat, would be a significant impact. Project construction and activities may result in direct and indirect impacts to bats. Direct impacts include removal of vegetation and structures occupied by roosting bats. This could result in injury or mortality to bats as well as loss of roosting habitat. Indirect impacts to bats and roosts could result from increased noise disturbances, human activity, dust, ground-disturbing activities (e.g., staging, mobilizing, excavating, and grading), and vibrations caused by heavy equipment. The MND/EA (Appendix E, Biological Assessment Section 5.1.2) indicates "previous survey efforts detected 20 high value bat roosts in underground mines within the Analysis Area." Additionally, the MND/EA states "these mine features were occupied by a suite of species including California leaf-nosed bat (*Macrotus californicus*), Townsend's big-eared bat (*Corynorhinus townsendii*), pallid bat (*Antrozous pallidus*) and an unknown myotis species, likely cave myotis (*Myotis velifer*)." Appendix E indicates the greater western mastiff bat (*Eumops perotis californicus*) and pocketed free- tailed bat (*Nyctinomops femorosaccus*) also have the potential to occur in the Project Area. Due to the historical occurrence of bats in the Project Area and optimal roosting habitat in mining features, focused surveys and pre-activity surveys for bats should be performed before the commencement of project activities. No compensatory mitigation is proposed in the MND/EA. The Project could result in loss of roosting habitat. Relocating or evicting active hibernacula or maternity roosts is not mitigating for loss of habitat that would occur. CDFW recommends the Lead Agency revise mitigation measure PDF-11 to state that Drill Area-specific field surveys be	See Comments #21.1 through Comment #21.7 above. The PDF-11 to implement a 500-foot avoidance buffer during the bat maternity season (April 1 through August 31) for surface drilling around features with evidence of use by sensitive bat species is in compliance with Volume IV Section 7 Biological Resources in the DRECP Final EIS (BLM 2015) for implementing an avoidance setback of 500 feet around known bat roosts. The EA/MND analyzes effects resulting from surface disturbance only. Underground exploration is not analyzed in the EA/MND as it is not subject to permitting under the 43 CFR 3809 Surface Management regulations, nor SMARA, and is therefore not under the decision-making realm of the BLM or County, respectively, as it pertains to the proposed Project. The proponent has voluntarily conducted LiDAR mapping of the historic Oro Cruz Mine underground workings to inform the underground exploration activities; however, the proponent would make their best attempt at utilizing all available LiDAR data to also support surface drill siting in order to avoid the known voids (including roosts, mine shafts, and adits that may support bat species) in the underground workings. Furthermore, surface drill siting has been preliminarily located in the Plan of Operations based on geologic mapping and would be further developed should the Proposed Action be approved. Surface drilling relies on a constant circulation of fluids to lubricate the drill rig and bring samples to the surface; as such, lost circulation of the fluids would result in a lost drill hole at the depth at which an open cavity is encountered, should the drill rig go through a void, such as an area with an open underground mine working. The Proponent would make the best effort possible so that surface drilling would not intersect with underground workings due to not only technical infeasibility, but also economic infeasibility given the potential loss of productivity of a drill site

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			conducted to determine presence of daytime, nighttime, wintering (hibernacula), and maternity roost sites. Therefore, CDFW recommends adding the following mitigation measure, which includes both focused and pre-activity surveys: **MM BIO-[D]: Bat Surveys** **Prior to adoption of the CEQA document, Imperial County shall retain a qualified biologist to conduct focused surveys to determine presence of daytime, nighttime, wintering (hibernacula), and maternity roost sites in the Project area. Two spring surveys (April through June) and two winter surveys (November through January) shall be performed by qualified biologists. Surveys shall be conducted during favorable weather conditions only. Each survey shall consist of one dusk emergence survey (start one hour before sunset and last for three hours), followed by one pre-dawn re-entry survey (start one hour before sunrise and last for two hours), and one daytime visual inspection of all potential roosting habitat on the Project site. Surveys shall be conducted within one 24-hour period. Visual inspections shall focus on the identification of bat sign (i.e., individuals, guano, urine staining, corpses, feeding remains, scratch marks and bats squeaking and chattering). Bat detectors, bat call analysis, and visual observation shall be used during all dusk emergence and pre-dawn re-entry surveys.** **If active hibernacula or maternity roosts are identified in the work area or 500 feet extending from the work area during preconstruction surveys, for maternity roosts, Project construction will only between October 1 and February 28, outside of the maternity roosting season when young bats are present but are not yet ready to fly out of the roost. Maternity roosts shall not be evicted, excluded, removed, or disturbed. A minimum 500-foot no-work buffer shall be provided around hibernacula. The buffer shall not be reduced. Project-related construction and activities shall not occur within 500 feet of or directly under or adjacent to hibernacula. Buffers shall be left in place until the end of Project construction and activities or until a qualified bat biologist determines that the hibernacula are no longer active. Project-related construction and activities shall not occur between 30 minutes before sunset and 30 minutes after sunrise. Hibernacula roosts shall not be evicted, excluded, removed, or disturbed. If avoidance of a hibernacula is not feasible, the qualified biologist will prepare a relocation plan to remove the hibernacula and provide for construction of an alternative bat roost outside of the work area. A bat roost relocation plan shall be submitted for CDFW review prior to construction activities. The qualified biologist will implement the relocation plan and new roost sites shall be in place before the commencement of any ground-disturbing activities that will occur within 500 feet of the hibernacula. New roost**	if it were to be sited in an area that would potentially intersect with an underground mine working. Per PDF-11 (described in Appendix F of the EA/MND) to implement a 500-foot avoidance buffer during the bat maternity season for surface drilling around features with evidence of use by BLM sensitive bat species, the proponent would utilize data provided by the BLM with locations of known abandoned mine sites that host populations of BLM sensitive bat species to implement the buffer and to inform surface drill siting. Although not included as a mitigation measure, shielded lights on drilling equipment is a standard equipment feature that would be used during nighttime drilling to limit visual impacts from night lighting in the Project Area. Although some of the known bat species with potential to be present within the Project Area do not depend on "hawking" insects from the air and therefore would likely not be drawn to insect population that may be attracted to nighttime drill lighting, there is a potential for some foraging bat species to be present that do rely on "hawking" insects rather than foraging from the ground and/or vegetation; therefore, the creation of a source of light that would attract insects and thus some species of foraging bats is was disclosed as a potential impact within the EA/MND. Additionally, per LUPA-BIO-14, all long-term nighttime lighting will be directed away from riparian and wetland vegetation, occupied habitat, and suitable habitat areas for Focus and BLM Special Status Species. Long-term nighttime lighting will be directed and shielded downward to avoid interference with the navigation of night-migrating birds and to minimize the attraction of insects as well as insectivores birds and bats to project infrastructure. Therefore, through the implementation of the PDFs and CMAs summarized above, which are similar in nature to CDFW's suggested MM BIO-[D], potential impacts to bat species would be properly avoided and/or mitigated. As such, per the PDFs, CMAs, and BLM required mitigation measures included in Appendix F of the EA/MND, pre-construction surveys would be conducted prior to surface disturbing activities in order to identify presence of both wildlife, including bat species, and vegetation species that may require additional coordinated avoidance with the BLM.

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			sites shall be in place prior to the initiation of Project-related activities to allow enough time for bats to relocate. Removal of roosts will be guided by accepted exclusion and deterrent techniques.	
28.0	28.13	California Department of Fish and Wildlife	Colorado Desert Fringe-toed Lizard (*Uma notata*) Colorado Desert fringe-toed lizard is a California Species of Special Concern (SSC). The MND/EA (Appendix E, Biological Assessment Section 6.2) acknowledges there are several areas within the Project area that include isolated sandy patches that may provide habitat for Colorado Desert fringe-toed lizard. These lizards burrow in sand to deposit eggs, thermoregulate, and/or to avoid predators at various times throughout the year. It is crucial to adequately assess whether these reptiles or signs of their presence are present on the Project site well in advance of commencing Project activities. If any special-status reptiles are found onsite, it could delay Project activities. CDFW is concerned that the timing and scope of the habitat assessment were not sufficient to assess whether Colorado Desert fringe-toed lizard are present on the Project site due to their burrowing capabilities, which would be difficult to detect during quick, reconnaissance surveys. Therefore, CDFW recommends that prior to the adoption of the CEQA document, a focused survey for special-status lizards be conducted by a qualified biologist. The focused survey should be repeated prior to commencement of reclamation activities at each Drill Area. The focused surveys should be followed by pre-activity surveys. CDFW recommends the revised CEQA document include specific avoidance and minimization measures to ensure that impacts to the above-listed special-status lizards do not occur. As a result, CDFW recommends adding the following mitigation measure which includes both focused and pre-activity surveys: **MM BIO-[E]: Colorado Desert Fringe-toed Lizard Surveys** **Prior to the adoption of the CEQA document and prior to Project activities at each Drill Area and construction site, a focused survey for Colorado Desert fringe-toed lizards be conducted by a qualified biologist, following the *Survey Protocol for the Blunt-nosed Leopard Lizard* (2019 or most current version), during the species' most active periods (February through November, however, juveniles can be active all year). CDFW recommends working with USFWS and CDFW concurrently to ensure a consistent and adequate approach to planning survey work and that biologists retained to complete special-status lizard protocol-level surveys submit their qualifications to CDFW and USFWS prior to the initiation of surveys.**	As noted previously in response to Comment #23.16, per the requirements and assessment for LUPA-BIO-IFS-10 related to flat-tailed horned lizards in the CMA table in Appendix B of the EA/MND, habitat is not included in the DRECP flat-tailed horned lizard species distribution model and identified occurrence of this species has not been documented within the Project Area. Furthermore, per Tables 5 and 6 of the Biological Resource Technical Report and Assessment (WestLand 2021), there is no potential of occurrence within the Project Area for flat-tailed horned lizard. Per the baseline report, some habitat does exist within the Project Area for Colorado fringe-toed lizard, however there is low potential for occurrence and no species individuals or sign was identified during the 2021 baseline surveys. Per the analysis in Section 3.23.3 of the EA/MND, the Proposed Action would temporarily remove potential forage and habitat for reptile species that would be unavailable until successful completion of reclamation. Disturbance of habitat may impact individual species, but it is not anticipated to impact species populations; as such, potential impacts to reptiles would be minor, short-term, and localized, and would be sufficiently mitigated to less than significant levels through the implementation of applicable avoidance and mitigation measures. Additionally, there are no Aeolian sand transport corridors within or in the vicinity of the Project Area, therefore, per the assessment in the CMA table in Appendix B, LUPA-BIO-1 would not be required to be implemented under the Project. Lastly, per the PDFs, CMAs, and BLM required mitigation measures included in Appendix F of the EA/MND, pre-construction surveys would be conducted prior to surface disturbing activities, or prior to anytime construction equipment is moved to a new location in order to identify presence of both wildlife, including reptilian species such as the Colorado Desert Fringe-toed Lizard, and vegetation species that may require coordinated avoidance with the BLM. Through the implementation of these avoidance and mitigation measures, potential impacts to Colorado Desert Fringe-toed lizard would be less than significant.

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			No more than 30 calendar days prior to the beginning of ground disturbance and/or Project activities at each Drill Area and construction site, a qualified biologist shall conduct pre-activity surveys for Colorado Desert fringe-toed lizard as described in the *Survey Protocol for the Blunt-nosed Leopard Lizard* (2019 or most current version). Pre-activity surveys should include 100- percent visual coverage of the Project area and cannot be combined with other surveys conducted for other species while using the same personnel. If the pre-activity surveys confirm occupied Colorado Desert fringe-toed lizard habitat, Project activities shall be immediately halted, and the qualified biologist shall notify CDFW and USFWS to develop avoidance, minimization, and mitigation measures.	
28.0	28.14	California Department of Fish and Wildlife	Desert Tortoise (*Gopherus agazzizii*) Desert tortoise is listed as a threatened species under CESA and is a candidate for up- listing to endangered under CESA. According to the MND/EA (Section 3.23.2), "evidence of tortoise use of the area was detected in some of the proposed Drill Areas" during the focused desert tortoise surveys conducted by Stantec Consulting Service Inc. on January 8 to 15, 2021. The MND/EA (Section 3.23.2) also acknowledges that appropriate Mojave Desert tortoise habitat is located within the Project area. Additionally, the Project area is closely located (about 6 miles) to the USFWS Critical Habitat for desert tortoise, and CNDDB/BIOS indicates that desert tortoise have historically occurred near the Project site. Chapter 4 of the Desert Tortoise (Mojave Population) Field Manual indicates that "surveys should be conducted during the desert tortoise's most active periods (April through May or September through October)" (USFWS 2009, p. 4–8). CDFW is concerned that the timing and scope of the surveys were insufficient to determine the full extent of desert tortoise on the Project site. Although the MND/EA includes mitigation measures (PDF-12, PDF-13, PDF-14, and M-1) for desert tortoise, the timing and scope are insufficient to protect desert tortoise. CDFW recommends that prior to adoption of the CEQA document, an updated focused survey for desert tortoise following the Desert Tortoise (Mojave Population) Field Manual should be conducted by a qualified biologist. This focused survey should be repeated prior to commencement of Project-related activities at each site. Pre-activity surveys should also be conducted prior to commencement of Project-related activities at each site. CDFW recommends the revised MND/EA or other CEQA document include specific avoidance and minimization measures to ensure that impacts to desert tortoise do not occur. In addition, research indicates a link between mineral mining and toxicant-based disease in desert tortoise (Chaffee and Berry 2006). Mineral mining can result in the delivery of toxicants into nearby soil, water resources, and habitats used by many vulnerable desert species. Soil anomalies in areas near mining districts often contain the elements arsenic, gold, cadmium, mercury, antimony, and tungsten, and plant anomalies contain the elements arsenic, antimony, and tungsten. High concentrations of mercury and arsenic have been found in ill desert tortoises	See previous comment responses related to the Desert Tortoise, primarily in response to Letter #4 received from the Desert Tortoise Council. Per the analysis in Section 3.23.3 of the EA/MND, impacts to threatened and endangered species (including Mojave Desert tortoise), special status species, and general wildlife species are anticipated to be negligible to minor, short-term, and localized, and sufficiently mitigated to less than significant levels through the implementation of the avoidance and minimization measures summarized below. Several Project Design Features (PDFs) have been developed by the proponent for implementation during the Project to avoid or sufficiently mitigate potential impacts. Additional wildlife-specific mitigation measures would be required for implementation by the BLM, as outlined in Appendix F of the EA/MND. Specifically, detailed desert tortoise avoidance measures (17 total), summarized within the Plan of Operations (Appendix A of the EA/MND), would be implemented onsite. These include but are not limited to pre-construction tortoise surveys, onsite monitoring during tortoise active season, and employee training. Additionally, as discussed in Section 3.23.3 of the EA/MND, SMP has committed to conducting pre-construction surveys within 48 hours of surface disturbance within the species-specific buffers outlined in Appendix F of the EA/MND from the area to be disturbed in order to avoid impacts to Mojave Desert tortoise. Surveys for Mojave Desert tortoise may be combined with pre-construction migratory bird surveys if taking place during the nesting season. In addition to the PDFs/CMAs cited by the CDFW, PDF-21 included in Table F-1 of Appendix F of the EA/MND would also be implemented, which notes that if a tortoise is encountered during construction activities, work would be halted immediately per the authority of a designated Field Contact Representative (who would be a BLM-approved Authorized or Qualified Biologist), who would be on-site year round during all Project activities, in proximity to the tortoise until an on-call BLM-approved Authorized Biologist arrives to move the tortoise from harm's way, or until the tortoise leaves of its

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			(Chaffee and Berry 2006). Toxic chemicals from mining have been documented to travel as far as 22 km from the mining areas probably due to wind-borne dust, vehicles, and rainfall. CDFW encourages Imperial County to include in a revised CEQA document an analysis of this potentially significant impact on desert tortoise, as well as appropriate avoidance, minimization, and mitigation measures. CDFW recommends inclusion of the following mitigation measure, which includes focused and pre-activity surveys, in the revised MND/EA or other CEQA document: **MM BIO-[F]: Desert Tortoise Surveys** **Prior to adoption of the CEQA document and prior to commencing Project activities at each Drill Area and construction site, a focused survey for desert tortoise shall be conducted by a qualified biologist, according to protocols in chapter 4 of the Desert Tortoise (Mojave Population) Field Manual (USFWS 2009 or most recent version), during the species' most active periods (April through May or September through October). CDFW recommends working with USFWS and CDFW concurrently to ensure a consistent and adequate approach to planning survey work and that biologists retained to complete desert tortoise protocol-level surveys submit their qualifications to CDFW and USFWS prior to initiation of surveys.** **At each Drill Area and construction site, no more than 14 calendar days prior to start of Project activities, a qualified biologist shall conduct pre-activity surveys for desert tortoise as described in the USFWS *Desert Tortoise (Mojave Population) Field Manual* (USFWS 2009 or most recent version). Pre- activity surveys shall be completed using perpendicular survey routes within the Project area and 50-foot buffer zone. Pre-activity surveys cannot be combined with other surveys conducted for other species while using the same personnel. Project activities cannot start until two negative results from consecutive surveys using perpendicular survey routes for desert tortoise are documented. Should desert tortoise presence be confirmed during the survey, the qualified biologist shall immediately notify CDFW and USFWS to determine appropriate avoidance, minimization, and mitigation measures.**	own accord. Specifically, the following PDFs and CMAs, which are similar in nature to CDFW's suggested MM BIO-[F], will be implemented to ensure potential impacts to desert tortoises are properly avoided and/or mitigated: • PDF-13: Within 24 hours of the commencement of Project activities, a BLM-approved Authorized or Qualified Biologist would inspect the area to be disturbed plus a 500-foot buffer, focusing on areas that could provide suitable desert tortoise burrow or cover sites, such as dry washes with caliche. This may be combined with the above pre-construction migratory bird survey if taking place during the nesting season. Burrows would be flagged such that they would be avoided by Project activities. When requesting authorization of biologists to handle desert tortoises, the Permittee/BLM will submit credentials to the USFWS for review and approval at least 30 days prior to the need for the biologist to perform those activities in the field. • PDF-21: SMP would designate a field contact representative (FCR) who would be responsible for overseeing compliance with protective stipulations for the desert tortoise and for coordination on compliance with the BLM. The FCR must be on-site during all Project activities. The FCR would have the authority to halt Project activities that are in violation of the stipulations. The FCR would have a copy of all stipulations when work is being conducted on the site. The FCR may be a crew chief or field supervisor, a project manager, any other employee of the Project Proponent, or a BLM-approved Authorized Biologist. Any incident occurring during Project activities that is considered by the FCR to be in non-compliance with the mitigation plan would be documented immediately by the FCR. The FCR would ensure that appropriate corrective action is taken. Corrective actions would be documented by the FCR. The following incidents would require immediate cessation of the construction activities causing the incident, including: o Imminent threat of injury or death to a desert tortoise; o Unauthorized handling of a desert tortoise, except on designated roads; o Conducting any construction activity without a biological monitor where one is required. If a tortoise is encountered during construction activities, work would be halted in proximity to the tortoise until an on-call BLM-approved Authorized Biologist can move the animal from harm's way or until the desert tortoise leaves of its own accord.

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				• PDF-34: Injury: Should any desert tortoise be injured or killed, all activities would be halted and the Authorized Biologist immediately contacted. The biologist would have the responsibility for determining whether the animal should be transported to a veterinarian for care, which is paid for by the Project Proponent, if involved. If the animal recovers, the USFWS is to be contacted to determine the final disposition of the animal; few injured desert tortoises are returned to the wild Through the required pre-construction surveys, including onsite surveys anytime construction equipment is moved to a new location, as well as the implementation of PDFs and CMAs (Appendix F) summarized above, impacts to desert tortoise are expected to be fully avoided, or mitigated to less than significant levels. Additionally, pre-construction surveys would be conducted year-round prior to surface disturbance occurring per the PDFs and BLM-required additional mitigation measures included in Appendix F of the EA/MND. Furthermore, the BLM has engaged in consultation with the USFWS pursuant to Section 7 of the Endangered Species Act for approval of an Activity Request Form under the Programmatic Biological Opinion for Mojave Desert tortoise. Lastly, the Project is an exploratory drilling project, and therefore no mining or significant ground disturbance will occur. For this reason, and through ongoing pre-construction surveys for desert tortoise, there would be no Project impacts to desert tortoise related to toxicant-based disease due to mining. For these reasons, the proposed mitigation measures required by the BLM for implementation, in addition to the proponent-committed PDFs in Appendix F of the EA/MND, have been deemed sufficient to avoid or mitigate environmental impacts to threatened and endangered species, including desert tortoise, to less than significant levels under the Proposed Action.
28.0	28.15	California Department of Fish and Wildlife	<u>Minimizing Impacts to Other Species</u> The MND/EA (Section 3.23.5) acknowledges that proposed Project activities have the potential to effect natural communities and lists common species identified during the biological surveys but includes no avoidance and minimization measures. Because of the potential for previously undetected wildlife to occur on the Project site, CDFW recommends inclusion of the following	As discussed in response to previous comments above, per the PDFs and BLM-required additional mitigation measures included in Appendix F of the EA/MND required pre-construction surveys and continued monitoring would take place during all phases of the Proposed Action by a BLM Authorized Biologist. Specifically, PDF-14 requires that a BLM-Qualified Biologist would be on-site during all Project activities or mobilization. Through the required pre-construction surveys, including onsite surveys anytime construction equipment

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			mitigation measure to allow non-listed, non-special- status terrestrial wildlife to leave or be moved out of harm's way: **MM BIO-[G]: Minimizing Impacts to Other Species** **To avoid impacts to terrestrial wildlife, a qualified biologist shall be on-site prior to and during all ground- and habitat-disturbing activities to inspect the Project area prior to any Project activities. Individuals of any wildlife species found shall not be harassed and shall be allowed to leave the project area unharmed. If needed, a qualified biologist may guide, handle, or capture an individual non-listed, non-special-status wildlife species to move it to a nearby safe location within nearby refugium, or it shall be allowed to leave the project site of its own volition. Capture methods may include hand, dip net, lizard lasso, snake tongs, and snake hook. If the wildlife species is discovered or is caught in any pits, ditches, or other types of excavations, the qualified biologist shall release it into the most suitable habitat nearby the site of capture. Movement of wildlife out of harm's way should be limited to only those individuals that would otherwise by injured or killed, and individuals should be moved only as far a necessary to ensure their safety. Measures shall be taken to prevent wildlife from re-entering the Project site. Only biologists with appropriate authorization by CDFW shall move CESA-listed or other special-status species.**	is moved to a new location, as well as the implementation of PDFs and CMAs (Appendix F), potential impacts to wildlife species would be fully avoided or mitigated to less than significant levels. Additionally, the following PDFs and CMAs, which are similar in nature to CDFW's suggested MM BIO-[G], will also be implemented: • PDF-10: Prior to Project activities, pre-construction migratory bird surveys would be conducted by a BLM-approved Qualified Biologist within 48 hours of proposed disturbance during the migratory bird breeding season (February 15 to August 31). These pre-construction surveys would also include vegetation surveys, including noxious and invasive species and special status species. Should active nests be identified during the pre-construction surveys, the following species-specific avoidance buffers would be implemented: 200 feet for non-ESA listed species; 300 feet for ESA listed species; and 500 feet for raptor species. No work would be conducted within the avoidance buffer areas until a BLM-approved Qualified Biologist determines that the nest is no longer active, fledglings are independent of the nest, the nest has failed, or the BLM approves a buffer reduction deemed appropriate by the Qualified Biologist. If an avoidance buffer needs to be reduced, SMP would contact the U.S. Fish and Wildlife Service (USFWS) and BLM and provide the necessary survey information to support the buffer reduction. • PDF-16: All workers, including all construction and drilling contractor personnel, and others who implement Project activities would be given special instruction, which would include training on desert tortoise distribution, general behavior and ecology, protection afforded by state and federal endangered species acts (including prohibitions and penalties), procedures for reporting encounters, and the importance of following the protection measures. The education program may consist of a class or video presented by a BLM-approved Qualified Biologist. The presentation to be used would be reviewed and approved by a BLM biologist. • PDF-18: Personnel would be notified that desert tortoises are not to be handled, fed, or harassed in any way. If encountered, tortoises would be allowed space and time to move from the area on their own volition. • PDF-27: All trash and food items generated by construction and maintenance activities would be promptly contained and regularly removed from the Project site to reduce the attractiveness of the area to common ravens and other desert predators. Portable toilets would be provided on-site if appropriate.

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				• LUPA-BIO-IFS-14: Activity-specific active translocation of burrowing owls may be considered, in coordination with CDFW. • LUPA-BIO-IFS-24: Provide protection from loss and harassment of active golden eagle nests through the following actions: o Activities that may impact nesting golden eagles, will not be sited or constructed within 1-mile of any active or alternative golden eagle nest within an active golden eagle territory, as determined by BLM in coordination with USFWS as appropriate. Appropriate biological monitoring and avoidance measures would be coordinated with the BLM should wildlife and vegetation species be identified during Project implementation.
28.0	28.16	California Department of Fish and Wildlife	Revegetation Plan Imperial County outlines their revegetation plan in the MND/EA Appendix A, Section 6.4 and in the MND/EA Reclamation Plan Application Attachment D. However, CDFW is concerned that the revegetation plan does not identify specific precautions that should be taken to reduce impacts to a level that is less than significant. Therefore, specific areas of focus are outlined below followed by the addition of an avoidance, minimization, and mitigation measure. The MND/EA (Reclamation Plan Application Attachment D, Section 2) acknowledges that vegetation in the Project area consists of low desert shrub dominated by creosote and brittlebush, in addition to disturbed habitats. However, CDFW is concerned that the habitat assessment conducted in March 2021 does not adequately specify or quantify the relative cover of each species in each of the seven Drill Areas. Specifically, before reclamation activities commence, CDFW encourages Imperial County to identify the alliances in the plan and list the species with corresponding relative cover that are found in each alliance in each Drill Area independently. In this way, Imperial County can use the species cover information as a success criterion to identify in detail which components of the communities they are trying to restore. Creosote bush shrubland alliance membership rules per the California Native Plant Society have been developed by local and regional vegetation studies and could offer localized understanding to provide better revegetation success. The MND/EA (Reclamation Plan Application Attachment D, Section 6) states seeds will be purchased from a commercial vendor. CDFW strongly encourages the seeds that are used be from local populations because using non-local seeds introduces plants that are not locally adapted to the area. Restoration projects that use species that are non-local often do not restore natural communities as intended but bring in non-local materials (i.e., genes, pathogens, outbreeding depression, etc.) (Mijnsbrugge et al. 2010) and distribute plants in unnatural groupings.	Revegetation of the disturbed areas would be completed in accordance with applicable BLM standards, as well as Section 3705 (Performance Standards for Revegetation) of the Surface Mining and Reclamation Act (SMARA). The goal of the revegetation efforts will be to ensure the reclaimed lands have a "vegetative cover or density, and species-richness…sufficient to stabilize the surface against effects of long-term erosion and…be similar to naturally occurring habitats in the surrounding area". WestLand found that vegetation within the Project site is sparse in both the upland and xeroriparian habitats, and generally consist of a very low-density shrub community dominated by creosote (*Larrea tridentata*) and brittlebush (*Encelia farinose*). As such, the goal of revegetation will be to establish a similar plant community that is self-sustaining. Additionally, success criteria is identified within Section 2.6.5 of the Reclamation Plan, noting that site revegetation will be deemed successful upon achieving 25 percent of the vegetative cover of adjacent similar vegetation per 20-meter by 1-meter transects. Additionally, success for vegetation density shall be achieved by the establishment of 25 percent total plant cover per 20-meter by 1-meter transect. Similarly, species richness shall be achieved through the establishment of 4 native plant species per 20-meter by 1-meter transect. These species cover and richness success criteria metrics have been approved by both the BLM and County. The proposed revegetation seed mix is a native seed mixture that would be approved by the BLM prior to seeding activities. Seeds will be selected from a local vendor, if available, or from other sources as recommended by the qualified biologist/revegetation specialist. Just prior to seeding, the qualified biologist/revegetation specialist will determine the final species type and

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			The MND/EA (Section 2.1.2) mentions salvaged topsoil and subsoil will be used as a growth medium for revegetation. Salvaged topsoil and subsoil during mining activities is linked to two primary concerns: toxicants and soil age. Mineral mining often results in the delivery of heavy metal toxicants into nearby soil, water resources, and habitats, which is associated with illness in desert tortoise (Chaffee and Berry 2006). Additionally, soil age is an important factor to consider during vegetation restoration. Studies have found that microbial communities in soil stockpiles degreed drastically when stored up to 10-years and reduce plant performance (Gorzelak et al. 2020). Soil microbial communities plan important role in ecosystem functioning and are essential for plant nutrition and health. CDFW is concerned that high levels of metals in soils near the mining areas would ultimately lead to negative biological impacts during revegetation. CDFW is also concerned about the length of time that topsoil will be stored in stockpiles unused as the microbial community within them will degrade and prevent successful revegetation. As a result, CDFW encourages Imperial County to test for heavy metals in their soil stockpiles prior to being used for revegetation and use the soil in a timely manner, preferable less than 10 years of being stored, to prevent the degradation of microbiota necessary for plant health. Activities related to revegetation could lead to negative impacts that cannot be reduced to a level less than significant if Imperial County does not account for species relative cover in their seed mix, sources non-local seeds, and/or disregards possible soil stockpile toxicants or age. As a result, CDFW recommends the following mitigation measure be included in a revised MND/EA or other CEQA document: **MM BIO-[H]: Revegetation Plan** **Within 12 months prior to the initiation of Project activities, and during the appropriate periods (e.g., seasons, weather conditions, times of day) to identify species potentially occurring onsite, the Project proponent shall conduct general and, if necessary, focused biological surveys to identify alliances that occur on the Project site. The Project proponent shall list the species with corresponding relative cover that are found in each alliance in the surrounding area to provide a baseline for vegetation selection. Once the appropriate species are identified that are deemed appropriate to use in the vegetation restoration, the project proponent shall also identify the correct variety or subspecies appropriate for the borrow site locations. If the Project proponent intends to use a commercial vendor to obtain seed mixes, they should ensure that the vendor is using local seeds in their mix with the appropriate variety and subspecies. The Project proponent shall ensure topsoil stockpiles do not contain potentially harmful toxicants and are not stored for over a period of 10-years before being utilized during the vegetation restoration.**	application rates based on the amount and quality of the seeds that are sourced for the Project. The qualified biologist/revegetation specialist will ensure that the selected seed mix, which will also be approved by the BLM, is from local populations. Detailed information of the type and amount of seed planted will be recorded. State law (i.e., SMARA Section 3711) requires that topsoil/subsoil be salvaged and maintained onsite for use as a growth medium for revegetation. Any topsoil/subsoil stored in separate stockpiles and/or berms will be maintained and BMPs implemented to minimize soil erosion. These measures will ensure the topsoil/subsoil would not be impacted by Project exploration activities, and would remain a healthy growth medium for use in site reclamation/revegetation, Furthermore, the following PDFs and CMAs, which are similar in nature to CDFW's suggested MM BIO-[H], will be implemented to ensure reclamation efforts comply with applicable CDFW requirements: • PDF-31: All seed mixes and natural erosion products used for reclamation would be certified weed-free. • PDF-33: All revegetation efforts in the Project Area will be done with a BLM-approved native seed mix that closely matches the surrounding vegetation type. • LUPA-BIO-13: Implement the following CMA for project siting and Design: o Use nontoxic road sealants and soil stabilizing agents.

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28.0	28.17	California Department of Fish and Wildlife	Noise Project exploration activities may result in substantial noise through access road use, equipment, and other Project-related activities. This may adversely affect wildlife species in several ways as wildlife responses to noise can occur at exposure levels of only 55 to 60 dB (Barber et al. 2009). Anthropogenic noise can disrupt the communication of many wildlife species including frogs, birds, and bats (Sun and Narins 2005, Patricelli and Blickley 2006, Gillam and McCracken 2007, Slabbekoorn and Ripmeester 2008). Noise can also affect predator-prey relationships as many nocturnal animals such as bats and owls primarily use auditory cures (i.e., hearing) to hunt. Additionally, many prey species increase their vigilance behavior when exposed to noise because they need to rely more on visual detection of predators when auditory cues may be masked by noise (Rabin et al. 2006, Quinn et al. 2017). Noise has also been shown to reduce the density of nesting birds(Francis et al. 2009) and cause increased stress that results in decreased immune responses (Kight and Swaddle 2011). The MND/EA (Section 3.15.5) acknowledges that sources of construction noise from the Project will be generated using a combination of heavy equipment, including loaders and dozers with the potential to generate ground-borne vibration. Results from three noise scenarios calculated for the various potential equipment to be used in conjunction documented in Appendix E in Figures 1A-1C, Figures 2A-2C, Figures 3A-3C, and Figures 4A-4C, all show that noise levels are likely to exceed 55 dBA in the immediate project vicinity. However, the MND/EA includes no analysis of the impacts of Project-related noise to biological resources. Although the MND/EA includes mitigation measure LUPA-BIO-12 for noise, the timing and scope are insufficient to protect biological resources. Because of the potential for Project-related noise to negatively impact wildlife, CDFW recommends including the following mitigation measure: **MM BIO-[I]: Noise** **Restrict use of equipment to hours least likely to disrupt wildlife (e.g., not at night or in early morning). Do not use generators except for temporary use in emergencies. Power to sites can be provided by solar PV (photovoltaic) systems, cogeneration systems (natural gas generator), small micro- hydroelectric systems, or small wind turbine systems. Consider use of noise suppression devices such as mufflers or enclosure for generators. Sounds generated from any means must be below the 55-60 dB range within 50-feet from the source.**	As discussed in response to Comment #22.3 above, no sensitive wildlife noise receptors were identified during baseline data collection or analysis of the Project. Overall, noise impacts under the Project would be negligible and short-term given that noise impacts from both exploratory drilling and helicopter use would not be stationary and would be temporary in nature. Per the PDFs, CMAs, and BLM required mitigation measures outlined in Appendix F of the EA/MND, pre-construction surveys would be conducted prior to any surface disturbance commencing to identify presence of wildlife species, in accordance with the measures required under the DRECP for impacts to biological resources (BLM 2015). Should the presence of wildlife species be identified, any additional avoidance or impact minimization measures, including those related to noise, would be coordinated with the BLM for implementation. Additionally, per Section 3.23.3 of the EA/MND, drills would be shielded per the standard equipment specifications during nighttime drilling. Furthermore, as discussed in response to Comment #24.2 above, PDF-11 states the Project would implement an avoidance setback of 500 feet around known bat roosts. Additionally, pre-construction desert tortoise surveys would be conducted by a BLM Authorized or Qualified Biologist within the area to be disturbed, plus a 500-foot buffer, and the BLM Authorized or Qualified Biologist would be onsite during initial Project activities or mobilization. Acoustic modeling was conducted to determine the furthest distance that noise generated by the Project would travel, attenuating at 25 dBA, a nearly imperceptible level of noise to the human ear (Saxelby 2022). The BLM did not identify wildlife sensitive receptors during baseline data collection for noise and/or vibrational impacts as a result of drilling activities. The Project would be temporary and not stationary to one location as Project activities would move between each Drill Area. CMA LUPA-BIO-12 would also be implemented to minimize noise impacts to BLM special status and sensitive wildlife species (including threatened and endangered species), as described in Appendix F of the EA/MND. Impacts to Mojave Desert tortoise under the Project are anticipated to be minor, short-term, and localized. Furthermore, the BLM has engaged in consultation with the USFWS pursuant to Section 7 of the Endangered Species Act for approval of an Activity Request Form under the Programmatic Biological Opinion for Mojave Desert tortoise.

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				Additionally, the following PDFs and CMAs, which are similar in nature to CDFW's suggested MM BIO-[I], will be implemented to ensure potential impacts related to noise are properly avoided and/or mitigated: • LUPA-BIO-12: For activities that may impact Focus or BLM Special Status Species, implement the following LUPA CMA for noise: o To the extent feasible, and determined necessary by BLM to protect Focus and BLM sensitive wildlife species, locate stationary noise sources that exceed background ambient noise levels away from known or likely locations of BLM sensitive wildlife species and their suitable habitat. o Implement engineering controls on stationary equipment, buildings, and work areas including sound-insulation and noise enclosures to reduce the average noise level, if the activity will contribute to noise levels above existing background ambient levels. o Use noise controls on standard construction equipment including mufflers to reduce noise. Based upon the results of the EA/MND analysis, and through the continued implementation of the PDFs and CMAs (Appendix F) summarized above, potential noise impacts would be less than significant, with no additional mitigation required.
28.0	28.18	California Department of Fish and Wildlife	Artificial Light Artificial nighttime lighting often results in light pollution, which has the potential to significantly and adversely affect fish and wildlife. Artificial lighting alters ecological processes including, but not limited to, the temporal niches of species; the repair and recovery of physiological function; the measurement of time through interference with the detection of circadian and lunar and seasonal cycles; and the detection of resources and natural enemies and navigation (Gatson et al. 2013). Many species use photoperiod cues for communication (e.g., bird song; Miller 2006), determining when to begin foraging (Stone et al. 2009), behavior thermoregulation (Beiswenger 1977), and migration (Longcore and Rich 2004). Phototaxis, a phenomenon which results in attraction and movement towards light, can disorient, entrap, and temporarily blind wildlife species that experience it (Longcore and Rich 2004). The MND/EA (Section 3.21.5) indicates nighttime operations would require the use of artificial light; however, impacts to biological resources are not analyzed. Although the MND/EA includes mitigation LUPA-BIO-13 for light, the timing and scope are insufficient to protect biological resources. The direct and indirect impacts of artificial nighttime lighting on biological resources	As discussed in response to Comment #21.3 above, shielded lights on drilling equipment is a standard equipment feature that would be used during nighttime drilling to limit visual impacts from night lighting in the Project Area and is not included as a mitigation measure. Although some of the known bat species with potential to be present within the Project Area do not depend on "hawking" insects from the air and therefore would likely not be drawn to insect population that may be attracted to nighttime drill lighting, there is a potential for some foraging bat species to be present that do rely on "hawking" insects rather than foraging from the ground and/or vegetation. Additionally, although not prescribed as a mitigation measure, Section 3.21.5 of the EA/MND notes that operations during the time of year when daylight hours are shorter, or for any required outdoor nighttime operations, only minimal nighttime lighting would be employed to provide a safe working environment. If nighttime lighting is required, high-pressure sodium and/or cut-off fixtures (or equivalent International Dark-Sky Association-approved fixtures) would be used instead of mercury-vapor fixtures for any required nighttime lighting. Additionally, the lighting fixtures would be used in manner intended to illuminate

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			including migratory birds that fly at night, bats, and other nocturnal and crepuscular wildlife should be analyzed, and appropriate avoidance and minimization measures should be included in a revised MND/EA or other CEQA document. Because of the potential for artificial nighttime lighting used during construction to impact biological resources, CDFW recommends that the revised MND/EA or other CEQA document include the following mitigation measure: **MM BIO-[J]: Artificial Light** **During Project construction and operation, Imperial County shall eliminate all nonessential lighting throughout the Project area and avoid or limit the use of artificial light during the hours of dawn and dusk when many wildlife species are most active. The County shall ensure that lighting for Project activities is shielded, cast downward, and does not spill over onto other properties or upward into the night sky (see the International Dark-Sky Association standards at http://darksky.org/). Use LED lighting with a correlated color temperature of 3,000 Kelvins or less, properly dispose of hazardous waste, and recycle lighting that contains toxic compounds with a qualified recycler.**	work areas within the Project site, and/or to areas that do not include light-sensitive uses. Additionally, per the PDFs, CMAs, and BLM required mitigation measures included in Appendix F of the EA/MND, pre-construction surveys would be constructed prior to surface disturbing activities in order to identify presence of both wildlife and vegetation species that may require coordinated avoidance, including measures related to artificial light, with the BLM. Additionally, the following PDFs and CMAs, which are similar in nature to CDFW's suggested MM BIO-[J], will be implemented to ensure potential impacts related to artificial light are properly avoided and/or mitigated: • PDF-11: During the bat maternity season (April 1 to August 31), SMP would implement a 500-foot avoidance buffer for drilling activities around features with evidence of use by BLM sensitive bat species. No prolonged drilling activity (i.e., drill site operations) would occur within this buffer; however, overland travel via access routes through the buffer would be permitted. SMP would utilize shielded lights that would limit nighttime drilling lighting within the avoidance buffers. • LUPA-BIO-13: o Long-term nighttime lighting on project features will be limited to the minimum necessary for project security, safety, and compliance with Federal Aviation Administration requirements and will avoid the use of constant-burn lighting. o All long-term nighttime lighting will be directed away from riparian and wetland vegetation, occupied habitat, and suitable habitat areas for Focus and BLM Special Status Species. Long term nighttime lighting will be directed and shielded downward to avoid interference with the navigation of night-migrating birds and to minimize the attraction of insects as well as insectivorous birds and bats to project infrastructure. Based upon the results of the EA/MND analysis, and through the continued implementation of the PDFs and CMAs (Appendix F) summarized above, potential lighting impacts would be less than significant, with no additional mitigation required.For these reasons, the minimal use of nighttime lighting would not create undue light pollution, nor result in a significant impact to nocturnal wildlife species.
28.0	28.19	California Department of Fish and Wildlife	CDFW's Lake and Streambed Alteration Program	As discussed under Comment #26.4, the Tumco Wash, depicted on Figure 2-1 of the EA/MND is an ephemeral wash and conveys water only during storm events,

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			Fish and Game Code section 1602 requires an entity to notify CDFW prior to commencing any activity that may do one or more of the following: substantially divert or obstruct the natural flow of any river, stream, or lake; substantially change or use any material from the bed, channel or bank of any river, stream, or lake; or deposit debris, waste or other materials that could pass into any river, stream or lake. Note that "any river, stream or lake" includes those that are episodic (i.e., those that are dry for periods of time) as well as those that are perennial (i.e., those that flow year-round). This includes ephemeral streams, desert washes, and watercourses with a subsurface flow. It may also apply to work undertaken within the flood plain of a body of water. Upon receipt of a complete notification, CDFW determines if the proposed Project activities may substantially adversely affect existing fish and wildlife resources and whether a Lake and Streambed Alteration (LSA) Agreement is required. An LSA Agreement includes measures necessary to protect existing fish and wildlife resources. CDFW may suggest ways to modify the Project that would eliminate or reduce harmful impacts to fish and wildlife resources. CDFW's issuance of an LSA Agreement is a "project" subject to CEQA (see Pub. Resources Code § 21065). To facilitate issuance of an LSA Agreement, if necessary, the MND/EA should fully identify the potential impacts to the lake, stream, or riparian resources, and provide adequate avoidance, mitigation, and monitoring and reporting commitments. Early consultation with CDFW is recommended since modification of the proposed Project may be required to avoid or reduce impacts to fish and wildlife resources. To submit a Lake or Streambed Alteration notification, visit: https://wildlife.ca.gov/Conservation/Environmental-Review/LSA. The MND/EA (Section 3.22.2) indicates that "a total of 432 aquatic resource features (i.e., drainages, tributaries, stream channels), including one pond, have been mapped within and in the vicinity of the Project Area." CDFW recommends the following mitigation measure be added to a revised MND/EA or other CEQA document: **MM BIO-[K]: Lake and Streambed Alteration (LSA) Program** **Prior to Project-activities and issuance of any grading permit, the Project Sponsor shall obtain written correspondence from the California Department of Fish and Wildlife (CDFW) stating that notification under section 1602 of the Fish and Game Code is not required for the Project, or the Project Sponsor shall obtain a CDFW-executed Lake and Streambed Alteration Agreement, authorizing impacts to Fish and Game Code section 1602 resources associated with the Project.**	as stated in Section 3.22.3 of the EA/MND. The Project would require a Construction Stormwater General Permit (CGP) pursuant to the Regional Water Resources Control Board National Pollutant Discharge Elimination System requirements, and a BLM approved SWPPP would be developed and implemented to control sedimentation from disturbance associated with Project activities. The Project would also require a Lake and Streambed Alteration (LSA) Agreement with the California Department of Fish and Wildlife (CDFW) pursuant to California Fish and Game Code Section 1602. Potential impacts to surface water quality would be minimized by the implementation of the PDFs outlined in Appendix F, as well as incremental reclamation. Additional CMAs would also be implemented to minimize resource conflicts and water quality impacts, described in Appendix F. For these reasons, the Project would have a negligible, short-term, and localized potential impacts on surface water resources, and potential impacts would be avoided or mitigated to less than significant levels through the implementation of the BLM-approved SWPPP. All Project access roads would be used strictly for Project support vehicles to access the exploration Drill Areas, and they would be signed as having limited access to prevent public use. Please note that the text of the EA/MND has been clarified to state the proposed new access road leading to Drill Area 1 would not be permanent – it would remain as a post-exploration feature for reclamation, monitoring, and underground exploration activities until complete, anticipated within five years. Additionally, pre-construction surveys would be conducted prior to any surface disturbance activity. Any results from the pre-construction surveys that may require additional impact minimization or avoidance measures, including those related to surface waters, would be coordinated with the BLM. As discussed under Comment #23.5, potential impacts to surface and groundwater under the Proposed Action, including water quality, would be negligible, short-term, and localized per the analysis provided in Section 3.22.3, and were found to be less than significant through implementation of appropriate avoidance and mitigation measures. Additionally, the Project would acquire the necessary waters of the state permitting, including the Lake and Streambed Alteration (LSA) Agreement with the CDFW, and a Construction Stormwater General Permit with the Regional Water Quality Board pursuant to California State Water Resources Control Board requirements. As such, neither undue impairment nor pollution of streams and waters within the CDCA would occur under the Project. An LSA application was submitted to the CDFW for the Project, and either final approval or concurrence that no Waters of the State (WOTS) will be impacted by the Project will be obtained from the CDFW prior to any ground-disturbing activities. Similarly, a draft SWPPP has been

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				prepared for the Project site. The SWPPP, which has been reviewed and approved by the BLM, will be submitted to and approved by the Water Board prior to any ground-disturbing activities. Note that through obtaining the necessary approvals from both the CDFW and the Water Board, the Project would address CDFW's recommended measures under MM BIO-[K], and impacts would be less than significant.
28.0	28.20	California Department of Fish and Wildlife	Employee Awareness of Wildlife Resources CDFW is concerned that because the Project area is surrounded by open desert, reclamation activities will bring biological hazards common to urban areas to the rural landscape. Waste management must be a priority as accessible waste can encourage opportunistic species such as rats, ravens, and coyotes to become more prevalent, posing a substantial predation hazard to wildlife. Predators like ravens and coyotes are both known to prey on desert tortoise and other sensitive species. Waste management plans should include waste receptacles with closing, lockable lids and a waste removal schedule that does not allow for excess waste to accrue. Increased traffic may also pose a hazard to species in the form of vehicle-animal collisions, which often lead to the death of the animal. For slow-moving species like desert tortoise, busy access roads in their territory can have a significant impact on populations. Project activities, including all phases of the mining plan for the life of the Project, will affect local wildlife. Part of the Project Proponent's responsibility is to educate individuals that will be on-site, whether they are employees or contractors, on the wildlife species that may be present and how to limit impacts to wildlife species in the area. CDFW recommends that the following mitigation measure be added to the revised MND/EA or other CEQA document: **MM BIO-[L]: Employee Awareness of Wildlife Resources** **A qualified biologist shall conduct an education program for all persons employed or otherwise working on the Project site prior to performing any work on-site. The program shall consist of a presentation that includes a discussion of the biology of the habitats and species that may be present at the site. The qualified biologist shall also include as part of the education program information about the distribution and habitat needs of any special status species that may be present, legal protections for those species, penalties for violations, and mitigation measures. The Employee Education Program should include, but not be limited to: (1) best practices for managing waste and reducing activities that can lead to increased occurrences of opportunistic species and the impacts these species can have on wildlife in the area; (2) protected species that have the potential to occur on the Project site including, but not limited to, rare and sensitive plants, burrowing owl, desert tortoise, Colorado Desert Fringe-toed Lizard, bats, and nesting birds; (3)**	As discussed throughout the EA/MND, as well as within the Plan of Operations (SMP 2021) and the Reclamation Plan (Sespe 2022), all onsite workers, including all construction and drilling contractor personnel, and others who implement Project activities would be given special instruction, which would include training on distribution, general behavior and ecology, protection afforded by State and Federal endangered species acts (including prohibitions and penalties), and procedures for reporting encounters, and the importance of following the protection measures. See the 17 avoidance and minimization measures outlined in the Plan of Operations (Appendix A of the EA/MND) which provide additional detail related to worker training and wildlife education programs, maintenance of onsite roads and speed limit requirements, food and trash management, etc. Minimal quantities of any non-hazardous trash generated by the contractors and onsite employees would be collected in appropriate containers and removed as required in accordance with applicable laws and regulations. No refuse would be disposed of onsite. Additionally, the following PDFs and CMAs, which are similar in nature to CDFW's suggested MM BIO-[L], will be implemented to ensure onsite employees are properly trained to avoid and/or mitigate potential effects to wildlife and biology: • PDF-16: All workers, including all construction and drilling contractor personnel, and others who implement Project activities would be given special instruction, which would include training on desert tortoise distribution, general behavior and ecology, protection afforded by state and federal endangered species acts (including prohibitions and penalties), procedures for reporting encounters, and the importance of following the protection measures. The education program may consist of a class or video presented by a BLM-approved Authorized or Qualified Biologist. The presentation to be used would be reviewed and approved by the BLM Wildlife biologist or another BLM biologist.

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			the location of conservation areas, as well as the importance of ensuring that no refuse or pollution enters the streams or conservation areas and that encroachment into the streams and conservation areas is not permitted during construction or other Project activities. Interpretation shall be provided for any non-English-speaking workers, and the same instruction shall be provided for any new workers prior to their performing any work on- site.	• PDF-28: Feeding of wildlife and/or leaving of food or trash as an attractive nuisance to wildlife is prohibited. Particular attention would be paid to "micro-trash" (including such small items as screws, nuts, washers, nails, coins, rags, small electrical components, small pieces of plastic, glass or wire, and any debris or trash that is colorful or shiny). All trash and food items would be promptly contained within closed, wildlife-proof containers. These would be regularly removed from the Project site to reduce the attractiveness of the area to ravens and other predators. Based upon the results of the EA/MND analysis, and through the continued implementation of the PDFs and CMAs (Appendix F) summarized above, onsite employees will be sufficiently trained to ensure impacts to biological resources are avoided, with no additional mitigation required.
28.0	28.21	California Department of Fish and Wildlife	**ENVIRONMENTAL DATA** CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations. (Pub. Resources Code, § 21003, subd. (e).) Accordingly, please report any special-status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDB). The CNNDB field survey form can be filled out and submitted online at the following link: https://wildlife.ca.gov/Data/CNDDB/Submitting-Data. The types of information reported to CNDDB can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Plants- and-Animals.	As needed, special-status species and natural communities detected during Project surveys, both those already prepared for the EA/MND as well as future site surveys required during the life of the Project, will be reported to the California Natural Diversity Database (CNDDB). Any relevant special-status species or natural communities observed during the ongoing pre-construction surveys will be appropriately reported to the CNDDB.
28.0	28.22	California Department of Fish and Wildlife	**ENVIRONMENTAL DOCUMENT FILING FEES** The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of environmental document filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the environmental document filing fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089.)	The County will ensure that the proper CDFW filing fees have been paid in accordance with applicable State law.
28.0	28.23	California Department of Fish and Wildlife	**CONCLUSION** CDFW appreciates the opportunity to comment on the MND/EA to assist Imperial County in identifying and mitigating Project impacts on biological resources. CDFW concludes that the MND/EA does not adequately identify or mitigate for the Project's significant, or potentially significant, impacts on biological resources. CDFW is concerned that the proposed Project may result in significant impacts to the environment and that the MND/EA may not be appropriate for the Project because of the difficulty of determining impacts and whether those impacts have been	Thank you for your comments. As discussed under Comment #28.3 regarding CDFW's comment on whether the EA/MND is the appropriate level of environmental documentation for the Project, consistent with the CEQA statutes, if a project is found to have no adverse effects, or if the potential effect can be reduced to a level that is less than significant through project revisions/mitigations, a Negative Declaration or MND can be adopted (§21080). Specifically, the statute provides that MNDs may be used, "when the initial study has identified potentially significant effects on the environment, but (1) revisions

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			mitigated to a level that is less than significant. If the revised MND/EA cannot demonstrate that impacts to biological resources are mitigated to a level that is less than significant, CDFW recommends that an Environmental Impact Report be prepared by Imperial County for the Project. CDFW personnel are available for consultation regarding biological resources and strategies to minimize impacts. Questions regarding this letter or further coordination should be directed to Alyssa Hockaday, Senior Environmental Scientist (Specialist), at (760) 920-8252 or Alyssa.Hockaday@wildlife.ca.gov.	in the project plans or proposals made by, or agreed to by, the applicant before the proposed negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur, and (2) there is no substantial evidence in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment" (§21064.5). In summary, if all potential significant impacts can be eliminated or reduced to less than significant, a MND can be prepared in lieu of an EIR. Through preparation of a detailed initial study, as well as a detailed suite of technical studies, Imperial County determined that an MND was the appropriate project document under CEQA. The County also held an Environmental Evaluation Committee (EEC) meeting on November 17th, 2022, where a draft version of the initial study/MND was presented to the public, and to a seven-member panel representing various County agencies/organizations. Through this public process, the EEC determined that the mitigation measures as proposed would reduce the significant effects to a less than significant level, or project design features as included would avoid them all together. For these reasons, the County found that an MND was the appropriate CEQA level of review/documentation for the project. Furthermore, as discussed in response to Comment #23.25 above, the BLM is the sole owner of the land where the Project is proposed, and therefore Imperial County only has discretionary authority over the Reclamation Plan and reclamation activities described therein pursuant to SMARA. As such, the "project" evaluated under CEQA would be those activities specific to site reclamation. Nonetheless, Imperial County and the BLM opted to prepare a joint EA/MND document to ensure that the potential environmental effects of both mining/exploration activities as well as reclamation activities were fully evaluated under CEQA and NEPA.
29.0	29.1	Center for Biological Diversity	Dear Mr. Abraham: These comments are submitted on the IS21-0029 SMP Gold Corp (Oro Cruz) Reclamation Plan #21-0001 Mineral Exploration Project (SCH No. 2022120331) ("Project") from Center for Biological Diversity, Western Watersheds Project, Earthworks, the Sierra Club California/Nevada Desert Committee, Conservation Lands Foundation, Greenaction for Health and Environmental Justice, Mojave Desert Land Trust, California Native Plant Society, and the Ahmut Pipa Foundation (collectively "Conservation Organizations"). These comments supplement and incorporate by reference our previous comments (dated December 16, 2022) on BLM's Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) and proposal to approve the Plan of Operations for the SMP Gold Corp. These comments were sent to the County and are also attached as Exhibit 1. The Conservation Organizations have reviewed the Environmental Assessment and	Thank you for your comments. Note that both comment letters received from the Conservation Organizations have been incorporated by reference pursuant to NEPA and CEQA. As discussed in response to Comment #23.1 above, the BLM held a public comment period from November 16 – December 16, 2022 in accordance with the NEPA process for the EA portions of the joint document. Although a joint document was prepared by the BLM and Imperial County in accordance with NEPA and CEQA, the two analyses are considered separate for the two separate review processes under NEPA and CEQA by the lead agencies. Although the two agencies have coordinated, the review and decision-making processes are considered separate under the two regulations. The public review periods for the

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			Mitigated Negative Declaration ("EA/MND") and associated environmental review documents closely and are concerned that Imperial County ("County") has failed to adequately disclose, analyze, and mitigate the Project's significant environmental impacts as required under the California Environmental Quality Act, Public Resources Code section 21000 et seq. ("CEQA") and 14 California Code of Regulations section 15000 et seq. ("CEQA Guidelines"). The Conservation Organizations urge the County to prepare and circulate an Environmental Impact Report ("EIR") for the Project prior to taking any further action on the Project application.	EA/MND for comments related to the NEPA and CEQA analyses were attempted to be as aligned as possible. Federal agencies, including the BLM, implement NEPA per the procedures developed by CEQ, which is the responsible agency for developing NEPA guidance for implementation. In line with the CEQ guidelines revised in 2020 and then again in 2022 for implementing regulations of NEPA, which does not mandate particular results or substantive outcomes but rather requires Federal agencies to consider environmental impacts of Proposed Actions, the BLM determined that an EA is the appropriate level of NEPA review for the Proposed Action. In following 40 CFR Section 1501.5(c)(1) and 40 CFR 1501.6(a) per the 2022 updates to the NEPA Implementing Regulations under Docket CEQ-2021-0002, the BLM has determined that it has provided sufficient evidence and analysis to deem preparation of an EA followed by issuance of a FONSI appropriate for the Proposed Action per the analysis in the EA/MND that no significant impacts would occur under the Proposed Action. Consistent with the CEQA statutes, if a project is found to have no adverse effects, or if the potential effect can be reduced to a level that is less than significant through project revisions/mitigations, a Negative Declaration or MND can be adopted (§21080). Specifically, the statute provides that MNDs may be used, "when the initial study has identified potentially significant effects on the environment, but (1) revisions in the project plans or proposals made by, or agreed to by, the applicant before the proposed negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur, and (2) there is no substantial evidence in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment" (§21064.5). In summary, if all potential significant impacts can be eliminated or reduced to less than significant, a MND can be prepared in lieu of an EIR. Through preparation of a detailed initial study, as well as a detailed suite of technical studies, Imperial County determined that an MND was the appropriate project document under CEQA. The County held an Environmental Evaluation Committee (EEC) meeting on November 17th, 2022, where a draft version of the initial study/MND was presented to the public, and to a seven-member panel representing various County agencies/organizations. Through this public process, the EEC determined that the mitigations measures as proposed would reduce the significant effects to a less than significant level, or project design features as included would avoid them all together. For these reasons, the County found that an MND was the appropriate CEQA level of

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				review/documentation for the project. Further, public controversy over the possible environmental effects of a project is not sufficient reason to require an EIR "if there is no substantial evidence in light of the whole record before the Lead Agency that the project may have a significant effect on the environment" (§ 21082.2). Furthermore, as discussed in response to Comment #23.25 above, the BLM is the sole owner of the land where the Project is proposed, and therefore Imperial County only has discretionary authority over the Reclamation Plan and reclamation activities described therein pursuant to SMARA. As such, the "project" evaluated under CEQA would be those activities specific to site reclamation. Nonetheless, Imperial County and the BLM opted to prepare a joint EA/MND document to ensure that the potential environmental effects of both mining/exploration activities as well as reclamation activities were fully evaluated under CEQA and NEPA.
29.0	29.2	Center for Biological Diversity	**I. The County Must Prepare an EIR for the Project.** CEQA was enacted for the state to "take all action necessary to protect, rehabilitate, and enhance the environmental quality of the state" and to "[e]nsure that the long-term protection of the environment . . . shall be the guiding criterion in public decisions." (Pub. Res. Code § 21001.) The CEQA Guidelines state that "CEQA was intended to be interpreted in such a manner as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language," and that "[t]he purpose of CEQA is . . . to compel government at all levels to make decisions with environmental consequences in mind." (CEQA Guidelines § 15003.) CEQA is an information document and, as such, "requires full environmental disclosure." (Communities for a Better Environment v. City of Richmond (2010) 184 Cal.App.4th 70, 89.) Only when "there is no substantial evidence in light of the whole record before the public agency that the project . . . may have a significant effect on the environment" may an agency prepare a negative declaration or mitigated negative declaration instead of an EIR. (Pub. Res. Code § 21064.5; *see also id.* §§ 21064, 21080(c).) A mitigated negative declaration, in particular, is prepared "when the initial study has identified potentially significant effects on the environment, but . . . revisions in the project plans or proposals . . . would avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur" and there is no substantial evidence the project may have a significant effect on the environment. (*Id.* § 20164.5.) If there is substantial evidence that a project may have a significant effect on the environment, an agency must prepare an EIR. (*Id.* § 21080(d).) If an agency is presented with so much as "a fair argument that a project may have a significant effect on the environment, the lead agency shall prepare an EIR even though it may also be	See previous responses to Comments #23.1 and #23.26 above. Consistent with the CEQA statutes, if a project is found to have no adverse effects, or if the potential effect can be reduced to a level that is less than significant through project revisions/mitigations, a Negative Declaration or MND can be adopted (§21080). Specifically, the statute provides that MNDs may be used, "when the initial study has identified potentially significant effects on the environment, but (1) revisions in the project plans or proposals made by, or agreed to by, the applicant before the proposed negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur, and (2) there is no substantial evidence in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment" (§21064.5). In summary, if all potential significant impacts can be eliminated or reduced to less than significant, a MND can be prepared in lieu of an EIR. Through preparation of a detailed initial study, as well as a detailed suite of technical studies, Imperial County determined that an MND was the appropriate project document under CEQA. The County held an Environmental Evaluation Committee (EEC) meeting on November 17th, 2022, where a draft version of the initial study/MND was presented to the public, and to a seven-member panel representing various County agencies/organizations. Through this public process, the EEC determined that the mitigations measures as proposed would reduce the significant effects to a less than significant level, or project design features as included would avoid them all together. For these reasons, the County found that an MND was the appropriate CEQA level of

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			presented with other substantial evidence that the project will not have a significant effect." (CEQA Guidelines § 15064(f)(1); *see also No Oil, Inc. v. Los Angeles* (1974) 13 Cal.3d 68, 75.) The CEQA Guidelines provide guidance for determining if a project's effects are significant. Such a determination "calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data" and a "consider[ation of] the views held by members of the public in all areas affected." (*Id.* § 15064(b)-(c).) The lead agency must consider both direct and indirect physical changes in the environment caused by the project. (*Id.* § 15064(d).) CEQA also requires consideration of cumulative impacts. An EIR is required "if the cumulative impact may be significant and the project's incremental effect, though individually limited, is cumulatively considerable . . . when viewed in connection with the effects of past projects, the effects of other current project, and the effects of probable future projects." (*Id.* § 15064(h)(1).) Cumulatively considerable environmental effects require a mandatory finding of significance. (*Id.* § 15065(a)(3).) CEQA also has a substantive mandate and requires effective mitigation. "Public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects." (Pub. Res. Code § 21002.) CEQA requires mitigation measures to be "fully enforceable through permit conditions, agreements, or other measures." (*See id.* § 21081.6(b); CEQA Guidelines § 15126.4(a)(2).) "Formulation of mitigation measures should not be deferred until some future time." (CEQA Guidelines § 15126.4(a)(1)(B).) The Project's impacts on biological resources, air quality and greenhouse emissions, energy, water supply, cultural resources and numerous other factors are readily apparent given the type, location and scale of the project. Any one of these factors alone is sufficient to warrant preparation of an EIR.	review/documentation for the project. Further, public controversy over the possible environmental effects of a project is not sufficient reason to require an EIR "if there is no substantial evidence in light of the whole record before the Lead Agency that the project may have a significant effect on the environment" (§ 21082.2). Although not required under CEQA for an MND, direct and indirect (i.e., cumulative) impacts are discussed for all present and potentially affected resources under NEPA within Chapter 3 of the EA/MND. Cumulative impacts to resources that are anticipated to have greater than negligible impacts, per the requirements under the BLM NEPA Handbook (Manual H-1790-1, BLM 2008) stating that a cumulative effects analysis is not needed on resources determined to not be impacted by the Project, alternatives (pg. 57), are also discussed within Chapter 3 for Native American Religious Concerns and Traditional Values, Recreation, Soils, Vegetation, and Wildlife resources. Furthermore, although also not require under CEQA for an MND, the BLM considered the following three alternatives to the Project (see Section 2.3 of the EA/MND) to be reasonable for consideration in accordance with 40 CFR 1501.5 and the requirements of Section 102(2)(E) of NEPA: Access Road Restriction Alternative, Seasonal Restriction Alternative, and Helicopter Access Only Alternative. The consideration for each alternative for analysis is described in each subsection of Section 2.3. All three alternatives that were considered in addition to the Proposed Action/Project and No Action Alternative were deemed infeasible per the justifications provided in Section 2.3 and were eliminated from further analysis in the EA/MND. Lastly, due to the nature of the Project (i.e., an exploratory drilling project), in general the EA/MND found that potential environmental effects would be negligible, short-term, and localized, and would either be avoided or mitigated to less than significant levels through the implementation of the measures described in the EA/MND. Additionally, following the exploratory drilling phase (estimated to last between 12 and 24 months), the entirety of the disturbed areas would be reclaimed in accordance with applicable State and Federal laws. As such, all potential environmental effects were sufficiently avoided or mitigated to less than significant levels, and therefore the County determined an MND was the appropriate level of CEQA documentation, and that an EIR would not be required.

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				As discussed above, the BLM is the sole owner of the land where the Project is proposed; therefore, Imperial County only has discretionary authority over the Reclamation Plan and reclamation activities described therein, pursuant to SMARA. As such, the "project" evaluated under CEQA includes those activities specific to site reclamation. Nonetheless, Imperial County and the BLM opted to prepare a joint EA/MND document to ensure that the potential environmental effects of both mining/exploration activities as well as reclamation activities were fully evaluated, although Imperial County only has discretionary authority over the Reclamation Plan and reclamation activities described therein pursuant to SMARA. Both the public and the County EEC panel members reviewed the entirety of the joint CEQA/NEPA document when rendering the decision to prepare an EA/MND for the Project.
29.0	29.3	Center for Biological Diversity	**II. The EA/MND Lacks an Adequate Analysis of and Mitigation for the Project's Impacts to Biological Resources** The EA/MND lacks adequate detail in the description and analysis of special-status species that occur, have the potential to occur, or historically occurred in and near the Project area. Below we provide just a few illustrative examples of the EA/MND's shortcomings in this respect, though this is not a comprehensive list. The below information provides ample support of a fair argument that the project may have a significant effect on the environment. Accordingly, the County must prepare an EIR. (CEQA Guidelines § 15064(f)(1); see also No Oil, Inc. v. Los Angeles (1974) 13 Cal.3d 68, 75.)	Please refer to the response to Comment #23.1, #23.26 and #29.2 regarding the determination to prepare an EA/MND pursuant to NEPA and CEQA implementing regulations. The BLM and Imperial County confirm that the Center for Biological Diversity, the Sierra Club California/Nevada Desert Committee, Western Watersheds Projects, Earthworks, California Native Plant Society, Greenaction for Health and Environmental Justice, Conservation lands Foundation, Desert Land Trust, and Ahumt Pipa Foundation are on the interested parties list. As discussed under Comment #26.1, #28.6 and #28.8 above, biological baseline surveys, including special-status surveys, were conducted in March 2021, as described in Section 3.20.2 of the EA/MND. The timing of baseline surveys was coordinated with the BLM and the baseline report was deemed complete and approved in June 2021. Based upon the baseline surveys, for those special-status species that were determined to be potentially impacted by the proposed Project, appropriate avoidance and mitigation measures were proposed, and described in the EA/MND, to ensure potential impacts would be less than significant. Additionally, per the PDFs, CMAs, and BLM required mitigation measures outlined in Appendix F of the EA/MND, pre-construction surveys would be conducted prior to surface disturbing activities under the Project and would ensure that any further potential impacts remain less than significant, and that additional minimization or avoidance measures would be coordinated with the BLM as necessary and appropriate based on the findings of the surveys. Furthermore, should special status plants be identified during pre-construction surveys, barrier fencing would be required to be implemented around individual plants to minimize impacts to special status species.

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29.0	29.4	Center for Biological Diversity	**A. Desert Tortoise Are a Special Status Species, the Impacts to Which are Presumed to be Significant.** The CEQA Guidelines indicate that a Project can be expected to have significant impacts to biological resources if the Project has a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service. (CEQA Guidelines, Appendix G, subd. IV(a).) Accordingly, the EA/MND itself indicates that the Project's impacts will be significant if it will "have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate . . . species . . . by the California Department of Fish and Game." (EA/MND at 102[1]; see also CEQA Guidelines § 15065(a)(1) [when performing an initial study, agencies shall make a mandatory finding of significance where a proposed project has the potential to substantially reduce the number or restrict the range of a listed species], California Fish and Game Code § 2085 [CESA candidate species treated like threatened or endangered species].) The Mojave Desert Tortoise is listed as threatened under the Endangered Species Act and California Endangered Species Act ("CESA"). (55 Fed. Reg. 12178 12191, 14 CCR § 670.5.) The tortoise has been the official State Reptile since 1972. (Assembly Bill 1089, Chapter 683, 1972.) In addition, on October 14, 2020, the California Fish and Game Commission ("CFGC") advanced the Mojave Desert Tortoise to candidacy to uplist it from threatened to endangered under CESA, protecting these imperiled species from harm during the ongoing review process. (CFGC 2020.) Consequently, the Project's impacts to the desert tortoise must be considered significant and fully evaluated and disclosed to the public. (*Nelson v. Cnty. of Kern* (2010) 190 Cal.App.4th 252, 284 [information before County showing that mining exploration project could significantly impact plant and animal life in the area meets the fair argument test to require preparation of an EIR.].) Desert tortoise are on the decline throughout their range, including in Imperial County (Allison and McLuckie 2018). In this area, the desert tortoise are part of the most southern population in California, where they endure the most arid and hottest habitat in California. As noted in our attached comments on the NEPA document, "the Picacho Area of Environmental Concern (ACEC) was established in part to conserve the declining Mojave desert tortoise." (Exhibit 1 at p. 21; BLM 2016.) With active burrows and tortoise sign found in some of the drill areas (EA at 98), it is incumbent that these animals be protected from any harms. The EA/MND assumes that any impacts will be mitigated to less-than-significant levels with the avoidance, minimization and mitigation measures outlined in Appendix F, Table F-3. The proposed measures are wholly inadequate to protect the on-site desert tortoise. Accordingly, the Project's impacts will remain significant and should be	See previous comment responses related to the Desert Tortoise, primarily in response to Letter #4 received from the Desert Tortoise Council. Also see the response to Comment #28.15 received from the CDFW. Per the analysis in Section 3.23.3 of the EA/MND, potential Project effects to threatened and endangered species (including Mojave Desert tortoise), special status species, and general wildlife species are anticipated to be negligible to minor, short-term, and localized, and the avoidance and mitigation measures outlined within the EA/MND would ensure potential impacts to Mojave Desert tortoise would be mitigated to less than significant levels. Several PDFs have been developed by the proponent for implementation during the Project to minimize impacts. Additional wildlife-specific mitigation measures would be required for implementation by the BLM, as outlined in Appendix F of the EA/MND. Specifically, detailed desert tortoise avoidance measures (17 total), summarized within the Plan of Operations (Appendix A of the EA/MND), would be implemented onsite. These include but are not limited to pre-construction tortoise surveys, onsite monitoring during tortoise active season, and employee training. Additionally, as discussed in Section 3.23.3 of the EA/MND, SMP has committed to conducting pre-construction surveys within 48 hours of surface disturbance within the species-specific buffers outlined in Appendix F of the EA/MND from the area to be disturbed in order to avoid impacts to special-status species. In addition to the PDFs/CMAs cited by the CDFW, PDF-21 included in Table F-1 of Appendix F of the EA/MND would also be implemented, which notes that if a tortoise is encountered during construction activities, work would be halted immediately per the authority of a designated Field Contact Representative (who would be a BLM-approved Authorized or Qualified Biologist), who would be on-site year round within 24 hours of Project activities commencing. Only a BLM-approved Authorized Biologist would move the tortoise from harm's way, or until the tortoise leaves of its own accord. If a desert tortoise is discovered in harm's way, an Authorized Biologist would move the tortoise into adjacent habitat following the latest USFWS clearance and handling procedures. The tortoise would not be moved more than 300 meters from their capture location. If the Authorized Biologist observes significant clinical signs of ill health, the tortoise should be removed from the wild in coordination with the USFWS. If suitable habitat is not available within 300 m of the tortoises' capture locations or other land ownership restrictions prevent the release of individuals within 300 meters (e.g., privately owned land lacking permission), the tortoise should be

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			considered in an EIR. In that analysis the County must consider adoption of the following additional feasible mitigation measures at minimum: • Commit to secure an "incidental take permit" from the California Department of Fish and Wildlife, in addition to the Federal "take" permit, prior to any groundbreaking activities; • Preconstruction surveys prior to the proposed project implementation; • On-site biological monitor during project implementation who has wildlife agency permits to move desert tortoise out of harm's way; • Fencing of all worksites, roads and other areas of disturbance associated with the proposed project; A detailed raven plan that effectively discourages ravens from being drawn to the site during proposed project implementation as well as during the restoration efforts and fencing removal.	translocated to the Recipient Site identified in the revised Figure 3-14 of the EA/MND. Additionally, pre-construction surveys would be conducted year-round prior to surface disturbance occurring per the PDFs and BLM-required additional mitigation measures included in Appendix F of the EA/MND. Furthermore, the BLM has engaged in consultation with the USFWS pursuant to Section 7 of the Endangered Species Act for approval of an Activity Request Form under the Programmatic Biological Opinion for Mojave Desert tortoise. For these reasons, the proposed mitigation measures required by the BLM for implementation, in addition to the proponent-committed PDFs in Appendix F of the EA/MND, have been deemed sufficient to minimize environmental impacts to threatened and endangered species, including Mojave Desert tortoise, to less than significant levels under the proposed Project.
29.0	29.5	Center for Biological Diversity	**B. The EA/MND Does Not Adequately Describe the Environmental Baseline for Various Other Species.** The EA/MND fails to provide adequate baseline information and description of the environmental setting for species other than the desert tortoise. This deficiency extends to the EA/MND's treatment of rare plants, animals, and communities. For some species or habitats baseline conditions are lacking or totally absent and as a result no impact assessment is provided for these biological resources. The failure to address numerous species may be the result of inadequate surveys.	As discussed under Comment #26.1, #28.6 and #28.8 above, biological baseline surveys, including vegetation surveys, were conducted in March 2021, as described in Section 3.20.2 of the EA/MND. The timing of baseline surveys was coordinated with the BLM and the baseline report was deemed complete and approved in June 2021. Per the impact analysis in Section 3.20.3 and the reclamation measures that would be conducted on all disturbed surfaces, long-term impacts from habitat removal would be reduced. Per the PDFs, CMAs, and BLM required mitigation measures outlined in Appendix F of the EA/MND, pre-construction surveys would also be conducted prior to surface disturbing activities under the Proposed Action and any further impact minimization or avoidance measures would be coordinated with the BLM as necessary and appropriate based on the findings of the surveys. Furthermore, should special-status wildlife or plants be identified during pre-construction surveys, barrier fencing would be required to be implemented around individual plants to minimize impacts to special status species.
29.0	29.6	Center for Biological Diversity	***1. Flat-tailed horned lizard and Colorado fringe-toed lizard*** The EA/MND (at 79) states that surveyors found small sand patches in the western edge of the area of analysis during March 2021 plant surveys. The Plan of Operations states that loose sandy soils are present in the project area. Sandy soils are the preferred habitat for the imperiled flat-tailed horned lizard *Phrynosoma mccallii* and the Colorado Desert fringe-toed lizard (*Uma notata*), both of which are State Species of Special Concern (Thompson 2016). These reptile species may have been dormant in underground burrows or inactive during the surveys which were performed in March 2021. California Department of Wildlife's recommendations for managing the flat-tailed horned	As discussed previously in response to Comment #23.16, per the requirements and assessment for LUPA-BIO-IFS-10 related to flat-tailed horned lizards in the CMA table in Appendix B, habitat is not included in the DRECP flat-tailed horned lizard species distribution model and identified occurrence of this species has not been documented within the Project Area, but outside the area of disturbance. Furthermore, per Tables 5 and 6 of the Biological Resource Technical Report and Assessment (WestLand 2021), there is no potential of occurrence within the Project Area for flat-tailed horned lizard. Per the baseline report, some habitat does exist within the Project Area for Colorado fringe-toed

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			lizard include "limit[ing] habitat disturbance and destruction. Development that leads to habitat conversion or fragmentation should be avoided or limited in … habitat." (*Ibid.*) For the Colorado Desert fringe-toed lizard, "[p]rotecting sand dune habitat from the impact of off-highway vehicle use" is a key management strategy. (*Ibid.*) Implementing these management strategies will help minimize impacts to these lizards and need to be included in the MND. Creation of new roads in this area as part of the proposed Project is of concern because it could further fragment habitat and provide new access for off-highway vehicles. Additionally, the avoidance and minimization measures for desert tortoise may benefit these lizards, but additional analysis and avoidance measure need to be put in place to avoid lizard impacts.	lizard, however there is low potential for occurrence and no species individuals or sign was identified during the 2021 baseline surveys. Per the analysis in Section 3.23.3, the Proposed Action would temporarily remove potential forage and habitat for reptile species that would be unavailable until successful completion of reclamation. Disturbance of habitat may impact individual species, but it is not anticipated to impact species populations; impacts to reptiles would be minor, short-term, and localized, and would be either avoided or mitigated to less than significant levels through the implementation of the measures described in Appendix F of the EA/MND. Additionally, there are no Aeolian sand transport corridors within or in the vicinity of the Project Area, therefore, per the assessment in the CMA table in Appendix B, LUPA-BIO-1 would not be required to be implemented under the Project. Per the PDFs, CMAs, and BLM required mitigation measures outlined in Appendix F, while there is a low potential for Flat-tailed horned lizard and Colorado fringe-toed lizard occurrence within the Project Area, should these lizard species be identified during pre-construction surveys, the appropriate CMA's identified in the EA/MND, would be implemented in additional the PDFs and mitigation measures already prescribed within Appendix F of the EA/MND. Therefore, through the implementation of the pre-construction surveys and CMA's approved by the BLM, the Project would have less than significant impacts to Flat-tailed horned lizard and Colorado fringe-toed lizard, with no additional mitigation required.
29.0	29.7	Center for Biological Diversity	***2. Golden Eagles*** As per our comments on the EA, it is imperative that the County conduct golden eagle nest surveys and discuss compliance with all the federal and state requirements for eagles in detail.	See response to Comment #23.17 above. Golden eagle nest ground surveys were conducted in March 2021 in accordance with the USFWS recommended golden eagle nest survey protocols. Section 3.23.2 of the EA/MND has been revised to clarify that golden eagle nesting surveys were completed and the results of such noted that golden eagles were not present within the raptor analysis area (two-mile buffer around the Project Area). Per the Biological Resource Technical Report and Assessment (WestLand 2021), the raptor analysis area occurs within the known range of golden eagles; however, no historical records for the species occurs within the analysis area and no evidence of golden eagles or golden eagle nesting was observed during the baseline surveys. Additionally, no golden eagle nests are known to occur within 4.4 miles of the analysis area per Diamond et al.'s 2016 species status and distribution model for golden eagles (Westland 2021). As such, golden eagle take, including loss of productivity, would not occur under the Proposed Action and there would be no impacts. Per the PDFs, CMAs, and BLM required mitigation measures outlined in Appendix F of the EA/MND, pre-construction surveys would be conducted prior

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				to surface disturbing activities under the Project in order to identify present of wildlife species and determine whether a change in drill siting must occur and/or additional impact minimization or avoidance measures may be necessary, which would be coordinated directly with the BLM.
29.0	29.8	Center for Biological Diversity	***3. Le Conte's Thrasher*** The California Natural Diversity Database (2023) documents that the Le Conte's thrasher (*Toxostoma lecontei*), a California Species of Special Concern, is present in the general proposed project area. These very shy, non-migratory birds are easily disturbed and known to be "[o]ften exceptionally wary of humans; vulnerable to off-road vehicle activity, other disturbance, and removal of shrubs for agricultural or other development." (CDFW 2005). These birds have been known to be declining for years. (CDFW 2005). The MND must include the results of targeted surveys for Le Conte's thrasher. Based on the outcome of the surveys the MND must be updated to include the outcome of the surveys and the analysis of impacts from the proposed action.	As discussed under Comment #26.1 and #28.6 above, biological baseline surveys, including vegetation surveys, were conducted in March 2021, as described in Section 3.20.2 of the EA/MND. The timing of baseline surveys was coordinated with the BLM and the baseline report was deemed complete and approved in June 2021. Le Conte's Thrasher was not observed onsite during the baseline surveys, and WestLand determined that this species has a "low potential of occurrence" to occur within the Project Area. Additionally, as discussed previously, extensive pre-construction surveys will be conducted on and adjacent to the Project site by a qualified BLM-approved biologist, prior to any new disturbance. These pre-disturbance surveys will ensure that any wildlife species that may have migrated into the Project area following completion of the baseline surveys, including Le Conte's Thrasher, will be properly avoided and/or effects properly mitigated to less than significant levels in accordance with State and Federal law.
29.0	29.9	Center for Biological Diversity	***4. Desert Bighorn Sheep*** Desert bighorn sheep (see map below) historically occupied the Cargo Muchacho Mountains. California Department of Fish and Wildlife is repatriating desert bighorn to various ranges throughout their historic range. While the Cargo Muchachos are not currently being repatriated, the impact to habitat from the exploratory drilling must be analyzed in the context of impacts to future desert bighorn repatriation. Desert bighorn are a "fully protected" species under California law.	See response to Comment #21.6 above. Biological baseline surveys were conducted in March 2021 to ascertain the most current presence of wildlife species in the area of analysis. The baseline data collected was used to analyze impacts to present or potentially present wildlife species as a result of the Proposed Action. Bighorn sheep were not observed during the baseline surveys in the survey area and additional literature and information from recent surveys and the California Natural Diversity Database were reviewed to support the conclusions made in the baseline report. Pre-construction surveys would be conducted prior to surface disturbance under the Proposed Action per the PDFs, CMAs, and BLM required mitigation measures outlined in Appendix F of the EA/MND. Should bighorn sheep or other additional wildlife species not previously present be observed, SMP would coordinate additional avoidance or mitigation measures with the BLM as necessary.

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			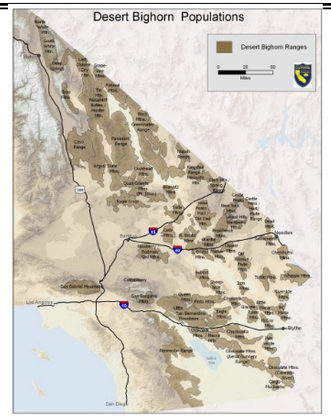 Map of Desert Bighorn Sheep habitat. – CDFW	
29.0	29.10	Center for Biological Diversity	***5. Bats*** While three bat species were identified definitively in the EA/MND and an additional species was speculated, the California Natural Diversity Database (2023) has one record of the western mastiff bat (*Eumops perotis californicus*) occurring in the general area of the proposed project. All these bat species are State Species of Special Concern. These findings collectively also indicate a high level of diversity of bats in the localized area. Additional surveys need to be conducted during the appropriate time of year to evaluate the presence of important roosting sites, including maternity roosts for these species that have that life history requirement, and provide an analysis of potential impacts to these species from the proposed project.	See Comments #21.1 through Comment #21.7, and Comment #28.13 above. The PDF-11 would require SMP to implement a 500-foot avoidance buffer for surface drilling around features with evidence of use by sensitive bat species is in compliance with Volume IV Section 7 Biological Resources in the DRECP Final EIS (BLM 2015) for implementing an avoidance setback of 500 feet around known bat roosts. The EA/MND analyzes effects resulting from surface disturbance only. Underground exploration is not analyzed in the EA/MND as it is not subject to permitting under the 43 CFR 3809 Surface Management regulations, nor SMARA, and is therefore not under the decision-making realm of the BLM or County, respectively, as it pertains to the proposed Project. The proponent has also voluntarily conducted LiDAR mapping of the historic Oro Cruz Mine underground workings to inform the underground exploration activities. The proponent would use all best available LiDAR data to make the best effort to avoid drilling through voids in underground workings. Drill siting to avoid known voids in the underground workings is also in the best interest of the proponent as drills would be sited based on locations where a constant circulation of fluids to lubricate the drill rig and bring samples to the surface is possible, as lost circulation of the fluids would result in a lost drill hole at the depth at which an open cavity is encountered, should the drill rig go through a void, such as an area with an open underground mine working. Surface drilling would not intersect with underground workings due to not only technical

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				infeasibility, but also economic infeasibility given the potential loss of productivity of a drill site if it were to be sited in an area that would potentially intersect with an underground mine working. Per PDF-11 (described in Appendix F of the EA/MND) to implement a 500-foot avoidance buffer during the bat maternity season (April 1 through August 31) for surface drilling around features with evidence of use by BLM sensitive bat species, the proponent would utilize data provided by the BLM with locations of known abandoned mine sites that host populations of BLM sensitive bat species to implement the buffer and to inform surface drill siting. Further, although not included as a mitigation measure, shielded lights on drilling equipment is a standard equipment feature that would be used during nighttime drilling to limit visual impacts from night lighting in the Project Area. Although some of the known bat species with potential to be present within the Project Area do not depend on "hawking" insects from the air and therefore would likely not be drawn to insect population that may be attracted to nighttime drill lighting, there is a potential for some foraging bat species to be present that do rely on "hawking" insects rather than foraging from the ground and/or vegetation; therefore, the creation of a source of light that would attract insects and thus some species of foraging bats is was disclosed as a potential impact within the EA/MND. Therefore, per the PDFs, CMAs, and BLM required mitigation measures included in Appendix F of the EA/MND, pre-construction surveys would be conducted prior to surface disturbing activities in order to identify presence of both wildlife, including bat species, and vegetation species that may require coordinated avoidance with the BLM. Through the implementation of the measures outlined above, potential impacts to bat species would be less than significant.
29.0	29.11	Center for Biological Diversity	***6. Rare Plants*** According to the California Natural Diversity Data base (2023), two additional rare plants have been documented in the general area of the proposed project area. These include the pink fairy-duster (*Calliandra eriophylla*) CRPR 2.3, which is not analyzed despite the EA/MND's acknowledgment that it has a "high likelihood" of occurrence, and the glandular ditaxis (*Ditaxis claryana*) CRPR 2.2, which also is not analyzed despite the EA/MND's acknowledgment that it may occur on site. (EA/MND at 302.) These species, in addition to the plants analyzed in the EA/MND, are tracked by the State of California because of their rarity/threats. As such, the MND is inadequate because it failed to target these species in the appropriately timed botanical surveys and failed to provide a full floral inventory of the species identified on site. Absent adequate surveys, the EA/MND lacks	See response to Comment #23.20 above. Biological baseline surveys, including vegetation surveys, were conducted in March 2021, as described in Section 3.20.2 of the EA/MND. The timing of baseline surveys was coordinated with the BLM and the baseline report was deemed complete and approved in June 2021. Per the impact analysis in Section 3.20.3 and the reclamation measures that would be conducted on all disturbed surfaces, long-term impacts from habitat removal would be reduced. Per the PDFs, CMAs, and BLM required mitigation measures outlined in Appendix F of the EA/MND, pre-construction surveys would be conducted prior to surface disturbing activities under the Proposed Action and any further impact minimization or avoidance measures would be coordinated with the BLM as

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			evidence showing that the Project will not impact these rare plants. Since evidence exists supporting a fair argument that there may be an impact, the County must prepare an EIR.	necessary and appropriate based on the findings of the surveys. Furthermore, should special status plants, including rare listed within the California Natural Diversity Data base, be identified during pre-construction surveys, barrier fencing would be required to be implemented around individual plants to ensure potential impacts to special status species remain less than significant.
29.0	29.12	Center for Biological Diversity	***7. Rare Plant Communities*** The EA/MND identifies the Blue Palo Verde-Ironwood Alliance (also identified by its scientific name *Parkinsonia florida—Olneya tesota* alliance) as microphyll woodlands existing on-site. (EA/MND at 78.) Microphyll woodlands are very important habitat for migratory bird species as well as desert tortoise. (Audubon 2019; Luckenbach 1972.) It is also a sensitive plant community identified by the State of California. (EA/MND at 78.) The EA/MND mapped microphyll woodlands to cover 2 percent of the proposed project area, but the Conservation Biology Institute mapping – which was contracted by federal and state agencies for the Desert Renewable Energy Conservation Plan (DRECP) – mapped a much greater extent of microphyll woodlands than the MND identifies. (Databasin 2014.) A site-specific mapping of the microphyll woodlands (aka Blue Palo Verde- Ironwood Alliance or *Parkinsonia florida—Olneya tesota* alliance) must be done. Since evidence exists supporting a fair argument that there may be an impact to the microphyll woodlands identified in the DRECP, the County must prepare an EIR.	Biological baseline surveys, including vegetation and rare plant community surveys, were conducted in March 2021, as described in Section 3.20.2 of the EA/MND. An analysis of the microphyll woodlands was completed during biological baseline surveys and is included in Appendix E of the EA/MND. Additionally, Figure 3-8 of the EA/MND has been revised to visual the desktop delineated vegetation communities, which includes areas where limited microphyll woodlands are present. The timing of baseline surveys was coordinated with the BLM and the baseline report was deemed complete and approved in June 2021. Impacts to vegetation were analyzed accordingly based on baseline conditions under Sections 3.20.3, 3.20.5, and 3.20.6 in the EA/MND. Please refer to response to Comments #26.1. #26.3 and #28.10 above. While plant species observed in the field during the March 2021 biological baseline surveys make up a representative sample of plant species expected to occur within the Project Area, the observed species do not necessarily represent a complete floristic inventory as it is representative of the species that were identified during the surveys and may not be representative of species that are present year-round. Therefore, to ensure all potential plant communities are properly identified and potential impacts remain less than significant, the text of the BLM required mitigation measures in Table F-3 of Appendix F of the EA/MND, M-8 and PDF-34 has been clarified to state the pre-construction surveys conducted prior to surface disturbance would include vegetation surveys to ensure that no special status plants are present within areas proposed for disturbance. Appropriate biological mitigation and avoidance measures would be coordinated with the BLM should special status plants be identified during Project implementation. Please note that per Appendix B and Table F-2 of Appendix F of the EA/MND, LUPA-BIO-2 would not be required for implementation under the Proposed Action as required pre-construction surveys and continued monitoring would take place during all phases of the Proposed Action by a BLM Authorized Biologist. Through the implementation of the measures outlined above, potential impacts to rare plant communities would be less than significant.
29.0	29.13	Center for Biological Diversity	**III. The EA/MND Fails to Adequately Analyze, Disclose, and Mitigate the Project's Significant Adverse Air Quality Impacts.**	See response to Comment #23.30 above. As stated in Section 3.3.5, the Project would comply with the ICAPCD Regulation VIII – Fugitive Dust Rules, specifically Rules 800 through 806, which

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			The EA/MND's evaluation of the Project's air quality impacts is flawed. It fails to disclose and study the Project's full suite of air quality impacts and fails to adopt all feasible mitigation measures to mitigate those impacts. (*See* EA/MND Sec. 3.3.5.) The County must require an EIR to adequately analyze the Project's air quality impacts, acknowledge their significance, and consider and adopt feasible mitigation to reduce those impacts.	prescribe measures for the management of windblown dust. Additionally, consistent with ICAPCD Rule 801, SMP would develop a site-specific Operation Dust Control Plan, which would be submitted to the ICAPCD, and consistent with Rule 801 requirements, approval would be obtained a minimum of 10 days prior to the first ground disturbing activities as a result of the Project. The Operation Dust Control Plan would also be subject to approval by the BLM. Further, the Project's potential air emissions, including fugitive dust, were quantified and compared to the appropriate annual and daily CEQA emissions thresholds promulgated by the ICAPCD. As shown in Table 3-6 and 3-7 within the EA/MND, the Project's unmitigated air emissions were found to be below applicable ICAPCD construction and operations thresholds pursuant to CEQA. It's also important to note that these emissions estimates did not take into account standard emissions/dust controls or other regulatory programs that the Project would implement. Specifically, as stated in Section 3.3.3 and 3.3.5 in the EA/MND, the emissions estimates presented in Table 3-6 and Table 3-7 did not account for the implementation of standard mitigation measures for construction combustion equipment from the ICAPCD CEQA Air Quality Handbook (ICAPCD 2017), and therefore represented a conservative overestimate of Project impacts. As such, potential air quality impacts associated with the Project would be less than significant, with no mitigation measures required.
29.0	29.14	Center for Biological Diversity	**A. This Project would add extractive development to a region already suffering from poor air quality.** Air quality is a significant environmental and public health concern in California. Unhealthy, polluted air contributes to and exacerbates many diseases and increases mortality rates. The U.S. government estimates that between 10-12 percent of total health costs can be attributed to air pollution. (VCAPCD 2003.) Many plants and trees, including agricultural crops, are also injured by air pollutants. This damage ranges from decreases in productivity, a weakened ability to survive drought and pests, to direct mortality. (*Id.*) Terrestrial wildlife is also affected by air pollution as the plants and trees that constitute their habitats are weakened or killed. Aquatic species and habitats are also affected by air pollution through the formation of acid rain that raises the pH level in oceans, rivers and lakes. Greenhouse gases, such as the air pollutant carbon dioxide which is released by fossil fuel combustion, contribute directly to human-induced climate change (EPA 2016), and in a positive feedback loop, poor air quality that contributes to climate change will in turn worsen the impacts of climate change and attendant air pollution. (BAAQMD 2016.) According to the American Lung Association's 2022 "State of the Air" report, Imperial County has a "Fail" grade for both year-round ozone and particulate matter pollution,	See responses to Comments #23.30 and #29.4 above. As stated in Section 3.3.5, the Project would comply with the ICAPCD Regulation VIII – Fugitive Dust Rules, specifically Rules 800 through 806, which prescribe measures for the management of windblown dust. Additionally, consistent with ICAPCD Rule 801, SMP would develop a site-specific Operation Dust Control Plan, which would be submitted to the ICAPCD, and consistent with Rule 801 requirements, approval would be obtained a minimum of 10 days prior to the first ground disturbing activities as a result of the Project. The Operation Dust Control Plan would also be subject to approval by the BLM. Further, the Project's potential air emissions, including fugitive dust, were quantified and compared to the appropriate annual and daily CEQA emissions thresholds promulgated by the ICAPCD. As shown in Table 3-6 and 3-7 within the EA/MND, the Project's unmitigated air emissions were found to be below applicable construction and operations thresholds pursuant to CEQA. It's also important to note that these emissions estimates did not take into account standard emissions/dust controls or other regulatory programs that the Project would implement. Specifically, as stated in Section 3.3.3 and 3.3.5 in the EA/MND, the

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			under both the 24-hour and annual metrics. (*Id.*) Ozone (commonly referred to as smog) is created by the atmospheric mixing of gases from fossil fuel combustion and other volatile organic compounds and sunlight. Although it is invisible, ozone poses one of the greatest health risks, prompting the EPA to strengthen its National Ambient Air Quality Standard for Ozone in 2015. (ALA 2022.) PM2.5 is a common component of vehicle exhaust emissions and contributes to visible air pollution. These tiny participles are dangerous because they are small enough to escape our body's natural defenses and enter the blood stream. Fugitive dust is the term used to describe the fine particulate matter – PM2.5 and PM10 – that results from ground disturbance, such as construction, road-building operations, or mining. Fugitive dust can impede breathing and cause respiratory irritation, cough, airway obstruction and poor lung function. (Blodgett 2004.) Chronic or long-term exposure can lead to lung inflammation, bronchitis and emphysema and produce a severe lung disease known as silicosis, a form of pulmonary fibrosis. (Hnizdo 2003.) Fugitive dust emissions would result from project operations. (EA/MND at Sec. 3.3.3.)	emissions estimates presented in Table 3-6 and Table 3-7 did not account for the implementation of standard mitigation measures for construction combustion equipment from the ICAPCD CEQA Air Quality Handbook (ICAPCD 2017), and therefore represented a conservative overestimate of Project impacts. As such, potential air quality impacts associated with the Project would be less than significant, with no mitigation measures required.
29.0	29.15	Center for Biological Diversity	**B. By Excluding Stationary Source Emissions, the Project Improperly Underestimates the project's Air Quality Emissions** Although the EA/MND purports to evaluate whether the Project would emit criteria pollutants for which the region is in nonattainment status, it fails to analyze the Project's *total* emissions. (EA/MND at Sec. 3.3.5(b).) The EA/MND's air quality analysis inexplicably omits the Project's stationary source emissions and concludes, based on mobile sources alone, that the Project will have less-than-significant impacts. (*Ibid.*) The EA/MND does not define what is included under the umbrella term "stationary source." It appears to refer to the Imperial County Air Pollution Control District (ICAPCD) rules, which define stationary source to encompass "any building, structure, facility, Equipment, or Emissions Unit which emits or may emit any Affected Pollutant directly or as a Fugitive Emission." (ICAPCD Rule 207.) The County's definition appear to include the wide-range of on-site activities, including the drill rigs, generators, and construction. Even comparing the emissions calculations in Appendix E to the disclosed mobile source emissions in EA/MND Section 3.3.5(b), "stationary sources" appear to be the main driver of the Project's air quality impacts. (See Appendix E.) When the Project's total emissions are calculated, they well exceed the County's thresholds of significance. Yet nowhere does the EA/MND analyze or make a significance finding for total Project emissions. This obscures the Project's true impacts. The EA/MND also claims that it need not consider stationary source emissions because the County's threshold of significance is designed to only evaluate mobile sources.	As described within the ICAPCD's CEQA Air Quality Handbook (ICAPCD, 2017), the thresholds of significance for project operations (Table 1) "*would not be used to determine significance for the air emissions associated with the stationary source, including off-road mobile emissions produced within the stationary source. Those stationary source emissions are already subject to mitigation according to Rule 207, New and Modified Stationary Source Review and Rule 201 and must therefore be excluded. However, the Lead Agency has the authority to request a comprehensive air quality analysis or an EIR to address the impact of the stationary source regardless of the threshold in table 1, according to CEQA guidelines.*" While this statement is consistent with County/ICAPCD CEQA guidance, and was therefore included in the EA/MND for context. Although ICAPCD CEQA guidance notes stationary sources may be omitted from a project-specific analysis, all Project emissions sources were quantified within EA/MND and the resulting emissions compared to the applicable ICAPCD CEQA thresholds to determine significance. Specifically, emissions from drill rigs, onsite generators, fuel storage tanks, etc, were quantified and conservatively included in the air quality analysis. No Project emissions sources were excluded from the analysis. Therefore, the Project emissions disclosed in the EA/MND represent a conservative over-estimation of Project impacts, which are less than significant. It's also important to note that Imperial County only has discretionary authority over the Reclamation Plan and reclamation activities described therein pursuant

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			(EA/MND at 28.) Even if the Project's mobile source emissions are less-than-significant under this threshold, a determination that an environmental impact complies with a particular threshold of significance does not relieve a lead agency of its obligation to consider evidence that indicates the impact may be significant despite compliance with the threshold. (CEQA Guidelines § 15064(b)(2).) The primary and overriding basis for the County's conclusion here was its assumption that the project's CEQA analysis is limited to mobile sources only. But once that assumption is removed, the situation is entirely different. When the entire project is considered, the record reveals sufficient information and inferences to indicate a fair argument that significant environmental impacts may exist, requiring an EIR. (*Nelson v. County. of Kern* (2010) 190 Cal. App. 4th 252, 283.)	to SMARA. As such, the "project" evaluated under CEQA, and the emissions by which ICAPCD thresholds would be applied, would be those activities specific to site reclamation. Nonetheless, Imperial County and the BLM opted to prepare a joint EA/MND document to ensure that the potential environmental effects of both mining/exploration activities as well as reclamation activities were fully evaluated under CEQA and NEPA.
29.0	29.16	Center for Biological Diversity	**C. The EA/MND Fails to Analyze or Disclose the Project's Fugitive Dust Emissions.** Furthermore, nowhere does the EA/MND analyze the significance of the Project's fugitive dust impacts. Fugitive dust is typically used to describe the fine particulate matter– PM2.5 and PM10. The EA/MND separately evaluates the Project's PM2.5 and PM10 emissions, finding neither meet the respective thresholds of significance. In Appendix E, however, the EA/MND recognizes a third category of particulate matter, called "PM," and estimates those emissions will reach up to 373.22 pounds per year, the vast majority of which will come from helicopter use and laydown yard emissions (220.93 and 147.97 pounds per year, respectively). This estimate well exceeds any threshold of significance for any criteria pollutant set by the County. Inexplicably, nowhere in the EA/MND's air quality analysis is this impact disclosed or analyzed against a threshold of significance. The Project then attempts to dispel any concerns about fugitive dust by concluding that compliance with construction fugitive dust control measures will reduce any impacts to less- than-significant levels. (EA/MND at 29 ["[T]hrough implementation of the ICAPCD's standard construction fugitive dust controls and standard construction mitigation measures, the Project would not result in a cumulatively considerable net increase of any criteria pollutant…].) Appendix E makes clear that the majority of fugitive dust emissions will come from project operations (helicopter use and laydown yard emissions), not construction. Mitigation to reduce construction impacts does not provide evidence that the Project's overall fugitive dust will be reduced to less-than-significant levels. Therefore, a fair argument exists that the Project may have a significant effect on the environment necessitating the preparation of an EIR.	See response to Comment #23.30 and #29.4 above. As stated in Section 3.3.5, the Project would specifically comply with the ICAPCD Regulation VIII – Fugitive Dust Rules, specifically Rules 800 through 806, which prescribe measures for the management of windblown dust. Additionally, consistent with ICAPCD Rule 801, SMP would develop a site-specific Operation Dust Control Plan, which would be submitted to the ICAPCD, and consistent with Rule 801 requirements, approval would be obtained a minimum of 10 days prior to the first ground disturbing activities as a result of the Project. The Operation Dust Control Plan would also be subject to approval by the BLM. The emissions inventory summary provided in Appendix E provides an overview of the final calculations of potential emissions resulting from the Proposed Action. As included in Table 3-4 of the EA/MND, potential annual emissions associated with the Proposed Action were compared against the EPA Significant Emission Rates for all analyzed pollutants in tons per year, as well as the Federal Conformity *de minimis* thresholds. As stated in Section 3.3.3 of the EA/MND associated with Table 3-4, annual fugitive emissions for PM (30.36 tons per year estimated) would exceed the EPA signification emission rate of 25 tons per year under the maximum scenario that was run for construction and operations occurring simultaneously. The highest emissions under the Project would result from exploratory drilling and laydown yard activities, which would occur simultaneously for approximately four to six months during the first year of the two-year Project operations. After Project start-up, activities would occur more dispersed over time due to the intermittent nature of exploratory drilling. Therefore, the estimated annual emissions would not reach the maximum emissions shown in Table 3-4 of the EA/MND as all phases of the Project would not be operating simultaneously each year, leading to much lower overall

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				emissions that would not exceed any federal thresholds. This clarifying text has been included in Section 3.3.3 of the Revised EA/MND. Further, the Project's potential air emissions, including fugitive dust, were quantified and compared to the appropriate daily CEQA emissions thresholds promulgated by the ICAPCD. As shown in Table 3-6 and 3-7 within the EA/MND, the Project's unmitigated daily air emissions, including fugitive dust, were found to be below applicable construction and operations thresholds pursuant to CEQA. It's also important to note that these emissions estimates did not take into account standard emissions/dust controls or other regulatory programs that the Project would implement. Specifically, as stated in Section 3.3.3 and 3.3.5 in the EA/MND, the emissions estimates presented in Table 3-6 and Table 3-7 did not account for the implementation of standard mitigation measures for construction combustion equipment from the ICAPCD CEQA Air Quality Handbook (ICAPCD 2017), and therefore represented a conservative overestimate of Project impacts. As such, the Project's potential fugitive dust emissions would be less than significant, with no mitigation measures required.
29.0	29.17	Center for Biological Diversity	**D. The EA/MND's Few Air Quality Mitigation Measures Are Unenforceable and Deferred.** Generally, mitigation measures should not be deferred, and feasibility findings should not be delegated to staff. (CEQA Guidelines, §§ 15126.4(a)(1)(B), 15025(b)(2).) Specific details of a mitigation measure "may be developed after project approval when it is impractical or infeasible to include those details during the project's environmental review provided that the agency (1) commits itself to the mitigation, (2) adopts specific performance standards the mitigation will achieve, and (3) identifies the type(s) of potential action(s) that can feasibly achieve that performance standard and that will [be] considered, analyzed, and potentially incorporated in the mitigation measure.'" (*Golden Door Properties v. County of San Diego* (2020) 50 Cal.App.5th 467, 518.) The EA/MND fails to meet these requirements. The EA/MND notes that the Project Applicant will comply with ICAPCD Regulation VIII – Fugitive Dust Rules to develop and implement—at a later date and outside of the public process – a dust control plan to address fugitive dust. (EA/MND at Sec. 3.3.5(b).) The lead agency is expected to develop mitigation in an open public process. (*Communities for a Better Environment v. City of Richmond* (2010) 184 Cal.App.4th 70, 93.) The EA/MND offers no reason why a dust control plan cannot be developed as part of the Project's environmental review, nor does it include objective standards to guide the County's approval of the plan. As written, the measure creates an enormous loophole and allows the Project applicant and the County to determine—at a later date, without oversight or objective standards, and without supporting its decision with substantial evidence—	As discussed above, the Project's potential air emissions, including fugitive dust, were quantified and compared to the appropriate daily CEQA emissions thresholds promulgated by the ICAPCD. As shown in Table 3-6 and 3-7 within the EA/MND, the Project's unmitigated daily air emissions were found to be below applicable construction and operations thresholds pursuant to CEQA. Because fugitive dust impacts were found to be less than significant, mitigation measures were not required. Nonetheless, SMP would comply with all applicable ICAPCD rules and regulations that related to fugitive dust controls, including preparation of a site-specific dust control plan, which would further ensure potential air quality impacts remain less than significant. As discussed above, it's also important to note that the emissions estimates presented in the EA/MND conservatively did not take into account the standard emissions/dust controls or other regulatory programs that the Project would implement, such as any future measures outlined within a dust control plan. As such, even though the fugitive dust emissions disclosed in the EA/MND represent a conservative overestimate which do not account for potential reductions realized through compliance with applicable ICAPCD rules, impacts were found to be less than significant/below applicable CEQA thresholds with no additional mitigation required.

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			whether mitigation will be implemented. It is entirely inappropriate to defer analysis of fugitive dust mitigation until after Project approval, especially since formulating a plan appears to be entirely feasible.	
29.0	29.18	Center For Biological Diversity	**IV. The EA/MND Failed to Properly Analyze or Adequately Mitigate Greenhouse Gas Emissions.** **A. Climate Change is a Catastrophic and Pressing Threat to California.** A strong, international scientific consensus has established that human-caused climate change is causing widespread harms to human society and natural systems, and that climate change threats are becoming increasingly dangerous. The Intergovernmental Panel on Climate Change (IPCC), the leading international scientific body for the assessment of climate change, concluded in its 2014 Fifth Assessment Report that: "[w]arming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, and sea level has risen," and further that "[r]ecent climate changes have had widespread impacts on human and natural systems." (IPCC 2014.) These findings were echoed in the United States' own 2014 Third National Climate Assessment and 2017 Climate Science Special Report, prepared by scientific experts and reviewed by the National Academy of Sciences and multiple federal agencies. The Third National Climate Assessment concluded that "[m]ultiple lines of independent evidence confirm that human activities are the primary cause of the global warming of the past 50 years" and "[i]mpacts related to climate change are already evident in many regions and are expected to become increasingly disruptive across the nation throughout this century and beyond." (Melillo 2014.) Immediate and aggressive greenhouse gas emissions reductions are necessary to keep warming well below 2°C above pre-industrial levels. The IPCC Fifth Assessment Report and other expert assessments have established global carbon budgets, or the total amount of carbon that can be burned while maintaining some probability of staying below a given temperature target. According to the IPCC, total cumulative anthropogenic emissions of CO_2 must remain below about 1,000 $GtCO_2$ from 2011 onward for a 66 percent probability of limiting warming to 2°C above pre-industrial levels, and to 400 $GtCO_2$ from 2011 onward for a 66 percent probability of limiting warming to 1.5°C. (IPCC 2014 at 63-64 & Table 2.) These carbon budgets have been reduced to 850 $GtCO_2$ and 240 $GtCO_2$, respectively, from 2015 onward. (Rogelj 2016 at Table 2.) As of 2022, climate policies by the world's countries would lead to an estimated 2.7°C of warming, and possibly up to 3.6°C of warming, well above the level needed to avoid the worst dangers of climate change. (Climate Action Tracker 2022.)	Thank you for your comment. The Project's GHG emissions were quantified and disclosed within Section 3.6 of the EA/MND. In lieu of specific and applicable guidance from Imperial County, estimated Project GHG emissions were compared to applicable numeric thresholds published by the SCAQMD. Note that due to the lack of specific guidance and appropriate numeric thresholds, GHG emissions were quantified for the Project primarily for disclosure purposes in relation to CEQA analysis (i.e., 3,021 metric tons of CO_{2e} per year). Nonetheless, as shown in Table 3-10 within the EA/MND, the Project's GHG emissions are well below the applicable SCAQMD threshold for industrial projects. Furthermore, as discussed in Section 3.6.5. California's current Scoping Plan, which is the State's blueprint for how GHG reductions will be achieved, generally recognized that consumers of electricity and transportation fuels, such as SMP, are, in effect, regulated by requiring providers and importers of electricity and fuel to participate in the GHG Cap-and-Trade Program and other statewide programs (e.g., low carbon fuel standard, renewable portfolio standard, etc.). Each such sector-wide program exists within the framework of AB 32 and its descendant laws, the purposes of which is to achieve GHG emissions reductions consistent with the AB 32 Scoping Plan. Therefore, while the Project would generate short-term (i.e., over 12- to 24-months) GHG emissions due to combustion of transportation fuels, the GHG emissions associated with the Project's fuel consumption would be regulated near the top of the supply-chain as transportation fuel suppliers and importers are required to report emissions under the Cap-and-Trade which is designed to reduce GHG emissions as needed to achieve emissions reductions described in related planning documents which primarily consists of the AB 32 Scoping Plan. As such, each citizen of California (including SMP) must necessarily purchase fuels produced in a way that is acceptable to the California market, and the Project would meet its fair share of the cost to mitigate the cumulative impact of global climate change because the applicant is purchasing energy from the California market. Thus, the Project would also be consistent with the relevant state-wide GHG reduction plan (i.e., AB 32 Scoping Plan). Please refer to the revised Section 3.6.5 of the EA/MND for additional detail. Based on the above analysis and that contained within Section 3.6.5 of the EA/MND, potential GHG emissions associated with the proposed Project activities were found to be less than significant, with no mitigation required.

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			The United States has contributed more to climate change than any other country. The U.S. is the world's biggest cumulative emitter of greenhouse gas pollution, responsible for 27 percent of cumulative global CO_2 emissions since 1850, and the U.S. is currently the world's second highest emitter on an annual and per capita basis. (World Resources Institute 2020.) Nonetheless, U.S. climate policy is wholly inadequate to meet the international climate target to hold global average temperature rise to well below 2°C above pre-industrial levels to avoid the worst dangers of climate change. Current U.S. climate policy has been ranked as "critically insufficient" by an international team of climate policy experts and climate scientists which concluded: "These steps represent a severe backwards move and an abrogation of the United States' responsibility as the world's second largest emitter at a time when more, not less, commitment is needed from all governments to avert the worst impacts of climate change." (Climate Action Tracker 2022.) In its 2018 *Special Report on Global Warming of 1.5°C*, the IPCC—the leading international scientific body for the assessment of climate change—described the devastating harms that would occur at 2°C warming. The report highlights the necessity of limiting warming to 1.5°C to avoid catastrophic impacts to people and life on Earth. (IPCC 2018.) The report also provides overwhelming evidence that climate hazards are more urgent and more severe than previously thought, and that aggressive reductions in emissions within the next decade are essential to avoid the most devastating climate change harms. In response to inadequate action on the national level, California has taken steps through legislation and regulation to fight climate change and reduce statewide GHG emissions. Enforcement and compliance with these steps are essential to help stabilize the climate and avoid catastrophic impacts to our environment. California has a mandate under AB 32 to reach 1990 levels of GHG emissions by the year 2020, equivalent to approximately a 15 percent reduction from a business-as-usual projection. (Health & Saf. Code, § 38550.) Based on the warning of the Intergovernmental panel on Climate Change and leading climate scientists, Governor Brown issued an executive order in April 2015 requiring GHG emission reduction 40 percent below 1990 levels by 2030. (Executive Order B-30-15 (2015).) The Executive Order is in line with a previous Executive Order mandating the state reduce emission levels to 80 percent below 1990 levels by 2050 in order to minimize significant climate change impacts. (Executive Order S-3-05 (2005).) In enacting SB 375, the state has also recognized the critical role that land use planning plays in achieving greenhouse gas emission reductions in California. The state Legislature has found that failure to achieve greenhouse gas reduction would be "detrimental" to the state's economy. (Health & Saf. Code § 38501(b).) In his 2015	

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			Inaugural Address, Governor Brown reiterated his commitment to reduce greenhouse gas emissions with three new goals for the next fifteen years: • Increase electricity derived from renewable sources to 50 percent; • Reduce today's petroleum use in cars and trucks by 50 percent; • Double the efficiency of existing buildings and make heating fuels cleaner. (Brown 2015 Address.) Although some sources of GHG emissions may seem insignificant, climate change is a problem with cumulative impacts and effects. (*Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin*., (9th Cir. 2008) 538 F.3d 1172, 1217 ("the impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impacts analysis" that agencies must conduct).) One source or one small project may not appear to have a significant effect on climate change, but the combined impacts of many sources can drastically damage California's climate as a whole. Therefore, project-specific GHG emission disclosure, analysis and mitigation is vital to California meeting its climate goals and maintaining our climate. The impacts of climate change are already being felt by humans and wildlife. Human-induced climate change, including more frequent and intense extreme events, has caused widespread adverse impacts and related losses and damages to nature and people. (IPCC 2022.) This rise in weather and climate extremes has led to some irreversible impacts, as natural and human systems are pushed beyond their ability to adapt. (IPCC 2022.) In the IPCC's most recent report, entitled *Climate Change 2022: Impacts, Adaptation and Vulnerability*, it found that warming is proceeding even faster than anticipated, and the best-case scenario for climate change is slipping out of reach. (IPCC 2022.) The report now estimates that, over the next 20 years, the world will cross the global warming threshold of 1.5°C. And unless there are immediate, rapid and large-scale reductions in greenhouse gas emissions, limiting warming to close to 1.5°C—or even 2°C—will be beyond reach. The United Nations Secretary General described the forecasts in this report as an "atlas of human suffering." (Borenstein 2022.) Given the increasingly urgent need for drastic action to reduce GHG emissions, the EA/MND's decision to give short shrift to the Project's significant climate change effects is all the more alarming.	
29.0	29.19	Center for Biological Diversity	**B. The EA/MND Fails to Adequately Disclose the Project's GHG Impacts.**	See response to Comment #29.6 above. Similar to the Project's criteria pollutant emissions, the GHG emissions presented in Table 3-1 of the EA/MND is inclusive of all Project sources, both mobile and stationary. Furthermore, the

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			A CEQA document "must present facts and analysis, not simply the bare conclusions or opinions of the agency." (*Bay Area Citizens v. Association of Bay Area Governments* (2016) 248 Cal.App.4th 966, 977 (*quoting Californians for Alternatives to Toxics v. Calif. Dept. of Food and Agric*. (2005) 136 Cal.App.4th 1, 13). The discussion of impacts must provide sufficient information and analysis to allow the public to discern the basis for the agency's impact findings. (*Sierra Club, supra,* 6 Cal. 5th at p. 513 ["There must be a disclosure of the 'analytic route the… agency traveled from evidence to action."].) A "conclusory discussion" of a significant environmental impact makes a CEQA document "inadequate as an informational document" as a matter of law." (*Id.* at 514.) A "conclusory discussion" of a significant environmental impact makes an EA/MND "inadequate as an informational document" as a matter of law. (*Sierra Club*, *supra*, 6 Cal.5th at p. 514.) An EIR must provide information regarding the project's significant environmental impacts that is sufficient to allow decision-makers and the public to understand the environmental consequences of the project. (*Id.* at p. 520; *Laurel Heights Improvement Ass'n v Regents of Univ. of Cal.* (1988) 47 Cal.3d 376, 404; See CEQA Guidelines § 15151.) The document must include enough detail to enable the public "to understand and to consider meaningfully the issues raised by the proposed project." (*Id.* at 516 (citation omitted).) The analysis of greenhouse gas impacts offers the public little information to understand Project activities that will generate GHG emissions. The EA/MND presents one table with the Project's projected GHG emissions. (EA/MND at 28.) While the EA/MND expends dozens of pages identifying the global sources of GHG emissions, the EA/MND discloses only a single Project sources of emissions underlying these totals: fuel consumption. (*Ibid.*) The EA/MND fails to analyze and disclose the activities that would result in GHG emissions, primarily associated with use of off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. From the sole table provided, and without any basic explanation, the public and decisionmakers have no way to understand and independently evaluate the environmental consequences of the Project. (See EA/MND Sec. 3.6.5 and Appendix E at 224.) While EA/MND purports to provide additional detail in Appendix E, Appendix E merely breaks down greenhouse gas emissions into CO2, CH4, and N20, rather than detailing the actual sources of greenhouse gas emissions.[2] Such a conclusory discussion of the Project's GHG impacts renders the EA/MND inadequate as an informational document.	emissions were calculated using conservative assumptions, and assumed that on- and off-site equipment and vehicles would operate at full capacity during the given operational year. See the tables presented in Appendix E which summarize the GHG emissions sources quantified, and the description of equipment and associated activity levels assumed as part of the GHG analysis in Section 2.1 of the EA/MND.
29.0	29.20	Center for Biological Diversity	**C. By Excluding Stationary Source Emissions, the Project Underestimates the Project's Greenhouse Gas Emissions.**	See response to Comment #29.6 and #29.10 above. Similar to the Project's criteria pollutant emissions, the GHG emissions presented in Table 3-10 of the EA/MND is inclusive of all Project sources, both mobile and stationary. The

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			One need look no further than the EA/MND's lack of disclosure for the activities underlying its greenhouse gas estimates to understand why CEQA requires such disclosure. The EA/MND fails to include GHG emissions from stationary sources and therefore underestimates the Project's impact on climate change. (Appendix E at 224.) The EA/MND estimates that the Project's greenhouse gas emissions will be 3,021 metric tons per year and summarily concludes that, based on SCAQMD's 10,000 metric ton threshold, that the Project will have less than significant climate impacts. (EA/MND at 28.) However, according to a footnote in Appendix E, this estimate too "does not include stationary source emissions." (Appendix E at 224.) The EA/MND provides no justification for omitting the greenhouse gas impacts generated by stationary sources which appear to comprise a large portion of the Project's activity. (Appendix E at 224.) Given the information gleaned from elsewhere in the EA/MND, however, there is ample evidence to suggest that the Project would have significant GHG impacts. This Project proposes to construct approximately two miles of road improvements for existing roads, approximately 6.2 miles of new and temporary 12-foot-wide exploration drilling access roads; eight helicopter landing pads; 65 drill pads; 1.8 miles of new permanent access roads; a staging area for access to the Project Area; and seven drill sites. (EA/MND at 5.) The Project would disturb 21 acres. (*Ibid.*) The Project proposes to utilize gasoline-powered helicopter equipment and rely primarily on diesel and gasoline (see sec 3.9.3) – an anthropogenic source of carbon – for energy generation. The Project identifies not a single project design feature or mitigation measures aimed to lessen these emissions. Consequently, because of the deficiencies of the impact analysis for the proposed Project, the EA/MND fails to adequately disclose and properly estimate the Project's GHG emissions. A fair argument exists to show the Project may have an impact on greenhouse gas emissions, and the County must prepare an EIR to disclose, analyze, and mitigate these impacts.	footnote within Appendix E was included in error and has been removed from the revised EA/MND that will be certified by the BLM and Imperial County. Furthermore, the emissions were calculated using conservative assumptions, and assumed that on- and off-site equipment and vehicles would operate at full capacity during the given operational year. See the tables presented in Appendix E which summarize the GHG emissions sources quantified, and the annual equipment activity levels assumed as part of the GHG analysis.
29.0	29.21	Center for Biological Diversity	**D. The EA/MND Lacks Evidentiary Support that GHG Impacts Would Be Less-Than Significant.** The document offers three reasons for why the Project's greenhouse gas emissions should not be considered a significant impact. Each of these reasons is unavailing. First, as discussed above, the EA/MND relies on a numerical estimate that excludes most of the GHG-generating activity associated with the Project. Second, the EA/MND relies on the fuel efficiency of vehicles established by California's 2017 Scoping Plan to suggest that the Project "does not have its own GHG emissions but	See responses to Comments #29.9 through #29.11 above. As discussed above, the GHG emissions presented in Table 3-10 of the EA/MND is inclusive of all Project sources, both mobile (e.g., trucks helicopters, etc.) and stationary, including drill rigs, generators and tanks. The footnote within Appendix E was included in error and has been removed from the Revised EA/MND. Furthermore, the emissions were calculated using conservative assumptions, and assumed that on- and off-site equipment and vehicles would operate at full capacity during the given operational year. See the tables presented in Appendix E which summarize the GHG emissions sources quantified, and the annual equipment activity levels assumed as part of the GHG analysis.

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			is simply a location in which GHG emissions are taking place." (EA/MND at 28.) This argument ignores what CEQA is meant to do – namely, ensure that a lead agency fully evaluates, discloses, and mitigates wherever feasible a project's significant environmental effects. (Pub. Res. Code,§§ 21000, *et seq*.) The EA/MND may consider what mitigation is within the County's jurisdiction when analyzing feasible mitigation measures, but these statewide fuel standards do not absolve the EA/MND of CEQA's requirement that it disclose and analyze all potentially significant impacts associated with a project. The GHG analysis here is similar to the one that failed in *Friends of Oroville v. City of Oroville* (2013) 219 Cal.App.4th 832, 842. In that case, the Court held that the City of Oroville had failed to assess the impact of a project's greenhouse gas emission because it had improperly applied the threshold for determining the significance of project greenhouse gas emissions. (*Ibid.*) There, the EIR used the "Scoping Plan Measures" from the Assembly Bill 32 Scoping Plan to create a significance threshold. (*Id.* at 843.) However, it concluded that the certain measures need not be applied to the project because they were meant to be implemented at a state-wide level. (*Ibid*.) The court said that by choosing a framework that excluded consideration of fuel consumption, the EIR "ignore[ed] the elephant in the room," since 68% of the Project's GHG emissions came from these impacts. (*Ibid*.) By relying on an inapplicable state-wide plan to disclaim responsibility to fully analyze and disclose impacts, that analysis – and this one, too – are deficient. Plus, the 2017 Scoping Plan is no longer valid; the California Air Resources Board in 2022 issued a new Scoping Plan, which the EA/MND did not consider. The EA/MND's third reason as to why the Project has no significant climate impact is the most illogical. The EA/MND concludes that, since climate change is a global problem, "no single project is large enough to impact climate change." (EA/MND at 28.) Courts have rejected this "drop-in-the-bucket" approach to impact analysis. In *Kings County,* the court invalidated an EIR that concluded increased ozone impacts from the project would be insignificant because it would emit relatively minor amounts of precursor pollutants compared to the large volume already emitted by other sources in the county, (1990) 221 Cal.App.3d 692, 717-18. The *Kings County* court rightly stated, "The relevant question to be addressed…is not the relative amount of precursors emitted by the project when compared with preexisting emissions, but whether any additional amount should be considered significant in light of the serious nature of the ozone problems in this air basin. (*Id.* at 718.) Likewise, here, the EA/MND may not minimize the Project's impacts by comparing them to a global problem. (CEQA Guidelines §15064.4(b) [In determining the significance of a project's GHG emissions, the lead agency "should focus its analysis on the reasonably foreseeable incremental contribution of the project's emissions to the effects of climate change … even if [such contribution] appears relatively small compared to statewide, national or global emissions."].)	Additionally, CARB's Scoping Plan was discussed in response to CEQA Guidelines GHG Environmental Checklist Question VIII-b), as this is the State's primary blueprint for how GHG reductions will be achieved. The Imperial County Regional Climate Action Plan (ICTC 2021) was also reviewed. Because the Project was found to be consistent with both the County's and State's primary GHG plans and policies, impacts were determined to be less than significant with no mitigation required. While it is true the Project would comply with all applicable statewide fuel standards, and that any local fuel providers would have to participate in the GHG Cap-and-Trade Program and other state-wide Programs (e.g., low carbon fuel standard, renewable portfolio standard, etc.), this fact was not cited as mitigation measure nor a reason to defer disclosure of the Project's potential GHG impacts. As noted above and within Section 3.6 of the EA/MND, the Project is estimated to emit in approximately 3,021 metric tons of CO_{2e} per year from combustion of gasoline/diesel fuels. Additionally, in the decade since SCAQMD adopted the Interim GHG Significance Threshold, specifically the 10,000 metric ton CO2e threshold applied within the EA/MND, several new laws and executive orders were adopted that require additional reductions in years after 2020. Thus, as discussed in the most recent updates to the Scoping Plan, objectives of the Scoping Plan affect entire sectors of the economy and it no longer makes sense to evaluate GHG emissions on a project-level. Although the Project would generate approximately 3,021 metric tons of CO_{2e} per year from combustion of gasoline/diesel fuels, these fuels are regulated near the top of the supply-chain. As such, each citizen of California (including SMP) must necessarily purchase fuels produced in a way that is acceptable to the California market. Thus, Project GHG emissions would be consistent with the relevant AB 32 Scoping Plan, and the Project would meet its fair share of the cost to mitigate the cumulative impact of global climate change because the applicant is purchasing energy from the California market. This concept is reflected in both the 2017 and subsequent 2022 Scoping Plans, which regulates fuels at a level in the supply chain above the Project, such that the Project has no choice but to use fuel energy in California that is already regulated. Nonetheless, GHG emissions impacts from implementing the Project were quantified at the Project-specific level for construction and operations as explained in Section 3.6.5 of the EA/MND. The impact analysis for the Project follows the approach certified by South Coast AQMD in the Final Negative Declaration for the Phillips 66 Los Angeles Refinery Carson Plant – Crude Oil Storage Capacity Project on December 12, 2014 (South Coast AQMD 2014). This approach considers the cumulative nature of the energy industry and

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				recognizes that consumers of diesel fuel are in effect regulated by higher level emissions restrictions on the producers of these energy sources. Therefore, the Project's contribution to global climate change impacts would not be cumulatively considerable.
29.0	29.22	Center for Biological Diversity	**V. The EA/MND's Analysis of the Project's Energy Impacts is Incomplete and Inadequate.** CEQA requires agencies to analyze whether their projects will result in wasteful or inefficient use of energy. (Pub. Res. Code, § 21100(b)(3); CEQA Guidelines §15126.2(b) CEQA Guidelines Appendix F.) To demonstrate that a project will not result in the wasteful use of energy, agencies must show that the project has decreased per capita energy consumption, decreased reliance on fossil fuel use, and increased reliance on renewable energy sources. (*Cal. Clean Energy Com. v. City of Woodland* (2014) 225 Cal.App.4th 173, 209; Pub. Res. C §21100(b)(3); *see also People v. County of Kern* (1976) 62 Cal.App.3d 761, 774.) The entirety of fuel consumption resulting from this Project would be attributable to the burning of diesel, gasoline, and jet fuel – all fossil fuels. (EA/MND at 35.) The Project is expected to consume approximately 36,138 gallons of diesel fuel and 1,500 gallons of JetB fuel. (EA/MND at 36.) Despite the Project's massive fuel consumption, the EA/MND concludes that any impacts would be less than significant because this amount is "nominal" compared to the fuel consumed in the entirety of Imperial Country. (*Ibid.*) The EA/MND attempts to minimize the impact of the Project's fuel consumption by comparing it to the County's annual fuel consumption, which is 24.3 million gallons. (EA/MND at 35.) This is disingenuous. The more applicable statistic would be to compare annual fuel consumption to similarly sized mining exploration Projects, an analysis the EA/MND does not undertake. The EA/MND again argues that current fuel efficiency standards, in and of themselves, suggest that this Project should not be considered inefficient or wasteful. Yet this Project does nothing to facilitate increased fuel efficiency. Compliance with existing fuel efficiency standards alone – absent project-specific analysis—is not sufficient evidence to support a finding of no significant impact under the CEQA. (*Oro Fino Gold Mining Corp. v. County of El Dorado* (1990) 225 Cal. App. 3d 872, 881–882.) Otherwise, any projects burning fossil fuels – regardless of the amount – could claim an efficient use of energy. This reasoning also ignores what CEQA is meant to do – namely, ensure that a lead agency fully evaluates, discloses, and mitigates wherever feasible a project's significant	While it is true the CEQA Guidelines Energy Environmental Checklist Question VI-a) requires CEQA determine if a project would result the "wasteful, inefficient, or unnecessary consumption of energy resources", CEQA does not require that an individual project demonstrate it would decreased per capita energy consumption (this is simply listed in Appendix F of the CEQA Guidelines as a means of achieving the State's energy conservation goals). While it is true that the Project's primary source of energy would be fossil fuel consumption, due to the nature and remote location of the proposed Project operations, use of other energy sources would be infeasible, and potentially even more impactful (e.g., additional disturbance for access to other energy sources would require additional disturbance, etc.). However, the Project has been designed to minimize wasteful energy consumption, and ensure onsite operations remain as efficient as possible. For example, the use of helicopters in lieu of more convention trucks and vehicles was proposed as this would significantly reduce both the total length of new roadways that would need to be graded using heavy-equipment during construction, as well as the total distance travelled by during operations to access the drill sites. Ultimately, the consumption of fossil fuel energy alone is not a reason to determine an individual project would result in a significant energy impact. The commenter notes the Project's total fuel consumption should have been compared to a similarly sized exploration Project. Gold mining operations, and even more so smaller exploratory projects, are exceedingly rare in California. Nonetheless, as described above, the Project has been designed to minimize environmental impacts and energy consumption to the extent feasible. For example, Cahuilla Exploratory Gold Project Phase III, for the which Imperial County was also intended to serve as the CEQA lead agency (see https://ceqanet.opr.ca.gov/2015061088), would cover approximately 214 acres total, and drill up to 2,000 total exploratory boreholes. By comparison, SMP's proposed Project would disturb up to 20.54 acres total and drill up to 65 proposed drill holes. As such, the Project's total energy consumption is expected to be comparatively far less than analogous exploratory drilling projects in the region.

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			environmental effects. (Pub. Res. Code, §§ 21000, *et seq*.) The EA/MND may consider what mitigation is within the County's jurisdiction when analyzing feasible mitigation measures, but these statewide standards do not absolve the EA/MND of CEQA's requirement that it disclose and analyze all potentially significant impacts associated with a project. Significance thresholds must not foreclose consideration of any potentially significant environmental effect, or the CEQA analysis is deficient. (*Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th 1099, 1109 ["A threshold of significance cannot be applied in a way that would foreclose the consideration of other substantial evidence tending to show the environmental effect to which the threshold relates might be significant."].) Finally, the EA/MND ignores the requirements of Appendix F of CEQA. Neither the EA/MND nor any of the technical appendices provide any information on how this Project seeks to decrease overall energy use or its reliance on fossil fuels; instead, the Project relies exclusively on fossil fuels. This misses the clear legislative intent driving an energy analysis – to reduce fossil fuel use and maximize energy efficiency.	
29.0	29.23	Center for Biological Diversity	**VI. The EA/MND Fails to Adequately Analyze the Project's Impacts on Water Supplies.** California faces unprecedented challenges in its effort to allocate and conserve limited water resources, especially as water supply dwindles in the face of climate change and population growth. The Project would further exacerbate regional and statewide supply by constructing new roads and engaging in mining exploration activities that, absent an identified water source, threatens to overdraft local groundwater supply. In light of these, and other, underlying concerns, the EA/MND's analysis of the Project's water supply fails to adequately consider all potential significant impacts. The Project anticipates using up to approximately 2,000 gallons of water daily for active drilling periods. (EA/MND at 97.) The EA/MND surmises that water would be procured from Gold Rock Ranch "and/or" a local water purveyor. (*Ibid*.) On these facts alone, the EA/MND concludes there is adequate water supply available to meet the needs of the Project and finds a less than significant impact related to water supply. (EA/MND at 66.) CEQA requires that an analysis present decisionmakers "with sufficient facts to evaluate the pros and cons of supplying the amount of water that the [project] will need." (*Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 430-31.) This includes identifying and analyzing water supplies that "bear a likelihood of actually proving available; speculative sources and unrealistic allocations ('paper water') are insufficient bases for decision-making under CEQA." (*Id.* at 42.)	See responses to Comments #10.1, #12.1, #23.5, #23.22, #23.28, #23.30, and #28.4 above which relate to the Project water supply. The Proposed Action would purchase water from vendors as needed to support exploration drilling and dust suppression activities. Water for the Project would be trucked in and would be procured from the nearby Gold Rock Ranch RV Resort, a local water purveyor, and/or the City of Yuma, using water that is already permitted for pumping/use and available for sale. The Project does not propose groundwater pumping. As stated in Section 3.22 of the EA/MND, impacts to water resources would be negligible. Federal agencies, including the BLM, implement NEPA per the procedures developed by CEQ, which is the responsible agency for developing NEPA guidance for implementation. In line with the CEQ guidelines revised in 2020 and then again in 2022 for implementing regulations of NEPA, which does not mandate particular results or substantive outcomes but rather requires Federal agencies to consider environmental impacts of Proposed Actions, the BLM determined that an EA is the appropriate level of NEPA review for the Proposed Action. In following 40 CFR Section 1501.5(c)(1) and 40 CFR 1501.6(a) per the 2022 updates to the NEPA Implementing Regulations under Docket CEQ-2021-0002, the BLM has determined that it has provided sufficient evidence and analysis to deem preparation of an EA followed by issuance of a FONSI appropriate for the Proposed Action.

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			The EA/MND's water supply analysis does not comply with this mandate. Instead, it falters from the outset because the EA/MND acknowledges that water for the project has not yet been secured. The EA/MND cannot rely on paper water to conclude the Project has adequate water available to supply its needs. Furthermore, while the EA/MND promises to not rely on surface and groundwater "within the Project Area," it provides no assurances that it will not buy groundwater from the neighboring Gold Rock Ranch or the local water purveyor. (EA/MND at 65.) Given the "minimal amount" of surface water in the region (EA/MND at 74), nothing is stopping the Project from purchasing and using groundwater from the local basin. CEQA requires that the Project disclose and analyze if it will "[s]ubstantially decrease groundwater supplies or interfere substantially with groundwater recharge. (CEQA Guidelines, Appendix G, X(b).) This analysis is not limited to the Project area. The EA/MND fails to study this impact.	
29.0	29.24	Center for Biological Diversity	**VII. The Project will Have a Significant Impact on Cultural Resources and Cultural Landscapes.** Substantial evidence, gathered through BLM's government-to-government consultation with culturally affiliated tribes in the project area, supports a "fair argument" that there is a significant effect on the environment. (*See* MND § 3.14 *Native American Religious Concerns and Traditional Values.*) Despite this evidence, the County has failed to engage in a "good faith" effort and consult with all affected tribes, in violation of AB 52. (Pub. Res. Code § 21082.3(a).) This failure underscores the EA/MND's failure to evaluate all known facts about the cultural resources and cultural landscapes that were obtained through ongoing consultation by BLM. (*See* MND § 3.14.2)	Both the BLM and County have coordinated in extensive consultation efforts with Native American tribes who are potentially culturally affiliated with the Porject Area. Please refer to the response to Comment #23.10 and #23.21 above, which describes the Section 106 of the NHPA consultation process wherein the BLM has requested additional information about the nature and extent of the claim that the Project Area is located within a Traditional Cultural Property. Also see Section 3.14.5 in the EA/MND which describes the County's AB 52 consultation process. In addition to letter notifications, County staff has participated in numerous in-person meetings, site visits, etc. in coordination with the BLM. As discussed in the EA/MND, in accordance PRC Section 21074 – AB 52, the County contacted the Fort Yuma Quechan Indian Tribe to obtain their input and concern with potential impacts to tribal cultural resources as a result of the Project. The Fort Yuma Quechan Indian Tribe is that only Native American tribe that has claimed traditional and cultural affiliation with the Project Area and is therefore the only tribal entity required to be notified of the Project by Imperial County pursuant to AB 52. As discussed under Comment #22.6, the Fort Yuma Quechan Indian Tribe identified that the proposed project is located within a larger landscape they consider a Traditional Cultural Property. The BLM requested additional information about the nature and extent of the Traditional Cultural Property as part of its Government-to-Government consultation, as well as for Section 106 of the NHPA consultation and relevant to other EOs and regulations. The BLM recognizes the attributes that give Traditional Cultural Propertys significance, such as their association with historical events or traditional practices, are often intangible in nature. As stated in Section 3.8 of the EA/MND, all known cultural resource sites would be

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				avoided thus minimizing direct impacts. No adverse impacts would occur with avoidance measures implemented. The BLM would require additional mitigation measures to minimize indirect impacts to known cultural resource sites, as described in Section 3.8.3 and Appendix F of the EA/MND, resulting in indirect impacts being negligible, short-term, and localized, and therefore less than significant under CEQA.
29.0	29.25	Center for Biological Diversity	**1. The County has Failed to Consult with Affected Tribes, As AB 52 Requires.** Under CEQA, as set forth in AB 52, a lead agency must engage in a "good faith" effort to consult with all affected tribes to develop mitigation measures that are reasonable and mutually agreed upon. (Pub. Res. Code, § 21082.3(a).) An agency cannot certify an MND if it has not conducted and completed consultation with all affected tribes that are willing to engage. (Pub. Res. Code, § 21082.3(b).) Agencies are required to provide notice to all "California Native American tribe(s) traditionally and culturally affiliated with a geographic area of the proposed project." (Pub. Res. Code § 21080.3.1(a)-(b).) The MND identified several tribes that could potentially be impacted by the project. BLM sent 16 notice letters initiating formal government-to-government consultation and received 7 comment letters. Imperial County, on the other hand, sent out only one written notice for consultation, to the Fort Yuma Quechan Indian Tribe. (*See* MND at Sec.3.14.2-5) By failing to engage in a "good faith" effort and consult with all affected tribes to develop mitigation measures that are reasonable and mutually agreed upon, the County has not complied with CEQA. (Pub. Res. Code § 21082.3(a).) The County must contact all affected tribes and work together with those tribes to develop mitigation measures. Until the County has performed consultation, it cannot move forward with certifying the project.	As discussed in response Comment #29.15, the County has been working closely with the BLM to ensure that tribal cultural consultation and engagement efforts are coordinated and comprehensive. AB 52 requires lead agencies to consult with California Native American tribes that have requested formal consultation on a project. The Fort Yuma Quechan Indian Tribe is the only California Native American tribes that indicated they are traditionally and culturally affiliated with the geographic area where the Project is located, and has formally requested consultation. Therefore, in accordance with PRC sections 21080.3.1 and 21080.3.2, the County provided formal notification to the designated contact of the Fort Yuma Quechan Indian Tribe. On September 9, 2021, the County distributed an AB 52 consultation letter for the proposed Project. Specifically, Project information, a map, and contact information was sent to the Fort Yuma Quechan Indian Tribe. Due to the geographic location of the Project, the Fort Yuma Quechan Indian Tribe is the only Native American tribe that has claimed traditional and cultural affiliation with the Project Area and is therefore the only tribal entity required to be notified of the Project by Imperial County pursuant to AB 52. No response letter was received by Imperial County from the Fort Yuma Quechan Indian Tribe Although no formal response was received by the County in response to their AB 52 notification, it is also important to note that consultation with the Fort Yuma Quechan Indian Tribe is ongoing, and both the BLM and County are committed to ensuring that any potential effects to cultural resources are either avoided or minimized to the extent feasible.
29.0	29.26	Center for Biological Diversity	**2. Absent Adequate Consultation, the EA/MND Lacks a Basis to Conclude Impacts to Tribal Cultural Resources are Fully Disclosed and Properly Mitigated.** Under CEQA, a historical resource is a resource listed or determined to be eligible for listing in the California Register of Historical Resources. (Pub. Res. Code § 21084.1) The fact that a resource is not listed or determined to be eligible for listing or not	See responses to Comments #29.15 and #29.16 above. Both the County and the BLM have engaged in extensive and comprehensive tribal consultation in accordance with AB 52 and Section 106. See responses above for additional detail regarding the tribal cultural resource evaluation and related tribal consultation process.

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			included in a local register of historical resources, or not deemed significant pursuant to criteria set forth in subdivision (g) of Section 5024.1 "shall not preclude a lead agency from determining whether the resource may be an historical resource for purposes of this section." (*Id*.) Historic resources are subject to CEQA and should be given "special recognition." (*See Friends of Sierra Madre v. City of Sierra Madre* (2001) 25 Cal.4th 165, 186; *Citizens for a Sustainable Treasure Island v. City & County of San Francisco* (2014) 227 Cal.App.4th 1036, 1065.) Tribal cultural resources include places and objects that hold cultural value to California Native American tribes, regardless of the tribe's recognition status. (Pub. Res. Code § 21084.2(b).) A tribal cultural landscape may also qualify as a cultural resource depending on the extent it is "geographically defined in terms of the size and scope of the landscape." (Pub. Res. Code § 21074(b).) The EA/MND identified a total of 75 cultural resources within a mile of the site and 12 that intersect the project site. Within the relevant area, "25 cultural prehistoric resources were identified that may be *in continued use* by Native American individuals, such as trails, geoglyphs, and rock art sites." (EA/MND at 38, emphasis added.) Furthermore, in consultation with BLM, the Fort Yuma Quechan Indian Tribe objected to the project due to impacts to "a significant cultural landscape and items of cultural patrimony which are integral to the spiritual and everyday lives of the Quechan people." (EA/MND at 48.) Evidence exists from BLM's consultation that the Project is within a region that is "highly significant" and holds great cultural, religious, and spiritual significance to the Fort Yuma Quechan Indian Tribe. (EA/MND at sec. 3.1.3.) The County disregards this evidence, and concludes that, because the Fort Yuma Quechan Indian Tribe did not respond to the County's letter, it need not consider the evidence secured through BLM's consultation of cultural resources on site. Instead, the County considered only impacts to cultural resources identified via record searches. It refused to evaluate the impacts to tribal cultural resources or cultural landscapes. Until BLM completes consultation and Imperial County starts consultation with all culturally affiliated and affected tribes, the EA/MND cannot accurately conclude that impacts to tribal resources will be less than significant. (Pub. Res. Code § 21074(b) [consultation ensures that tribal knowledge about cultural resources and landscapes are fully considered.]) Given this clear evidence of tribal cultural resources within and near the project area, lack of response to the AB 52 consultation letter is not adequate to support the County's conclusion that impacts to cultural resources are less than significant.	Additionally, a detailed Class III Cultural Resources Inventory Report was prepared and accepted by the BLM, and the non-confidential results of such represent the baseline conditions and are described in Section 3.8 of the EA/MND. Additionally, should the Project be approved and, as such, the cultural monitoring commences upon Project initiation, the BLM will contact all tribes that have engaged in Government-to-Government consultation with the opportunity to participate as Tribal Cultural Monitors to conduct the BLM-required archaeological monitoring.
29.0	29.27	Center for Biological Diversity	**VIII. CONCLUSION** Thank you for the opportunity to submit comments on the EA/MND for the Project. We urge the County not to approve the Project without first preparing an EIR and complying	Thank you for your comments. Note that both comment letters received from the Conservation Organizations have been placed on file with the lead agencies pursuant to NEPA and CEQA. Both the County and BLM have maintained

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			with CEQA. The EIR should, among other things, address and evaluate the potentially significant impacts described in this letter. Given the possibility that the Conservation Organizations may choose to pursue legal remedies in order to ensure that the County complies with its legal obligations, including those arising under CEQA, we respectfully remind the County of its statutory duty to maintain and preserve all documents and communications that may constitute part of the "administrative record" of this proceeding. (§ 21167.6(e); *see Golden Door Properties, LLC v. Superior Court* (2020) 53 Cal.App.5th 733.) The administrative record encompasses any and all documents and communications that relate to any and all actions taken by the County with respect to the Project, and includes "pretty much everything that ever came near a proposed [project] or [] the agency's compliance with CEQA…" (*County of Orange v. Superior Court* (2003) 113 Cal.App.4th 1,8.) The administrative record further includes all correspondence, emails, and text messages sent to or received by the County's representatives or employees, that relate to the Project, including any correspondence, emails, and text messages sent between the County's representatives or employees and the Applicant's representatives or employees. Maintenance and preservation of the administrative record requires that, *inter alia*, the County (1) suspend all data destruction policies; and (2) preserve all relevant hardware unless an exact replica of each file is made. Please include this letter and all references in your project file for the Project. Please also include all of the signatories below on your notice list for all future updates, notices, and documents related to the Project and do not hesitate to contact us with any questions at the numbers or emails listed below.	administrative records in accordance with applicable laws and requirements under NEPA and CEQA.

Appendix J: List of Preparers

Table J-1: NEPA Preparers (Stantec Consulting Services Inc.)

Name	Title	Resource Area
Shelby Hockaday	Project Manager	NEPA Manager, Lead Author
Steve Morton	Principal	Senior Review, Cumulative
Hayley Barnes	Environmental Scientist	Project Coordinator, Recreation, Soils
Jason Trook	GIS Analyst	GIS Support
Shantanu Kongara	Air Specialist	Air Quality, Climate Change and Greenhouse Gases
Ellen Brady	Archaeologist	Cultural Resources, Native American Religious Concerns and Traditions
Sierra Marke	Environmental Scientist	Soils
Ian Dudley	Environmental Scientist	Wildlife, including Migratory Birds, Special Status Species, and Threatened and Endangered Species
Gianni Giuliano	Technical Writer	Visual Resources
Dani Putney	Project Coordinator	Technical Editor/Formatting

Table J-2: CEQA Preparers (Sespe Consulting, Inc.)

Name	Title	Resource Area
John Hecht	President	CEQA, Reclamation
Graham Stephens	Project Manager	CEQA

Table I-3: Bureau of Land Management

Name	Title	Resource Area
Mayra Martinez	Geologist	Project Manager
Carrie Sahagun	Associate Field Manager	Senior Review
Jennifer Whyte	Field Manager (Detailed)	Field Manager Coordination and Oversight
Christian Rodriguez	Planning and Environmental Specialist, El Centro Field Office	NEPA Review
Regan Watt	Planning and Environmental Specialist, California Desert District Office	NEPA Review
Amy McGowan	Planning and Environmental Specialist, California State Office	NEPA Review
Peter DeJongh	Wildlife Biologist	Wildlife Resources, Vegetation, Invasive and Non-Native Noxious Weeds, Threatened and Endangered Species
Grant Day	Archaeologist	Cultural Resources, Native American Religious Concerns and Traditions
John Johnson	Visual Resources Specialist	Visual Resources
Ismael Ramirez	Natural Resource Specialist	General Biology, Vegetation, Invasive and Non-Native Noxious Weeds, Air Quality, Soil, and Water Resources
Hannah Robinson	Archaeologist, California Desert District Office	Cultural Resources, Native American Religious Concerns and Traditions

Name	Title	Resource Area
Frank Giles	Air Resource Specialist, California and Nevada	Air Quality, Climate Change, and Greenhouse Gases

Table J-4: Imperial County Planning Department

Name	Title	Resource Area
Michael Abraham	Assistant Planning & Development Services Director	CEQA

ATTACHMENT "E" – RECLAMATION PLAN RESOLUTION

RESOLUTION NO.

A RESOLUTION OF THE PLANNING COMMISSION OF THE COUNTY OF IMPERIAL, CALIFORNIA, APPROVING RECLAMATION PLAN #21-0001 FOR SMP GOLD CORP. (AKA ORO CRUZ) MINERAL EXPLORATORY PROJECT.

WHEREAS, SMP Gold Corp. (aka Oro Cruz), has submitted an application for Reclamation Plan #21-0001 to conduct mineral exploratory mining operations; and

WHEREAS, a Mitigated Negative Declaration and CEQA Findings have been prepared in accordance with the requirements of the California Environmental Quality Act, the State Guidelines, and the County's "Rules and Regulations to Implement CEQA as Amended"; and

WHEREAS, the Planning Commission of the County of Imperial has been delegated with the responsibility of adoptions and certifications; and

WHEREAS, public notice of said application has been given, and the Planning Commission has considered evidence presented by the Imperial County Planning & Development Services Department and other interested parties at a public hearing held with respect to this item on June 28, 2023; and

WHEREAS, on November 17, 2022, the Environmental Evaluation Committee heard the project and recommended that the Planning Commission adopt the Mitigated Negative Declaration;

NOW, THEREFORE, the Planning Commission of the County of Imperial **DOES HEREBY RESOLVE** as follows:

SECTION 1. The Planning Commission has considered the proposed Reclamation Plan #21-0001 prior to approval; the Planning Commission finds and determines that Reclamation Plan is adequate and prepared in accordance with the requirements of the Imperial County General Plan Land Use Ordinance and the California Environmental Quality Act (CEQA), that analyzed the environmental effects, based upon the following findings and determinations.

SECTION 2. That in accordance with State Planning and Zoning law and the County of Imperial the following findings for Reclamation Plan #21-0001 has been made as follows:

A. The proposed use is consistent with goals and policies of the adopted County General Plan.

The General Plan designates the subject site as "Open Space". The site is classified as S-2 (Open Space/Preservation) on BLM-administered lands per Zoning Map #70 of the Imperial County Land Use Ordinance (Title 9). The existing zone is compatible with the Land Use Element of the Imperial

County General Plan. The proposed mineral (gold) exploratory activities are permitted uses pursuant to the County's Land Use Ordinance (Title 9), Division 5, Section 90519.01, Subsection (g) – Mineral Extraction.

B. The proposed use is consistent with the purpose of the zone or sub-zone within which the use will be used.

The proposed Project is consistent with the purpose of the zone it is located within. The mineral (gold) exploratory activities are consistent with the uses allowed within the S-2 Open Space/Preservation Zone with an approved Reclamation Plan.

C. The proposed use is listed as a use within the zone or sub-zone or is found to be similar to a listed conditional use according to the Land Use Ordinance.

The proposed mineral (gold) exploratory project is consistent with the Imperial County Land Use Ordinance (Title 9) with an approved Reclamation Plan.

D. The proposed use meets the minimum requirements of this Title applicable to the use and complies with all applicable laws, ordinances and regulation of the County of Imperial and the State of California.

The Reclamation Plan will insure that the project complies with all applicable regulations of the County of Imperial and the State of California. Therefore, the proposed project will meet the minimum requirements of the Land Use Ordinance.

E. The proposed use will not be detrimental to the health, safety, and welfare of the public or to the property and residents in the vicinity.

The proposed mineral (gold) exploratory project would not result in significant impacts to surrounding properties or residents. The proposed project site is located within the historic Muchacho-Tumco Mining District, area historically disturbed by mining activities with surrounding land uses that include prospecting and recreation. The proposed project site is situated approximately 15 miles northwest of the unincorporated townsite of Winterhaven, CA and approximately 2.3 miles east of the Gold Rock Ranch RV Resort.

F. The proposed use does not violate any other law or ordinance.

The proposed project is consistent with the Land Use Ordinance of the County of Imperial (Title 9) and CEQA. The proposed project will be subject to a Reclamation Plan and current Federal, State and Local regulations.

G. The proposed use is not granting a special privilege.

The mineral (gold) exploratory activities are permitted uses subject to a Reclamation Plan and will not grant a special privilege.

NOW, THEREFORE, based on the above findings, the Planning Commission of the County of Imperial **DOES HEREBY** approve Reclamation Plan #21-0001, subject to the attached Conditions of Approval.

Rudy Schaffner, Chairperson
Imperial County Planning Commission

I hereby certify that the preceding resolution was approved by the Planning Commission at a meeting conducted on **September 13, 2023**, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

ATTEST:

Jim Minnick, Director of Planning & Development Services
Secretary to the Planning Commission

ATTACHMENT "F" – RECLAMATION PLAN
#21-0001

SESPE CONSULTING, INC.
A Trinity Consultants Company
374 Poli Street, Suite 200 • Ventura, California 93001

RECLAMATION PLAN
ORO CRUZ EXPLORATION PROJECT

SMP Gold Corp.
Imperial County, California

CA Mine ID No. – TBD

March 2023

Prepared for:
Imperial County
Planning & Development Services
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Suite 420 – 789 West Pender Street
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RECLAMATION PLAN
ORO CRUZ EXPLORATION PROJECT

SMP Gold Corp.
Imperial County, California

CA Mine ID No. – TBD

March 2023

This Reclamation Plan was prepared by the undersigned on behalf and under the direction of the SMP Gold Corp.

Exp. 03-31-2024

Brian G. Anderson, P.G.
Principal Geologist
Sespe Consulting, Inc.

Exp. 09-30-2023

Pearce Swerdfeger, P.E.
Project Engineer
Sespe Consulting, Inc.

RECLAMATION PLAN

SMP – Oro Cruz Exploration Project
Imperial County, California
CA Mine ID No. – TBD

March 2023

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EXPLORATION RECLAMATION PLAN

SMP – Oro Cruz Exploration Project
Imperial County, California
CA Mine ID No. – TBD

March 2023

1.0 EXPLORATION PLAN

1.1 Introduction

SMP Gold Corp. (SMP) proposes mineral exploration activities at the Oro Cruz Pit Area (the "Project") within lands administered by the Bureau of Land Management (BLM), northwest of Yuma, Arizona, in Imperial County (the "County"), California. The Project is located on previously mined BLM lands, within Township 15 South, Range 20 East, Sections 1, 2, 12 and 13, and Township 15 South, Range 21 East, Sections 6, 7 and 18 (the "Project Area," see Figure 1 and Figure 2), that are managed by the BLM's El Centro Field Office. The Project Area has been previously disturbed by mining activities. Current surrounding land uses include prospecting and recreation.

The Project consists of using existing access roads and improving some existing roads, as well as constructing a new temporary exploration drilling access road, up to sixty-five (65) exploration drill pads, including eight (8) helicopter landing pads, to support exploration in seven (7) Drill Areas. The Project would also entail constructing a new access road and 2.8-acre staging area for access to the Oro Cruz Portal on BLM lands (Figure 5A). The total surface disturbance on BLM lands for the proposed Project activities is estimated at 20.5 acres.

The Project is proposed to begin upon completion of all BLM and Imperial County coordination, permitting and bonding. The Project mobilization, road construction, drilling, and borehole abandonment would be completed within 12 to 24 months of Project initiation. Drilling activities potentially would be completed in up to two drill areas at once. Drill areas would be potentially revisited a second and third time based on the findings. Once operations are complete, Project areas to be reclaimed would be converted to land uses consistent with mining, recreational uses, and open space. As feasible, Project reclamation would be completed concurrently with exploration drilling activities. Reclamation activities and subsequent monitoring for the success of reclamation of those areas would be completed within five (5) years of Project initiation.

As required by the California Surface Mining and Reclamation Act (SMARA) and applicable County mining ordinance(s), this Reclamation Plan was prepared and submitted to the County for approval. This Reclamation Plan was prepared in compliance with the following:

- SMARA, as amended (Public Resources Code Section 2710 et seq.);
- California Code of Regulations (CCR; Title 14, Division 2, Chapter 8, Subchapter 1, Section 3500 et seq.);
- Imperial County, Code of Ordinances (Title 9, Division 20 – Surface Mining and Reclamation);
- Imperial County, General Plan (1993); and

- California Environmental Quality Act (California Public Resources Code [PRC], Sections 21000 - 21178, and Title 14 CCR, Section 753, and Chapter 3, Sections 15000 – 15387).

1.2 Site Location & History, CCR §3502(b)(1)

The Oro Cruz Project is in the Tumco mining district in the Cargo Muchacho Mountains, 14 miles southeast of the operating Mesquite gold mine in Imperial County, California. The site is located approximately 35 minutes northwest of Yuma, Arizona, and is accessed via various paved highways and graded roads. The Project Area has been previously disturbed by significant mining activities. Current surrounding land uses include prospecting and recreation. The Tumco Historic Mine is a historic and recreational area managed by the BLM for uses such as hiking, prospecting, wildlife viewing, and photography within western portions of the Project Area.

The Cargo Muchacho Mountains have an extensive history of gold mining, dating back more than 130 years. According to Tetra Tech (Tetra Tech, 2011), gold mining has occurred historically in the area from 1890 to 1916 and 1932 to 1941, producing greater than 150,000 ounces of gold. In the mid-1990s, the Project property was developed by MK Gold Company.

As discussed above, the Project Area is within previously mined BLM lands within Township 15 South, Range 20 East, Sections 1, 2, 12 and 13, and Township 15 South, Range 21 East, Sections 6, 7 and 18. The Project Area and parcels therein are shown on Figure 2. The Project is comprised of the nine (9) Assessor's Parcel Numbers (APNs). Please see Table 1 and Table 2 which summarize County and BLM land use information applicable to the Project Area.

Table 1: Imperial County Land Use Summary

Assessor's Parcel Number	Property Owner	County General Plan Designation	County Zoning Designation
050-110-006	BLM	Recreation/Open Space	N/A (BLM Land)
050-110-007	BLM	Recreation/Open Space	N/A (BLM Land)
050-110-008	BLM	Recreation/Open Space	N/A (BLM Land)
050-110-009	BLM	Recreation/Open Space	N/A (BLM Land)
050-110-023	BLM	Recreation/Open Space	N/A (BLM Land)
050-110-024	BLM	Recreation/Open Space	N/A (BLM Land)
050-280-001	BLM	Recreation/Open Space	N/A (BLM Land)
050-280-012	BLM	Recreation/Open Space	N/A (BLM Land)
050-280-013	BLM	Recreation/Open Space	N/A (BLM Land)

See Figure 2 for more detail.

Table 2: Bureau of Land Management Land Use Summary

Land Use Category	Project Area Designation
Land Status	Bureau of Land Management
Area of Critical Environmental Concern (ACEC)	Picacho ACEC
Desert Wildlife Management Area	N/A (No Designations)
BLM Wilderness	N/A (No Designations)
BLM Imperial Sand Dunes Recreation Area (ISDRA) Fee Area Boundary	N/A (No Designations)
Field Office Boundary	El Centro Field Office

See Figure 1 for more detail.

1.3 General Ownership / Operation Information, CCR §2772(c)

1.3.1 Operator & Property Owner Information

PROJECT/OPERATIONS NAME:	Oro Cruz Exploration Project
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1.3.2 SMARA Lead Agency Information

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1.3.3 General Operation Schedule & Information

Estimated Initiation Date:	3rd Quarter 2023
Estimated Operating Life:	12 to 24 months (from Project initiation)
Estimated Operations Termination Date:	3rd Quarter 2022 to 2025
Estimated Reclamation Completion:	2028 (5 years from Project initiation)
Reclaimed End Use:	Land consistent with mining, recreational uses, and/or open space.

Table 3: Operation Information

Component	Proposed Plan
SMARA Project Type	Prospecting and Exploratory Activities
Quantity & Type of Mineral Commodity	N/A (Project is an exploratory drilling program)
Estimated Total Disturbance/Reclamation Area (acres)	20.5 acres
Number of Exploratory Boreholes	65 boreholes
Maximum Anticipated Depth of Boreholes (feet bgs)	800-feet bgs
Total Duration of Exploratory Activities	12 to 24 months (approximate)
Total Maximum Duration of Project	5 years (approximate)

"bgs" = below ground surface

1.4 Environmental Setting, CCR §3502(b)(1)

1.4.1 Geologic Setting

As previously discussed, the Oro Cruz Project is in the Cargo Muchacho Mountains in southeastern California. Based on a technical report prepared by Tetra Tech (Tetra Tech, 2011), the range is comprised predominately of Jurassic metavolcaniclastic rocks of the Tumco Formation, now present as well-foliated amphibolite-facies gneiss and schist. Mesozoic biotite granite and associated pegmatite dikes cut the Tumco Formation and cut Mesozoic hornblende-biotite quartz monzonite. The granite and monzonite form large intrusive bodies in the range. The principal structural fabric in the range is west-northwest. Low-angle faults are cut by northwest trending faults.

Given that the exploration activities will occur primarily within areas comprised of crystalline rocks, no paleontological resources are expected. Additionally, a review of literature pertaining to the geology of the Cargo Muchacho Mountains did not identify fossil localities in the Project Area, and the nature and type of Quaternary alluvium does not exhibit biostratinomic characteristics favorable for preservation.

With respects to the Project Area mineralization, the description below is compiled from the technical report prepared by Tetra Tech (Tetra Tech, 2011). The Oro Cruz mineral deposit is believed to be a detachment-fault-related gold deposit consisting of replacement mineralization along a low-angle detachment fault related to regional extensional fault systems. Mineralization is hosted predominantly within or along the boundaries the Tumco Formation. Mesothermal mineralization occurs in multiple brown to brownish gray siliceous zones containing hematite, magnetite, quartz, mica, feldspar, chlorite, and copper oxides. Native gold containing very low silver is associated with iron and copper oxides.

1.4.2 Hydrogeology

A review of the California Groundwater Bulletin Groundwater 118 (CA Department of Water Resources, 2004) indicates the Project area is situated within the Imperial Valley Groundwater Basin, located in the southeastern part of California at the international border with Mexico. The basin lies within the southern part of the Colorado Desert Hydrologic Region, south of the Salton Sea. The groundwater basin extends

across the border into Baja California where it underlies a contiguous part of the Mexicali Valley (CA Department of Public Works, 1954). The primary hydrologic features are the New and Alamo rivers, which flow north towards the Salton Sea. The rivers were formed in the mid to late 1800s when the Colorado River occasionally escaped the normal channel and flowed northward towards the present-day Salton Sea (Setmire, 1979). The All-American Canal (AAC) and the Coachella Canal also occur over the top of the basin.

According to Coes, et al. (Coes, et al., 2015), groundwater in the Project Area is recharged naturally near the mountain fronts along the washes from precipitation runoff and by underflow from the east between the Cargo Muchacho Mountains and Pilot Knob. Since 1940, groundwater has been recharged along the AAC and Coachella Canal from seepage of Colorado River water. Also, Tompson, et al. (Tompson, et al., 2008) note that irrigation-return flow could also serve as a recharge source to the aquifer system in Imperial Valley.

As noted in the study by Coes, et al. (Coes, et al., 2015), prior to 1940 the AAC was not carrying water, and groundwater pumping was minimal in the study area; the groundwater system is considered to have been in steady-state conditions. Well elevation data collected before 1940 indicate groundwater elevations at that time ranged from more than 100-feet above mean sea level (amsl) on the east side of the study area near the Cargo Muchacho Mountains and Pilot Knob to 10- to 20-feet amsl on the west side of the study area near Imperial Valley. Groundwater movement generally was from east to west, and groundwater was recharged primarily by underflow through alluvial deposits between the Cargo Muchacho Mountains and Pilot Knob (Loeltz, Irelan, Robison, & Olmsted, 1975)/ (Harshbarger, 1977).

1.4.3 Climate

Climate within the Project Area is characterized by hot dry conditions in the summer months and dry mild winters. Average annual rainfall is 3.9 inches per year, occurring primarily during winter (December through February) and the monsoon season (August and September). Average high temperature of the hottest (July) month is 107° Fahrenheit (F) and average low temperature of the coldest month (December) is 46° F (WRCC, 1964 - 1996).

1.4.4 Soils, Erosion, & Slope Stability

Within the Project Area, elevations range from 600-feet amsl to 800-feet amsl.

Soils in the Project Area developed from weathered granitic rock and schistose rock substrates. The soils consist of extremely gravelly sands or gravelly loams with up to 90% coarse fragments. Soils within the Project Area are of two general types based on substrate and topographic position: residual soil material weathered in place on slopes and ridges; and deeper alluvial soils transported by water and gravity to toe slopes, washes and outwash fans. The soils within the Project Area also contain large areas of disturbance from previous mining and reclamation activities.

A review of a technical report prepared by Dycker & Associates, Inc. (Dycker & Associates, Inc., 1995) indicates the native soils within the Project Area have developed under desert conditions of low moisture, high temperatures, and little or no chemical weathering. Soils are a product of the mechanical weathering process in this arid climate and are generally composed of coarse sands, gravel, and cobbles with little profile development. Soils vary from rock outcrops and a thin residual veneer of in-place rock materials on mountain ridges and slopes, to deep, coarse, alluvial material in washes and outwash fans. Old piedmont surfaces, such as desert pavement, have developed a characteristic type of rock surface

underlain by vesicular and saline subsoils peculiar to this desert region. Rock outcrops on peaks, ridges, and knobs occur throughout the area. Cobbles and rock fragments are common on the ground surface and form part of the weathered desert pavement on stable bajadas (Dycker & Associates, Inc., 1995).

SMARA regulations (§3711) require salvage of topsoil and other suitable growth media (subsoil) prior to mining activities, and redistribution in areas to be revegetated. SMARA regulations (§3705) also require soil analysis to determine if the growth media in revegetation areas consists of native topsoil and is otherwise adequate to support successful revegetation. Although the potential to salvage topsoil/subsoil from the Project Area is limited, as feasible topsoil and subsoil will initially be scraped off the drill pads and new access road areas and stored along the edges of the pads/roads in small stockpiles and/or berms in accordance with §3711. The topsoil and subsoil will be salvaged and stored through the duration of Project activities, and then used as backfill for reclamation activities once drilling is complete and equipment demobilization occurs. Please see Section 2.10 for more detail related to topsoil and subsoil storage.

1.4.4.1 Erosion, Sediment Transport, & Windblown Dust

Erosion, sediment transport and windblown dust are controlled by implementation of the storm water Best Management Practices (BMPs), compliance with Imperial County Air Pollution Control District (ICAPCD) applicable rules and regulations, and site-specific inspections (as needed) conducted by the operator. Also, see Sections 1.11 and 2.11 for summaries of dust control and storm water BMPs to be implemented onsite.

As needed, SMP will implement BMPs for erosion and sediment control measures. The effectiveness of erosion control measures would be monitored throughout the duration of the Project. Additionally, SMP will follow all erosion and sediment control measures identified in this Reclamation Plan.

Air quality impacts associated with the Project would be primarily from fugitive dust generation by vehicles and equipment during operations and from vehicle and drill powerplant emissions. The Project Area is within the jurisdiction of the ICAPCD. The Project would comply with applicable State of California and ICAPCD rules for fugitive dust emissions. Specifically, the Project will comply with Regulation VIII – Fugitive Dust Rules, specifically Rules 800 through 806, which prescribe measures for the management of windblown dust.

1.4.5 Vegetation & Biological Resources

Vegetation in the Project Area is low desert scrub typical of the high temperature region of southeastern California. The following description of the Project Area biological and vegetation setting is taken from the technical report prepared by Dycker & Associates, Inc. (Dycker & Associates, Inc., 1995). Vegetation within the Project Area is low desert scrub typical of the severe temperate desert. Vegetative cover is extremely low and variable, and species diversity is minimal. The existing vegetation is highly adaptable to the desert heat and droughts, and on the higher ground consists of scattered desert species (e.g., creosote bush, etc.). Wash areas in the region collect rain runoff and provide a break in the arid desert areas and, therefore, have the potential to support a wider variety of plants including large shrubs and small trees, and a variety of ground cover. The vegetation is sparse, with denser overall cover on upland mountain slopes that decreases on the alluvial fans and flats.

Recent field surveys conducted by WestLand Resources Inc. (2021) document similar conditions. In general, vegetation in the Project Area is slow desert scrub typical of the high temperature region of

southeastern California. In general, vegetation is sparse in both the upland and xeroriparian habitats. The uplands consist of a very low-density shrub community dominated by creosote (*Larrea tridentata*) and brittlebush (*Encelia farinose).* In addition, large portions of the Project Area consist of disturbed habitats dominated by non-native annual plants. The xeroriparian habitat generally consists of the same sparce shrub community and includes widely spaced upland trees and ocotillo (*Fouquieria splendens*). In summary, vegetation in the Project Area is uniformly sparce and consist of very low density shrublands, upland trees and highly disturbed habitats. The floral community is more specifically described in Section 2.3.

1.4.6 Wildlife

Wildlife habitats on and around the Project Area have been significantly influenced by historic mining activities, as well as by recreational and mine exploration activities. During field surveys conducted in March 2021 a total of 26 wildlife species were observed. See Section 2.4 below for more detail.

To avoid potential adverse impacts to sensitive plant and wildlife species and habitats a variety of protection measures are associated with the Project. These include specific measures for the Mojave desert tortoise (SMP Gold Corp., 2020). Please see the Biological Resources Assessment (WestLand Resources, Inc., 2021) included in Appendix B for additional detail.

1.5 Exploration Activities, CCR §2772, §3502, §3503

1.5.1 Project Summary, CCR §2772(c)

The Project Area is within previously mined BLM lands that are managed by the BLM's El Centro Field Office (Figure 1). The total surface disturbance for the proposed Project activities on BLM lands is estimated at 20.5 acres.

As discussed in Section 1.0, the Project consists of the following:

- Using existing access roads and improving approximately 2.6 miles of existing roads;
- Constructing approximately 6.2 miles of new 12-foot-wide temporary exploration drilling access roads;
- Constructing up to 65 drill pads (including 8 helicopter landing pads) to support exploration; and,
- Constructing approximately 9,640 linear feet (1.8 miles) of new, 15-foot-wide access road and a 2.8-acre staging area to serve as primary access to the Oro Cruz Portal on BLM lands (Figure 5A).

The 2.8-acre staging area at the Oro Cruz Portal would be used for exploration within the proposed Drill Areas and underground mine area and resources. The area would house a 1,000-gallon diesel fuel tank and fueling station; helicopter landing area with 300-gallon JetB fuel tank and refueling station; two (2) diesel-powered generators (125 kilowatts [kW] or equivalent); two (2) portable compressors (375 Series or equivalent); parking for access to the underground mine; and laydown areas for exploration drilling.

The Project is proposed to begin upon completion of applicable BLM and Imperial County coordination, permitting and bonding requirements. The Project mobilization, road construction, drilling, and borehole abandonment would be completed within 12 to 24 months, following issuance of the necessary approvals by the County and BLM. Drilling activities potentially would be completed in up to two (2) drill areas at once. Drill areas would be potentially revisited a second and third time based on the findings. As feasible, Project reclamation would be conducted concurrently with exploration drilling activities, and monitoring for the success of reclamation of those areas would be completed within five (5) years of Project

implementation.

1.5.2 Project Area of Disturbance Summary

As discussed above and summarized in Table 4 below, Project Areas would be disturbed by construction of new access roads, helicopter landing pads, drill pads, and the Oro Cruz Portal staging area (approximately 2.8 acres in size). To minimize land disturbance, existing access roads would be used to the extent possible, but some new access roads would be required across BLM land (see Figure 2 and Figure 3).

The access routes will be used by a track-mounted drill rig and support vehicles. The drill pads will consist of an approximately 60-foot by 40-foot area that will be cleared to hold the drilling collar and sumps for drilling mud (wastewater and fluid), along with all drilling equipment and personnel during construction. The sumps would be approximately 12-feet by 12-feet and 6 feet deep.

Clearing activities would be conducted with a bulldozer, track hoe and hoe ram. As summarized in Table 4 below, the total surface disturbance for the proposed activities is estimated at 20.5 acres on BLM lands.

Table 4: Estimated Project Surface Disturbance

Activity Area	Description of Activity	Est. Impact by Activity (square feet)	Est. Impact by Activity (acres)	Est. Impact Per Drill Area (acres)
Drill Area 1	Exploration Reverse Circulation (RC) or core drilling to be conducted within 14, 60-by-40-foot drill sites (accessed via existing and new roads).	33,600	0.8	1.9
	Exploration core drilling to be conducted within 2, 60-by-40-foot drill sites (accessed via helicopter).	4,800	0.1	
	Approximately 3,500 linear feet of 12-foot-wide new temporary exploration drilling access road.	42,000	1.0	
Drill Area 2	Exploration RC or core drilling to be conducted within 13, 60-by-40-foot drill sites (accessed via existing and new roads).	31,200	0.7	3.8
	Exploration core drilling to be conducted within 2, 60-by-40-foot drill sites (accessed via helicopter).	4,800	0.1	
	2 helicopter landing pads (50-by-50-foot area).	5,000	0.1	
	Approximately 10,500 linear feet of 12-foot-wide new temporary exploration drilling access road.	126,000	2.9	

Activity Area	Description of Activity	Est. Impact by Activity (square feet)	Est. Impact by Activity (acres)	Est. Impact Per Drill Area (acres)
Drill Area 3	Exploration RC or core drilling to be conducted within 7, 60-by-40-foot drill sites (accessed via existing and new roads).	16,800	0.4	1.8
	Exploration core drilling to be conducted within 3, 60-by-40-foot drill sites (accessed via helicopter).	7,200	0.2	
	3 helicopter landing pads (50-by-50-foot area).	7,500	0.2	
	Approximately 3,500 linear feet of 12-foot-wide new temporary exploration drilling access road.	42,000	1.0	
Drill Area 4	Exploration RC or core drilling to be conducted within 4, 60-by-40-foot drill sites (accessed via existing and new roads).	9,600	0.2	1.2
	Approximately 3,500 linear feet of 12-foot-wide new temporary exploration drilling access road.	42,000	1.0	
Drill Area 5	Exploration RC or core drilling to be conducted within 2, 60-by-40-foot drill sites (accessed via existing and new roads).	4,800	0.1	1.2
	Exploration core drilling to be conducted within 3, 60-by-40-foot drill sites (accessed via helicopter).	7,200	0.2	
	3 helicopter landing pads (50-by-50-foot area).	7,500	0.2	
	Approximately 2,700 linear feet of 12-foot-wide new temporary exploration drilling access road.	32,400	0.7	
Drill Area 6	Exploration RC or core drilling to be conducted within 5, 60-by-40-foot drill sites (accessed via new access road).	12,000	0.3	0.8
	Approximately 1,800 linear feet of 12-foot-wide new temporary exploration drilling access road.	21,600	0.5	
Drill Area 7	Exploration RC or core drilling to be conducted within 10, 60-by-40-foot drill sites (accessed via existing and new roads).	24,000	0.6	2.5
	Approximately 7,000 linear feet of 12-foot-wide new temporary exploration drilling access road.	84,000	1.9	

Activity Area	Description of Activity	Est. Impact by Activity (square feet)	Est. Impact by Activity (acres)	Est. Impact Per Drill Area (acres)
Existing Access Roads (Improvements Required)	Approximately 10,410-feet (2.0 miles) of existing road improvements; Assumes an additional 6-feet of disturbance would be added to the width of the existing roads.	62,460	1.4	N/A
New Access to Oro Cruz Portal	Approximately 9,640 linear feet (1.8 miles) of 15-foot-wide new access road.	144,600	3.3	N/A
Oro Cruz Portal Staging Area	Access, fueling stations, staging and parking to support the exploration of the underground resource accessible through the Oro Cruz Portal. Approximately 2.6-acre staging area in at the entrance of the Oro Cruz Portal.	121,970	2.8	N/A
See Figure 3 for more detail.	**Total:**	**895,030**	**20.5**	

1.5.3 Site Access

As discussed above, existing access roads would be used to the extent possible but some new access roads would be required across BLM land (see Figure 2 and Figure 3). The access routes that would be used are pre-existing BLM-authorized routes. The proposed drill sites and new access roads would be mostly located within previously mined and disturbed areas. Interstate 8 (I-8) and Ogilby Road (State Route 34) and Gold Rock Ranch Road are the primary roads that would be used for access. Drilling equipment would be trucked to one of two truck unloading points, and then would be mobilized to the Drill Areas within the Project Area (Figure 3). Equipment would be unloaded from lowboys onto the existing road at the unloading points and no improvements are needed to accommodate the unloading of equipment.

Access to the drill pads would be gained via existing and new roadways, and via helicopter from the Yuma Airport. The exploration drilling aspects of the Project would require approximately 13,820-linear-feet (2.6 miles) of existing road improvements; approximately 32,740-linear-feet (6.2 miles) of new temporary access road construction; and the construction of up to eight (8) helicopter landing pads (Figure 3). These new access roads would be used strictly for Project support vehicles to access the exploration Drill Areas. Signage would be installed at appropriate ingress/egress points clearly describing the roads as having limited access.

Access to the Oro Cruz Portal would require the construction of 9,640-linear-feet (1.8 miles) of a new 15-foot-wide road. The road would be secured from unauthorized access for the duration of activity at the portal staging area while assuring access by BLM staff. A gate would be placed across the road accompanied by proper deterrence on either side of the gate (i.e., fence, berm, or large boulder). Activities at the Oro Cruz Portal staging area and access route for underground investigations may extend beyond the 12- to 24-month exploration activities; but reclamation and monitoring of those areas would be completed within 5 years of Project implementation.

Reclamation would be implemented at the 2.8-acre portal staging area and all equipment would be

removed within the 5-year reclamation monitoring period. The portal staging area would be secured with chain link fence and razor wire, and locked during brief periods of non-operation. Roads would also be reclaimed.

Road construction would be conducted using a D8 Dozer (or equivalent). Vegetation disturbance would be avoided to the maximum extent possible. No maintenance is planned for improved existing roads, as they will only be used for 12 to 24 months during active drilling and then would be reclaimed. Improvements would require selected stretches of existing access road to be bladed and cleared of vegetation. Most of the existing roads in the Project Area are about 6-feet wide, so it is assumed that road improvements would require approximately 6-feet of additional width disturbance.

New access roads for exploration drilling would not disrupt the surface except where necessary to gain safe access. These roads would be used temporarily for access to the drill sites and would require a 12-foot width for access of drilling equipment.

Where needed to restrict access to Drill Areas 1 and 6, barriers constructed of onsite materials from areas disturbed as part of the Project would be installed to prevent unauthorized vehicular traffic from interfering with the reclamation of access roads. As appropriate, signs would be posted indicating these roads would be for authorized use only. Berms would be 6-feet in height and placed along new access routes to prevent the public from accessing the Drill Areas. The Project access road is gated at its intersection with Tumco Wash, so that gate will serve as the safety barrier to Drill Areas 2, 3, 4, 5, and 7. Road fill will be stabilized and maintained during and following any construction to prevent any erosion.

1.5.4 Drilling Activity

Sixty-five (65) boreholes would primarily be completed using RC techniques, however a portion of those boreholes might also be completed using core techniques. The boreholes would be placed within seven (7) Drill Areas (see Figure 3). The anticipated maximum depth for the boreholes is approximately 800-feet bgs. Drilling would be accomplished with a track-mounted rig. Any water encountered or generated by drilling will be fully contained within the drill sumps, and the sumps will be backfilled once all water is evaporated.

A drill rig would operate on a 12- or 24-hour-per-day schedule (12 hours per shift) for 12 to 24 months. Once a hole is completed, the drillers would abandon the hole before moving to the next hole. Typically, there would only be one drill rig in operation at a time within the Project Area. The exception would be when RC holes are completed with core tails, at which time there would be two (2) drill rigs on site and in operation at the same time.

Each drill site requires an approximately 60-by-40-foot drill pad that will encompass approximately 0.06 acres of disturbed area (Figure 5B).

1.5.5 Vehicle/Equipment & Maintenance

The proposed exploration activities would be conducted using the following equipment (or similar):

- LF-90D – Boart-Longyear track-mounted drill rig (size = 12 by 20 ft; weight ~18,000 lbs)
- Drill pipe and equipment truck (size = 10 by 35 ft; weight ~35,000 lbs)
- CAT® bulldozer (size = D8, weight ~80,000 lbs)
- Track hoe (weight ~30,000 lbs)

- Hoe ram (weight ~10,000 lbs)
- Portable water tank (2,000 gallon; weight ~400 lbs)
- Above-Ground diesel fuel tank (1,000 gallon; weight ~1,500 lbs)
- Above-Ground JetB fuel Tank (300 gallon; weight ~500 lbs)
- Excavator (Size = 200; weight ~52,000 lbs)
- Water trucks (two 1,000 gallon; weight ~50,000 lbs each)
- Generators associated with drill rig (one 125 kW) and Oro Cruz Portal staging area (two 125 kW; weight ~13,000 lbs each)
- Portable compressors (two 375 Series; weight ~4,500 lbs each)
- Support vehicles (approximately five, one-ton vehicles)

Minor equipment maintenance will be conducted in the field using maintenance and fueling trucks as needed. If equipment requires major repairs, it would be hauled off by the contractor and replaced. Waste oil and engine fluids generated at the operations will be collected and transported by the maintenance truck contractor for offsite disposal by approved methods via properly trained and licensed personnel. Refueling and maintenance will comply with all rules and regulations with regard to implementing proper fueling procedures and spill control measures and employee training. Drip pans or absorbent pads shall be used during fueling and maintenance and absorbent spill cleanup materials and spill kits shall be available and disposed of properly after use.

1.6 Waste Management & Disposal

1.6.1 Mine Wastes, CCR §2772(c)(8)(A)

Mining waste includes the residual of soil, rock, mineral, liquid, vegetation, equipment, machines, tools, or other materials or property directly resulting from, or displaced by, surface mining operations. Mining waste also includes, but is not limited to, soil, waste rock, and overburden, as defined in Section 2732 of the Public Resources Code, and tailings, slag, and other processed waste materials, including materials that are managed at a manufacturing facility where the materials were generated.

Mining wastes associated with this Project include residual solids and desiccated drilling muds generated during the exploration process, and in particular the drilling campaign. Given the nature of the exploratory activities, there would be no significant quantities of mining wastes produced as a result of this Project. Drilling mud (wastewater and fluid) would be stored in sumps (estimated to be 12-feet by 12-feet, and 6-feet deep) constructed adjacent to each drill rig. Other than cuttings and water used to advance the drilling, no other solid or liquid investigative derived wastes (IDW) are anticipated. The IDW will be fully contained within sumps the sumps constructed at each drill site. Specifically, drilling mud encountered would be pumped back out of the drill hole and into the sump, where solids would be allowed to settle out and water allowed to naturally evaporate. The sumps would then be backfilled using the excavated soils once the water is evaporated.

Upon completion of the exploration, the exploratory drill holes would also be sealed and abandoned in compliance with the most current edition of State Water Resources Control Board Bulletin #74-81 and #74-90. Following abandonment of the exploratory boreholes, any remaining drill cuttings will be spread out on the drill pad surfaces, and reseeded in accordance with the revegetation procedures described in Section 2.7.

1.6.2 Hazardous & Solid Waste Management

No hazardous waste is expected to be generated in connection with this Project, and there will be no onsite disposal of hazardous materials. Hazardous substances used in the course of the Project, such as fuels and lubricants would be stored at the drill sites in accordance with manufacture prescribed instructions and applicable regulations. During drilling operations, the drill rig would be parked on top of plastic sheeting overlain by absorbent clay or shale (i.e., Oil-Dri, or "kitty litter") to prevent incidental releases to the ground surface.

Any trash generated by the contractors would be collected in appropriate containers and removed as required for accordance with applicable laws and regulations. No refuse would be disposed of onsite.

1.7 Water Resources

1.7.1 Fresh Water

Surface and groundwater within the Project Area would not be used as a source for water for the drilling. Rather, water for drilling and dust suppression would be provided by the drilling company via a mobile water truck. Specifically, the water would be procured from Gold Rock Ranch and/or a local water purveyor. It is anticipated that two (2) 1,000-gallon water trucks would be required onsite each day. Additionally, a 2,000-gallon portable water storage tank would be kept onsite for drilling and dust suppression.

Water that contacts the Project Area, either from application for dust suppression or as a result of a precipitation event, will be contained onsite and either naturally evaporate or infiltrate into the ground. No permanent waterways, streams, or diversion channels exist within or adjacent to the Project Area, and none are proposed as a result of site development. There would be no discharges outside the drill sites or in surface tributaries, and no pollutants would be discharged. Activities water management would comply with applicable county, state, and federal laws. Additionally, as discussed in Section 1.4.4, the Project operations would be conducted pursuant to the State of California CGP for stormwater discharges.

1.7.2 Wastewater

No wastewater will be generated during Project operations, as no onsite processing will occur within the site. All rock products and waste rock generated during Project operations would be naturally occurring rock. Chemicals or other hazardous materials will not be utilized during drilling activities.

Water used during the drilling process would come into contact with bentonite drilling mud and ground rock at depth. It would be managed and handled after it is pumped back out of the hole by evaporation and by allowing solids to settle out in excavated mud pits or sumps at the drill site. The sumps would be backfilled after evaporation. There would be no discharges outside the drill site or in surface tributaries, and no pollutants would be discharged in accordance with CWA requirements. As discussed above, activities would be conducted in compliance with applicable county, state, and federal laws, including requirements specific to California's CGP for stormwater discharges, if deemed necessary by BLM and/or the County.

A mobile water truck will be utilized onsite for dust suppression, and applied water will either naturally evaporate or infiltrate into the ground.

If needed, temporary portable toilets may be placed within the Project Area. If installed, portable toilet

facilities provided for the duration of the Project would be maintained by contractors and accumulated human waste would periodically be collected and transported to an approved disposal site. No waste would be buried on site. Operations in the Project Area will not produce any industrial or domestic wastewater discharges onsite.

1.8 Spill Prevention & Cleanup

To prevent the spread of any accidental leakage in storage, fuel and lubricant containers would be stored in shallow (4-inch depth), 10-foot by 10-foot lined secondary containment areas at each drill site and in an approximately 6-inch deep, 20-foot by 40-foot lined secondary containment area at the fueling stations. During drilling operations, the drill rig would be parked on top of plastic sheeting. A spill prevention kit would be stored on site consisting of an oil absorbent mat material (i.e., PIG® adsorbent mat pad) and absorbent clay or shale (i.e., Oil-Dri, or "kitty litter"). The volume of absorbent that would be kept onsite for potential spills is estimated to be 50 gallons at each active drill site and 100 gallons at the fueling stations. Since there will be, at most, two (2) active drill sites at one time the estimated volume of absorbent onsite is 200 gallons.

A Spill Contingency Plan would be prepared to describe the procedures followed by SMP and their contractors to prevent, control, and mitigate releases of oil and petroleum products to the environment within the Project Area. The following proposed spill prevention, control and countermeasures (SPCC) would be implemented:

- Fueling would be performed on a 20-feet by 40-feet plastic sheeting over an approximately 6-inch deep reservoir. The fueling areas would be sloped gently to one corner with a small sump to contain any accidental releases of fuel.
- Equipment servicing would be performed within the fueling areas or on plastic sheeting within the drill sites.
- A standard procedure for fueling and servicing would be initiated and performed at the designated fueling stations and drill sites; however, equipment may need to be serviced at times elsewhere within the Project Area, and spill protection measures would be implemented.
- Diesel fuel is a major consumable for the mine and drilling equipment. Diesel fuel is available from local suppliers and would be received in tank trucks. The Project would receive and unload diesel to the onsite storage tank, using best practices for fuel transfer as described below.
- Diesel fuel would be offloaded using drip-less connections in a contained area to eliminate spillage contamination. The off-loading sites would be designed to drain into the main storage site containment and have a spill response kit containing booms, and clean-up materials to ensure that any off-containment spillage is immediately contained and cleaned.
- A small spill response trailer would be maintained in the Project Area to clean-up any spills.
- Inspections of fuel valves and other inlets and outlets as well as secondary containment would be made daily.
- All site personnel that would be involved in fuel-handling would be trained in the operation and maintenance of equipment to prevent discharges.
- The 1,000-gallon diesel fuel tank and 300-gallon JetB fuel tank would be secured and locked during times when SMP personnel and contractors are not on site.

- Berms and protective barriers would be placed around the fuel tanks to prevent accidental or malicious damage by vehicles or equipment.

1.9 Public Safety & Fire Prevention

During all operations, SMP will maintain equipment and conduct activities in a safe and orderly manner. Due to the isolated nature and remote locations of the proposed access roads and drill sites, public security and safety are not a concern. As needed, certain access roads may be gated and/or locked to prevent public access. For example, the Oro Cruz Portal staging area (Figure 5A) would be secured with chain link fence and razor wire, and locked with warning signs during brief periods of non-operation. All employees and contractors will be required to complete a safety training prior to commencement of operations.

SMP would implement site-specific fire prevention/protection actions. At a minimum these actions would include designating Project fire coordinators, providing adequate fire suppression equipment (including in vehicles), and establishing emergency response information relevant to the Project Area.

SMP would have a 2,000-gallon portable water storage tank onsite for dust suppression that would also be available to assist in firefighting operations. SMP would ensure that all mobile equipment be equipped with fire extinguishers, hand tools, and first aid kits.

In the event of an initial, small fire that does not create enough smoke, flame, and heat to prevent fighting the fire using a hand-held fire extinguisher or a small water hose, and providing no one would be endangered, SMP personnel and/or contractors would make a reasonable effort to extinguish the fire. If two or more people are present, one would fight the fire while one reports to 911 the size, type, and location in the event the fire grows out of control. Personnel would not directly engage any fire which is beyond the incipient stage (i.e., a fire which has progressed to the point it has substantially involved any structure/equipment).

Planning and prevention of fires is also managed through the appropriate handling and storage of fuels, inspections and recordkeeping, spill prevention and response procedures, proper use of safety equipment, resource management training, and fire prevention training.

1.10 Erosion and Sediment Control, CCR §3503(a), (e), §3706

Prior to commencement of operations, site-specific stormwater and erosion control BMP's will be implemented on an as needed basis. BMPs to be implemented onsite may include, but are not limited to, the following: specific prohibitions, effluent limitations, potential contaminant source identification, practices to reduce pollutants, assessment of pollutant sources, materials inventory, preventative maintenance program, spill prevention and response procedures, general storm water BMPs, training, record keeping, sampling procedures and a description of the monitoring program.

Table 5 summarizes the potential erosion control BMPs that would be implemented as part of the Project.

Table 5: Summary of Erosion BMPs

Industrial Activity/Material	Potential Pollutants	BMPs Implemented	Required Equipment & Tools
Site Preparation and/or Exploratory Drilling	Sediment	Erosion control; Sediment control; Stormwater containment.	Silt fencing and fiber rolls. Mobile equipment for berm maintenance as needed.
	Dust	Wind erosion control; Erosion control; Sediment control; Tracking control.	Water truck; Soil binders.
Equipment and Vehicle Maintenance	Oil & Grease Hydrocarbons Gross Pollutants Trace Metals	Good housekeeping; Spill prevention & maintenance; Interior berms as needed to direct surface flows to pit; Secondary containment.	Covered trash bin; Spill kit; Bulldozer for berm maintenance.

No stockpiling of material is anticipated other than for temporary storage as may be necessary. For example, temporary stockpiles may be formed when developing the access roads and/or individual drill pads. If needed, additional BMPs (e.g., berms, sandbags, fiber rolls, or silt fencing, etc.) will be installed to ensure sediment does not inadvertently erode into adjacent areas during a large storm event.

Due to the existing topography and the proposed design of the access roads and drill pads, stormwater runoff and sediment erosion from the Project Area is considered unlikely. Development of the Project would not add any paving or impervious surface areas. Due to site topography and design, and through the implementation of BMPs, the chances of discharge, erosion, and/or sedimentation from the Project Area that could adversely impact adjacent properties is considered very low.

1.11 Dust Control

As discussed in Section 1.4.4, dust will be controlled by water spraying the access roads by the water truck at the start of the operating day as needed to control visible dust. All equipment is required to meet current Federal and State air quality standards including the federal and state Clean Air Acts, and rules and regulations of the California Air Resources Board (CARB) and the ICAPCD.

1.12 Material Processing

No onsite material processing would occur within the Project Area.

1.13 Blasting

Due to the nature of the operations, blasting is not required and will not be conducted onsite. Therefore, no explosives will be stored and/or utilized within the Project Area.

2.0 RECLAMATION PLAN

The following section has been prepared and organized pursuant to the requirements outlined within the Surface Mining and Reclamation Act (SMARA) and the County's requirements. The California Code of Regulations (CCR) citations presented within each titled section reference specific SMARA statutes applicable to each section (also see the "Table of Compliance for SMARA Requirements").

The intent of SMARA is to "maintain an effective and comprehensive surface mining and reclamation policy with regulation of surface mining operations so as to assure that:

(a) Adverse environmental effects are prevented or minimized and that mined lands are reclaimed to a usable condition which is readily adaptable for alternative uses;

(b) The production and conservation of aggregates are encouraged, while giving consideration to values relating to recreation, watershed, wildlife, range and forage, and aesthetic enjoyment; and

(c) Residual hazards to the public health and safety are eliminated" (Section 2712).

Article 9, Section 3700 of SMARA states the following: "Reclamation of mined lands shall be implemented in conformance with standards in this Article. The standards shall apply to each surface mining operation to the extent that:

- They are consistent with required mitigation identified in conformance with the California Environmental Quality Act (CEQA); and
- They are consistent with the planned or actual subsequent use or uses of the site" (Section 2712).

Since the Project would entail surface disturbance beyond 1-acre, in accordance with SMARA this Reclamation Plan has been prepared which details the reclamation activities and applicable performance standards. This Reclamation Plan has been designed to address the scope of exploratory work, as described below.

2.1 Existing & Proposed Land Uses, CCR §2772 (c)(7), §3502 (b)(1)

As shown on Figure 1 and discussed in Section 1.2, the Project Area is located within the Cargo Muchacho Mountains, to the north and south of the Tumco Wash. Existing land uses within and near the Project Area can generally be characterized as undeveloped barren desert land, low-lying desert foothills and dry alluvial basins that have been previously disturbed by past mining activities.

There are no streams or riparian areas located within the Project Area. Other than miscellaneous structures (e.g., material stockpiles, berms, etc.) and existing access roads (that would be improved) associated with the historical mining operations, the existing Project Area has few features and no existing structures.

The entirety of the Project Area and adjacent areas are located on BLM land, and currently have a County land use designation of "Recreation/Open Space". Please see Figure 1 and Figure 2, which displays the Project Area and surrounding setting, and Figure 3 and Figure 4 which shows the operations/exploration site plan.

Once exploratory drilling operations are complete, SMP will reclaim the Project Area to a state readily adaptable for land uses consistent with mining, recreational uses, and open space. Reclamation of the

Project Area has been designed to complement the adjacent land uses. Please see Figure 4 which shows the layout/design of the reclamation Project Area.

2.2 Public Access, Visibility & Health/Safety, CCR §3502 (b)(2)

As discussed above, the Project Area is located on BLM land within an undeveloped desert area of unincorporated Imperial County, and is generally isolated from public view and/or access. The existing topography immediately surrounding the Project Area is generally barren and flat desert areas, with more mountainous areas (i.e., Cargo Muchacho Mountains) to the north, east and south.

The surrounding topography generally obscures views of the Project Area from most nearby public viewpoints. Views of the Project Area are generally limited to the publicly accessible areas and roadways (e.g., Gold Rock Ranch Road) located adjacent to the perimeter of the site. Gold Rock Ranch Road will be gated at the intersection with Tumco Wash, and this gate will serve as the safety barrier to Drill Areas 2, 3, 4, 5, and 7. Additionally, planned safety barriers (or berms) may also be installed in this area to discourage public access. As needed, certain safety features (e.g., berms, fences, signs, etc.) may remain in place during and after site reclamation. Please see Section 1.5.3 for more detail.

Exploration and reclamation activities will comply with all Federal Mine Safety and Health Administration (MSHA) and California Occupational Safety and Health Administration (Cal/OSHA) mine safety regulations concerning operating standards and operation of equipment.

Workers, including contract labor, will be trained in mine safety and first aid. Refresher courses will be conducted periodically in accordance with applicable regulations.

Onsite operations personnel will carry portable cellular phones and will have access to a satellite phone (for instances where cell tower services is poor) for offsite communications and for safety purposes. All visitors, outside vendors, and truck drivers will be required to check-in and check-out with the appropriate onsite manager. Conditions affecting safety will be continually monitored by onsite operations personnel. During operations and until reclamation of the Project Area is complete, the general public will not be admitted to these lands without prior permission of the BLM and SMP's onsite manager.

2.2.1 Berms and Screens

Barriers (or berms) would be installed to prevent unauthorized vehicular traffic and signs would be posted indicating these roads would be for authorized use only. Where needed to restrict access to Drill Areas 1 and 6, barriers constructed of onsite materials from areas disturbed as part of the Project would be installed to prevent unauthorized vehicular traffic from interfering with the reclamation of access roads. Earthen berms would be approximately 6-feet in height and placed along new access routes, as needed, to prevent the public from accessing the Project Areas.

2.2.2 Fencing

As discussed above, access to the Project Area, specifically the Oro Cruz Portal, would be provided by a new, 15-foot-wide access road as shown on Figure 3. The road would be secured from unauthorized access for the duration of activity at the portal staging area while assuring access by BLM staff. The portal staging area would be secured with chain link fence and razor wire and locked during brief periods of non-operation. As discussed above, activities at the Oro Cruz Portal staging area and access route for underground investigations may extend beyond the 12- to 24-month exploration activities; but

reclamation and monitoring of those areas would be completed within 5 years of Project implementation.

Other than the primary access road, no other fencing and/or gating within the Project Area is proposed. If safety becomes a concern, additional private access roads controlled by SMP may be gated and/or locked to prevent inadvertent public access. Additionally, as needed signs may be placed at the access roads and on perimeter fencing as necessary to identify the operations (in English and Spanish, as necessary), to ensure public safety and to prevent inadvertent public access to active mining areas.

2.2.3 Lighting

Project operations and reclamation activities would generally happen during daylight hours, with the exception of drilling operations that would occur up to 24-hours per day. Specifically, a drill rig would operate on a 12- or 24-hour-per-day schedule (12 hours per shift) for approximately 4 months.

Lighting for nighttime operations and security will be provided as needed. Lighting within the Project Area will be installed in a manner to minimize unnecessary glare onto adjacent areas. The lights will comply with all applicable federal, state, and county standards and industry practices. High pressure sodium and/or cut-off fixtures (or equivalent International Dark-Sky Association [IDA]-approved fixtures) will be used instead of mercury-vapor fixtures for any required nighttime lighting. The lighting will also be designed to confine illumination to the site and/or to working areas that do not include light-sensitive uses.

2.3 Vegetation, CCR §3502 (b)(1), §3503 (c), §3703

2.3.1 Existing Vegetation

As described in Section 1.5, the exploration activities will utilize, to the extent feasible, existing roads to access the Project site. As needed, new roads will be constructed along with the drill pads, resulting in an estimated 20.5 acres of new Project-related disturbance. These new areas are included as part of this Reclamation Plan, and therefore will be revegetated in accordance with the plan described below.

As previously discussed, the Project Area is a common desert habitat. It is an arid site with some dissected alluvial piedmont surfaces covered with partial desert pavement. Surfaces are generally sparsely vegetated, with minimal plant cover and thin, poorly developed soil profiles.

Vegetation in the Project Area is low desert scrub typical of the high temperature region of southeastern California. In general, vegetation is sparse in both the upland and desert wash habitats. The uplands consist of a very low-density shrub community dominated by creosote and brittlebush. In addition, large portions of the Project Area consist of disturbed habitats dominated by non-native annual plants. The desert wash habitat generally consists of the same sparse shrub community and includes widely spaced upland trees and ocotillo. In summation, vegetation in the Project Area is uniformly sparse and consist of very low density shrublands, upland trees and highly disturbed habitats.

For the purposes of vegetation mapping, an analysis area that encompasses the proposed disturbance on seven (7) drill areas and associated access roads was defined. A total of 37 plant species were identified during field surveys, which are included listed in the Revegetation Plan provide as Appendix A.

As summarized below, three (3) California Native Plant Society vegetation categories were identified during pedestrian surveys and thematically mapped using the Supervised Classification tool in ArcGIS Pro 2.7.

Brassica (nigra) and other mustards semi-natural stands: Brassica (nigra) and other mustards semi-natural stands vegetation category occupies approximately 18% of the Analysis Area and 24% of the Project Area (WestLand Resources, Inc., 2021). This vegetation category corresponds with disturbed and barren areas. Although the named dominant species, black mustard (*Brassica nigra*), was not observed, Saharan mustard (*Brassica tourneforti*), a closely related non-native mustard was often present in both naturally disturbed areas including wash scour and human-disturbed areas such as roads, camp sites, and rock waste piles. This natural community is not classified as sensitive by the California Department of Fish and Wildlife (CDFW 2020).

Parkinsonia florida – Olneya tesota alliance: Parkinsonia florida – Olneya tesota alliance occupies approximately 2% of the Analysis Area and 2% of the Project Area (WestLand Resources, Inc., 2021). The vegetation category is primarily restricted to washes, drainages and narrow canyons. Besides the named alliance's dominant plants, blue palo verde (*Parkinsonia florida*) and ironwood (*Olneya tesota*), other commonly occurring plants include sweetbush (*Bebbia juncea*), lance leaved ditaxis (*Ditaxis lanceolata*), desert lavender (*Hyptis emoryi*), ocotillo (*Fouquieria splendens*) and Anderson's desert thorn (*Lycium andersonii*). This natural community is classified as sensitive by the California Department of Fish and Wildlife (CDFW 2020).

Larrea tridentate – Encelia farinosa alliance: Larrea tridentata – Encelia farinosa alliance occupies approximately 79% of the Analysis Area and 74% of the Project Area and occurs in a variety of topographic settings (WestLand Resources, Inc., 2021). Besides the named alliance's dominant plants, creosote (*Larrea tridentata*) and brittlebush (*Encelia farinosa*), other commonly occurring plants include ocotillo, beavertail prickly pear (*Opuntia basilarus*), and burrobush (*Ambrosia dumosa*). This natural community is classified as sensitive by the California Department of Fish and Wildlife (CDFW 2020).

2.3.2 Special-Status Plant Species, CCR §3503(c)

A screening analysis was conducted to determine the potential for special status plant species to occur in the vicinity of the Project Area. The following were analyzed:

1. Plant species designated by the U.S. Fish and Wildlife Service (USFWS) as Endangered, Threatened, Proposed for listing, or Candidate for listing under the Endangered Species Act (ESA), as identified by the Information, Planning and Consultation (IPaC) system.
2. Plant species designated as sensitive per the El Centro Field Office BLM list of California sensitive species.
3. Plant species identified for analysis under the California Environmental Quality Act (CEQA), including Plants designated as special-status by the California Native Plant Society (CNPS).

Three (3) special status plant species, Munz cholla (*Cylindropuntia munzii),* Flat-seeded spurge *(Euphorbia platysperma)*, and Pink fairy-duster (*Calliandra erophylla),* were determined to have a possible presence or a high potential to occur in the vicinity of the Project Area. Specifically, Munz Cholla and Flat-seeded spurge were found to be "possible" to occur within the Project Area, and the Pink fairy-duster was determined to have a "high" possibility of occurrence.

2.4 Wildlife, CCR §3503 (c), §3703

2.4.1 Existing Wildlife Species, CCR §3703

As discussed in Section 1.4.6, WestLand determined there was a potential for various reptiles, birds, and mammal species to be found within the San Bernardino County borrow site area. Specifically, during field surveys conducted in March 2021 a total of 26 wildlife species were observed, as summarized in Table 6 below.

Table 6: Wildlife Species Observed in the Project Area

Common Name		Common Name	Scientific Name
Black-throated sparrow	*Amphispiza bilineata*	canyon towhee	*Meloxone fusca*
verdin	*Auriparus flaviceps*	northern mockingbird	*Mimus polyglottos*
great horned owl	*Bubo virginianus*	Unknown Myotis	*Myotis spp.*
red-tailed hawk	*Buteo jamaicensis*	neotoma	*Neotoma* spp.
Costa's hummingbird	*Calypte costae*	ground squirrel	*Osteospermophilus* spp.
turkey vulture	*Cathartes aura*	Black-tailed gnatcatcher	*Poliptila melanura*
common raven	*Corvus corax*	rock wren	*Salpinctes obsuoletus*
ladder-backed woodpecker	*Dryobates scalaris*	Say's phoebe	*Sayornis saya*
burro	*Equus asinus*	squirrel	*Scuridate* spp.
prairie falcon	*Falco mexicanus*	northern rough-winged swallow	*Stelgipdopteryx serripennis*
house finch	*Haemorhous mexicancus*	cottontail	*Sylvilagus spp.*
loggerhead shrike	*Lanius ludovicianus*	side-blotched lizard	*Uta* spp.
California leaf-nosed bat	*Macrotus californicus*	fox	*Vulpes* spp.

2.4.2 Special-Status Wildlife Species, CCR §3703(c)

A screening analysis was conducted to determine the potential for special status wildlife species to occur in the vicinity of the Project Area. The following were analyzed:

1. Species and critical habitat designated by the USFWS as Endangered, Threatened, Proposed for listing, or Candidate for listing under the ESA, as identified by the IPaC system.
2. Species protected under the Bald and Golden Eagle Protection Act (BGEPA).
3. Species designated as sensitive per the El Centro Field Office BLM list of California sensitive species.
4. Species identified for analysis under the CEQA, including California Department of Fish and Wildlife (CDFW) Species of Special Concern; Plants designated as USFWS Birds of Conservation

Concern; CDFW special-status invertebrates; and Species of bat listed as high and medium priority by the Western Bat Working Group.

One (1) ESA listed species, the threatened Mohave Desert tortoise (*Gopherus agassizii*), was determined to be present the vicinity of the Project Area (see Table 6). No designated or proposed critical habitat occurs within the Project Area.

Three (3) bats, pallid bat *(Antrozous pallidus),* Townsend's big-eared bat (*Corynorhinus townsendii)*, and greater western mastiff bat (*Eumops perotis californicus),* that are listed as BLM Sensitive and State-Ranked in the California Natural Diversity Database (CNDDB) were determined to be present in the vicinity of the Project Area; and 2 bats, small-footed myotis (*Myotis ciliolabrum)* and cave myotis (*Myotis velifer),* that are also listed as BLM Sensitive and State-Ranked in the CNDDB were determined to have a possible presence in the vicinity of the Project Area.

Two (2) birds, Prairie falcon (*Falco mexicanus)* and Black-tailed gnatcatcher (*Poliptila melanura)* that are State-Ranked in the CNDDB were determined to have a high potential to occur in the vicinity of the Project Area.

One (1) lizard*,* Colorado Desert fringe-toed lizard *(Uma notata),* that is listed as BLM Sensitive and State-Ranked in the CNDDB was determined to be present in the vicinity of the Project Area.

Please see the *Biological Resources Assessment* prepared by WestLand (WestLand Resources, Inc., 2021) in Appendix B for additional rationale in support of these findings.

Due to the limited scope and duration of the Project, it is recommended that potential impacts to sensitive species habitats be avoided using measures identified below. These measures will be employed during exploratory drilling operations and reclamation activities:

1. Prior to Project activities, pre-construction tortoise surveys shall be conducted by a BLM-approved Qualified Biologist within the area to be disturbed plus a 500-foot buffer, focusing on areas that could provide suitable burrow or cover sites, such as dry washes with caliche. A subsequent survey shall be conducted by a Qualified Biologist within 24 hours of the commencement of surface disturbance activities (should Project activities occur between March 15 and November 1). Burrows will be flagged such that they will be avoided by Project activities.
2. A BLM-Qualified Biologist will be onsite during the initial activities or mobilization (should Project activities occur between March 15 and November 1).
3. All surface disturbing activity shall be limited to the land area essential for the Project. In determining these limits, consideration shall be given to topography, public health and safety, placement of facilities, and other limiting factors. Work area boundaries shall be appropriately marked to minimize disturbance. All workers shall limit their activities and vehicles to the areas marked. All workers shall be trained to recognize work area markers and to understand equipment movement restrictions.
4. All workers, including all construction and drilling contractor personnel, and others who implement Project activities would be given special instruction, which would include training on distribution, general behavior and ecology, protection afforded by State and Federal endangered species acts (including prohibitions and penalties), and procedures for reporting encounters, and the importance of following the protection measures. The education program may consist of a

class or video presented by a BLM-approved Qualified Biologist. The presentation to be used would be reviewed and approved by a BLM biologist.

5. All personnel would be notified that the desert tortoise is a species listed as threatened under the Endangered Species Act and protected by State and Federal law. Fines can be as high as $50,000 and/or one year in prison for violations.
6. Personnel would be notified that desert tortoises are not to be handled, fed, or harassed in any way. If encountered, tortoises will be allowed space and time to move from the area on their own volition.
7. Personnel who attend tortoise training will sign an attendance sheet, which would be submitted to the BLM for their information. Should BLM staff inspect the site during construction activities, workers onsite should be able to provide proof of tortoise training (a hard hat sticker is recommended for this purpose).
8. SMP would designate a field contact representative (FCR) who will be responsible for overseeing compliance with protective stipulations for the desert tortoise and for coordination on compliance with the BLM. The FCR must be onsite during all Project activities (should Project activities occur between March 15 and November 1). The FCR would have the authority to halt Project activities that are in violation of the stipulations. The FCR would have a copy of all stipulations when work is being conducted on the site. The FCR may be a crew chief or field supervisor, a project manager, any other employee of the project proponent, or a BLM-approved Qualified Biologist. Any incident occurring during project activities which is considered by the biological monitor or FCR to be in non-compliance with the mitigation plan shall be documented immediately by the FCR. The FCR shall ensure that appropriate corrective action is taken. Corrective actions shall be documented by the monitor. The following incidents shall require immediate cessation of the construction activities causing the incident, including:
    a. imminent threat of injury or death to a desert tortoise;
    b. unauthorized handling of a desert tortoise, regardless of intent;
    c. operation of construction equipment or vehicles outside a project area cleared of desert tortoise, except on designated roads, and
    d. conducting any construction activity without a biological monitor where one is required.
9. If a tortoise is encountered during construction activities, work would be halted in proximity to the tortoise until an on-call BLM-approved Qualified Biologist can move the animal from harm's way, or until the desert tortoise leaves of its own accord.
10. Where possible, motor vehicle access would be limited to maintained roads and designated routes. All vehicle tracks that might encourage public use would be reclaimed after Project-specific use. Barriers would be installed to prevent unauthorized vehicular traffic and signs would be posted indicating these roads would be for authorized use only.
11. The following requirements apply to vehicle use:
    a. Speed Limits: Vehicle speed within Project area, along right-of-way maintenance roads and on routes designated for limited use shall not exceed 20 miles per hour. Speed limits shall be clearly marked by the proponent, and workers shall be made aware of these limits.
    b. Tortoises Under Vehicles: Vehicles parked in desert tortoise habitat would be inspected immediately prior to being moved. The practice of placing an orange cone by the driver side door will be used as a reminder to check for tortoise before re-entering and moving

the vehicle. If a tortoise is found beneath a vehicle, a BLM-approved Qualified Biologist would be contacted to move the animal from harm's way, or the vehicle shall not be moved until the desert tortoise leaves of its own accord.

12. Access roadside signs depicting a picture of desert tortoise will be posted to remind workers of the potential presence of tortoise within the Project Area.
13. Project maintenance and construction, stockpiles of excavated materials, equipment storage, and vehicle parking shall be limited to existing disturbed areas wherever possible. Should use of existing disturbed areas prove infeasible, any new disturbance shall be confined to the smallest practical area, considering topography, placement of facilities, location of burrows or vegetation, public health and safety, and other limiting factors. Special habitat features, particularly tortoise burrows, shall be flagged by the Qualified Biologist so that they may be avoided by installation equipment and during placement of poles and anchors.
14. All trash and food items generated by construction and maintenance activities shall be promptly contained and regularly removed from the project site to reduce the attractiveness of the area to common ravens and other desert predators. Portable toilets shall be provided on site if appropriate.
15. Feeding of wildlife and/or leaving of food or trash as an attractive nuisance to wildlife is prohibited. Particular attention will be paid to "micro-trash" (including such small items as screws, nuts, washers, nails, coins, rags, small electrical components, small pieces of plastic, glass or wire, and any debris or trash that is colorful or shiny). All trash and food items shall be promptly contained within closed, wildlife-proof containers. These shall be regularly removed from the project site to reduce the attractiveness of the area to ravens and other predators.
16. Domestic pets are prohibited on site. This prohibition does not apply to the use of domestic animals that may be used to aid in official and approved monitoring procedures/protocols, or service animals under Titles II and III of the Americans with Disabilities Act.
17. Injury: Should any desert tortoise be injured or killed, all activities shall be halted, and the Qualified Biologist immediately contacted. The biologist shall have the responsibility for determining whether the animal should be transported to a veterinarian for care, which is paid for by the project proponent, if involved. If the animal recovers, USFWS is to be contacted to determine the final disposition of the animal; few injured desert tortoises are returned to the wild.

2.5 Reclamation Specifics & Schedule, CCR §2772 (c)(8)

2.5.1 Reclamation Slopes, CCR §3502 (b)(3), §3704

Because the Project only involves exploratory drilling and ancillary operations (e.g., improving/constructing access roads, installing helipads and drill pads, constructing staging areas, etc.), no significant slopes will be created. Therefore, significant recontouring and/or revegetating of slopes is not anticipated. Similarly, since there will be no mining spoils associated with the drilling campaign, other than nominal quantities of drill cuttings, there will be no waste piles that would need to be knocked down, re-sloped and revegetated. Following abandonment of the exploratory boreholes, any remaining drill cuttings will be spread out on the drill pad surfaces, and reseeded in accordance with the revegetation plan provided herein.

Where needed, SMP will flatten all slopes and floors using mobile equipment, to ensure no slopes exceed a 2H:1V (horizontal to vertical) angle in accordance with SMARA performance standards (Section 3704). Proposed revegetation in applicable portions of the Project Area will also help further stabilize any regraded areas/slopes and prevent erosion once roots are established. See Section 1.4.4 above for more detail.

2.5.2 Reclamation Backfilling, CCR §3502 (b)(3), (4), §3704

Because the Project only entails exploratory drilling, no mining excavation will occur and thus there will be no need for significant backfilling of materials.

As previously mentioned in Section 1.4.4, soils development in the Project Area is generally poor, with profiles tending to be very thin to non-existent in those areas where the Project will result in ground disturbance. The potential to salvage topsoil/subsoil for use as a growth medium for revegetation is limited. Consequently, topsoil/and subsoil will be salvaged where feasible by pushing the material along the edge of the drill pads and along the sides of the new access roads. Once the drilling campaign is complete, the stored topsoil/subsoil will be spread out and reseeded.

The drilling campaign will also utilize mud sumps to house the drilling fluids. These mud sumps will be dug during development of the drill pads, or as part of the drill rig set-up. The excavated spoils will be stored along the edges of the pads and then backfilled into the excavated pits once drilling is complete and equipment demobilization occurs. These backfilled materials and any topsoil/subsoil that is salvaged will then be reseeded as part of the overall revegetation efforts.

2.5.3 Proposed Time Schedule of Reclamation, CCR §2772 (c)(6)

As discussed in Section 1.3.3, the Project is proposed to begin upon completion of all BLM and County coordination, permitting and bonding. The Project mobilization, road construction, drilling, and borehole abandonment (i.e., exploratory operations) would be completed within approximately 12 to 24 months. Project reclamation would be completed concurrently for exploration drilling activities, and monitoring for the success of reclamation of those areas would be completed within five (5) years of Project implementation. As discussed previously, while access to and activity at the Oro Cruz Portal within Drill Area 1 may extend beyond the 12- to 24- month exploration activities, reclamation and monitoring of those areas would also be completed within 5 years of Project implementation.

Either during development of the drill pads, or as equipment is being set-up, the mud pits (i.e., sumps) for the drilling fluids will be constructed. These sumps will be approximately 12-feet by 12-feet and 6-feet deep earthen basins used to house the drilling fluids. The excavated materials removed to form the sumps will be placed at the sides of the pads and stored until backfilled into the pits as part of reclamation.

Once drilling is complete, each exploratory borehole will be abandoned in accordance with County drill permit conditions and applicable State standards. The mud pits will be allowed to evaporate and then the stored excavated materials will be reintroduced into the pits, followed by pushing any salvaged topsoil/subsoils. Once each pad has been graded and contoured, they will be reseeded using the seed mix described in Section 2.6.3 below.

The new roads constructed as part of this Project will also be reclaimed (except for the new road to the underground portal) by placing recovered topsoil/subsoil stored along the roadway edges, and blading the surfaces prior to revegetating. The same seed mix that will be applied to the drill pads will be used for

the roads. Pre-existing roads will be maintained in their current condition and status and will not be reclaimed under this Reclamation Plan, since they represent pre-existing disturbance and will continue to be used in the future.

After the drill pads and roads are prepared, these areas will be revegetated using the prescribed seed mix. Following reseeding, a qualified biologist will periodically monitor the revegetation and evaluate the extent to which plant establishment is occurring. Given the unique and quite arid environment of the Project site, while a 2-year duration is planned for the revegetation monitoring, it is possible that it could take additional time for the plant succession to fully establish.

Project reclamation for drilling activities and monitoring for the success of reclamation would be completed within 5 years of Project implementation.

2.6 Revegetation Plan, CCR §3503(g), §3705

The revegetation plan is based on those portions of the Project Area proposed to be reclaimed to open space. A detailed revegetation plan was prepared for the Project by Westland Resources, Inc. (2021), which is incorporated herein by reference, and included as Appendix A.

For those areas to be reclaimed for future mining and/or recreational uses, revegetation may not be feasible and/or appropriate. See Figure 6 which shows the Project Areas to be revegetated. The proposed revegetation seed mix is based, in part, on the species list described in Section 2.3.1, with the objective to establish a vegetative palette that is generally similar to the observed plant communities in the Project area.

Following completion of exploratory drilling, equipment demobilization and surface preparation of the roads and drill pads, the following typical sequence of revegetation activities will be undertaken:

- Installation of erosion control devices, such as waddles, where necessary;
- Application of seed mix either by hydroseeding or mechanical broadcasting; and,
- Maintenance and monitoring.

Revegetation will be achieved by using a combination of site preparations, planting activities, and ongoing maintenance procedures.

2.6.1 Revegetation Personnel & Methods

Revegetation activities will be conducted under the supervision of a qualified biologist and/or revegetation specialist. The qualified biologist/revegetation specialist will work closely with SMP's operations personnel to assure that revegetation is accomplished according to applicable plans (e.g., County Conditions of Approval, Reclamation Plan, etc.). Any deviation from the applicable revegetation plans will be approved by the qualified biologist/revegetation specialist prior to implementation. The qualified biologist/revegetation specialist will be onsite during initiation of each revegetation task (e.g., site preparation, plant installation, seeding, etc.), and work will be monitored on a regular basis. The qualified biologist/revegetation specialist will be required to keep activity logs to document the work accomplished and any issues encountered. The qualified biologist/revegetation specialist will also prepare field memos to document the progress of revegetation.

2.6.2 Site Preparation for Revegetation, CCR §3503(f), §3711

Prior to application of the seed mix, the final contours, hydrology, and soils composition of the revegetation areas will be reviewed by a qualified biologist/revegetation specialist to determine the optimal broadcast rates and make any appropriate modifications to the overall revegetation plan.

Areas to be revegetated will be prepared as follows:

- Vegetation, trash, debris, and weeds will be cleared. All weeds will be removed from the area and properly disposed of offsite.
- Any eroded areas will be repaired uniformly without leaving pits, holes, or depressions that would potentially prohibit plant growth.
- Ripping compacted areas to a depth of one foot and left in a textured or rough condition with shallow rills and furrows to create optimal conditions for revegetation;
- Replanting any salvaged plants on the pads and roads in a random pattern;
- Broadcast seed with a native plant seed mix at a rate recommended by the BLM and County which will include a mixture of shrubs, native grasses, and annuals; and
- Hand-rake or use a chain attached to a small tractor to cover the seeds with any topsoil to protect the seeds from desiccation and predation.

2.6.3 Seed Mixes

The seed mix described below will be applied to the areas indicated on Figure 6. Research has established that plant materials genetically adapted to the particular environmental conditions of a given site are critical to the success of revegetation. Therefore, seeds will be selected from a local vendor, if available, or from other sources as recommended by the qualified biologist/revegetation specialist.

Revegetation would require site-appropriate, BLM-approved native seed mixtures. A diverse native plant community would be targeted through the definition of seed mixtures and application rates. Just prior to seeding, the qualified biologist/revegetation specialist will determine the final species type and application rates based on the amount and quality of the seeds that are sourced for the Project. Detailed information of the type and amount of seed planted will be recorded. Please see the Revegetation Plan in Appendix A for additional detail.

The proposed native seed mixture will consist of the following: creosotebush (*Larrea tridentata*), burrobush (*Ambrosia dumosa*), brittlebush (*Encelia farinosa*), desert spineflower (*Geraea canescens*), turtleback (*Psathyrotes ramosissima*), forget-me-not (*Cryptantha* spp.), and hairy prairie clover (*Dalea mollis*). Seeds will be purchased and mixed in equal quantities and will be hand broadcasted at approximately 10 pounds per acre (Table 7). If any part of the proposed seed mixture is not commercially available at the time of purchase, BLM will be consulted to identify appropriate and available replacements for the seed mixture.

Table 7: Revegetation Seed Mixture

Common Name	Scientific Name	Pounds/Acre
creosotebush	Larrea tridentata	3.0
burrobush	Ambrosia dumosa	3.0
brittlebush	Encelia farinosa	1.5
desert spineflower	Geraea canescens	1.0
turtleback	Psathyrotes ramosissima	0.5
forget-me-not	Cryptantha spp.	0.5
hairy prairie clover	Dalea mollis	0.5
	Total:	**10.0**

Seeds will be purchased and mixed in equal quantities and will be hand broadcasted at approximately 10 pounds per acre. The seed mix would be designed to meet the following criteria:

- Native non-invasive species that have a high compatibility with the existing landscape;
- Species and plant type diversity to promote a sustainable vegetative cover throughout the seasonal changes and other climate related variances; and
- Species and plant type diversity to promote a variety of germination periods and seasonal growth.

2.6.4 Control of Weeds & Non-Native Vegetation

The predominance of exotic, invasive weed species throughout California has presented a formidable challenge to most revegetation projects. Weed species are opportunistic and have mechanisms for dispersal and establishment that can eventually lead to displacement of native species. To ensure that weed species competition is controlled, the Project site areas will be inspected by the qualified biologist/revegetation specialist prior to revegetation implementation. The qualified biologist/revegetation specialist will also determine the most effective treatments for control of invasive species. If weed control activities are necessary, they could include a combination of treatments such as hand removal, and soil solarization. Herbicides shall not be utilized to control weeds or invasive species.

Non-native invasive plants that threaten California's wildlands have been categorized by the California Invasive Plant Council (Cal-IPC). Invasive plants that have been classified by Cal-IPC as "High" (severe ecological impacts on physical processes, plant and animal communities, and vegetation structure) or "Moderate" (substantial and apparent—but generally not severe—ecological impacts on physical processes, plant and animal communities, and vegetation structure) in terms of ecological threat will be controlled as necessary within the revegetation areas for up to three (3) years in order to prevent aggressive weeds from out-competing native plant species for resources (e.g., space, water, nutrients, and light). These invasive weeds will be removed manually by hand, as needed.

Prior to initiation of revegetation efforts, the biologist will consult the most recent Cal-IPC list, and a list of specific species to be controlled under this Reclamation Plan will be developed. Additional species may be added to the list based on actual conditions and the recommendation of the qualified biologist/revegetation specialist.

2.6.5 Revegetation Success Criteria (Performance Standards), CCR §3705(m)

The basic goal of revegetation is to re-establish self-sustaining native plant communities within the disturbed areas. California Code of Regulations (CCR) Section 3705(m) requires that reclaimed revegetated sites be "similar to naturally occurring habitats in the surrounding area."

Detailed vegetation mapping and surveys were completed by WestLand as part of their Revegetation Plan include as Appendix A. Please see the representative photos presented in the Revegetation Plan (WestLand Resources, Inc., 2021) for additional detail. Specifically, existing vegetative cover, as well as species density and richness, were evaluated for the proposed areas of disturbance (i.e., Drill Areas, and associated access roads). These baseline evaluations will be used as a reference area for the establishment of revegetation within the Drill Areas and associated access roads to be reclaimed/revegetated. The pads and roads will be reclaimed and revegetated as described above. The revegetation effort will enhance the success of the revegetation and will augment the reseeding that will occur naturally.

The Project will entail only a small amount of total disturbance, and much of this will be within areas that have been previously disturbed. The Project also contemplates temporary activities over a relatively short time period. Moreover, there is a striking lack of vegetation throughout the Project Area. As described above, the vegetation in both the uplands and washes is sparse with limited vegetation cover.

In addition to the onsite baseline data collected by WestLand and included within the Revegetation Plan (Appendix A), nearby naturally occurring habitat areas will also be examined by the qualified biologist/revegetation specialist for potential use as reference sites prior to initiating revegetation within a specific area. Proposed revegetation standards, including plant palettes, plant densities and performance standards, will be evaluated and revised by the qualified biologist/revegetation specialist as appropriate based on the observed reference areas.

In order to accomplish this revegetation will be deemed successful upon achieving 25 percent of the vegetative cover of adjacent similar vegetation per 20-meter by 1-meter transects. In addition to the 25 percent of vegetative covered of adjacent similar vegetation as noted previously, success for vegetation density shall be achieved by the establishment of 25 percent total plant cover per 20-meter by 1-meter transect. Similarly, species richness shall be achieved through the establishment of 4 native plant species per 20-meter by 1-meter transect.

Because the specific locations of drill pads are not known at this time and flexibility is built into the project to allow for adaptation of exact locations based on drilling results, comparison sites will be chosen in field by the qualified biologist/revegetation specialist once the exact drill pad locations are identified. Additionally, the success criteria noted above may be revised if warranted at the discretion of the qualified biologist/revegetation specialist. This is an appropriate success criterion for the following reasons:

- The Project will entail only a small amount of total disturbance, and much of this will be within areas that have been previously disturbed.
- The Project contemplates temporary activities over a relatively short time period.
- The Project Area has been previously disturbed from past mining activities, and there is a striking lack of vegetation throughout the Project Area. Vegetation in both the uplands and washes is sparse with limited vegetation cover (Appendix A).

- The planned revegetation effort is planned to enhance the success of the revegetation and will augment the reseeding that will occur naturally.

Please see the Revegetation Plan (WestLand Resources, Inc., 2021) presented in Appendix A for additional detail.

2.6.6 Test Plots, CCR §3705(b)

SMARA regulations require test plots be established to determine appropriate planting procedures to assure successful revegetation (14 CCR §3705(b)). However, this requirement may be waived if success can be documented from previous experience with similar species and conditions, or based on competent professional advice.

The revegetation seed mix presented in Table 7 was developed by WestLand based upon detailed baseline vegetation mapping surveys, and was reviewed/approved by the BLM. As such, the use of test plots is not expected to be necessary. Nonetheless, prior to initiating revegetation, the qualified biologist/revegetation specialist will be consulted to determine if test plots are necessary at the Project site(s). The qualified biologist/revegetation specialist will have experience with the species approved in the seed mix (see Table 7) to advise whether test plots will be needed to ensure successful implementation of the proposed revegetation plan.

2.7 Site Cleanup, CCR §2772 (c)(8), §3502 (b)(5)

2.7.1 Building Structure & Equipment Removal, CCR §3709

No permanent buildings or structures will be erected as part of this Project. Any temporary facilities used in support of the drilling campaign, such as portable toilet systems, portable storage containers and trash bins will be removed once drilling is complete.

Generally, the strategy for reclamation and closure of equipment and facilities would include:

- Removing temporary instrumentation and equipment, utilities, and unneeded access roads; and
- Reclaiming disturbed surfaces by ripping and/or covering and reseeding.

2.7.2 Road Closure

As discussed previously, the main entrance road may remain beyond the 12- to 24-month exploration activities; but reclamation and monitoring of those areas would also be completed within 5 years of Project implementation.

Closure of roads would involve demolishing fill while maintaining satisfactory drainage. Roads would be reclaimed. Where needed, rock or earthen berms and water bars would be placed to prevent vehicular access and reduce erosion. The road corridors would be reclaimed by treatment with a mulch/seed mix to promote revegetation.

2.7.3 Tailing & Mine Waste Management, CCR §3712

As described previously, other than nominal quantities of drill cuttings, no mine wastes and/or tailings will be generated by the exploratory drilling operations in the Project Area. The inert drilling mud materials would be disposed of in accordance with applicable County, state, and federal regulations. The drill site, mud pits, and outer berm would then be returned to natural grade with a track hoe using rocks

and soil set aside during site construction and mud pit excavation.

2.7.4 Closure of Surface Openings, CCR §3713

As discussed above, upon completion of the exploration, the exploratory drill holes would be sealed and abandoned in compliance with the most current edition of State Water Resources Control Board Bulletin #74-81 and #74-90. This would include backfilling with onsite materials, sealing with bentonite clay; and covering with a 2- to 3-foot mound of onsite material. Drilling and drill hole abandonment would be conducted in accordance with SMARA, Public Resources Code Sections 2710 et seq. and its regulations at 14 CCR Section 3500 et seq.

2.8 Post-Reclamation and Future Mining, CCR §2772 (c)(7)

As described above, the anticipated post-Project (i.e., post-reclamation) land uses are mining, recreational uses, and open space. Final reclaimed side-slopes will not exceed the SMARA criteria of 2H:1V (horizontal to vertical) in any Project Area. For areas proposed to be revegetated (see Figure 6), the site will be revegetated using the seed mix described in Section 2.6.3 above. The reclaimed Project Area will be compatible with the proposed end uses, as well as the adjacent properties. Please see Figure 6 which displays the final design of the reclaimed Project Area.

2.8.1 Impact of Reclamation on Future Mining, CCR §2772 (c)(9)

The proposed end use of the final reclaimed Project Area will be land uses compatible with future mining, recreational uses, and/or open space. As such, the implementation of this Reclamation Plan will not preclude or impact future mining in the area.

2.9 Ponds, Reservoirs, Tailings & Wastes, CCR §3706, §3712

As discussed above, following the completion of all drilling, solids and desiccated drilling muds that have been contained in the sump would be treated by evaporation and by allowing solids to settle out in excavated mud pits or sumps at the drill site. The sumps would then be backfilled. The drilling muds that would be used would not contain toxic or deleterious materials. The proposed drilling mud material data sheets could be provided to BLM upon request. The inert drilling mud materials would be disposed of in accordance with applicable County, state, and federal regulations. The drill site, mud pits, and outer berm would then be returned to natural grade with a track hoe using rocks and soil set aside during site construction and mud pit excavation. Once reclaimed, onsite slopes would not exceed 2H:1V (horizontal to vertical). Water bars and erosion-control features would be repaired and constructed as necessary. All equipment and supporting structures would be removed from BLM lands.

Other than temporary mud pits/sumps described above, no ponds, tailings, and/or mine waste basins or impoundments resulting from the Project that would require reclamation will be present within the Project Area.

2.10 Topsoil Salvage, Maintenance, & Redistribution, CCR §3711

Please see Section 1.4.1, which describes the site geology and soils found within the Project Area. As discussed previously, the potential to salvage topsoil/subsoil from the Project Area for use as a growth medium for revegetation is limited. Consequently, topsoil/and subsoil will be salvaged where feasible by pushing the material along the edge of the drill pads and along the sides of the new access roads. Any topsoil/subsoil stored in stockpiles and/or berms will be maintained and BMPs implemented to minimize

soil erosion. Once the drilling campaign is complete, the stored topsoil/subsoil will be spread out and reseeded.

Additionally, the drilling campaign will utilize mud sumps to house the drilling fluids. The excavated spoils will be stored along the edges of the pads and then backfilled into the excavated pits once drilling is complete and equipment demobilization occurs. These backfilled materials and any topsoil/subsoil that is salvaged will then be reseeded as part of the overall revegetation efforts.

2.11 Drainage, Erosion & Pollution Controls

2.11.1 Drainage, Diversion Structures, & Erosion Control, CCR §3706

There are no existing or proposed drainage or stream features within the Project Area, and exploration operations and reclamation activities in the Project Area will not impact nearby waterways.

Development and exploration of the site is not expected to create an increased potential for stormwater runoff that could adversely impact adjacent areas. Additionally, due to the existing topography and land uses, the site is not expected to receive significant local runoff from neighboring properties. Generally, stormwater that falls on the site will be contained and will either naturally evaporate or infiltrate into the ground. Because runoff will ultimately not change as a result of the Project, post-reclamation runoff and erosion sedimentation will also not change. Drainage and erosion control during and after reclamation activities will be managed using BMPs. For further detail on drainage and erosion control measures, please refer to Section 1.10.

2.11.2 Stream Protection, Including Surface Water, & Groundwater, CCR §3710

The exploratory activities within the Project Area will not affect streams, surface water bodies or groundwater; and therefore protective measures are not required as part of reclamation. However, approved BMPs to protect stormwater quality within the Project Area will be implemented on an as needed basis. The approved BMPs will be implemented within the Project Area to prevent runoff and control erosion.

2.12 Other SMARA Reclamation Standards

2.12.1 Prime Agricultural Land Reclamation, CCR §3707

Per the California Department of Conservation's Farmland Mapping and Monitoring Program, no portions of the Project Area are located within Prime Agricultural land.

2.12.2 Other Agricultural Land Reclamation, CCR §3708

The reclaimed area will be returned to land uses readily adaptable to future mining, recreational uses, and open space. None of the Project Area would be reclaimed to an agricultural land use.

2.12.3 Other Lead Agency Requirements, CCR §2772(c)(11)

In addition to the SMARA requirements addressed in this Reclamation Plan, the following BLM, County zoning/land use requirements and CEQA requirements are applicable to the Project:

- BLM, H-3809-1 Surface Management Handbook;
- BLM, 43 Code of Federal Regulations (CFR) 3809.401(d);
- Imperial County, Code of Ordinances (Title 9, Division 20 – Surface Mining and Reclamation);

- Imperial County, General Plan (1993); and
- CEQA Appendix G Environmental Checklist and subsequent CEQA documents.

2.13 Monitoring, Maintenance, & Reporting

As discussed above, performance monitoring will include both qualitative and quantitative assessment. Qualitative monitoring will occur during periodic inspections of the reclamation and revegetation areas. These inspections will occur frequently (approximately every month) during the first 12 to 14 months of reclamation, and less often in subsequent years. This monitoring schedule may be revised depending on the results of the revegetation effort and the meeting of the success criteria. Quantitative monitoring will typically occur annually, beginning during the first year after planting. Monitoring of the reclamation areas will cease once the Project Area has been fully reclaimed and revegetated to the satisfaction of the County, in accordance with this Reclamation Plan.

2.13.1 Qualitative Monitoring

Qualitative monitoring methods will include visual observation and photo documentation. There are no specific performance criteria associated with this monitoring.

During monitoring events, the qualified biologist/revegetation specialist will document the conditions, potential issues (i.e., vandalism, fence damage, presence of exotic species, herbivory, erosion, etc.), and recommended actions in a field memo. Copies of all field memos will be included in each year's annual SMARA report, which will be submitted to the County for review.

Annual photographs of revegetation areas will be taken from preset photo stations during data collection events. Additional photographs will be taken of any potential problem areas. All photographs will be logged and included in each annual report.

2.13.2 Quantitative Monitoring

Vegetative cover and species composition will be assessed using the sampling methods described below and the success criteria described in Section 2.6.5. Sampling will generally be conducted at the end of the growing season. Following each annual data collection event, the qualified biologist/revegetation specialist will compile data and prepare an analysis of the results.

As discussed in Section 2.6.5, quantitative data will be collected using the line-intercept method for a 20-square-meter area. Success monitoring will include sampling along six (6) randomly placed 20-square-meter transects per each reclaimed area. Data for all transects will then be averaged to produce the results. Success criteria are based on the overall quality of the revegetation results compared to recorded vegetation data described in Section 2.3.1 and qualitative comparison with reference areas, as deemed appropriate by the qualified biologist/revegetation specialist.

Following completion of revegetation for a specific area, the surviving perennial plant species will be evaluated annually for at least two years by the qualified biologist/revegetation specialist. The first 12 to 14 months will measure survival of revegetated areas, need for weeding, and successful establishment of seeded native plants. During the third year, monitoring will focus on the site's resemblance to undisturbed vegetation in terms of the performance criteria presented in Section 2.6.5. This schedule may be revised depending on the results of the revegetation effort and the meeting of the success criteria. Monitoring data will be reviewed by the qualified biologist/revegetation specialist and reviewed annually

by the County through submittal of the annual SMARA report (see Section 2.13.3).

2.13.3 Annual Monitoring Reports

Annual monitoring reports will be prepared that include a summary of the revegetation effort, site conditions, any issues encountered, evaluation of the data collected and success achieved, and recommendations for meeting the performance criteria. Reports will be submitted to the County for review annually.

2.14 Reclamation Assurance, CCR §2773.1(a)

A detailed Financial Assurance Cost Estimate (FACE) will be prepared prior to commencement or operations in the Project Area. The FACE will include detailed descriptions and spreadsheets estimating the cost for reclamation of the site to the specifications established in this Reclamation Plan.

A performance bond payable to the County and, in the alternative, the California Department of Conservation (DOC), Department of Mine Reclamation (DMR), will be provided to the County in the amount of the estimated cost of reclamation. Alternatively, if provided for by future regulations, other forms of equivalent surety may be substituted.

Please see Section 4.0 below for more detail.

3.0 STATEMENT OF RESPONSIBILITY, CCR §2772(C)(10)

As required by Public Resources Code §2772 (c)(10), the owner and operator accept responsibility for reclaiming the mined lands in accordance with the provisions of this Reclamation Plan.

I, the undersigned, hereby acknowledge that all of the provisions of said permit and reclamation plan, and any and all conditions appended thereto will be faithfully performed and completed within the time therein provided, or within any additional time as may be allowed pursuant to the Surface Mining Ordinance Code of the lead agency and with the applicable requirements of Articles 1 and 9 (commencing with section 3500 et seq., respectively) of Chapter 8, Division 2, Title 14, of the California Code of Regulations, the Surface Mining and Reclamation Act of 1975 (SMARA), as amended (Section 2710 et seq. of the Public Resources Code) which are incorporated herein by reference.

I, the undersigned, hereby agree to perform and complete the provisions of said permit and/or plan, including any and all conditions appended thereto, shall be subject to the provisions of said Ordinance Code and SMARA and the State Mining and Geology Board's implementing regulations and guidelines.

That the place of performance by the undersigned of the covenants herein, shall be the area managed by the lead agency in the State of California.

That, pursuant to Public Resources Code section 2774.1 (a) notice procedures, any notice required to be given, or otherwise given to the undersigned may be by personal service or by certified mail.

Signature _____

Name _____

Signed this _____ day of _____, 20_____

4.0 FINANCIAL ASSURANCES, CCR §2773.1 (A)

A Financial Assurance Cost Estimate (FACE) will be prepared for the Oro Cruz Exploration Project. This FACE will be reviewed annually and updated accordingly.

5.0 REFERENCES

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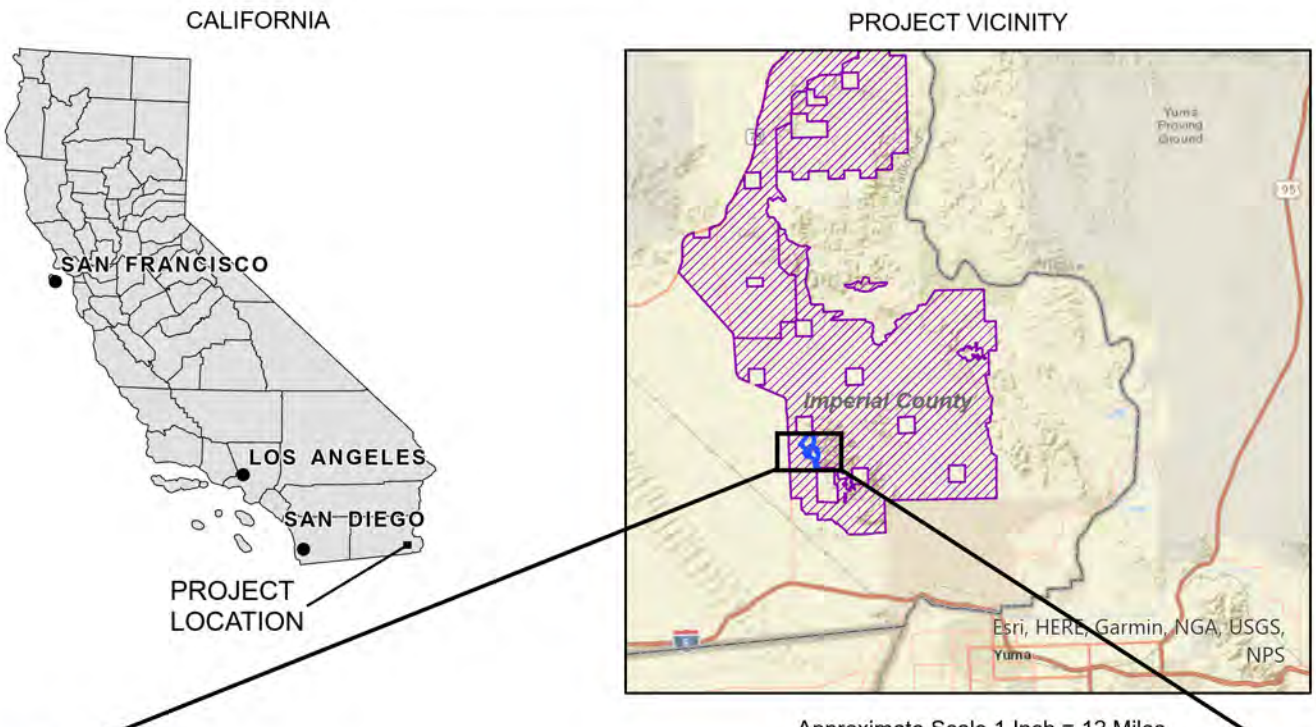
FIGURES



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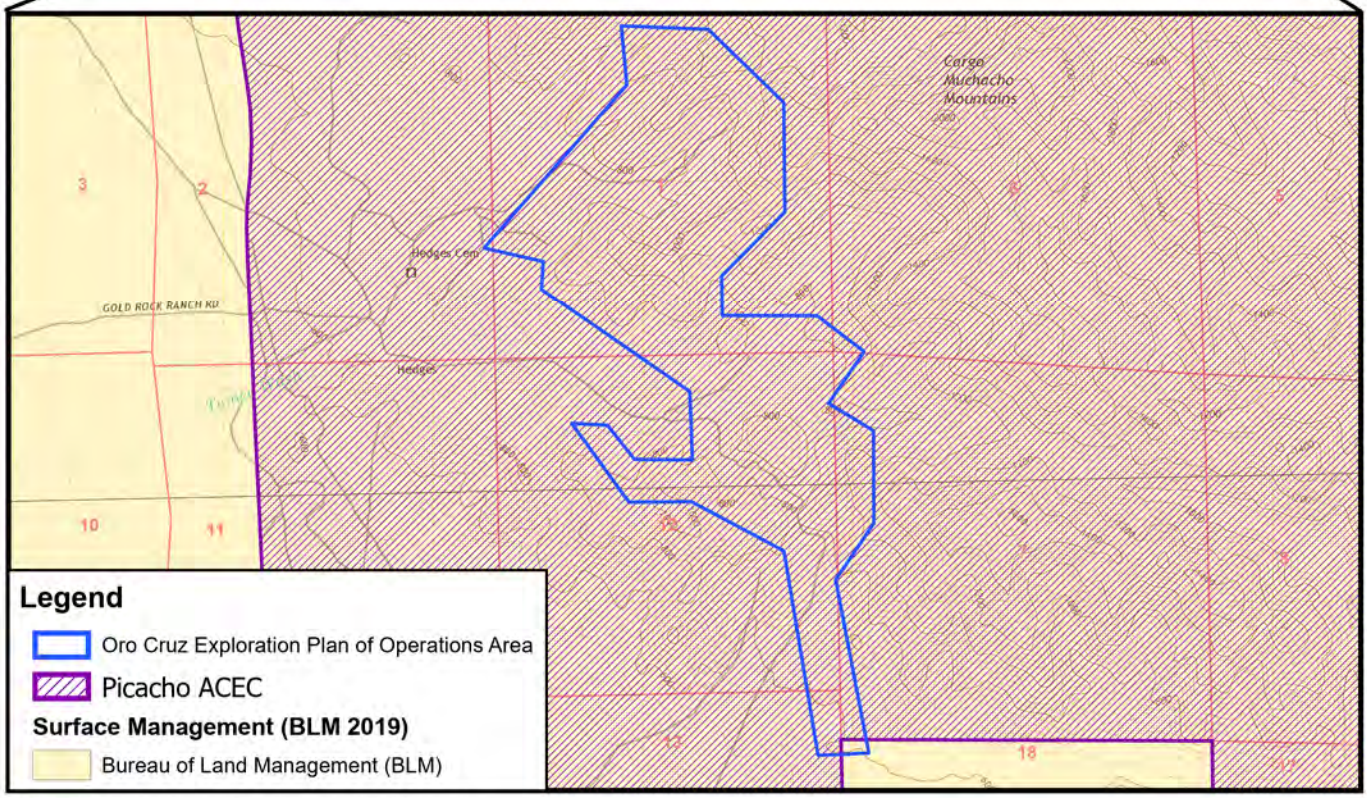

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Imperial County, California,
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Data Source: SMP
Image Source: ArcGIS Online, World Street Map

WestLand Resources

N

0 1,500 3,000 Feet

0 500 1,000 Meters

SMP GOLD CORP.

Oro Cruz Exploration Plan of Operations

VICINITY MAP

Figure 1

Path: M:\Jobs\2000's\2072.03\ENV\MPO\ArcGISpro\OroCruzMPO_2072_03\OroCruzMPO_2072_03.aprx Date: 7/22/2021 User: cpowell

Drill Area 3
Drill Area 5
Drill Area 2
Drill Area 7
Drill Area 4
Drill Area 1
Oro Cruz Portal
Drill Area 6
Tumco Wash
American Girl Wash

Legend

- Locked Gate
- Truck Upload Point
- BLM Approved Access Road
- Existing Access (Improvement Required)
- Existing Access (No Improvement Required)
- New Access Road
- Drill Area
- Oro Cruz Exploration Plan of Operations Area
- Oro Cruz Portal Staging Area

T15S, R20E, Portions of Sections 1, 2, 12 and 13,
T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California, Data Source: SMP
Image Source: ArcGIS Online, World Imagery, 2018

WestLand Resources

N

0 800 1,600 Feet

0 400 800 Meters

SMP GOLD CORP.

Oro Cruz Exploration Plan of Operations

PROJECT LOCATION

Figure 2

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OC 5 OC 6 OC 37 OC 36
OC 7 OC 8 OC 39 OC 38
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OC 43 OC 42
OC 45 OC 44
OC 47 OC 46
OC 11 OC 48
OC 12 OC 49
OC 13 OC 50
OC 14 OC 51
OC 15 OC 52
OC 17 OC 16 OC 53
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OC 83 OC 84 OC 99 OC 100 OC 113
OC 85 OC 86 OC 101 OC 102 OC 115
OC 87 OC 88 OC 103 OC 104 OC 117
OC 89 OC 90 OC 105 OC 106 OC 119
OC 91 OC 92 OC 107 OC 121 OC 120

SMP 1
SMP 2
Hercules 55
Drill Area 3
Hercules 54
Hercules 26
Drill Area 5
Hercules 27
Hercules 53
Hercules 28
Hercules 29
Drill Area 2
Hercules 12
Drill Area 7
Hercules 11
Hercules 30
Hercules 31
Hercules 10
Hercules 32
Drill Area 4
Hercules 33
Hercules 9
Hercules 133
Drill Area 1
Oro Cruz Portal
Hercules 8
Hercules 7
Hercules 132
Hercules 6
Drill Area 6

Tumco Wash

Legend

- Locked Gate
- Truck Upload Point

Potential Drill Hole Location:

- Helicopter-Accessed RC Drill Holes
- Road-Accessed RC Drill Holes
- Road-Accessed RC Drill Hole with Core Tail
- BLM Approved Access Road
- Existing Access (Improvement Required)
- Existing Access (No Improvement Required)
- New Access Road
- Hercules Lode Claim
- New Claim
- OC 1-131 Lode Claim
- Oro Cruz Claim Boundary
- Drill Area
- Oro Cruz Exploration Plan of Operations Area
- Oro Cruz Portal Staging Area

T15S, R20E, Portions of Sections 1, 2, 12 and 13,
T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California, Data Source: SMP
Image Source: ArcGIS Online, World Imagery, 2018

WestLand Resources

N

0 800 1,600 Feet

0 400 800 Meters

SMP GOLD CORP.

Oro Cruz Exploration Plan of Operations

BLM CLAIMS BOUNDARY

Figure 3a

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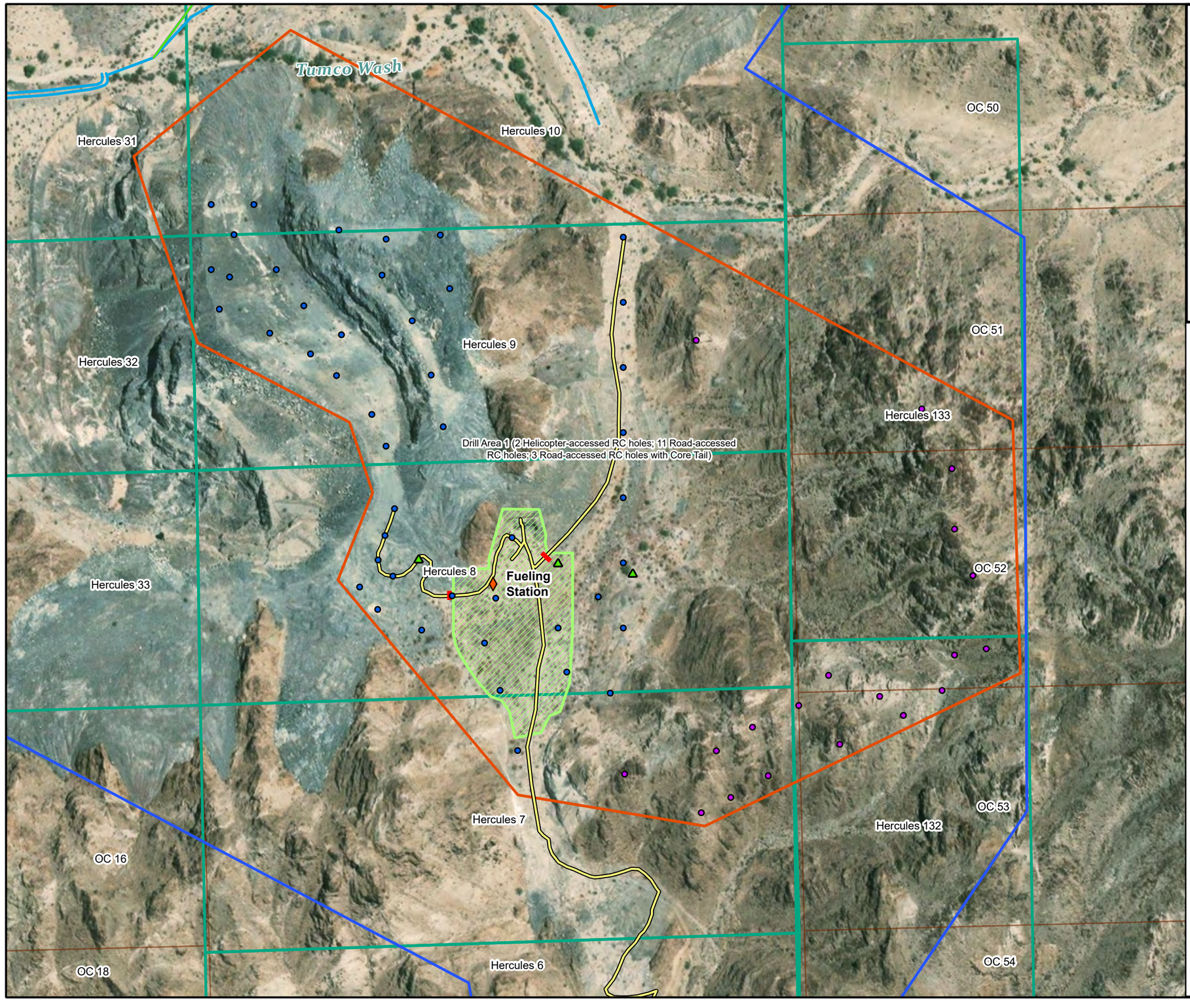

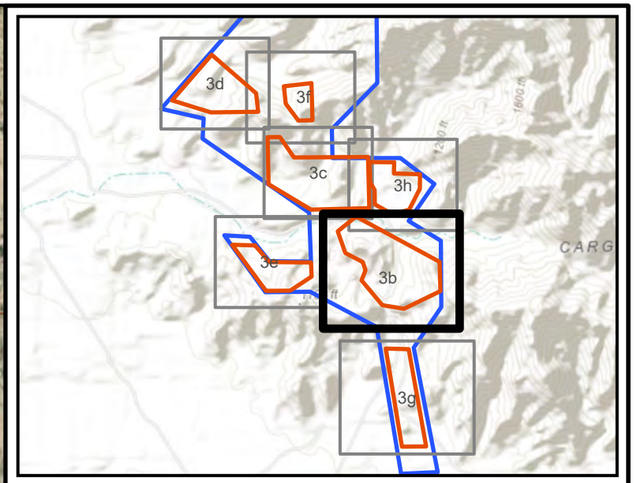

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T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California, Data Source: SMP
Image Source: ArcGIS Online, World Imagery, 2018

Legend

- Fueling Station

Potential Drill Hole Location:

- Helicopter-Accessed RC Drill Holes
- Road-Accessed RC Drill Holes
- Road-Accessed RC Drill Hole with Core Tail
- Existing Access (Improvement Required)
- Existing Access (No Improvement Required)
- New Access Road
- Safety Berm
- Drill Area
- Hercules Lode Claim
- OC 1-131 Lode Claim
- Oro Cruz Claim Boundary
- Oro Cruz Exploration Plan of Operations Area
- Oro Cruz Portal Staging Area

N

0 125 250 Feet

0 50 100 Meters

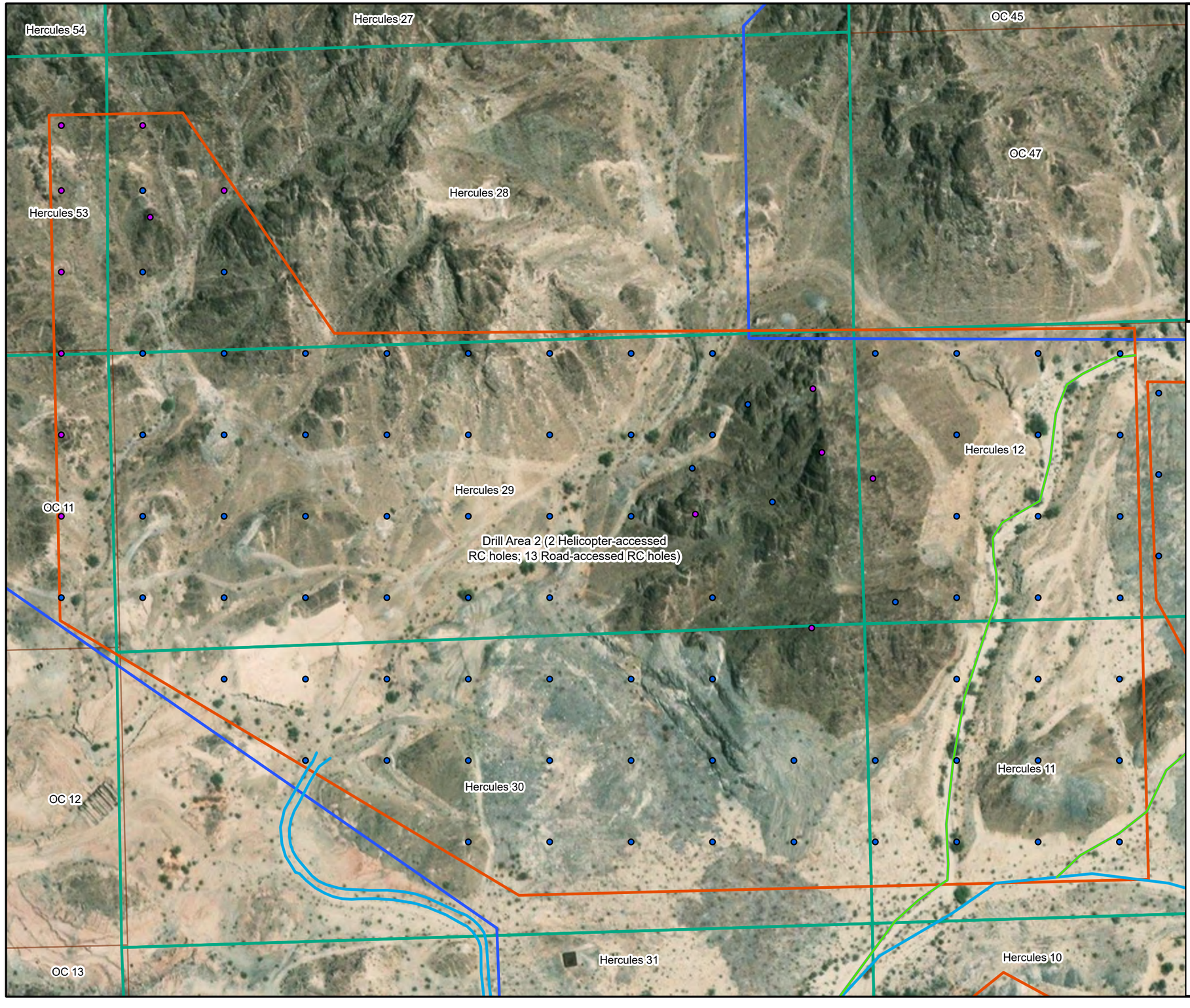
WestLand Resources

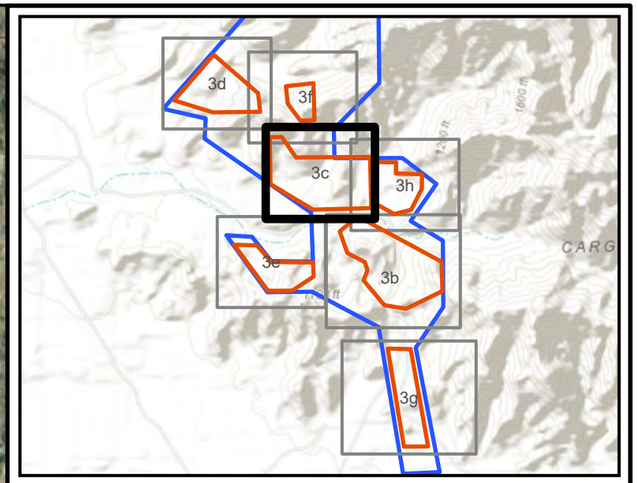
SMP GOLD CORP.

Oro Cruz Exploration Plan of Operations

BLM CLAIMS BOUNDARY

Figure 3b





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T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California, Data Source: SMP
Image Source: ArcGIS Online, World Imagery, 2018

Legend

Potential Drill Hole Location:

- Helicopter-Accessed RC Drill Holes
- Road-Accessed RC Drill Holes
- Existing Access (Improvement Required)
- Existing Access (No Improvement Required)
- Drill Area
- Hercules Lode Claim
- OC 1-131 Lode Claim
- Oro Cruz Claim Boundary
- Oro Cruz Exploration Plan of Operations Area

N

0 100 200 Feet

0 50 100 Meters

WestLand Resources

SMP GOLD CORP.

Oro Cruz Exploration Plan of Operations

BLM CLAIMS BOUNDARY

Figure 3c

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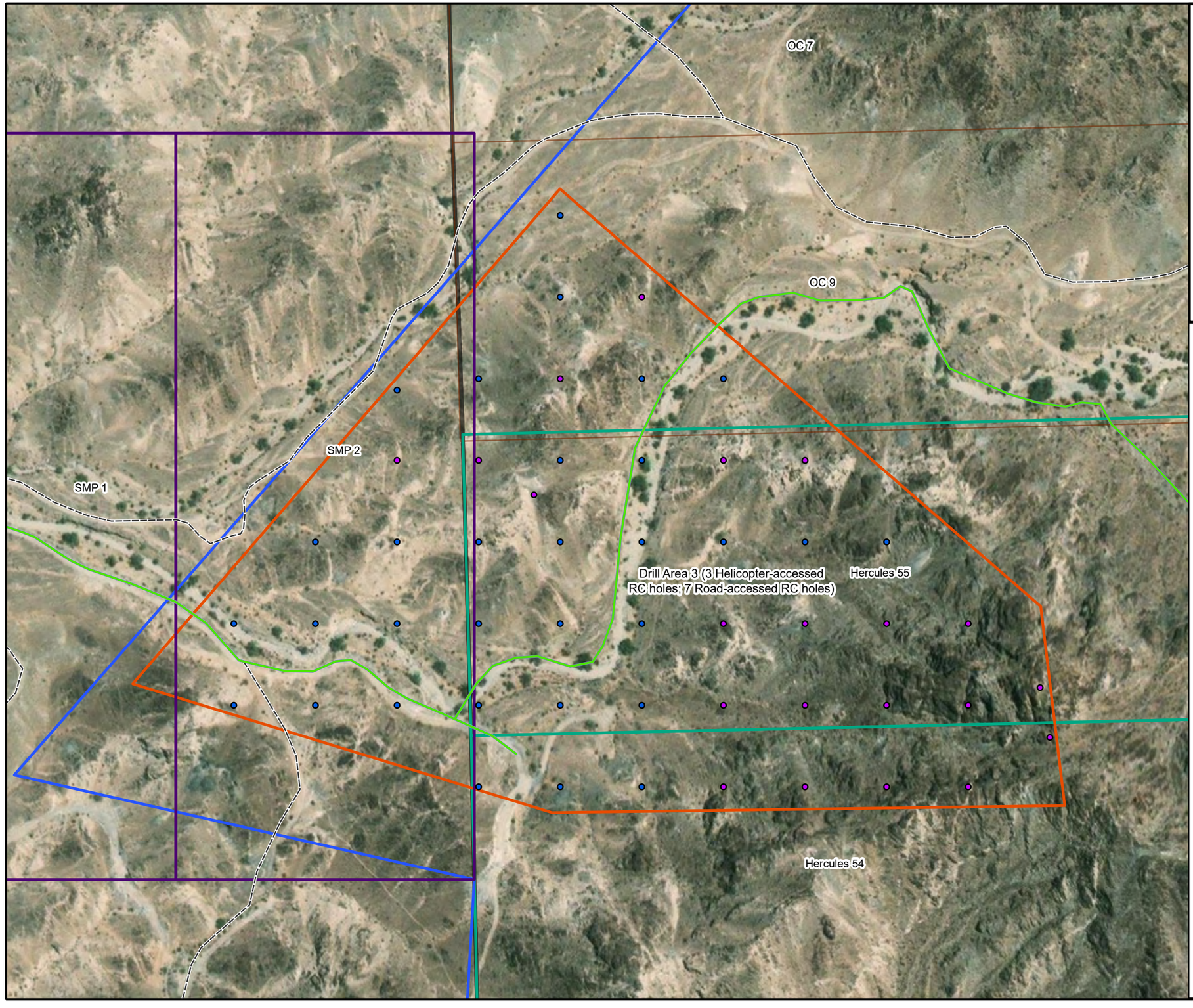

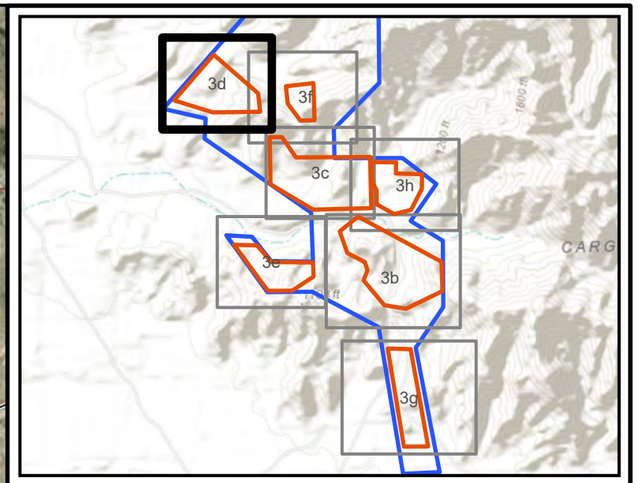

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T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California, Data Source: SMP
Image Source: ArcGIS Online, World Imagery, 2018

Legend

Potential Drill Hole Location:

- Helicopter-Accessed RC Drill Holes
- Road-Accessed RC Drill Holes
- BLM Approved Access Road
- Existing Access (Improvement Required)
- Drill Area
- Hercules Lode Claim
- New Claim
- OC 1-131 Lode Claim
- Oro Cruz Claim Boundary
- Oro Cruz Exploration Plan of Operations Area

N

0 100 200 Feet

0 50 100 Meters

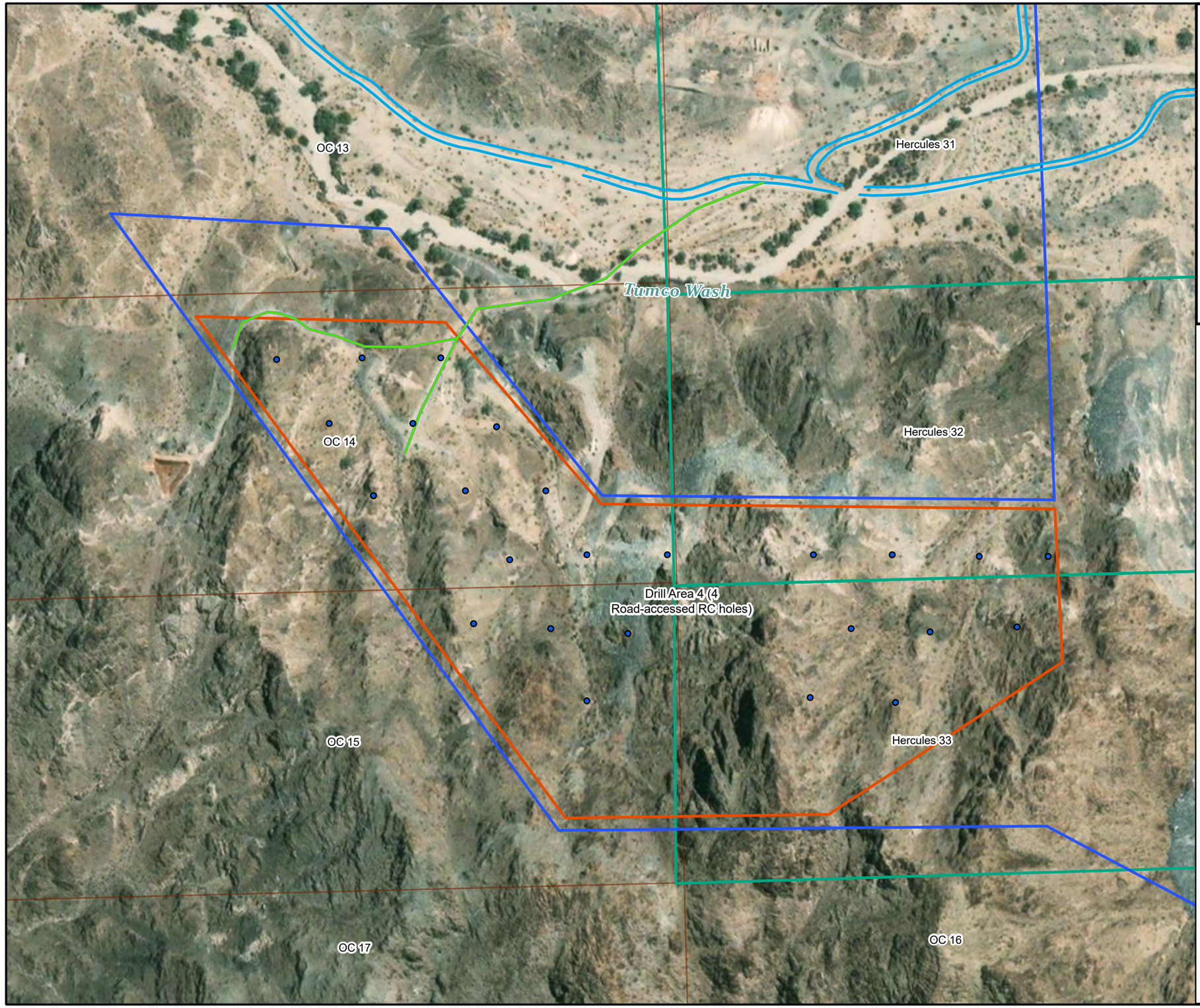
WestLand Resources

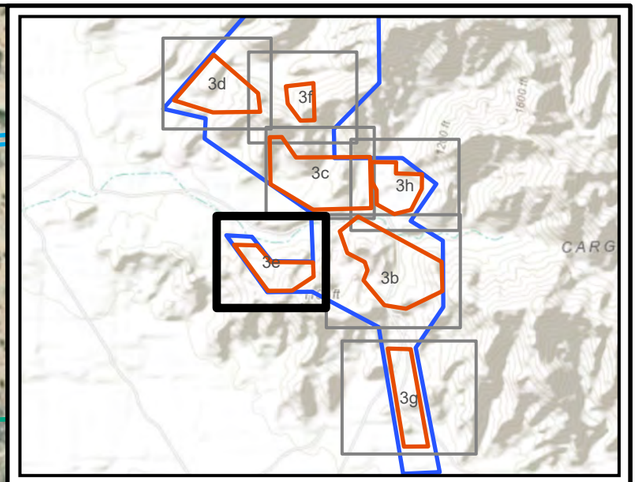
SMP GOLD CORP.

Oro Cruz Exploration Plan of Operations

BLM CLAIMS BOUNDARY

Figure 3d





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T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California, Data Source: SMP
Image Source: ArcGIS Online, World Imagery, 2018

Legend

Potential Drill Hole Location:

- Road-Accessed RC Drill Holes
- Existing Access (Improvement Required)
- Existing Access (No Improvement Required)
- Drill Area
- Hercules Lode Claim
- OC 1-131 Lode Claim
- Oro Cruz Claim Boundary
- Oro Cruz Exploration Plan of Operations Area

N

0 100 200 Feet

0 50 100 Meters

WestLand Resources

SMP GOLD CORP.

Oro Cruz Exploration Plan of Operations

BLM CLAIMS BOUNDARY

Figure 3e

Path: M:\Jobs\2000's\2072.03\ENV\MPO\ArcGISpro\OroCruzMPO_2072_03\OroCruzMPO_2072_03.aprx

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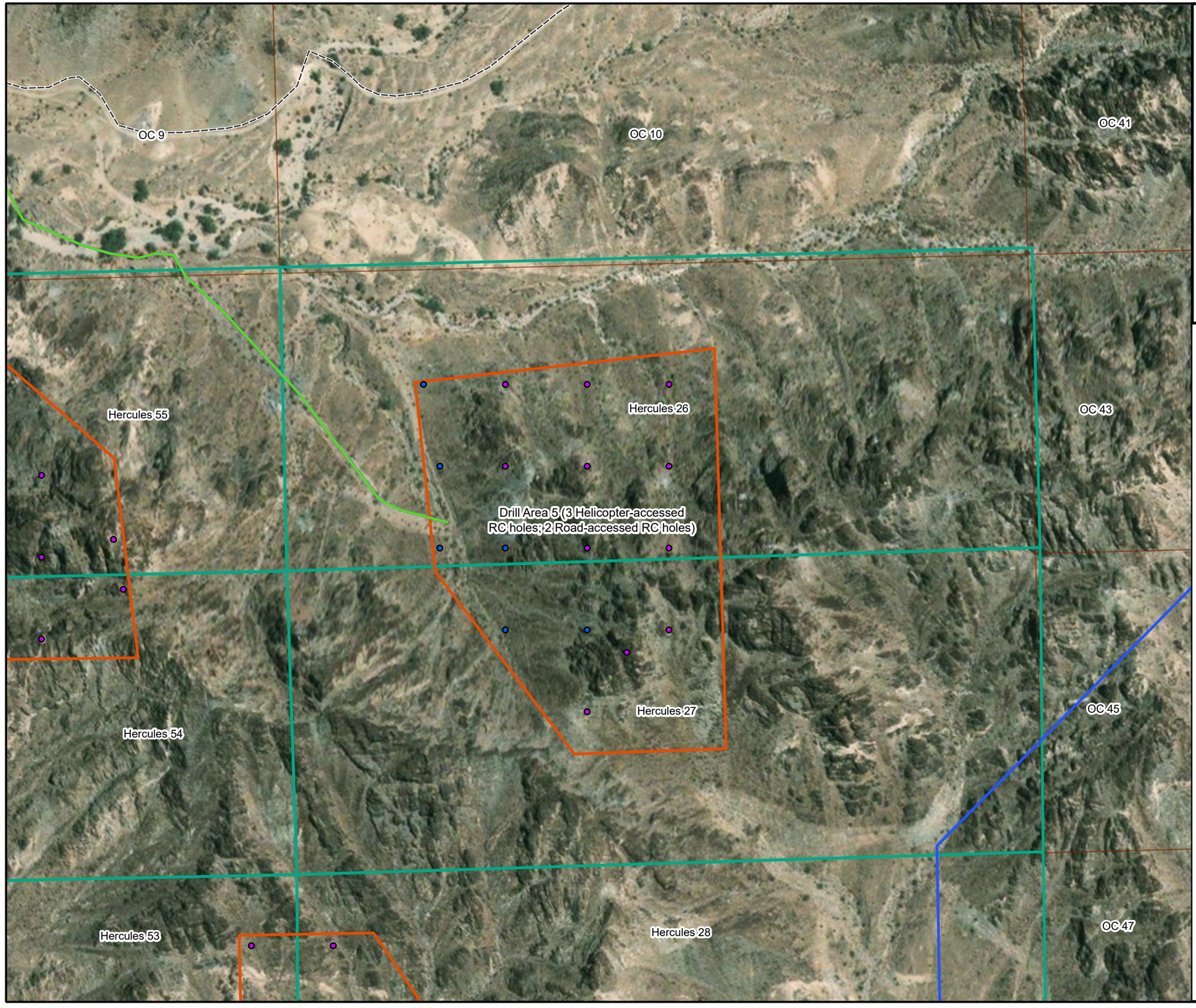

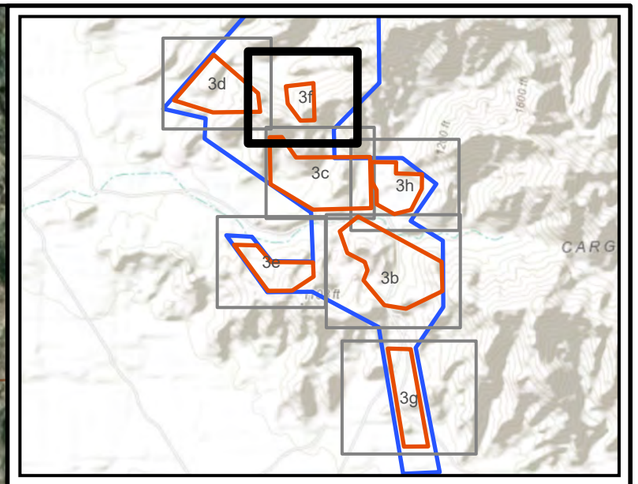

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T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California, Data Source: SMP
Image Source: ArcGIS Online, World Imagery, 2018

Legend

Potential Drill Hole Location:

- Helicopter-Accessed RC Drill Holes
- Road-Accessed RC Drill Holes
- BLM Approved Access Road
- Existing Access (Improvement Required)
- Drill Area
- Hercules Lode Claim
- OC 1-131 Lode Claim
- Oro Cruz Claim Boundary
- Oro Cruz Exploration Plan of Operations Area

N

0 100 200 Feet

0 50 100 Meters

WestLand Resources

SMP GOLD CORP.

Oro Cruz Exploration Plan of Operations

BLM CLAIMS BOUNDARY

Figure 3f

Path: M:\Jobs\2000's\2072.03\ENV\MPO\ArcGISpro\OroCruzMPO_2072_03\OroCruzMPO_2072_03.aprx

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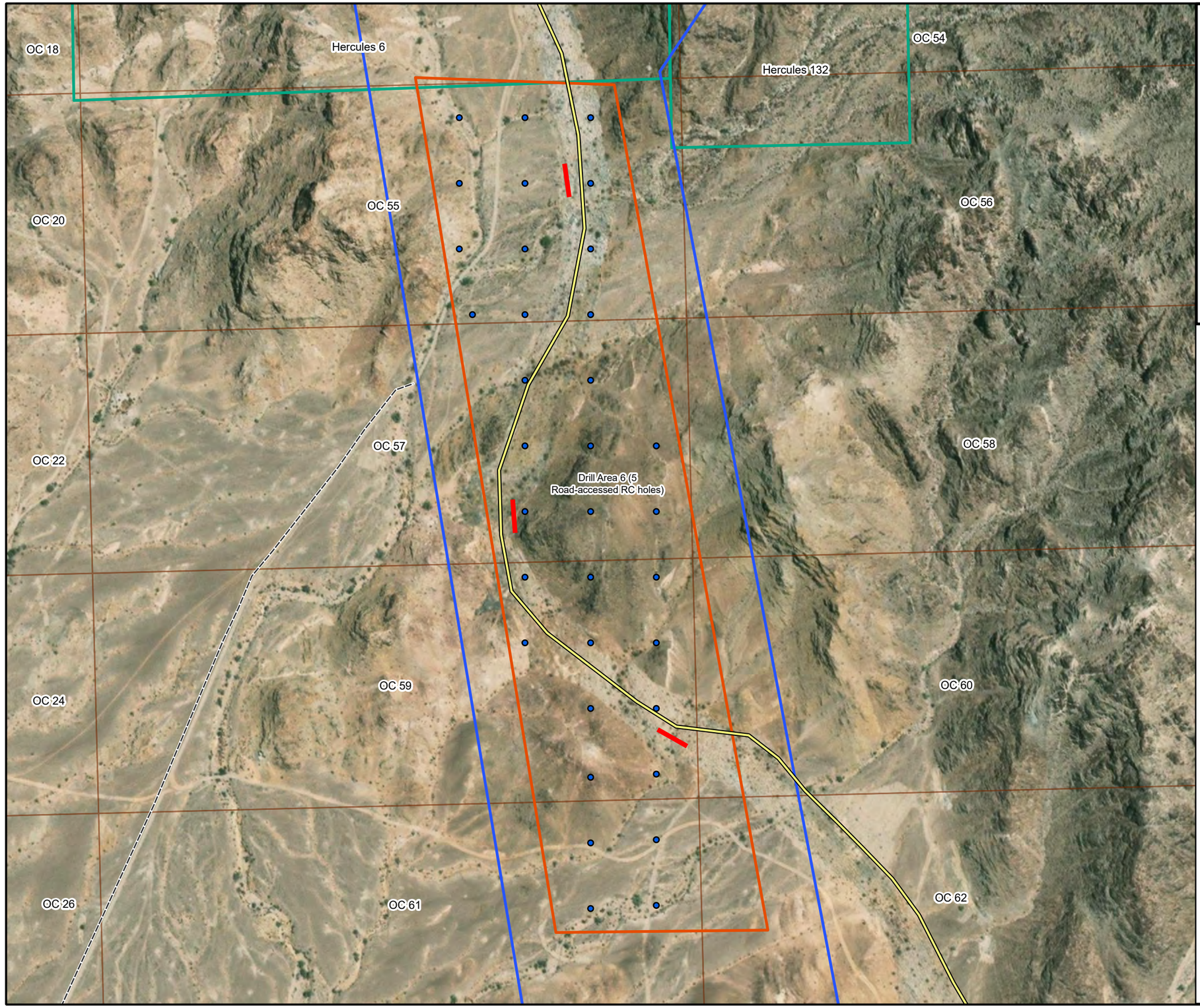

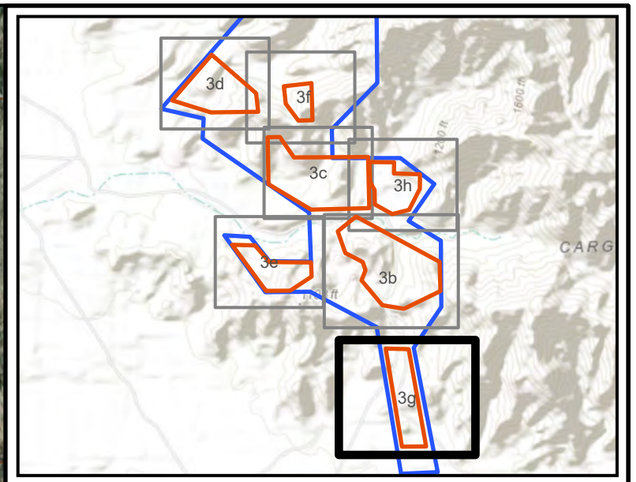

T15S, R20E, Portions of Sections 1, 2, 12 and 13,
T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California, Data Source: SMP
Image Source: ArcGIS Online, World Imagery, 2018

Legend

Potential Drill Hole Location:

- Road-Accessed RC Drill Holes
- BLM Approved Access Road
- New Access Road
- Safety Berm
- Drill Area
- Hercules Lode Claim
- OC 1-131 Lode Claim
- Oro Cruz Claim Boundary
- Oro Cruz Exploration Plan of Operations Area

N

0 125 250 Feet

0 50 100 Meters

WestLand Resources

SMP GOLD CORP.

Oro Cruz Exploration Plan of Operations

BLM CLAIMS BOUNDARY

Figure 3g

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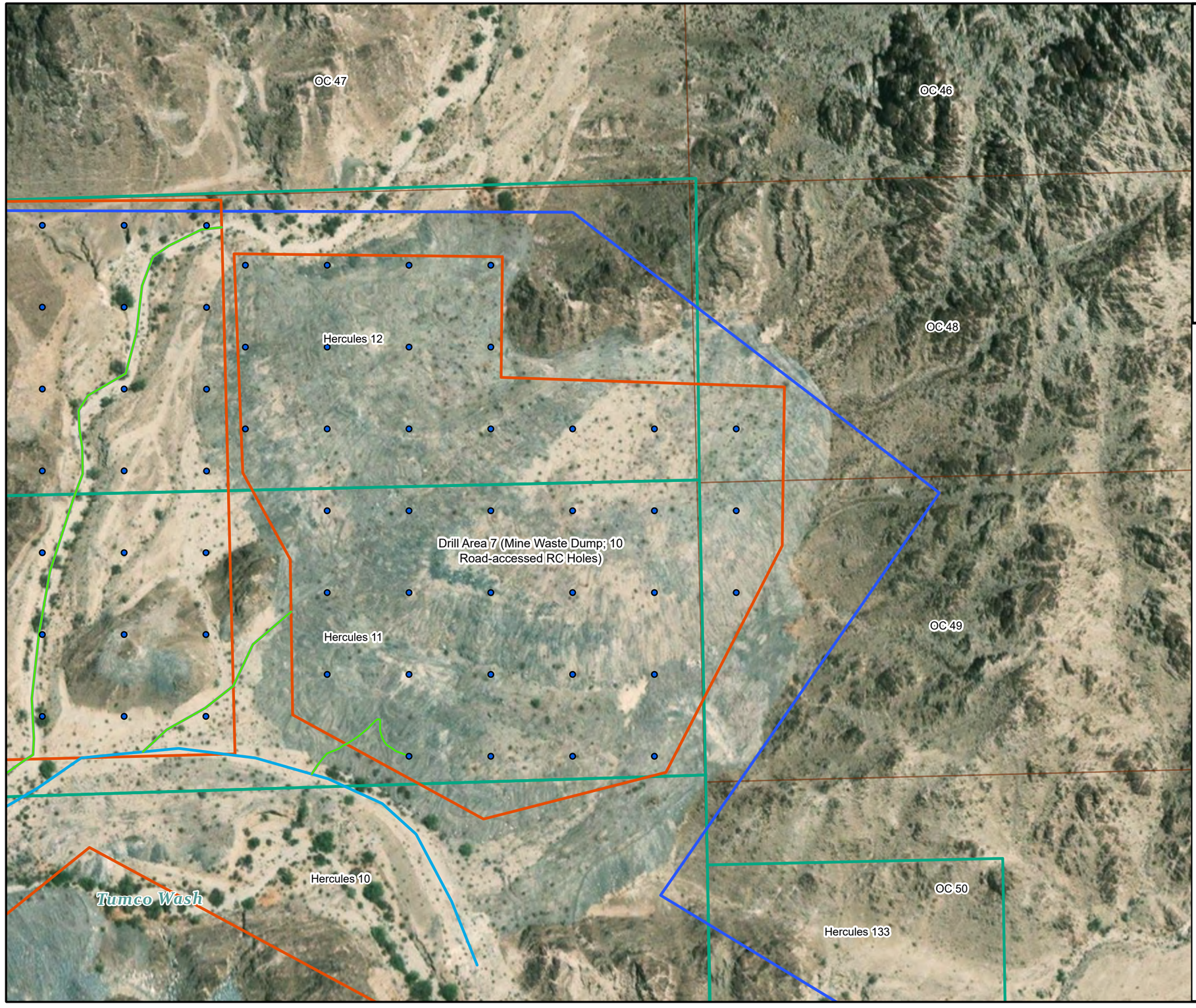

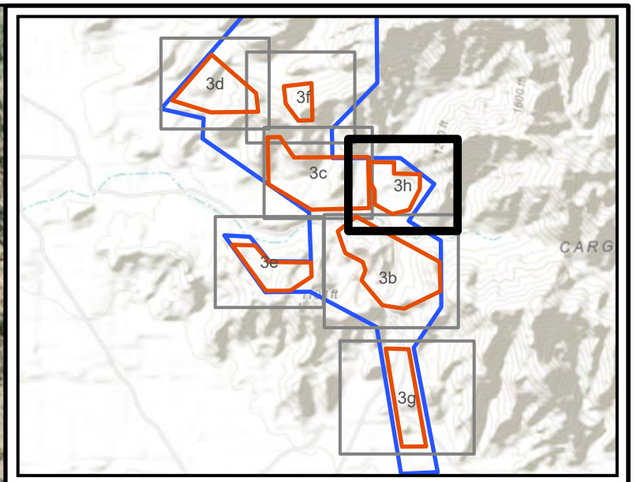

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T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California, Data Source: SMP
Image Source: ArcGIS Online, World Imagery, 2018

Legend

Potential Drill Hole Location:

- Road-Accessed RC Drill Holes
- Existing Access (Improvement Required)
- Existing Access (No Improvement Required)
- Drill Area
- Hercules Lode Claim
- OC 1-131 Lode Claim
- Oro Cruz Claim Boundary
- Oro Cruz Exploration Plan of Operations Area

N

0 100 200 Feet

0 50 100 Meters

WestLand Resources

SMP GOLD CORP.

Oro Cruz Exploration Plan of Operations

BLM CLAIMS BOUNDARY

Figure 3h

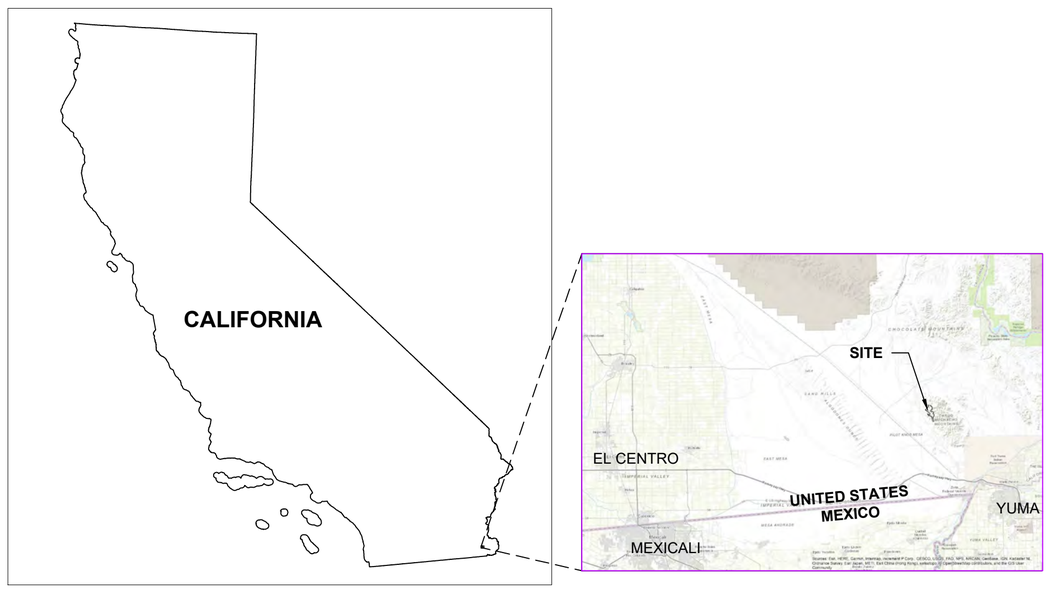

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FIGURE 5B:	CONCEPTUAL DRILL SITE LAYOUT
FIGURE 6:	RECLAMATION PLAN

LEGEND:

- ORO CRUZ RECLAMATION PLAN BOUNDARY
- ORO CRUZ DRILL HOLE AREAS
- 2960 EXISTING CONTOURS
- ORO CRUZ CLAIM BOUNDARY
- NEW SMP CLAIM BOUNDARY
- EXISTING ACCESS ROAD (IMPROVEMENT REQUIRED)
- EXISTING ACCESS ROAD (NO IMPROVEMENT REQUIRED)
- NEW ACCESS ROAD

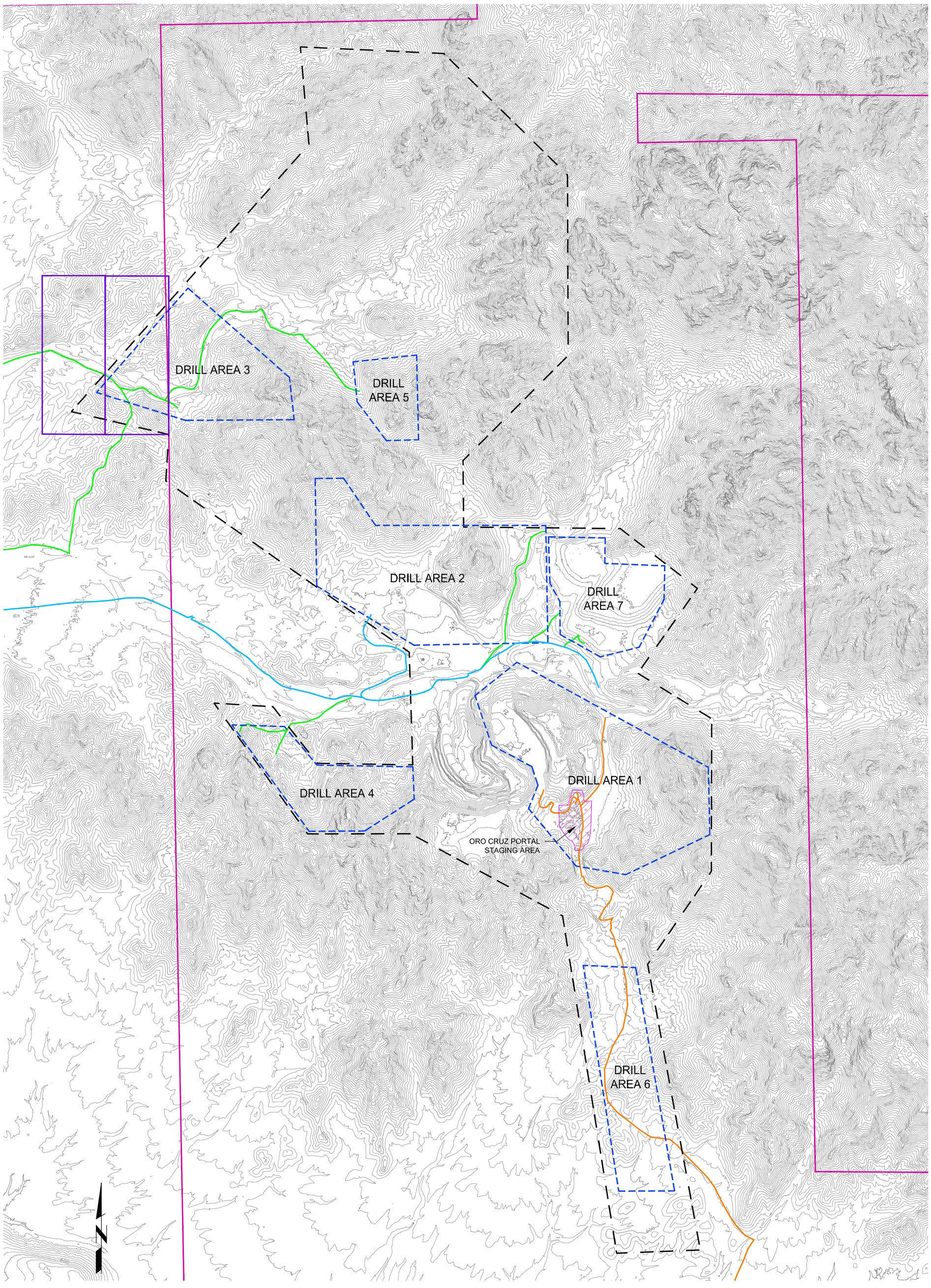
NOTES:

1. DURING ROAD CONSTRUCTION ACTIVITIES, VEGETATION DISTURBANCE WILL BE AVOIDED TO THE MAXIMUM EXTENT POSSIBLE.
2. ROAD IMPROVEMENTS WILL REQUIRE SELECTED STRETCHES OF EXISTING ACCESS ROAD (AS SHOWN HEREON) TO BE BLADED AND CLEARED OF VEGETATION.
3. ROADS WILL GENERALLY BE CONSTRUCTED APPROXIMATELY 12 FEET WIDE. EXISTING ROADS IN THE PROJECT AREA THAT REQUIRE IMPROVEMENTS WILL BE WIDENED TO 12 FEET AS NECESSARY.
4. WHERE NEEDED TO RESTRICT ACCESS TO DRILL AREAS, EITHER GATES, FENCES, OR BARRIERS CONSTRUCTED OF ONSITE MATERIALS WILL BE INSTALLED TO PREVENT UNAUTHORIZED VEHICULAR TRAFFIC FROM INTERFERING WITH THE RECLAMATION OF ACCESS ROADS.
5. DRILL PADS WILL CONSIST OF AN APPROXIMATELY 60-FOOT BY 40-FOOT AREA THAT WILL BE CLEARED TO HOLD THE DRILLING COLLAR AND SUMPS FOR DRILLING MUD (WASTEWATER AND FLUID), ALONG WITH ALL DRILLING EQUIPMENT AND PERSONNEL DURING CONSTRUCTION.
6. BEST MANAGEMENT PRACTICES (BMPs) TO PREVENT EROSION, SEDIMENT TRANSPORT, AND WINDBLOWN DUST WILL BE IMPLEMENTED AS DESCRIBED IN THE SITE SPECIFIC STORM WATER POLLUTION PREVENTION PLAN (SWPPP).

GEOLOGIC SETTING:

THE ORO CRUZ PROJECT IS LOCATED IN THE CARGO MUCHACHO MOUNTAINS IN SOUTHEASTERN CALIFORNIA. BASED ON TECHNICAL REPORT PREPARED BY TETRA TECH (TETRA TECH, 2011), THE RANGE IS COMPRISED OF WELL-FOLIATED GNEISS AND SCHIST OF THE JURASSIC TUMCO FORMATION WHICH HAS BEEN METAMORPHOSED TO AMPHIBOLITE FACIES. MESOZOIC BIOTITE GRANITE AND ASSOCIATED PEGMATITE DIKES CUT THE TUMCO FORMATION AND ALSO CUT MESOZOIC HORNBLENDE-BIOTITE QUARTZ MONZONITE. THE GRANITE AND MONZONITE FORM LARGE INTRUSIVE BODIES IN THE RANGE. THE PRINCIPAL STRUCTURAL FABRIC IN THE RANGE IS WEST-NORTHWEST. LOW-ANGLE FAULTS ARE CUT BY NORTHWEST TRENDING FAULTS.

THE ORO CRUZ MINERAL DEPOSIT IS BELIEVED TO BE A DETACHMENT-FAULT-RELATED GOLD DEPOSIT CONSISTING OF REPLACEMENT MINERALIZATION ALONG A LOW-ANGLE DETACHMENT (LISTRIC) FAULT RELATED TO AN EXTENSIONAL FAULT SYSTEM IN THE CARGO MUCHACHO MOUNTAINS. PREVIOUSLY, TEXASGULF BELIEVED THAT THE ORO CRUZ GOLD DEPOSIT WAS AN EXHALITE. MINERALIZATION IS HOSTED WHOLLY WITHIN THE TUMCO FORMATION. MESOTHERMAL MINERALIZATION OCCURS IN MULTIPLE BROWN TO BROWNISH GRAY SILICEOUS ZONES CONTAINING HEMATITE, MAGNETITE, QUARTZ, MICA, FELDSPAR, CHLORITE, AND BLUE COPPER OXIDES. NATIVE GOLD CONTAINING VERY LOW SILVER IS ASSOCIATED WITH IRON OXIDES (TETRA TECH, 2011).



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SCALE IN FEET
SCALE: 1" = 500'
SCALE INDICATED IS BASED ON A 24" X 36" FORMAT PRINT

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REGISTERED PROFESSIONAL ENGINEER · A. PEARCE SWERDFEGER · NO. C87466 · CIVIL · STATE OF CALIFORNIA

A. PEARCE SWERDFEGER R.C.E. 87466 EXP. 09-30-2021

SOURCE DATA:

BOUNDARIES:
- ORO CRUZ CLAIM BOUNDARY: WESTLAND RESOURCES
- ORO CRUZ EXPLORATION: WESTLAND RESOURCES

TOPOGRAPHY:
- LiDAR: EAGLE MAPPING LTD., FLIGHT DATE 01/15/2021
- GROUND CONTROL: DESERT SURVEYING & ENGINEERING, GORDON O. OLSON, PE, PLS (CA PLS NO. 7107)

CONTOUR INTERVAL: 10 FEET
DATUM: HORZ= NAD83, CALIFORNIA ZONE 5, US FOOT
VERT= NAVD88

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REVISIONS

MARK	DATE	DESCRIPTION	BY
	04/21/21	INITIAL DRAFT	GJC
	07/07/21	UPDATED PORTAL STAGING AREA	APS

REVIEWED BY:
DATE
DATE

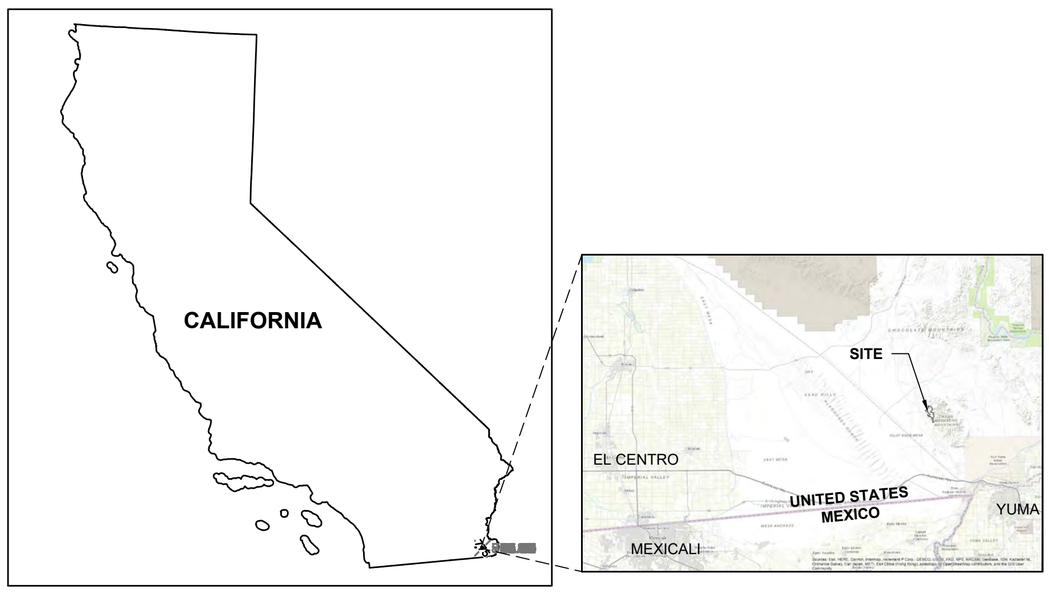
SMP GOLD CORP.
ORO CRUZ EXPLORATION PROJECT

EXPLORATION PLAN

SCALE: HORIZ. AS SHOWN VERT. AS SHOWN
DRAWN BY: G.CAMUS
CHECKED BY: APS

FIGURE 4

Plot Date: C:\Users\Pearce.Swerdfeger\Dropbox (Sespe)\Clients\WE18 – Westland – Oro Cruz\CAD\2021\WE18 – Westland – Oro Cruz_2021–07–07.dwg Jul 07, 2021, 5:51pm Pearce.Swerdfeger



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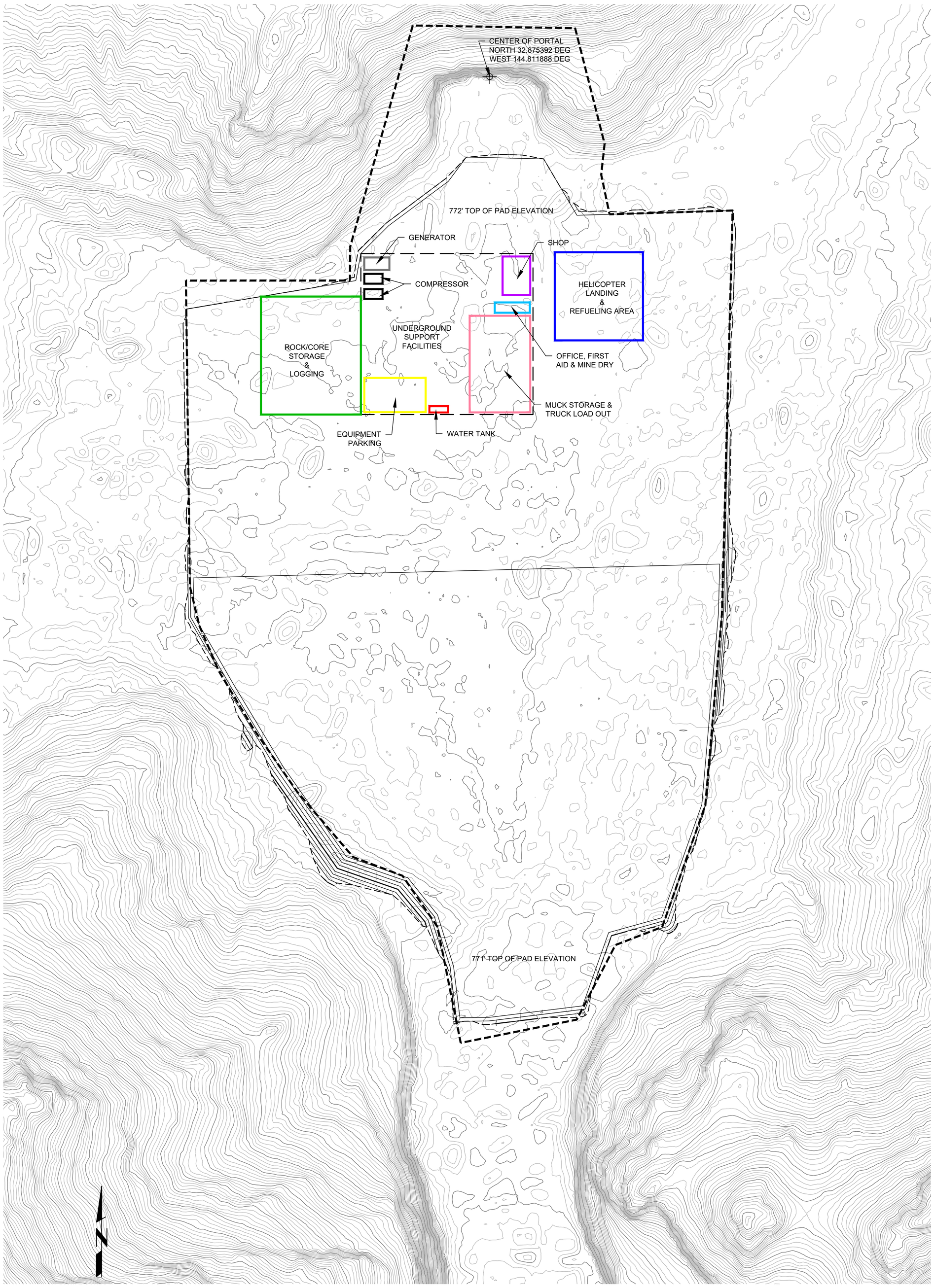
LEGEND

2960 EXISTING CONTOURS

2960 PAD CONTOURS



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STATE OF CALIFORNIA

A. PEARCE SWERDFEGER R.C.E. 87466 EXP. 09-30-2021

500 0 500 1000

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DATE

DATE

SMP GOLD CORP.
ORO CRUZ EXPLORATION PROJECT

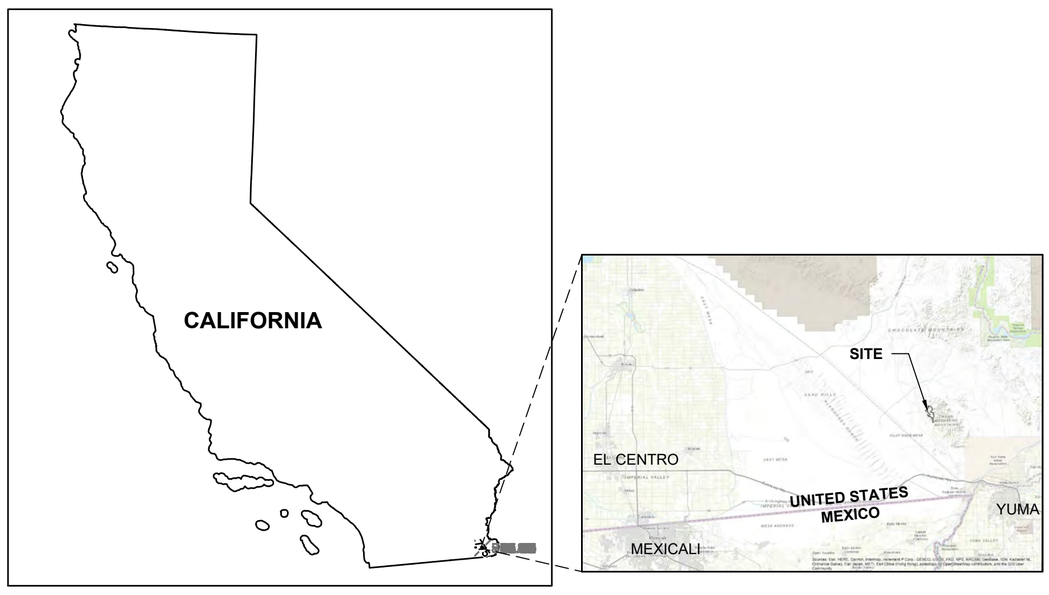
PORTAL STAGING AREA GRADING

SCALE: HORIZ. AS SHOWN
VERT. AS SHOWN

DRAWN BY: G.CAMUS

CHECKED BY: APS

FIGURE 5A



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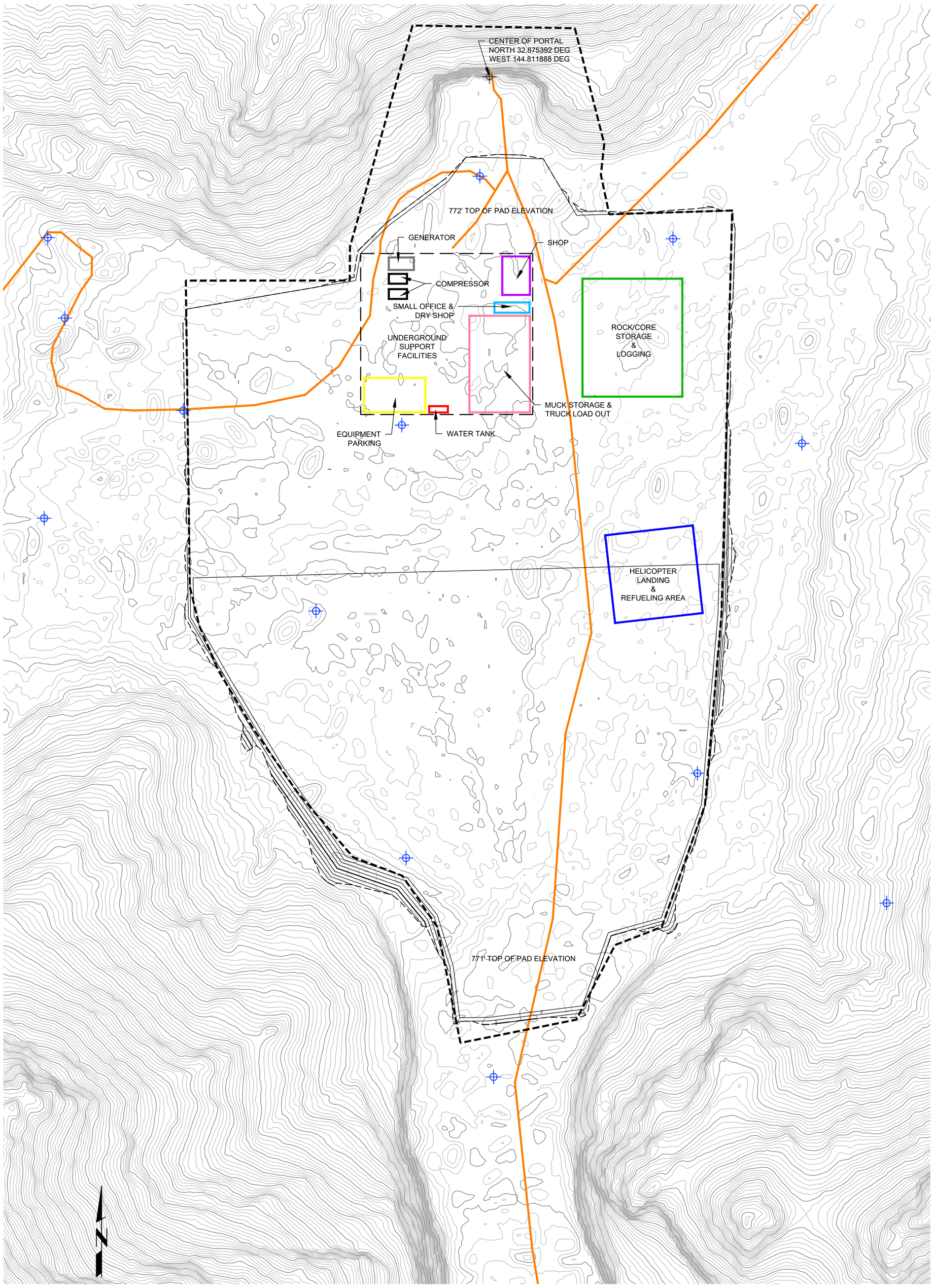
LEGEND

- 2960 — EXISTING CONTOURS
- 2960 — PAD CONTOURS
- NEW ACCESS ROAD
- POTENTIAL LOCATION OF ROAD-ACCESS RC OR CORE DRILL HOLE



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SCALE IN FEET
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SCALE INDICATED IS BASED ON A
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CIVIL
STATE OF CALIFORNIA

A. PEARCE SWERDFEGER R.C.E. 87466 EXP. 09-30-2021

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DATE
DATE

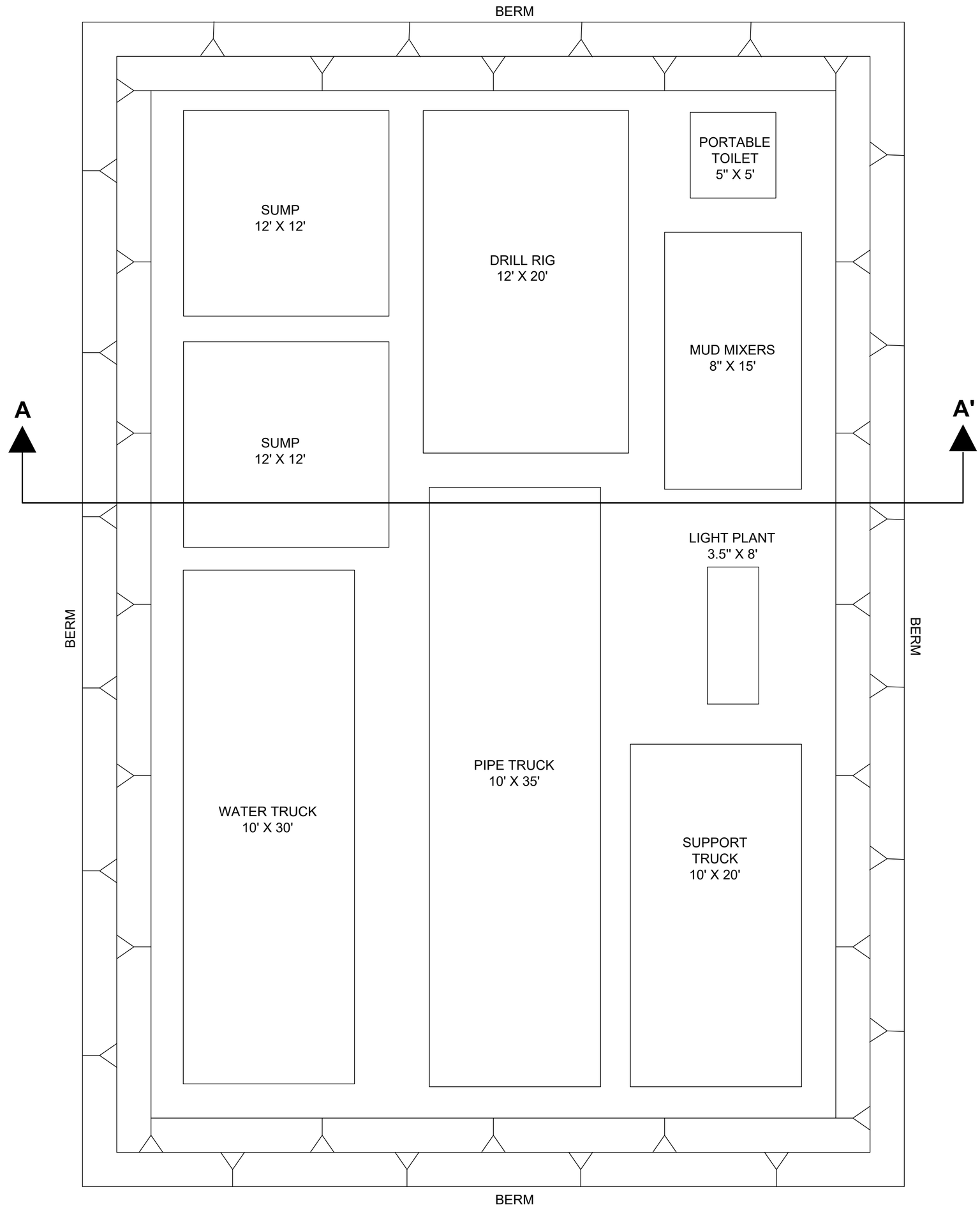
SMP GOLD CORP.
ORO CRUZ EXPLORATION PROJECT

PORTAL STAGING AREA GRADING

SCALE: HORIZ. AS SHOWN
VERT. AS SHOWN
DRAWN BY: G.CAMUS
CHECKED BY: APS

FIGURE 5A

Plot Date: S:\WE18 – Westland – Oro Cruz\CAD\2021\WE18 – Westland – Oro Cruz_Grading_2021-10-22.dwg Oct 22, 2021, 1:43pm GJC



SECTION A - A'

4 0 4 8

SCALE IN FEET
SCALE: 1" = 4'
SCALE INDICATED IS BASED ON A
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SMP GOLD CORP.
ORO CRUZ EXPLORATION PROJECT

CONCEPTUAL DRILL SITE LAYOUT

SCALE: HORIZ. AS SHOWN
VERT. AS SHOWN
DRAWN BY: G.CAMUS
CHECKED BY: APS

FIGURE
5B

Plot Date: C:\Users\Pearce.Swerdfeger\Dropbox (Sespe)\Clients\WE18 – Westland – Oro Cruz\CAD\2021\WE18 – Westland – Oro Cruz_Grading_2021-06-14.dwg Jun 27, 2021, 3:08pm Pearce.Swerdfeger

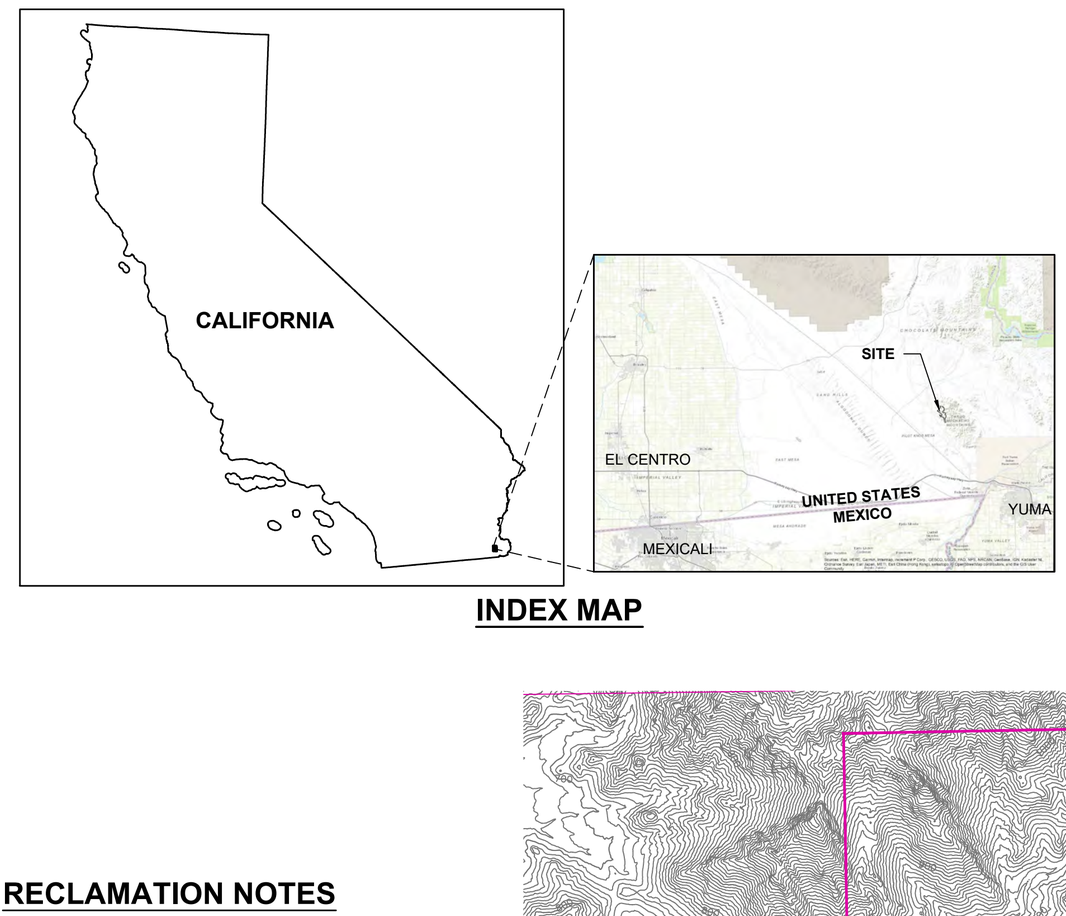

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FIGURE 6:	RECLAMATION PLAN

LEGEND:

- ORO CRUZ RECLAMATION PLAN BOUNDARY
- RECLAIMED AREAS
- EXISTING CONTOURS (2960)
- ORO CRUZ CLAIM BOUNDARY
- NEW SMP CLAIM BOUNDARY
- EXISTING ACCESS ROAD (NO IMPROVEMENT REQUIRED)

RECLAMATION NOTES

1. PROJECT AREAS TO BE RECLAIMED WOULD BE CONVERTED TO LAND USES CONSISTENT WITH MINING, RECREATIONAL USES, AND OPEN SPACE.
2. RECLAMATION WILL BE COMPLETED CONCURRENTLY FOR EXPLORATION DRILLING ACTIVITIES (AS FEASIBLE), AND MONITORING FOR THE SUCCESS OF RECLAMATION OF THOSE AREAS WOULD BE COMPLETED WITHIN 5 YEARS OF PROJECT IMPLEMENTATION.
3. THE PROJECT MOBILIZATION, ROAD CONSTRUCTION, DRILLING, AND BOREHOLE ABANDONMENT WILL BE COMPLETED WITHIN APPROXIMATELY 4 MONTHS (FOLLOWING PROJECT INITIATION).
4. RECLAMATION ACTIVITIES AND SUBSEQUENT MONITORING FOR THE SUCCESS OF RECLAMATION OF THOSE AREAS WOULD BE COMPLETED WITHIN FIVE (5) YEARS OF PROJECT INITIATION.
5. WHERE NEEDED, ALL SLOPES AND FLOORS WILL BE FLATTENED TO ENSURE NO SLOPES EXCEED A 2H:1V (HORIZONTAL TO VERTICAL) ANGLE.
6. EACH EXPLORATORY BOREHOLE WILL BE ABANDONED IN ACCORDANCE WITH IMPERIAL COUNTY DRILL PERMIT CONDITIONS AND APPLICABLE STATE STANDARDS. THE MUD PITS WILL BE ALLOWED TO EVAPORATE AND THE STORED EXCAVATED MATERIALS WILL BE REINTRODUCED INTO THE PITS, FOLLOWED BY PUSHING ANY SALVAGED TOPSOIL/SUBSOILS. ONCE EACH PAD HAS BEEN GRADED AND CONTOURED, THEY WILL BE REVEGETATED USING THE SEED MIX BELOW.
7. NEW ROADS CONSTRUCTED AS PART OF THIS PROJECT WILL BE RECLAIMED BY PLACING RECOVERED TOPSOIL/SUBSOIL STORED ALONG THE ROADWAY EDGES, AND BLADING THE SURFACES PRIOR TO REVEGETATING USING THE SEED MIX BELOW.

REVEGETATION NOTES

1. REVEGETATION WILL ONLY OCCUR ON THOSE PORTIONS OF THE PROJECT AREA PROPOSED TO BE RECLAIMED TO OPEN SPACE.
2. THE PROPOSED NATIVE SEED MIXTURE WILL CONSIST OF THE FOLLOWING:
   - CREOSOTEBUSH (*LARREA TRIDENTATA*)
   - BURROBUSH (*AMBROSIA DUMOSA*)
   - BRITTLEBUSH (*ENCELIA FARINOSA*)
   - DESERT SPINEFLOWER (*GERAEA CANESCENS*)
   - TURTLEBACK (*PSATHYROTES RAMOSISSIMA*)
   - FORGET-ME-NOT (*CRYPTANTHA SPP.*)
   - HAIRY PRAIRIE CLOVER (*DALEA MOLLIS*)
2. SEEDS WILL BE PURCHASED AND MIXED IN EQUAL QUANTITIES AND WILL BE HAND BROADCASTED AT APPROXIMATELY 10 POUNDS PER ACRE.
3. THE SEED MIXTURE IS SUBJECT TO CHANGE AND SHOULD BE VERIFIED BY A QUALIFIED BIOLOGIST PRIOR TO REVEGETATION.

DRILL AREA 3
DRILL AREA 5
DRILL AREA 2
DRILL AREA 7
DRILL AREA 4
DRILL AREA 1
ORO CRUZ PORTAL STAGING AREA
DRILL AREA 6

N

500 0 500 1000

SCALE IN FEET
SCALE: 1" = 500'
SCALE INDICATED IS BASED ON A 24" X 36" FORMAT PRINT

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A. PEARCE SWERDFEGER
NO. C87466
CIVIL
STATE OF CALIFORNIA

A. PEARCE SWERDFEGER R.C.E. 87466 EXP. 09-30-2023

SOURCE DATA:

BOUNDARIES:
- ORO CRUZ CLAIM BOUNDARY: DIGITIZED BASED ON MINING CLAIM NOTICE OF LOCATIONS (AND AMENDMENTS) ON FILE WITH THE IMPERIAL COUNTY CLERK-RECORDER (SEE APPENDIX C)

TOPOGRAPHY:
- LiDAR: EAGLE MAPPING LTD., FLIGHT DATE 01/15/2021
- GROUND CONTROL: DESERT SURVEYING & ENGINEERING, GORDON O. OLSON, PE, PLS (CA PLS NO. 7107)

CONTOUR INTERVAL: 10 FEET
DATUM: HORZ= NAD83, CALIFORNIA ZONE 5, US FOOT
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	04/21/21	INITIAL DRAFT	GJC
	07/07/21	UPDATED PORTAL STAGING AREA	APS
	09/22/22	ADMINISTRATIVE REVISIONS	APS

REVIEWED BY:
DATE
DATE

SMP GOLD CORP.
ORO CRUZ EXPLORATION PROJECT

RECLAMATION PLAN

SCALE: HORIZ. AS SHOWN VERT. AS SHOWN
DRAWN BY: G.CAMUS
CHECKED BY: APS

FIGURE 6

Plot Date: C:\Users\Guillaume.Camus\Trinity Consultants, Inc\Westland – Documents\Legacy SESPE\Westland – Oro Cruz\CAD\2022\SMP–OroCruz_RecPlan.dwg Mar 13, 2023, 3:09pm Guillaume.Camus

APPENDIX A

Revegetation Plan – Oro Cruz Exploration Project
(WestLand Resources, Inc., 2021)

SMP GOLD CORP.
ORO CRUZ EXPLORATION PROJECT
REVEGETATION PLAN

Prepared for: SMP GOLD CORP.

Prepared by: WestLand Resources, Inc.

Date: June 11, 2021

Project No.: 2072.03 13

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2. Project Area Description 1
3. Reclamation and Revegetation Plan Overview 3
4. Site Preparation 4
5. Control of Weeds & Non-Native Vegetation 5
6. Seed Mix 6
7. Success Criteria 7

FIGURES

(*follow text*)

Figure 1. Vicinity Map
Figure 2. Project Location
Figure 3. Vegetation Classifications

APPENDICES

Appendix A. Representative Photographs

1. INTRODUCTION AND BACKGROUND

SMP Gold Corp. (SMP) proposes mineral exploration activities at the Oro Cruz Pit Area (the Project) within lands administered by the Bureau of Land Management (BLM), northwest of Yuma, Arizona, in Imperial County, California. The Project is located on previously mined BLM lands within Township 15 South, Range 20 East, Sections 1, 2, 12, and 13, and Township 15 South, Range 21 East, Sections 6, 7, and 18 (the Project Area, **Figures 1 and 2**) that are managed by the El Centro Field Office. The Project Area includes seven drill areas and access roads (**Figure 2**). Within these areas, the Project entails 21.1 acres of surface disturbance. The Project Area has been previously disturbed by mining activities. Current surrounding land uses include prospecting and recreation.

Activities would be conducted in accordance with BLM regulations published in the Code of Federal Regulations (CFR) at 43 CFR part 3809 (BLM 2016) and 43 CFR 3715 (BLM 1998). Pursuant to 43 CFR 3809.21 and 3809.301, the Project would result in minor surface reworking of previously mined and disturbed areas, and measures would be taken to prevent unnecessary or undue degradation during Project operations. The Project would comply with the performance standards in 43 CFR 3809.420 and other Federal and state laws related to environmental protection and protection of cultural resources; the Project is "reasonably incident" to mining as defined in 43 CFR 3715.0-5; and the Project would attain the stated level of protection and reclamation required by specific laws in the California Desert Conservation Area. The Project Area occurs within the Picacho Area of Critical Environmental Concern (ACEC) as designated under the Desert Renewable Energy Conservation Plan, and thus requires a BLM Plan of Operations.

The Project is described in the Draft Exploration Plan of Operations (Plan) dated December 17, 2020. The BLM has reviewed the Plan and has determined that the filed Plan meets the content requirements at 43 CFR 3809.401(b).

2. PROJECT AREA DESCRIPTION

Vegetation in the Project Area is low desert scrub typical of the high temperature region of southeastern California. In general, vegetation is sparse in both the upland and xeroriparian habitats. The uplands consist of a very low-density shrub community dominated by creosote (*Larrea tridentata*) and brittlebush (*Encelia farinose).* In addition, large portions of the Project Area consist of disturbed habitats dominated by non-native annual plants. The xeroriparian habitat generally consists of the same sparce shrub community and includes widely spaced upland trees and ocotillo (*Fouquieria splendens*). In summation, vegetation in the Project Area is uniformly sparce and consist of very low density shrublands, upland trees and highly disturbed habitats. Representative photographs of the Project Area are provided in **Appendix A.**

For the purposes of vegetation mapping, an Analysis Area that encompasses the proposed disturbance on seven drill areas and associated access roads was defined (**Figure 3**). A total of 37 plant species were identified during field surveys within the Analysis Area (**Table 1)**. Plant species observations do not represent a complete floristic survey. Three California Native Plant Society vegetation categories were identified during pedestrian surveys and thematically mapped using the Supervised Classification tool in ArcGIS Pro 2.7 (**Figure 3**).

Brassica (nigra) and other mustards semi-natural stands

Brassica (nigra) and other mustards semi-natural stands vegetation category occupies approximately 18% of the Analysis Area and 24% of the Project Area (**Figure 3**). This vegetation category corresponds with disturbed and barren areas. Although the named dominant species, black mustard (*Brassica nigra*), was not observed, Saharan mustard (*Brassica tourneforti*), a closely related non-native mustard was often present in both naturally disturbed areas including wash scour and human- disturbed areas such as roads, camp sites, and rock waste piles. This natural community is not classified as sensitive by the California Department of Fish and Wildlife (CDFW 2020)

Parkinsonia florida—Olneya tesota alliance

Parkinsonia florida—Olneya tesota alliance occupies approximately 2% of the Analysis Area and 2% of the Project Area (**Figure 3**). The vegetation category is primarily restricted to xeroriparian areas including washes, drainages and narrow canyons. Besides the named alliance's dominant plants, blue palo verde (*Parkinsonia florida*) and ironwood (*Olneya tesota*), other commonly occurring plants include sweetbush (*Bebbia juncea*), lance leaved ditaxis (*Ditaxis lanceolata*), desert lavender (*Hyptis emoryi*), ocotillo (*Fouquieria splendens*) and Anderson's desert thorn (*Lycium andersonii*). This natural community is classified as sensitive by the California Department of Fish and Wildlife (CDFW 2020).

Larrea tridentata — Encelia farinosa alliance

Larrea tridentata — Encelia farinosa alliance occupies approximately 79% of the Analysis Area and 74% of the Project Area and occurs in a variety of topographic settings (**Figure 3**). Besides the named alliance's dominant plants, creosote (*Larrea tridentata*) and brittlebush (*Encelia farinosa*), other commonly occurring plants include ocotillo, beavertail prickly pear (*Opuntia basilarus*), and burrobush (*Ambrosia dumosa*). This natural community is classified as sensitive by the California Department of Fish and Wildlife (CDFW 2020).

Table 1. Plant Species Observed in the Analysis Area During the Field Survey

This list represents species observed during the field survey and does not represent a complete floristic survey.

Common Name	Scientific Name
PLANTS	
PERENNIALS	
burrobush	*Ambrosia dumosa*
burrobush	*Ambrosia salsola*
western milkweed	*Asclepias albicans*
sweetbush	*Bebbia juncea*
Paloverde	*Cercidium floridum*
pink fairyduster	*Cylindropuntia erophylla*
hairy prairie clover	*Dalea mollis*
narrowleaf silverbush	*Ditaxis lanceolata*
Inciensio	*Encelia farinose*
rough jointfir	*Ephedra aspera*
desert trumpet	*Eriogonum inflatum*
California fagonbush	*Fagonia laevis*
California barrel cactus	*Ferocactus cylindraceus*
ocotillo	*Fouquieria splendens*
paleface	*Hibiscus denudatus*
desert lavender	*Hyptis emoryi*
creosote	*Larrea tridentata*
water jacket	*Lycium andersonii*
Parry's false prairie-clover	*Marina parryi*
desert wishbone-bush	*Mirabilis laevis*
desert tobacco	*Nicotiana obtusifolia*
ironwood	*Olneya tesota*

Common Name	Scientific Name
beavertail pricklypear	*Opuntia basilaris*
blue paloverde	*Parkinsonia florida*
Schott's pygmycedar	*Peucephyllum schottii*
velvet turtleback	*Psathyrotes ramosissima*
desert globemallow	*Sphaeralcea ambigua*
Mesquite	*Posopis juliflora*
Tamarisk*	*Tamarix pentandra*
American threefold	*Trixis californica*
ANNUALS	
sixweeks threeawn	*Aristida adscensionis*
Asian mustard*	*Brassica tournefortii*
brittle spineflower	*Chorizanthe brevicornu*
devil's spineflower	*Chorizanthe rigida*
pygmy poppy	*Eschscholzia minutiflora*
Arizona lupine	*Lupinus arizonicus*
Mojave desertstar	*Monoptilon bellioides*
desert palafox	*Palafoxia arida var. arida*
cleftleaf phacelia	*Phacelia crenulata*
desert Indianwheat	*Plantago ovata*
yellowdome	*Trichoptilium incisum*
*non-native	

3. RECLAMATION AND REVEGETATION PLAN OVERVIEW

The intent of the California Surface Mining and Reclamation Act (SMARA) is to "maintain an effective and comprehensive surface mining and reclamation policy with regulation of surface mining operations so as to assure that: (a) adverse environmental effects are prevented or minimized and that mined lands are reclaimed to a usable condition which is readily adaptable for alternative uses; (b) the production and conservation of aggregates are encouraged, while giving consideration to values relating to recreation, watershed, wildlife, range and forage, and aesthetic enjoyment; and (c) residual hazards to the public health and safety are eliminated" (Section 2712). Article 9, Section 3700 of SMARA states the following: "Reclamation of mined lands shall be implemented in conformance with standards in this Article. The standards shall apply to each surface mining operation to the extent that:

- They are consistent with required mitigation identified in conformance with CEQA; and
- They are consistent with the planned or actual subsequent use or uses of the site."

The Oro Cruz Exploration Project Reclamation Plan prepared by Sespe Consulting Inc. (2021) describes the Reclamation Plan for reclaiming land disturbed by exploration drilling within the Project Area, as required under SMARA. This Reclamation Plan addresses the reclamation activities that will be undertaken following completion of the exploratory drilling, in conformance with SMARA.

The anticipated post-Project land uses are mining, recreational uses, and open space. Following the completion of all drilling, solids, and desiccated drilling muds that have been contained in the sump would be treated by evaporation and by allowing solids to settle out in excavated mud pits or sumps at the drill site. The sumps would then be backfilled. The drilling muds that would be used do not contain toxic or deleterious materials. The proposed drilling mud material data sheets could be provided to BLM upon request. The inert drilling mud materials would be disposed of in accordance with applicable state and federal regulations. The drill site, mud pits, and outer berm would then be returned to natural grade with a track hoe using rocks and soil set aside during site construction and mud pit excavation.

This technical memorandum describes the revegetation plan associated with the planned reclamation.

Reclaimed areas would be revegetated with a BLM-approved seed mix. These areas would be revegetated after cover placement and at the appropriate time of the year for optimum seed germination and plant growth.

4. SITE PREPARATION

The revegetation plan is based on those portions of the Project Area proposed to be reclaimed to open space. For those portions of the Project Area to be reclaimed for future mining and/or recreational uses, revegetation may not be feasible and/or appropriate.

Following completion of exploratory drilling, equipment demobilization and surface preparation of the roads and drill pads, the following typical sequence of revegetation activities will be undertaken:

- Installation of erosion control devices, such as waddles, where necessary;
- Application of seed mix either by hydroseeding or mechanical broadcasting; and
- Maintenance and monitoring.

Generally, initial seedbed preparation on flatter surfaces would include ripping or discing the surface along contours. Conventional seeding techniques (including drill and broadcast) would be used as appropriate depending on soil/cover characteristics and landform. Hydroseed, hydromulch, and

tackifier may be used on slopes that are not suitable for conventional seeding. Mulch may be applied to minimize erosion and promote moisture retention where appropriate.

Prior to application of the seed mix, the final contours, hydrology, and soils composition of the revegetation areas will be reviewed by a qualified biologist/revegetation specialist to determine the optimal broadcast rates and make any appropriate modifications to the overall revegetation plan.

Areas to be revegetated will be prepared as follows:

- Vegetation, trash, debris, and weeds will be cleared. All weeds will be removed from the area and properly disposed of offsite.
- Any eroded areas will be repaired uniformly without leaving holes or depressions that would potentially prohibit plant growth.
- Compacted areas will be ripped to a depth of one foot and left in a textured or rough condition with shallow rills and furrows to create optimal conditions for revegetation.
- Any salvaged plants will be replanted on the pads and roads in a random pattern.
- A native plant seed mix will be broadcast at a rate recommended by the BLM and Imperial County which will include a mixture of shrubs, native grasses, and annuals; and
- The seeds will be covered by hand-rake or using a chain attached to a small tractor with any salvaged top soil to protect the seeds from desiccation and predation.

5. CONTROL OF WEEDS AND NON-NATIVE VEGETATION

The predominance of exotic, invasive weed species throughout California has presented a formidable challenge to most revegetation projects. Weed species are opportunistic and have mechanisms for dispersal and establishment that can eventually lead to displacement of native species. To ensure that weed species competition is controlled, the Project site areas will be inspected by the qualified biologist/revegetation specialist prior to revegetation implementation. The qualified biologist/revegetation specialist will also determine the most effective treatments for control of invasive species. If weed control activities are necessary, they will likely include a combination of treatments such as herbicide application, hand removal, and soil solarization.

Non-native invasive plants that threaten California's wildlands have been categorized by the California Invasive Plant Council (Cal-IPC). Invasive plants that have been classified by Cal-IPC as "High" (severe ecological impacts on physical processes, plant and animal communities, and vegetation structure) or "Moderate" (substantial and apparent—but generally not severe—ecological impacts on physical processes, plant and animal communities, and vegetation structure) in terms of ecological threat will be controlled as necessary within the revegetation areas for up to three (3) years in order to prevent aggressive weeds from out-competing native plant species for resources (e.g., space, water, nutrients, and light). These invasive weeds will be removed mechanically, if feasible. In circumstances

where mechanical control is not effective, EPA-approved systemic herbicides may be used. Herbicides will be applied under the direction of a licensed applicator.

Prior to initiation of revegetation efforts, the biologist will consult the most recent Cal-IPC list, and a list of specific species to be controlled under this Reclamation Plan will be developed. Additional species may be added to the list based on actual conditions and the recommendation of the qualified biologist/revegetation specialist.

6. SEED MIX

Revegetation would require site-appropriate, BLM-approved native seed mixtures. A diverse native plant community would be targeted through the definition of seed mixtures and application rates. The seed mix list would be reviewed before revegetation activities are initiated to confirm the availability of the seeds, and the list would be adjusted as needed. The seed mix and mulch materials would be certified by the revegetation contractor to be relatively weed free.

The proposed native seed mixture will consist of the following: creosotebush (*Larrea tridentata*), burrobush (*Ambrosia dumosa*), brittlebush (*Encelia farinosa*), desert spineflower (*Geraea canescens*), turtleback (*Psathyrotes ramosissima*), forget-me-not (*Cryptantha* spp.), and hairy prairie clover (*Dalea mollis*). Seeds will be purchased and mixed in equal quantities and will be hand broadcasted at approximately 10 pounds per acre (**Table 2**). If any part of the proposed seed mixture is not commercially available at the time of purchase, BLM will be consulted to identify appropriate and available replacements for the seed mixture.

Table 2. Native Live Seed Mixture

Common Name	Scientific Name	Pounds/Acre
creosotebush	*Larrea tridentata*	3
burrobush	*Ambrosia dumosa*	3
brittlebush	*Encelia farinosa*	1.5
desert spineflower	*Geraea canescens*	1
turtleback	*Psathyrotes ramosissima*	0.5
forget-me-not	*Cryptantha* spp.	0.5
hairy prairie clover	*Dalea mollis*	0.5
	Total	**10**

The seed mix would be designed to meet the following criteria:

- Native non-invasive species that have a high compatibility with the existing landscape;
- Species and plant type diversity to promote a sustainable vegetative cover throughout the seasonal changes and other climate related variances; and
- Species and plant type diversity to promote a variety of germination periods and seasonal growth.

7. SUCCESS CRITERIA

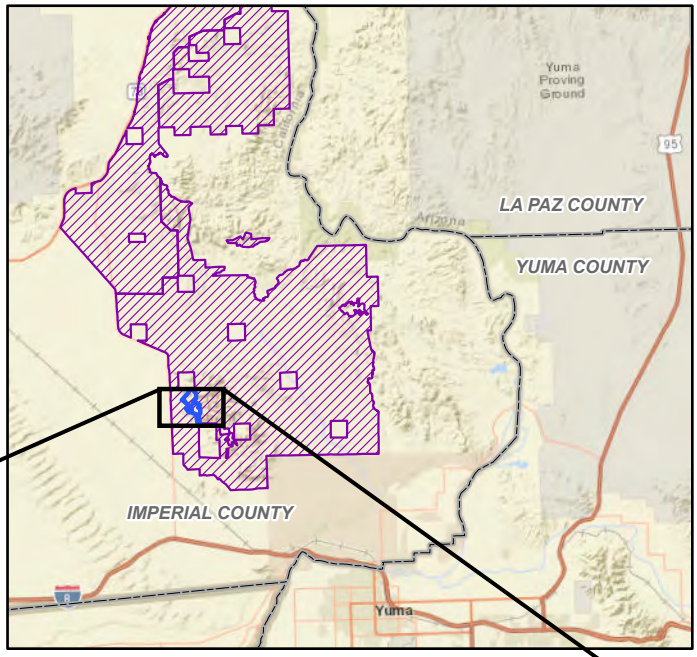
The basic goal of revegetation is to re-establish self-sustaining native plant communities within the disturbed areas. California Code of Regulations (CCR) Section 3705(m) requires that reclaimed revegetated sites be "similar to naturally occurring habitats in the surrounding area." In order to accomplish this revegetation will be deemed successful upon achieving 25 percent of the vegetative cover of adjacent similar vegetation. Because the specific locations of drill pads are not known at this time and flexibility is built into the project to allow for adaptation of exact locations based on drilling results, comparison sites will be chosen in field once the exact drill pad locations are identified. This is an appropriate success criterium for the following reasons:

- The Project will entail only a small amount of total disturbance, and much of this will be within areas that have been previously disturbed.
- The Project contemplates temporary activities over a relatively short time period.
- The Project Area has been previously disturbed from past mining activities, and there is a striking lack of vegetation throughout the Project Area. Vegetation in both the uplands and washes is sparse with limited vegetation cover (**Appendix A**).
- The planned revegetation effort is planned to enhance the success of the revegetation and will augment the reseeding that will occur naturally.

FIGURES

CALIFORNIA

PROJECT VICINITY



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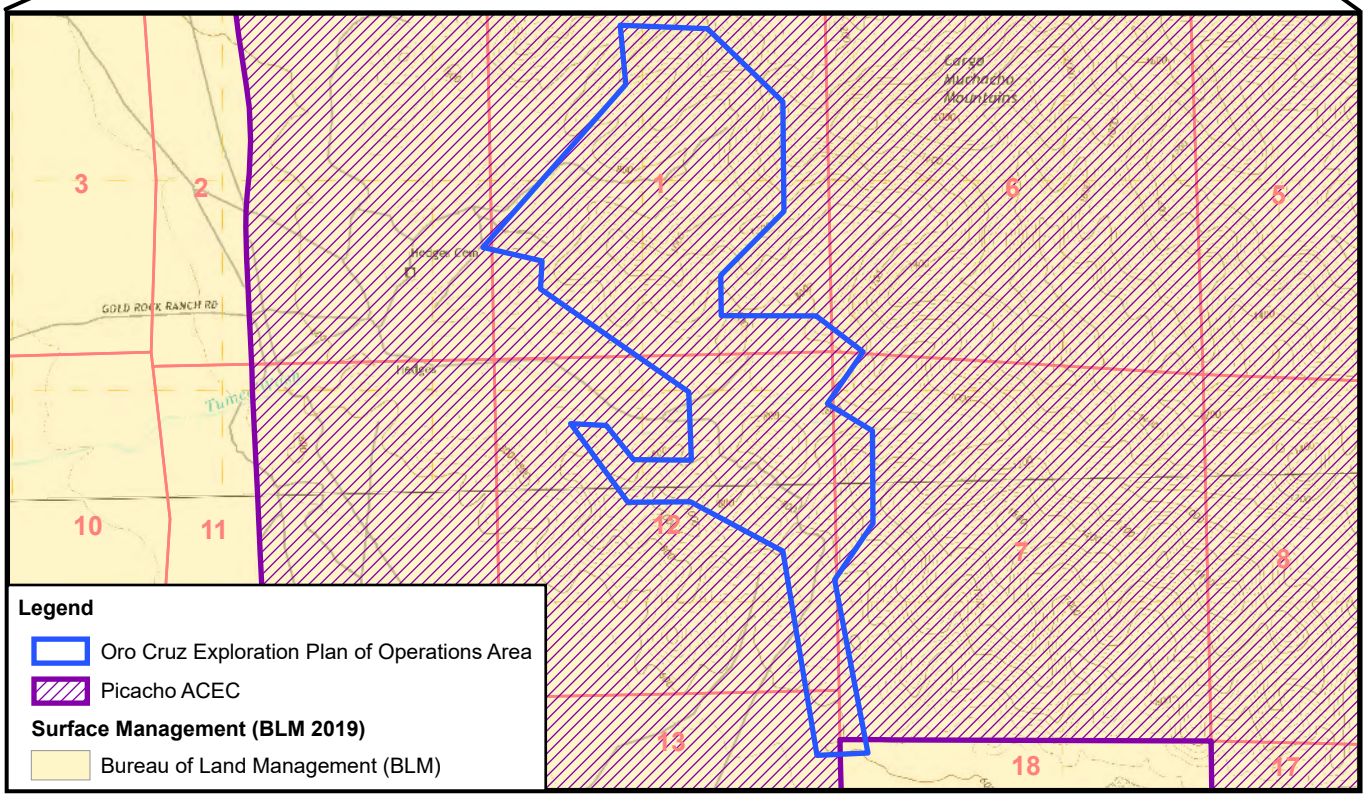


T15S, R20E, Portions of Sections 1, 2, 12 and 13,
T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California,
Ogilby and Hedges USGS 7.5' Quadrangles (2018)
Data Source: SMP
Image Source: ArcGIS Online, World Street Map

N

0 1,500 3,000 Feet

0 500 1,000 Meters

WestLand Resources

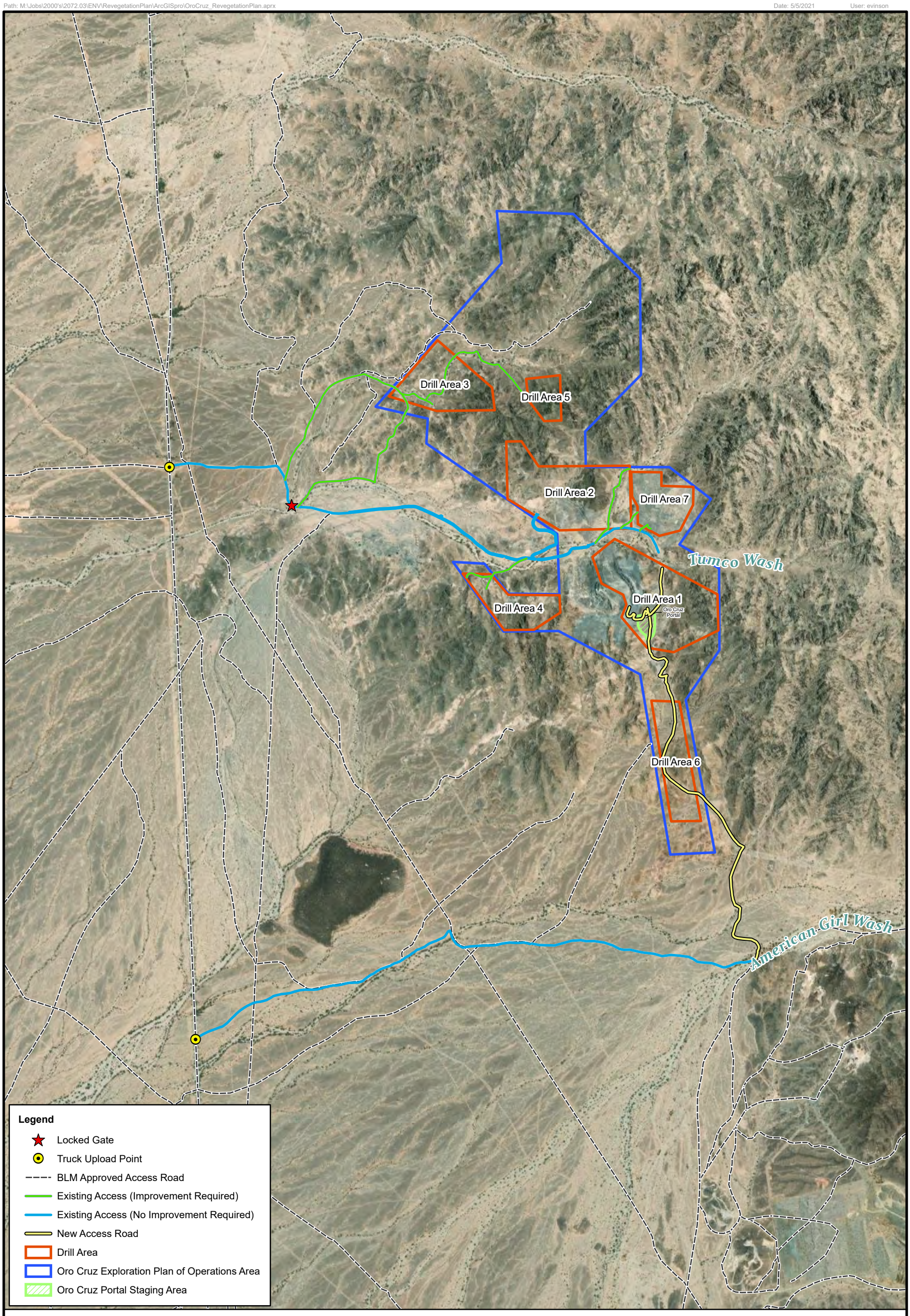
SMP GOLD CORP.

Oro Cruz Exploration Project Revegetation Plan

VICINITY MAP

Figure 1

Path: M:\Jobs\2000's\2072.03\ENV\RevegetationPlan\ArcGISpro\OroCruz_RevegetationPlan.aprx Date: 5/5/2021 User: evinson



T15S, R20E, Portions of Sections 1, 2, 12 and 13,
T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California, Data Source: SMP
Image Source: ArcGIS Online, World Imagery, 2018

N

0 800 1,600 Feet

0 250 500 Meters

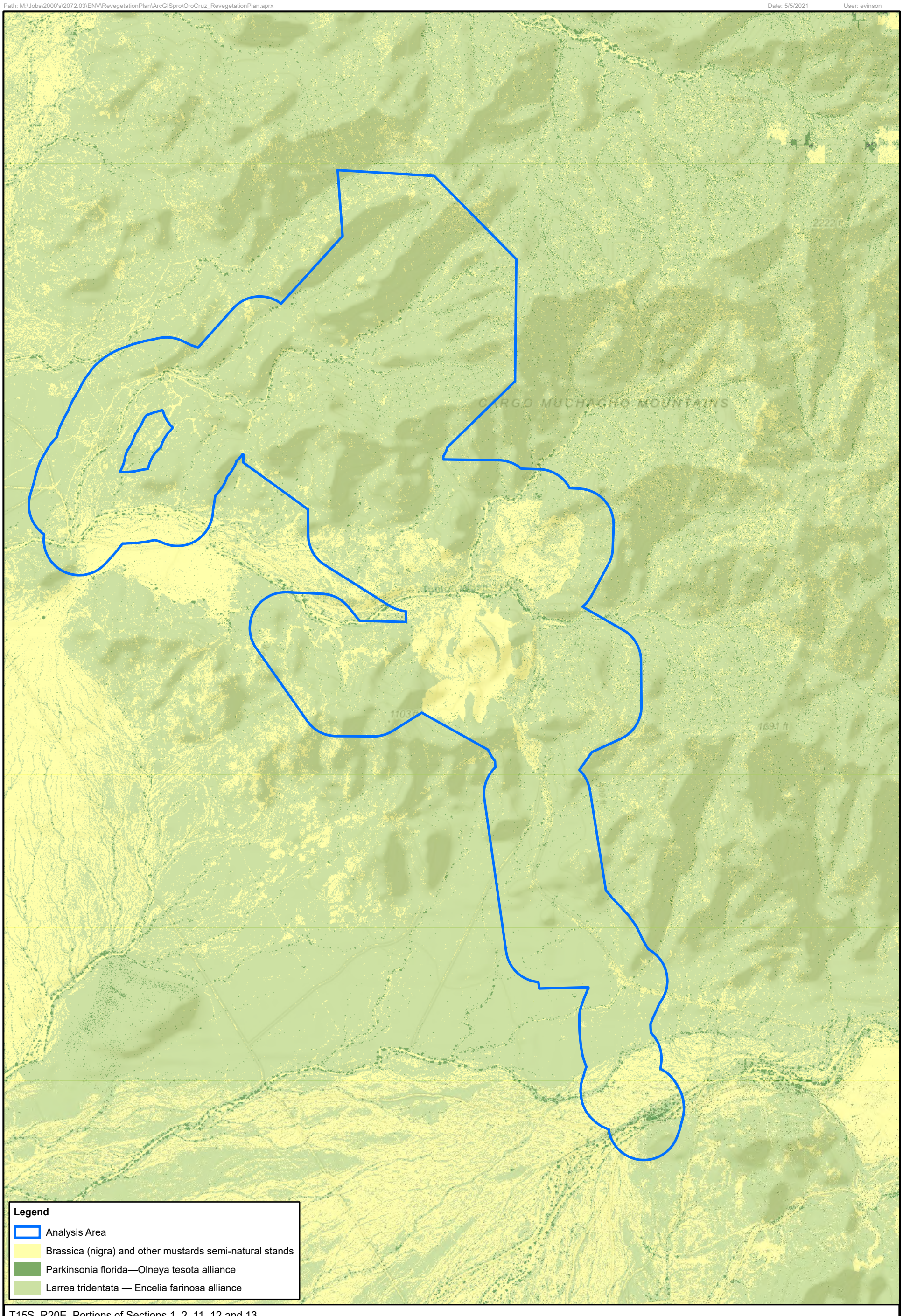
WestLand Resources

SMP GOLD CORP.

Oro Cruz Exploration Project
Revegetation Plan

PROJECT LOCATION

Figure 2



T15S, R20E, Portions of Sections 1, 2, 11, 12 and 13,
T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California,
Imperial County, California,
Data Source: SMP
Image Source: Supervised Classification from NAIP 2020

WestLand Resources

N

0 750 1,500 Feet

0 250 500 Meters

SMP GOLD CORP.

Oro Cruz Exploration Project
Revegetation Plan

VEGETATION CLASSIFICATION

Figure 3

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Representative Photographs

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Drill Area 1

Photo 2.
Drill Area 1

Photo 3.
Drill Area 2

Photo 4.
Drill Area 2

Photo 5.
Drill Area 3

Photo 6.
Drill Area 3

Photo 7.
Drill Area 4

Photo 8.
Drill Area 4

Photo 9.
Drill Area 5

Photo 10.
Drill Area 5

Photo 11.
Drill Area 6

Photo 12.
Drill Area 6

Photo 13.
Access Road to Drill Area 6

Photo 14.
Drill Area 7

Photo 15.
Drill Area 7

APPENDIX B

Biological Resources Assessment – Oro Cruz Exploration Project
(WestLand Resources, Inc., 2021)

BIOLOGICAL RESOURCE TECHNICAL REPORT AND ASSESSMENT
ORO CRUZ EXPLORATION PROJECT
SMP Gold Corp.

Prepared for:

Bureau of Land Management, El Centro Field Office

1661 S 4th St.

El Centro, CA 92243

Project Number: 2072.03

June 30, 2021

WestLand Resources

WestLand Resources, Inc. • 4001 E. Paradise Falls Drive • Tucson, Arizona 85712 • 520•206•9585

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Appendix E. Photo pages
Appendix F. BLM Sensitive Species "None" List

EXECUTIVE SUMMARY

Southern Empire Resources Corp. (SMP) is proposing mineral exploration activities, the Oro Cruz Pit Area Exploration Project, on lands managed by the Bureau of Land Management (BLM) in the Cargo Muchacho Mountains of Imperial County in southeastern California (the Project) (**Figures 1 and 2**). The BLM Exploration Plan of Operations (EPO) consists of an approximately 600-acre area (**Figure 2**). Within the EPO the Project Area consists of seven drill pads and associated access roads, totaling 21.1 acres of surface disturbance (**Figure 2**). The Project Area occurs within the Picacho Area of Critical Environmental Concern (ACEC) as designated under the Desert Renewable Energy Conservation Plan, and thus requires a BLM Plan of Operations. The Project Area has been previously disturbed by mining activities. Current surrounding land uses include prospecting and recreation.

WestLand Resources, Inc. (WestLand) was retained to complete a combined BLM Biological Resource Technical Report (BRTR) to support environmental review of the Project by the BLM and a Biological Resource Assessment (BRA) to support environmental review by Imperial County under the California Environmental Quality Act (CEQA). This combined BRTR/BRA documents desktop and field studies and provides an assessment of the potential to occur for special-status species in the vicinity of the Project.

Existing Vegetation

Within the Analysis Area, vegetation is sparse in both the upland and xeroriparian habitats. The uplands consist of a very low-density shrub community dominated by creosote (*Larrea tridentata*) and brittlebush (*Encelia farinose)*. In addition, large portions of the Analysis Area consist of disturbed habitats dominated by non-native annual plants. The xeroriparian habitat generally consists of the same sparce shrub community and includes widely spaced upland trees and ocotillo (*Fouquieria splendens*). In summation, vegetation in the Analysis Area is uniformly sparce and consist of very low density shrublands, upland trees and highly disturbed habitats.

A total of 41 plant species were identified during field surveys within the Analysis Area in March 2021. Plant species observations do not represent a complete floristic survey. Three California Native Plant Society vegetation categories were identified during pedestrian surveys and thematically mapped using the Supervised Classification tool in ArcGIS Pro 2.7.

California Native Plant Society vegetation categories observed within the Analysis Area and Project Area (**Figure 5**). These vegetation categories include *Brassica* (*nigra*) and other mustards semi-natural stands (18 percent of the Analysis Area and 24 percent of the Project Area), *Parkinsonia florida—Olneya tesota* alliance (2 percent of the Analysis Area and 2 percent of the Project Area), and *Larrea tridentata — Encelia farinosa* alliance (79 percent of the Analysis Area and 4 percent of the Project Area).

Special-Status Plant Species

A screening analysis was conducted to determine the potential for special status plant species to occur in the Analysis Area. The following were analyzed:

1. Plant species designated by the U.S. Fish and Wildlife Service (USFWS) as Endangered, Threatened, Proposed for listing, or Candidate for listing under the Endangered Species Act (ESA), as identified by the Information, Planning and Consultation (IPaC) system.
2. Plant species designated as sensitive per the El Centro Field Office BLM list of California sensitive species.
3. Plant species identified for analysis under the California Environmental Quality Act (CEQA), including Plants designated as special-status by the California Native Plant Society (CNPS).

Three special status plant species, Munz cholla (*Cylindropuntia munzii*), Flat-seeded spurge (*Euphorbia platysperma*), and Pink fairy-duster (*Calliandra eriophylla*), were determined to have a possible presence or a high potential to occur in the Analysis Area.

Existing Wildlife Species

During field survey conducted in March 2021 a total of 26 wildlife species were observed.

A screening analysis was conducted to determine the potential for special status wildlife species to occur in the Analysis Area. The following were analyzed:

1. Species and critical habitat designated by the U.S. Fish and Wildlife Service (USFWS) as Endangered, Threatened, Proposed for listing, or Candidate for listing under the Endangered Species Act (ESA), as identified by the Information, Planning and Consultation (IPaC) system.
2. Species protected under the Bald and Golden Eagle Protection Act (BGEPA).
3. Species designated as sensitive per the El Centro Field Office BLM list of California sensitive species.
4. Species identified for analysis under the CEQA, including California Department of Fish and Wildlife (CDFW) Species of Special Concern; species designated as USFWS Birds of Conservation Concern; CDFW special-status invertebrates; and Species of bat listed as high and medium priority by the Western Bat Working Group.

One ESA listed species, the threatened Mohave Desert tortoise (*Gopherus agassizii*), was determined to be present the Analysis Area. No designated or proposed critical habitat occurs within the Project Area.

Three bats, pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), and greater western mastiff bat (*Eumops perotis californicus*), that are listed as BLM Sensitive and State-Ranked in the

California Natural Diversity Database (CNDDB) were determined to be present in the Analysis Area; and 2 bats, small-footed myotis (*Myotis ciliolabrum*) and cave myotis (*Myotis velifer*), that are also listed as BLM Sensitive and State-Ranked in the CNDDB were determined to have a possible presence in the Analysis Area.

Two birds, Prairie falcon (*Falco mexicanus*) and Black-tailed gnatcatcher (*Poliptila melanura*) that are State-Ranked in the CNDDB were determined to have a high potential to occur in the Analysis Area.

One lizard, Colorado Desert fringe-toed lizard (*Uma notata*), that is listed as BLM Sensitive and State-Ranked in the CNDDB was determined to be present in the Analysis Area.

1. INTRODUCTION

Southern Empire Resources Corp. (SMP) is proposing mineral exploration activities, the Oro Cruz Pit Area Exploration Project, on lands managed by the Bureau of Land Management (BLM) in the Cargo Muchacho Mountains of Imperial County in southeastern California (the Project) (**Figures 1 and 2**). The BLM Exploration Plan of Operations (EPO) consists of an approximately 600-acre area (**Figure 2**). Within the EPO the Project Area consists of seven drill pads and associated access roads, totaling 21.1 acres of surface disturbance (**Figure 2**). The Project Area occurs within the Picacho Area of Critical Environmental Concern (ACEC) as designated under the Desert Renewable Energy Conservation Plan, and thus requires a BLM Plan of Operations. The Project Area has been previously disturbed by mining activities. Current surrounding land uses include prospecting and recreation.

WestLand Resources, Inc. (WestLand) was retained to complete a combined BLM Biological Resource Technical Report (BRTR) to support environmental review of the Project by the BLM and a Biological Resource Assessment (BRA) to support environmental review by Imperial County under the California Environmental Quality Act (CEQA). This combined BRTR/BRA documents desktop and field studies and provides an assessment of the potential to occur for special-status species in the vicinity of the Project. An assessment of drainage features, including the potential for Waters of the U.S. and Waters of the State are being provided under separate cover.

For the purpose of this report, special-status species are defined as species designated by the U.S. Fish and Wildlife Service (USFWS) as Endangered, Threatened, Proposed for listing, or Candidate for listing under the Endangered Species Act (ESA), species listed under the Bald and Golden Eagle Protection Act (BGEPA), those species designated as sensitive by the BLM El Centro Field Office, and species reviewed to support Imperial County's CEQA process.

The following sections provide a Project description and location (**Section 2**), regulatory overview (**Section 3**), environmental setting (**Section 4**), methods (**Section 5**), results (**Section 6**), and references cited (**Section 7**).

2. PROJECT DESCRIPTION AND LOCATION

Within the Analysis Area, the disturbance occurs on seven drill areas and associated access roads (**Figure 2**). Within these areas, the Project entails 21.1 acres of surface disturbance. The Analysis Area is in Imperial County, California and occurs within portions of Township 15 South, Ranges 20 and 21 East. The Project Area is located approximately 7 miles north of Ogilby, California, eight miles northwest of Yuma, Arizona, 45 miles southeast of Blythe, California and 50 miles east of El Centro, California (**Figure 1**). To evaluate the special-status species potential to occur, a broader Analysis Area consisting of the drill exploration areas and access roads and a 500-foot buffer around these was established (**Figure 2**). Additionally, a 2-mile buffer around the drill areas and associated access roads where surface disturbance would occur was established as the Raptor Survey Area (**Figure 3**).

3. REGULATORY OVERVIEW

3.1. ENDANGERED SPECIES ACT

The USFWS and the National Marine Fisheries Service (NMFS) are the agencies responsible for implementing the federal Endangered Species Act (ESA) of 1973 (16 USC Section 1531 et seq.). Under the ESA, threatened and endangered species on the federal list and their habitats (50 CFR Subsection 17.11, 17.12) are protected from "take" (i.e., activities that harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect) as well as any attempt to engage in any such conduct, unless a Section 10 permit is granted to an individual or a Section 7 consultation and a Biological Opinion with incidental take provisions are provided to a lead federal agency. Pursuant to the requirements of the ESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federally listed species may be present within the study area and vicinity and determine whether the proposed project will have potential impacts upon such species.

3.2. BALD AND GOLDEN EAGLE PROTECTION ACT

The BGEPA (16 U.S.C. 668-668c), enacted in 1940, and amended several times since, prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald or golden eagles, including their parts, nests, or eggs. The Act provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle or any golden eagle, alive or dead, or any part, nest, or egg thereof." The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb."

3.3. MIGRATORY BIRD TREATY ACT

Most bird species, especially those that are breeding, migrating, or of limited distribution, are protected under federal and/or State regulations. Under the Migratory Bird Treaty Act (MBTA) of 1918 (16 USC Subsection 703-712) and USFWS regulations (50 CFR § 10.14), migratory bird species, their nests, and their eggs are protected from injury or death as a result of activities specifically directed at migratory birds. The USFWS recently proposed to revoke the existing regulations governing the implementation of the MBTA (86 FR 87: 24573-24581), effectively returning the interpretation of the prohibitions of the MBTA and enforcement discretion of the USFWS to the uncertainty associated with the split decisions among Federal Circuit Courts regarding the scope of the MBTA's take prohibition.

3.4. CALIFORNIA ENDANGERED SPECIES ACT

The California Endangered Species Act (CESA) prohibits the take of State-listed threatened and endangered species. Under the CESA, the California Department of Fish and Wildlife (CDFW) is responsible for maintaining a list of rare, threatened, and endangered species designated under State law (California Fish and Game Code 2070-2079). The CDFW also maintains lists of candidate species, species of special concern, and fully protected species. Candidate species are those taxa which have

been formally recognized by the CDFW and are under review for addition to the State threatened and endangered list. Species of special concern are those taxa, which are considered sensitive, and this list serves as a "watch list." Pursuant to the requirements of the CESA, agencies reviewing proposed projects within their jurisdictions must determine whether any State-listed species have the potential to occur within a proposed project site and if the proposed project would have potential impacts upon such species. Project-related impacts to species on the CESA's rare, threatened, and endangered list would be considered significant and require mitigation. The CDFW can authorize take if an incidental take permit is issued by the Secretary of the Interior or Commerce in compliance with the ESA, or if the director of the CDFW issues a permit under Section 2081 in those cases where it is demonstrated that the impacts are minimized and fully mitigated.

3.5. CALIFORNIA FISH AND GAME CODE

The California Fish and Game Code defines take (Section 86) and prohibits taking of a species listed as threatened or endangered under the CESA (California Fish and Game Code Section 2080), or otherwise fully protected (California Fish and Game Code Sections §3511, §4700, §5050, and §5515). Section 2081(b) and (c) of the CESA allows the CDFW to issue an incidental take permit for a State listed threatened and endangered species if specific criteria outlined in Title 14 California Code of Regulations (CCR), Sections 783.4(a), (b) and California Fish and Game Code Section 2081(b) are met. The California Fish and Game Code Section 3503 states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by the code. Section 3503.5 states that it is unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird. Section 3513 states that it is unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA. The CDFW protects plants designated as endangered or rare under Fish and Game Code Section 1900.

4. ENVIRONMENTAL SETTING

4.1. PHYSIOGRAPHIC, CLIMATE AND SURFACE WATER

The Analysis Area consists of rugged, eroding, rocky slopes composed of quartzites and schists that have been intruded by granitic rocks. In places there are andesite and dioritic dikes (Jennings et al. 1977). Climate within the Analysis Area is characterized by hot dry conditions in the summer months and dry mild winters. Average rainfall is 3.5 inches per year, occurring primarily during late winter (February and March) and the monsoon season (July to September). Average high temperature of the hottest (August) month is 105˚F and average low temperature of the coldest month (December) is 66˚F (Weather Underground 2021). No surface water features occur within the Analysis Area.

4.2. SOILS

Soils in the Analysis Area developed from weathered granitic rock and schistose rock substrates. The soils consist of extremely gravelly sands or gravelly loams with up to 90 percent coarse fragments. Soils within the Analysis Area are of two general types based on substrate and topographic position: residual soil material weathered in place on slopes and ridges; and deeper alluvial soils transported by water and gravity to toe slopes, washes, and outwash fans. Hill slopes in the Analysis Area are steep and almost entirely covered in large, weathered rock (BLM & P.M. De Dycker & Associates, Inc. 1994). The soils within the Analysis Area also contain large areas of disturbance from previous mining and reclamation activities.

4.3. VEGETATION

Vegetation in the Analysis Area is low desert scrub typical of the high temperature region of southeastern California. In general, vegetation is sparse in both the upland and xeroriparian habitats. The uplands consist of a very low-density shrub community dominated by creosote (*Larrea tridentata*) and brittlebush (*Encelia farinose)* (**Appendix E Photo 12**). In addition, large portions of the Analysis Area consist of disturbed habitats dominated by non-native annual plants (**Appendix E Photo 11)**. The xeroriparian habitat generally consists of the same sparce shrub community and includes widely spaced upland trees and ocotillo (*Fouquieria splendens*) (**Appendix E Photo 18**). In summation, vegetation in the Analysis area is uniformly sparce and consists of very low density shrublands, upland trees and highly disturbed habitats (**Appendix E Photos 11, 12 and 18**).

Three California Native Plant Society vegetation categories were identified during pedestrian surveys and thematically mapped using the Supervised Classification tool in ArcGIS Pro 2.7.

California Native Plant Society vegetation categories observed within the Analysis Area are described below:

Brassica (nigra) and other mustards semi-natural stands

Brassica (*nigra*) and other mustards semi-natural stands vegetation category occupies approximately 18 percent of the Analysis Area and 24 percent of the Project Area (**Figure 5**). This vegetation category corresponds with disturbed and barren areas. Although the named dominant species, black mustard (*Brassica nigra*), was not observed, Saharan mustard (*Brassica tourneforti*), a closely related non-native mustard was often present in both naturally disturbed areas including wash scour and human-disturbed areas such as roads, camp sites, and rock waste piles. This natural community is not classified as sensitive by the CDFW (2020).

Parkinsonia florida—Olneya tesota alliance

Parkinsonia florida—Olneya tesota alliance occupies approximately 2 percent of the Analysis Area and 2 percent of the Project Area (**Figure 5**). The vegetation category is primarily restricted to xeroriparian

areas including washes, drainages, and narrow canyons. Besides the named alliance's dominant plants, blue palo verde (*Parkinsonia florida*) and ironwood (*Olneya tesota*), other commonly occurring plants include sweetbush (*Bebbia juncea*), lance leaved ditaxis (*Ditaxis lanceolata*), desert lavender (*Hyptis emoryi*), ocotillo, and Anderson's desert thorn (*Lycium andersonii*). This natural community is classified as sensitive by the CDFW (2020).

Larrea tridentata — Encelia farinosa alliance

Larrea tridentata — Encelia farinosa alliance occupies approximately 79 percent of the Analysis Area and 74 percent of the Project Area and occurs in a variety of topographic settings (**Figure 5**). Besides the named alliance's dominant plants, creosote (*Larrea tridentata*) and brittlebush (*Encelia farinosa*), other commonly occurring plants include ocotillo, beavertail prickly pear (*Opuntia basilarus*), and burrobush (*Ambrosia dumosa*). This natural community is classified as sensitive by the CDFW (2020).

4.4. EXISTING CONDITIONS (OR LAND USE)

Off-road vehicle use, recreational vehicle camping, and other outdoor activities have added to the disturbances in the Analysis Area. Previous mining disturbance and underground mine features occur throughout the Analysis Area.

5. METHODS

In order to determine the potential to occur of special-status species two complementary methods were utilized: 1) Desktop screening and vegetation habitat mapping, and 2) Field survey.

5.1. DESKTOP SCREENING AND VEGETATION HABITAT MAPPING

5.1.1. Desktop Screening

A desktop screening analysis was completed to evaluate the potential for special-status species or their critical habitat to occur within the Analysis Area. For this assessment, special-status species are defined as:

1) Species and critical habitat designated by the U.S. Fish and Wildlife Service (USFWS) as Endangered, Threatened, Proposed for listing, or Candidate for listing under the Endangered Species Act (ESA), as identified by the Information, Planning and Consultation (IPaC) system (**Appendix B**).
2) Species protected under the Bald and Golden Eagle Protection Act (BGEPA) (**Appendix B**).
3) Species designated as sensitive per the El Centro Field Office BLM list of California sensitive species (**Appendix C**).
4) California Environmental Quality Act (CEQA) species including CDFW Species of Special Concern; Plants designated as special-status by the California Native Plant Society (CNPS); USFWS Birds of Conservation Concern; CDFW special-status invertebrates; and Species of bat listed as high and medium priority by the Western Bat Working Group (**Appendix D**).

Special-status species were identified for the Analysis Area using a series of online databases and review of previous permitting efforts in the Project Area (Bureau of Land Management 2011, 2018, BLM & P.M. De Dycker & Associates, Inc. 1994). The IPaC system was used to create a list of ESA species and critical habitat likely to occur in the vicinity of the Analysis Area (**Appendix B**). WestLand reviewed California-specific special-status species that are documented to occur in the vicinity of the Project Area from the CDFW and CNPS using the BIOS and Rarefind tools (**Appendix D**). The BLM El Centro Field Office sensitive species list was also included in this screening (**Appendix C**) Previous permitting efforts in the Project Area include the American Girl Final Environmental Impact Statement (EIS), and American Girl East Mine Asphalt Batch Plant Environmental Assessment (EA) (BLM 2011, Bureau of Land Management 2018, BLM & P.M. De Dycker & Associates, Inc. 1994, Tetra Tech 2011).

In order to accommodate both the BLM's BRTR and the California Environmental Protection Agency (CalEPA) BRA requirements, two discrete potential to occur methods were used. The first potential to occur method pertained to all ESA listed, BGEPA listed and BLM sensitive species. The second potential to occur pertained to the CEQA species only. Under the first method (ESA listed, BGEPA listed and BLM sensitive species) potential of occurrence were defined as follows:

> **Present:** The species has been observed to occur within the Analysis Area, the Analysis Area is within the known range and distribution of the species, and habitat characteristics required by the species are present.
>
> **Possible:** There are no known records of the species within the Analysis Area, but the known, current distribution of the species includes the Analysis Area and the required habitat characteristics of the species appear to be present in the Analysis Area. Given the uncertainty associated with species identification and accuracy of the location of observations from eBird and other citizen science databases, observations associated with citizen science databases are evidence that a species is possible within the Analysis Area.
>
> **Unlikely:** The known, current distribution of the species does not include the Analysis Area, but the distribution of the species is close enough such that the Analysis Area may be within the dispersal or foraging distance of the species, and they may show up as transients. The habitat characteristics required by the species may be present in the Analysis Area.
>
> **None:** The Analysis Area is outside of the known distribution of the species or the habitat characteristics required by the species are not present.

Under the second method species evaluated for the CEQA process potential to occur was evaluated using the categories below.

> **No potential of occurrence:** The Analysis Area is outside of the known distribution of the species or the habitat characteristics required by the species are not present.

Low potential of occurrence: The known, current distribution of the species does not include the Analysis Area, but the distribution of the species is close enough such that the Analysis Area may be within the dispersal or foraging distance of the species, and they may show up as transients. The habitat characteristics required by the species may be present in the Analysis Area.

Moderate potential of occurrence: There are no known records of the species within the Analysis Area, but the known, current distribution of the species includes the Analysis Area and the required habitat characteristics of the species appear to be present in the Analysis Area.

High potential of occurrence: The species has been observed to occur within the Analysis Area, the Analysis Area is within the known range and distribution of the species, and habitat characteristics required by the species are present.

5.1.2. Vegetation Habitat Mapping

Vegetation habitat mapping was conducted using the Supervised Classification tool in ArcGIS Pro 2.7 to provide site-specific vegetation mapping and to estimate the type and extent of vegetation habitat within the Analysis Area. Vegetation habitat mapping was then validated during the field survey and a total plant species list was created. Habitat mapping followed the recommended CNPS methods and nomenclature. In addition, mapping was used to identify California Sensitive Natural Communities (CDFW 2020).

Field surveys were conducted to provide an overview of the environmental conditions within the analysis Area. This overview consisted of: 1) Vegetation mapping validation; 2) Diurnal raptor surveys; 3) Habitat suitability assessments for Colorado desert fringe-toed lizard (*Uma notata*), western burrowing owl (*Athene cunicularia*), flat-tailed horned lizard (*Phyrnos omamcalii*), and bat species; and 4) creation of a vertebrate wildlife and plant species list. In addition, previous Mojave Desert tortoise (*Gopherus agassizii)* surveys conducted within the Project Area were utilized to assess habitat suitability for this species (**Appendix A**). Survey methods applied by Stantec followed protocol *Preparing For Any Action That May Occur Within the Range Of The Mojave Tortoise* as developed by USFWS (2017) which consisted of 100 percent coverage of proposed drill areas. Based on conversations with the BLM and input from the USFWS, tortoise surveys conducted for SMP by Stantec biologists in January 2021 fulfill the survey obligations for this species (**Appendix A**).

Diurnal raptor surveys followed the USFWS recommended golden eagle nest survey protocol and included the selection of appropriate observation points (**Appendix E Photos 4, 5, 6 and 7**). This survey followed the recommendations outlined in the USFWS Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations dated February 2010 (Pagel, Whittington, and Allen 2010). These methods relied on well-placed observation posts and walking transects which provided unobstructed viewing of any potential nest locations. Each observation point or walking transect included a broad panorama of the surrounding habitat and was established in locations distant

enough from any potential nest sites to effectively observe the behavior of the adults (if present) without disturbing nesting behavior.

Habitat assessments for Colorado desert fringe-toed lizard, western burrowing owl, and flat-tailed horned lizard consisted of onsite evaluation of suitable habitat within the Analysis Area. These three species are listed as BLM sensitive species and CEQA species and have ranges which overlap the Analysis Area.

Bat species habitat was evaluated by revisiting high value underground mine roosting habitat within the Analysis Area identified by the BLM in previous survey efforts. Previous survey efforts detected 20 high value bat roosts in underground mines within the Analysis Area (**Figure 4**). WestLand conducted external habitat assessments of these mines to evaluate the habitat potential of each mine feature (**Appendix E Photos 15 and 16**). In addition, the Analysis Area was evaluated for bat roosting habitat including cliff, crevice, and vegetation roosts and foraging habitat.

6. RESULTS

6.1. PLANT SPECIES

A total of 41 plant species were identified during field surveys within the Analysis Area (**Table 1**). Three CNPS vegetation categories were identified during pedestrian surveys and thematically mapped using the Supervised Classification tool in ArcGIS Pro 2.7 (**Figure 5**)(see discussion in Sec. 4.3). In general, plant cover in the Analysis Area is particularly sparse.

6.2. WILDLIFE SPECIES

During the field survey a total of 26 wildlife species were observed (**Table 2**). Five of these species were detected during the raptor surveys and two during evaluation of bat roosting habitat. These detections included two occupied prairie falcon (*Falco mexicanus*) eyries (nesting sites), a suspected red-tailed hawk (*Buteo jamaicensis*) nest, and an unoccupied stick nest (**Figure 3**). A single prairie falcon (*Falco mexicanus*) eyrie was located within the Project Area and the second within the Analysis Area (**Figure 3**). The suspected red-tailed hawk and unoccupied stick nest occurred outside of the Analysis Area but within the raptor survey area (**Figure 3**). Black-tailed gnatcatchers (*Polioptila melanura*) were observed in the Analysis Area.

Table 1. Plant species observed in the Analysis Area during the field survey. This list represents species observed during the field survey and does not represent a complete floristic survey.

Common Name	Scientific Name
PLANTS	
PERENNIALS	
burrobush	*Ambrosia dumosa*
burrobush	*Ambrosia salsola*
western milkweed	*Asclepias albicans*
sweetbush	*Bebbia juncea*
Paloverde	*Cercidium floridum*
pink fairyduster	*Cylindropuntia erophylla*
hairy prairie clover	*Dalea mollis*
narrowleaf silverbush	*Ditaxis lanceolata*
Inciensio	*Encelia farinose*
rough jointfir	*Ephedra aspera*
desert trumpet	*Eriogonum inflatum*
California fagonbush	*Fagonia laevis*
California barrel cactus	*Ferocactus cylindraceus*
ocotillo	*Fouquieria splendens*
paleface	*Hibiscus denudatus*
desert lavender	*Hyptis emoryi*
creosote	*Larrea tridentata*
water jacket	*Lycium andersonii*
Parry's false prairie-clover	*Marina parryi*
desert wishbone-bush	*Mirabilis laevis*
desert tobacco	*Nicotiana obtusifolia*

Common Name	Scientific Name
PLANTS	
ironwood	*Olneya tesota*
beavertail pricklypear	*Opuntia basilaris*
blue paloverde	*Parkinsonia florida*
Schott's pygmycedar	*Peucephyllum schottii*
velvet turtleback	*Psathyrotes ramosissima*
desert globemallow	*Sphaeralcea ambigua*
Mesquite	*Posopis juliflora*
Tamarisk*	*Tamarix pentandra*
American threefold	***Trixis californica***
ANNUALS	
sixweeks threeawn	*Aristida adscensionis*
Asian mustard*	*Brassica tournefortii*
brittle spineflower	*Chorizanthe brevicornu*
devil's spineflower	*Chorizanthe rigida*
pygmy poppy	*Eschscholzia minutiflora*
Arizona lupine	*Lupinus arizonicus*
Mojave desertstar	*Monoptilon bellioides*
desert palafox	*Palafoxia arida var. arida*
cleftleaf phacelia	*Phacelia crenulata*
desert Indianwheat	*Plantago ovata*
yellowdome	*Trichoptilium incisum*
*non-native	

Table 2. Wildlife species observed in the Analysis Area. This list represents the species observed during the field survey and does not represent a complete list of wildlife occurring within the Analysis Area.

Common Name	Scientific Name
Black-throated sparrow	*Amphispiza bilineata*
verdin	*Auriparus flaviceps*
great horned owl	*Bubo virginianus*
red-tailed hawk	*Buteo jamaicensis*
Costa's hummingbird	*Calypte costae*
turkey vulture	*Cathartes aura*
common raven	*Corvus corax*
ladder-backed woodpecker	*Dryobates scalaris*
burro	*Equus asinus*
prairie falcon	*Falco mexicanus*
house finch	*Haemorhous mexicancus*
loggerhead shrike	*Lanius ludovicianus*
California leaf-nosed bat	*Macrotus californicus*

Common Name	Scientific Name
canyon towhee	*Meloxone fusca*
northern mockingbird	*Mimus polyglottos*
Unknown Myotis	*Myotis spp.*
neotoma	*Neotoma* spp.
ground squirrel	*Osteospermophilus* spp.
Black-tailed gnatcatcher	*Poliptila melanura*
rock wren	*Salpinctes obsuoletus*
Say's phoebe	*Sayornis saya*
squirrel	*Scuridate* spp.
northern rough-winged swallow	*Stelgipdopteryx serripennis*
cottontail	*Sylvilagus spp.*
side-blotched lizard	*Uta* spp.
fox	*Vulpes* spp.

During the field survey the Analysis Area was evaluated for habitat suitability for Colorado Desert Fringed-toed lizard, Western burrowing owl, and flat-tailed horned lizard (**Figure 6**). No habitat suitable for flat-tailed horned lizard was observed within the Analysis Area. Several small areas on the western and southern extremes of the Analysis Area include isolated sandy patches that may provide marginal habitat for Colorado Desert fringe-toed lizard (**Figure 6 and Appendix E Photos 13 and 14**). Areas of flat topography on the southern and western edges of the Analysis Area provide potentially suitable western burrowing owl habitat (**Figure 6 and Appendix E Photos 11 and 12**).

6.2.1. Bats

Bat surveys consisted of an external evaluation of all the high value bat roost locations provided by BLM. The BLM did not provide species specific use or roost types within these mine features. Bat surveys within these mines conducted for previous permitting efforts in the Project Area indicate that these mine features were occupied by a suite of species including California leaf-nosed bat (*Macrotus californicus*), Townsend's big-eared bat (*Corynorhinus townsendii*), pallid bat (*Antrozous pallidus*) and an unknown Myotis species, likely cave myotis (*Myotis velifer)* (BLM 2011, Bureau of Land Management 2018, BLM & P.M. De Dycker & Associates, Inc. 1994, Tetra Tech 2011). Our external evaluation of these 20 mines detected bat guano and urine staining visible from the mine opening without entry. Guano and staining associated with California leaf-nosed bat activity was observed at five of the mine features. Identified California leaf-nosed bat guano consisted of 1 to 2 centimeter black to yellow streaking on the sides and roof of the mine (Mixan, Diamond, and Gwinn 2016). Two mine features contained guano and urine staining consistent with California leaf-nosed bat and an unknown Myotis species. Guano associated with an unknown Myotis species was observed at a single mine feature (**Figure 4**). Myotis guano consisted of pellets 1 to 3 millimeters long (Adams 2003). Myotis guano was most often detected at the mine openings on the angle-iron bat compatible gates. Bat activity could not be ascertained from external evaluations alone in the remaining 12 mine features and bat activity is unknown (**Figure 4**).

6.3. SPECIES HISTORICAL OCCURRENCE WITHIN THE ANALYSIS AREA

Historical occurrence data indicate that six special-status species have been detected within or adjacent to the Analysis Area (**Figure 7**). Two of these species were observed during the field survey (California leaf-nosed bat and pink fairy duster [*Cylindropuntia erophylla*]) (**Tables 1 and 2**). Suitable habitat was detected for three species (Townsend's big-eared bat, pallid bat, and western mastiff bat [*Eumops perotis*]). The Mojave Desert tortoise has been documented within and adjacent to the Analysis Area (BLM 2011, 2018, BLM & P.M. De Dycker & Associates, Inc. 1994) (**Appendix A**). Stantec conducted Mohave Desert tortoise surveys in the Project Area from January 8 to 15, 2021. Within the Project Area a total of eight suitable tortoise burrows were detected (**Appendix A**). Of these eight burrows all but one was in good condition. Scat or recent tracks were observed at three of the detected tortoise burrows and a single scat was detected not associated with a burrow (**Figure 7**).

6.4. POTENTIAL FOR SPECIAL-STATUS SPECIES TO OCCUR

WestLand identified special-status species using the sources described above and evaluated the potential for these special-status species to occur in the Analysis Area. The results of the desktop screening, vegetation mapping, and field survey were utilized to assess each special-status species potential to occur (**Tables 3, 4, 5, and 6**). The following sections provide potential to occur for ESA listed species (**Section 6.5**); BGEPA listed species (**Section 6.6**); BLM sensitive species (**Section 6.7**); and CEQA species (**Section 6.8**).

6.5. ESA LISTED SPECIES

One ESA listed species, the threatened Mohave Desert tortoise, has a potential to occur of **Present** within the Analysis Area (**Table 3**). No designated or proposed critical habitat occurs within the Analysis Area (**Appendix B**).

6.6. BGEPA LISTED SPECIES

The bald eagle has a potential to occur of **None** and golden eagle (*Aquila chrysaetos*) has an **Unlikely** potential to occur as the habitat within the Analysis Area is unsuitable and the habitat within the 2-mile raptor survey buffer (**Figure 3**) was marginal.

6.7. BLM SENSITIVE SPECIES

The potential to occur for BLM Sensitive Species for the El Centro Field Office was evaluated through the desktop screening, field survey, and vegetation mapping. Species with a potential to occur of **None** are summarized in **Appendix F** and all others are in **Table 5**. This approach was utilized to reduce table volume. In total, the potential to occur was evaluated for 55 BLM sensitive species. Of those 55, 35 had a potential to occur of **None** (**Appendix F**). Of the remaining 20 species (**Table 5**); ten species had a potential to occur of **Unlikely**, five **Possible** and only five species had a potential to occur of **Present**. Four of the five species with a potential to occur of **Present** were bat species and the fifth was the Mojave Desert tortoise (**Table 5**).

6.8. SPECIES EVALUATED FOR THE CEQA PROCESS POTENTIAL

In total, the potential to occur within the Analysis Area was evaluated for 31 species for the CEQA process (**Table 6**). Of the 31 species evaluated nine had **No Potential of Occurrence**. Of the remaining 22 species, ten had a **Low Potential of Occurrence**, four had a **Moderate Potential of Occurrence** and eight had a **High Potential of Occurrence**. The species with a High Potential of Occurrence consisted of a single plant, two birds, four bats, and the Mojave Desert tortoise.

Table 3. ESA Listed Species

Species Name	Federal Status	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Gopherus agassizii Mojave Desert Tortoise	Threatened, populations north and west of the Colorado River (USFWS 1980, USFWS 1990), critical habitat (USFWS 1980, USFWS 1994); Similarity of appearance (threatened) (USFWS 1990).	Inhabits valleys, bajadas and hills with sandy loam or rocky soils in Mojave desertscrub and Lower Colorado River Valley subdivision of the Sonoran Desert. To escape extreme temperatures, excavates burrows under vegetation or rocks. Will also use natural or manmade caves. Typically associated with areas of creosote bush, areas with other sclerophyll shrubs and with small cacti or areas with Joshua trees. Forages on grasses, forbs and succulents (AGFD 2010a). In the contact zone between the species (i.e., the Black Mountains), *G. morafkai* generally is found in foothills, hillside slopes and more mountainous terrain than *G. agassizii* that is typically found on alluvial fans and valley bottoms (Edwards et al. 2015). Elevation: Range-wide, from below sea level in Death Valley to 5,000 ft in elevation (AGFD 2010a).	Occurs in the Mojave Desert of Arizona, California, Nevada and Utah (Edwards et al. 2015, Murphy et al. 2011).	This species occurs through the Mojave Desert in Southeastern California (Boarman 2002)	**Present.** The Analysis Area is within the range and contains potentially appropriate habitat. Surveys were conducted for the desert tortoise for the Project Area by Stantec in 2020 and detected tortoise use (**Appendix A**).

Table 4. BGEPA Listed Species

Species Name	Federal Status	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Aquila chrysaetos Golden eagle	Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c)	Range-wide, breeds in a wide variety of open habitats, with nests typically on cliffs, and avoids heavily forested areas (Katzner et al. 2020). In Arizona, prefers pinyon-juniper woodlands and Sonoran desertscrub (Driscoll 2005). Constructs large nests on cliff ledges, rock outcrops, tall trees or, rarely, transmission towers (Driscoll 2005). Golden eagles are known to forage within 4.4 miles of the nest (Tesky 1994a), generally in open habitats where prey is available (Katzner et al. 2020). Primarily feeds on small mammals (greater than 80 percent of prey items) but also consumes birds, reptiles and fish (Katzner et al. 2020). In the western U.S. average territory size ranges from 22 to 55 square miles (AGFD 2002b). In California, typically occupy rolling foothills, mountain areas, sage-juniper flats and deserts (CDFW 1990). Elevation: In California, near sea level up to 11,500 ft (CDFW 1990).	This species is a short to medium-distance partial migrant with a Holarctic distribution (Katzner et al. 2020). In North America, primarily breeds in western portion of the continent from Alaska to central Mexico. Northern most populations are typically migratory. Year-round and non-breeding populations occur from central Saskatchewan to British Columbia, Canada and south throughout its range and sparsely in the eastern U.S. (Katzner et al. 2020).	Uncommon permanent resident and migrant throughout California, except center of Central Valley (CDFW 1990). Perhaps more common in northern and southern California (CDFW 1990).	**Unlikely.** The Analysis Area occurs within the know range of the species, however, no historical records for this species occur within the Analysis Area and the habitat within the Raptor survey area was searched and no evidence of Golden Eagle nesting was detected. No golden eagle nests are known to occur within 4.4 miles of the Analysis Area (Diamond 2016) and thus it is unlikely this species would utilize the Analysis Area as foraging habitat. No historical records of this species occur within or adjacent to the Analysis Area (**Figure 7 and Appendix D**).

Species Name	Federal Status	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Haliaeetus leucocephalus Bald Eagle	Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c)	Breeding is concentrated in coastal areas, along rivers, lakes or reservoirs. Typically breeds in forested areas with edge habitat within 1.3 miles of aquatic habitats suitable for foraging. Prefers areas of shallow water and shorelines for fishing and hunting wide variety of waterfowl, and small aquatic and terrestrial mammals. Fish are preferred prey, but carrion is used extensively whenever encountered. Nests away from human disturbance in large trees and rarely on cliff ledges or on the ground when trees are absent. Winters primarily in coastal areas or along major river systems with adequate prey availability and large trees for perching (Buehler 2020). In California, more common at lower elevations (CDFW 1999). Elevation: In California, nesting most commonly found about 1,000 to 6,000 ft but can occur from near seal level to over 7,000 ft (Jurek 1988).	Migratory behavior varies among populations and age groups (Buehler 2020). Breeds south of the tundra throughout Canada and the U.S., excluding Hawaii. Additionally, small breeding populations occur in Baja California, Sonora and Chihuahua, Mexico (Buehler 2020). Winter range appears to be expanding as populations increase in size. Most populations are year-round residents with only the northern most populations in Alaska, U.S. and Canada withdrawing southward or to coastal areas (Fink 2018).	Permanent resident, and uncommon winter migrant, now restricted to breeding mostly in Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, and Trinity counties (CDFW 1999). Half of the wintering population is in the Klamath Basin (CDFW 1999). Not found in the high Sierra Nevada (CDFW 1999). Largest numbers found in Big Bear Lake, Cachuma Lake, Lake Mathews, Nacimiento Reservoir, San Antonio Reservoir, and along the Colorado River (CDFW 1999). Local winter migrant at a few inland waters in southern California (CDFW 1999).	**None. The Analysis Area occurs greater than the known foraging distance (1.3 miles from aquatic habitats) for this species. In addition, no suitable large nesting trees or cliffs occur within the Analysis Area.** No historical records of this species occur within or adjacent to the Analysis Area (**Figure 7 and Appendix D**).

Table 5. BLM El Centro Field Office Sensitive species

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
AMPHIBIANS				
Scaphiopus couchii Couch's spadefoot toad	Occurs in arid and semi-arid habitats of the southwest, along desert washes, desert riparian, palm oasis, desert succulent shrub, and desert scrub habitats (CDFW 2000). Can also be found in cultivated croplands. Requires friable soils for burrowing often beneath desert plants, logs, and other debris. Reproduces in temporary pools and potholes with water present for at least 10-12 days (CDFW 2000). Elevation: In California, from 690 to 1,120 ft (CDFW 2000).	Found in southeastern California along the Arizona border in Imperial, Riverside, and San Bernadino counties (CDFW 2000).	Southeastern California along the Arizona border (CDFW 2000).	**Unlikely.** The Analysis is within the known range of the species. However, there are no occurrence records for this species within the California Natural Diversity Database in these quadrangles (CDFW 2021).

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
BIRDS				
Athene cunicularia hypugaea Western burrowing owl	This species inhabits flat or gently-sloping treeless and sparsely vegetated areas in deserts and grasslands (Poulin et al. 2011). In California, open, dry grassland and desert habitats, and in grass, forb and open shrub states of pinyon-juniper and ponderosa pine habitats. Areas with burrows and unobstructed perches are favored (Martin 2005). Largely reliant on burrows dug by mammals but, on rare occasion, will dig their own holes (Klute et al. 2003, Poulin et al. 2011). Northern populations are migratory, and habitat used migratory and winter period is similar to that used for breeding but with some evidence of increased reliance on agricultural areas (Klute et al. 2003, Poulin et al. 2011). Elevation: In California, up to 5,300 ft (CDFW 1999).	This species is a partial migrant, with northern populations being primarily migratory (Poulin et al. 2011). In southwestern states, individuals appear to make yearly decisions to remain on their breeding grounds or migrate, likely based on environmental conditions (Ogonowski and Conway 2009, Poulin et al. 2011). The hypugaea subspecies breeds in Alberta, British Columbia, Manitoba and Saskatchewan, Canada and 19 U.S. states including Arizona, California, Colorado, Idaho, Iowa, Kansas, Minnesota, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington and Wyoming (Klute et al. 2003). The breeding range extends southward into the Mexican states of Aguascalientes, Baja California, Baja California Sur, Chihuahua, Coahuila, Durango, Nuevo Leon, San Luis Potosí, Sinaloa, Sonora, Tamaulipas and Zacatecas (Poulin et al. 2011). Winters primarily in Arizona, California, Louisiana, New Mexico and Texas U.S., and southward through Mexico, excluding the Yucatan Peninsula, to Guatemala and Honduras, with rare reports as far south as Panama (Klute et al. 2003, Poulin et al. 2011).	In California, year-round resident throughout much of the state and on larger offshore islands (CDFW 1999).	**Unlikely.** The Analysis Area is within the known range of this species and potentially suitable habitat is present. No historical occurrence records are known from the Analysis Area (Appendix D). In addition, no Ebird observations have been made for this species within or adjacent to the Analysis Area (eBird 2021). No observation of this species or potential burrows were recorded during the field survey. However, potentially suitable habitat occurs on the western and southern ends of the Analysis Area outside of the Project Area (**Figure 6 and Appendix E Photos 11 and 12**).

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Melanerpes uropygialis Gila woodpecker	This species utilizes desert riparian and desert wash habitats, and orchard-vineyard and urban areas particularly in shade trees and date palm groves County (CDFW 1990). Utilizes areas with cottonwood and other desert riparian trees, shade trees, and date palms in California County (CDFW 1990). Also uses saguaros where available (CDFW 1990).	Found in southeast California, southwest Nevada, southern Arizona, southwest New Mexico and south into Mexico (Corman 2005a).	Resident in southern California along the Colorado River, and locally near Brawley, Imperial County (CDFW 1990).	**Unlikely.** Low potential of occurrence. because the majority of the Analysis Area does not contain appropriate habitat. We assessed all washes within the Analysis Area for woodpecker suitability and all washes were characterized by sparse ironwood, ocotillo, and low density of blue palo verde. There is one occurrence record for this species within the California Natural Diversity Database in these quadrangles (CDFW 2020) in an unnamed wash south of Indian Wash about 2.25 miles West of the Cargo Mountains from March 2002. We inspected this wash (**Appendix E Photo 17**) and the washes within the Analysis Area varied widely from the occurrence site. The washes in the Analysis Area are dissimilar to the occurrence site as represented in **Appendix E Photo 18**.

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Oreothlypis luciae Lucy's warbler	Frequents open to dense thickets of mesquite and other trees and shrubs in desert wash and desert riparian habitat (Corman 2005b). Cover includes mesquite, salt cedar, palo verde, ironwood, and other riparian trees and shrubs (CDFW 1990). Nest in hidden areas including natural cavity, woodpecker holes, and behind lose bark, in old verdin nest or in a bank (CDFW 1990c).	Mainly breeds in the southwest U.S. and migrates to the Pacific slope of Mexico for the winter (Corman 2005b). Recently arrived in New Mexico. Winters almost exclusively in Mexico (Shuford and Gardali 2008a).	Currently numerous locally along the Lower Colorado River and small populations west to the Borrego Valley in San Diego County and north through the Mojave Desert to Furnace Creek Ranch in Death Valley National Park in Inyo County (Shuford and Gardali 2008a). Rare fall (August-February) migrant and winter visitor in California away from breeding habitats (Shuford and Gardali 2008a). In Lower Colorado River valley, occur in mesquite and other woodland in washes including Milpitas Wash in Imperial County, McCoy and Big washes in Riverside County, and Vidal and Chemehuevi washes in San Bernardino County (Shuford and Gardali 2008a).	**Unlikely.** While the Analysis Area occurs within the known range of this species the low density xeroriparian washes within the analysis area provide marginal habitat.
MAMMALS				
Antrozous pallidus Pallid bat	Inhabits a wide variety of habitats including grasslands, shrublands, woodlands, and forest from sea level to mixed conifer forests (CDFW 1990c). Most common in open, dry habitats with rocky areas for roosting. Day roosts in caves, crevices, mines, and occasionally in hollow trees and buildings (CDFW 1990c). Night roots may be in more open sites including porches and buildings (CDFW 1990c). Elevation: 1,900 to 6,560 ft (NatureServe 2021a).	Ranges throughout western North America, from British Columbia's southern interior, south to Queretaro and Jalisco, and east to Texas. Isolated population in Cuba (WBWG 2018). Most abundant in xeric ecosystems, including the Great Basin, Mojave, and Sonoran Deserts (WBWG 2018).	Locally common at low elevations in California. Occurs throughout California except for the high Sierra Nevada to Kern Count and the northwestern corner of the state from Del Norte and western Siskiyou counties to northern Mendocino County (CDFW 1990c).	**Present.** Historical records for this species occur within the analysis Area and suitable roosting and foraging habitat exists within the Analysis Area.

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Corynorhinus townsendii Townsend's big-eared bat	Forages in edge habitats along streams and adjacent to or within a variety of wooded habitats. Roosts in cliffs, caves, mines, tunnels, and buildings. Has a large home range and foraging distances (up to 93 miles) (Sherwin and Piaggio 2005). Elevation: Below 10,830 ft (Hammerson 2014).	Occurs from southern British Columbia, Canada and south through all western U.S. states eastward to the Black Hills of South Dakota and the Edwards Plateau in Texas. Isolated populations also exist in Oklahoma, Kansas, Arkansas, Missouri, Illinois, Indiana, Ohio, Kentucky, Virginia, and West Virginia. Range extends to the Isthmus of Tehuantepec, Mexico (Hammerson 2014).	Found throughout California but details of its distribution are not well known (CDFW 2000b).	**Present.** Historical records for this species occur within the analysis Area and suitable roosting and foraging habitat exists within the Analysis Area.
Eumops perotis californicus Greater western mastiff bat	This species is found in areas with cliffs, which are used for roosting, in desert scrub, chaparral, oak woodland, ponderosa pine belt, mixed conifer forests and high elevation meadows (Siders and Pierson 2005). Maternity roosts occur in exfoliating rock slabs, crevices in boulders and buildings (Siders and Pierson 2005). The morphology of this species prevents it from drinking from water sources less than 98 ft in length and the availability of water limits its distribution across the landscape (AGFD 2014b). In Arizona, this species is a year-round resident that occurs in rocky canyons with abundant roosting crevices. Forages widely from roost sites in lower and upper Sonoran desertscrub near cliffs (AGFD 2014b) and has been captured more than 18 miles from roost sites (Siders and Pierson 2005). Elevation: In Arizona, 240–8,475 ft (AGFD 2014b). Foraging up to 10,000 ft in California (WBWG 2018).	Occurs in Arizona, California, Nevada, New Mexico, Texas and Utah, U.S. and the Mexican states of Baja California, Chihuahua, Coahuila, Durango, Sinaloa, Sonora and Zacatecas (AGFD 2014b, Hammerson 1994, Siders and Pierson 2005).	Found in southeastern San Joaquin Valley and Coastal Ranges from Monterey County southward through southern California, from the coast eastward to the Colorado Desert (CDFW 1990).	**Present.** Historical records for this species occur within the analysis Area and suitable roosting and foraging habitat exists within the Analysis Area.

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Macrotus californicus California leaf-nosed bat	Typically forages along washes within 6.2 miles of their roost sites (Brown 2005). Primarily consumes insects but also consumes fruits (AGFD 2014a, Brown 2005). In Arizona, this species is a year-round resident of Sonoran Desertscrub. Consumes primarily insects taken on the wing or gleaned from vegetation, but have also been reported to feed on fruits, including those of cacti. Roost sites have large areas of ceiling and flying space, and include abandoned underground mines, caves, and rock shelters (AGFD 2014a). Elevation: In Arizona, below 4,000 ft (AGFD 2014a). In California, records are below 2,000 ft (CDFW 1990a).	Occurs in Arizona, California, Nevada and Utah, U.S. and the Mexican states of Baja California, Baja California Sur, Chihuahua, Sinaloa, Sonora and Tamaulipas (AGFD 2014a, Hammerson 2015a). (CDFW 1990a).	Found from Riverside, Imperial, San Diego, and San Bernardino counties. Historically occurred from Los Angles to Sand Diego. Fairly common in some areas along the Colorado River (CDFW 1990a).	**Present.** Historical records for this species occur within the analysis Area and suitable roosting and foraging habitat exists within the Analysis Area. In addition, sign associated with this species was detected within the Analysis Area.
Myotis ciliolabrum Small-footed myotis	Occur in a variety of habitat but primarily found in relatively arid wooded and brushy uplands near water (CDFW 1990d), chaparral, riparian zones, and western coniferous forests (WBWG 2018). Roost caves, buildings, mines, crevices, and occasionally under bridges or bark. Night roost in buildings and caves (CDFW 1990d). Elevation: In California, sea level to at least 8,900 ft (CDFW 1990d).	Found across the western half of North American from British Columbia, Alberta, and Saskatchewan in Canada, throughout most of the U.S. west of the 100th Meridian, and into central Mexico (WBWG 2018).	Common in arid uplands in California and occurs from Contra Costa County south to the Mexican border in the coastal region. Also found on the west and east sides of the Sierra Nevada, and in the Great Basin and desert habitats from Modoc to Kern and San Bernardino counties (CDFW 1990d).	**Possible.** The analysis Area occurs within the range of this species and suitable roosting and foraging habitat exists within the Analysis Area.

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Myotis velifer Cave myotis	Forages in desertscrub vegetation and is tolerant of high temperatures and low humidity. Roosts in caves, tunnels, abandoned underground mines, buildings and under bridges within a few miles of water. In Arizona, hibernation roosts are in wet mine tunnels above 6,000 ft (AGFD 2002a). In California, utilize desert scrub, desert succulent shrub, desert wash, and desert riparian.(CDFW 1990b). Elevation: 300–8,800 ft (AGFD 2002a).	Occurs in Arizona, California, Kansas, Nevada, New Mexico, Oklahoma, Texas and Utah, U.S. Range extends southward through Mexico to Honduras (AGFD 2002a, Hammerson 2015b).	Restricted in California to lowlands of the Colorado River and adjacent mountain ranges, in San Bernardino, Riverside and Imperial counties, although more common farther east (CFDW 1990b).	**Possible.** An observation record for this species occurs adjacent to the Analysis Area and the Analysis Area contains suitable mine roosting habitat.
Myotis yumanensis Yuma myotis	Inhabits riparian, scrublands, desert, forest near permanent sources of water including rivers, and streams but also uses tinajas (WBWG 2018). Optimal habitats in California in areas with open forest and woodland with sources of water (CDFW 1990e). Roosts in bridges, buildings, cliff crevices, caves, mines, and trees (WBWG 2018). Have been observed roosting in abandoned swallow nests (CDFW 1990e). Elevation: In California, seal level to 11,000 ft considered uncommon to rare above 8,000 ft (CDFW 1990e).	Found across the western third of North America from British Columbia, Canada, to Baja California and southern Mexico. In the U.S. it occurs in all the Pacific coastal states, as far east as western Montana to the north, and as far east as western Oklahoma south (WBWG 2018).	Common and widespread in California but uncommon in the Mojave and Colorado desert regions, except for the mountain ranges bordering the Colorado River Valley (CDFW 1990e).	**Unlikely.** No permanent water sources occur within or adjacent to the analysis Area.

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Ovis canadensis nelsoni Desert bighorn sheep (aka. Nelson bighorn sheep)	Inhabits alpine dwarf-shrub, low sage, sagebrush, bitterbrush, pinyon-juniper, palm oasis, desert riparian, desert succulent shrub, desert scrub, subalpine conifer, perennial grassland, montane chaparral, and montane riparian (CDFW 1990). Uses rocky, steep terrain for reproduction and escape, prefers open areas of low-growing vegetation for feeding and requires adequate sources of water (CDFW 1990).	Historica range extended from northeastern California, Oregon, northern Nevada, and southwestern Idaho southward through the deserts of the southwestern U.S. to southern Baja California, northwestern Sonora Mexico, southern Arizona, southern New Mexico, Chihuahua Mexico and western Texas (Hammerson 2011).	Uncommon in California. There are three subspecies: California bighorn sheep (*O. c. californiana*), peninsular bighorn sheep (*O. c. cremnobates*), and Nelson bighorn sheep aka. desert bighorn sheep (*O. c. nelsoni*) (CDFW 1990). The desert bighorn sheep occur in desert mountain ranges from White Mountains of Mono and Inyo counties south to the San Bernardino Mountains and southeastward to the Mexican border with an isolated population occurs in the San Gabriel Mountains (CDFW 1990).	**Unlikely**. No historical occurrence records exist within the Analysis Area and no evidence of this species was observed during the field survey.
PLANTS				
Croton wigginsii Wiggin's croton	Perennial shrub that blooms March through May. Inhabits desert dunes and Sonoran desert scrub in sandy areas (CNPS 2021g). Elevation: 165 to 330 ft (CNPS 2021g).	Occurs in California, Arizona, Baja California and Sonora Mexico (CNPS 2021g).	Found in Imperial County (CNPS 2021g).	**Unlikely.** While no records of this species occur within the Analysis Area a small area of suitable sandy habitat in Sonoran desert scrub vegetation occurs on the western edge of the Analysis Area outside of the Project Area (**Appendix E Photos 13 and 14**).
Cylindropuntia munzii Munz cholla	Perennial stem succulent that blooms in May. Occurs on sandy or gravelly soils in Sonoran desert scrub (CNPS 2021d). Elevation: 500 to 1,970 ft (CNPS 2021d).	Found in California and Baja California (CNPS 2021d).	Located in Imperial and Riverside counties (CNPS 2021d).	**Possible.** A small area of potential suitable sandy substrate occurs at the western edge of the Analysis Area outside of the Project Area (**Appendix E Photos 13 and 14**). .
Euphorbia platysperma Flat-seeded spurge	Annual herb that blooms February through September. Occurs in desert dunes and sandy areas in Sonoran desert scrub (CNPS 2021a). Elevation: 215 to 330 ft (CNPS 2021a).	Located in California, Arizona, Baja California and Sonora Mexico (CNPS 2021a).	Found in Imperial, Riverside, San Diego counties and possibly in San Bernardino County (CNPS 2021a).	**Possible.** A small area of potential suitable sandy substrate occurs at the western edge of the Analysis Area outside of the Project Area (**Appendix E Photos 13 and 14**).

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Lupinus excubitus* var. *medius Mountain Springs bush lupine	Perennial shrub that blooms March through May. Inhabits Pinyon and juniper woodland and Sonoran desert scrub (CNPS 2021c). Elevation: 1,395 to 4,495 ft (CNPS 2021c).	Occurs in California and Baja California (CNPS 2021c).	Found in Imperial and San Diego counties (CNPS 2021c).	**Unlikely.** While the Analysis Area includes Sonoran desert scrub habitats no historical records for this species exist within the analysis Area.
Pholisma sonorae Sand food	Perennial herb (parasitic) that blooms April through June (CNPS 2021f). Inhabits sandy soils, sand dunes and other sandy areas. It is a root parasite of desert shrubs (Arizona Rare Plant Committee 2001, CNPS 2021f). Known hosts include *Ambrosia dumosa, Eriogonum deserticola, Pluchea sericea, Tiquilia palmeri* and *T. plicata* (Yatskievych 1994). Elevation: In California, below 656 ft (CNPS 2021f). In Arizona, below 1,345 ft (AGFD 2004).	Occurs in Arizona and California, U.S. and the Mexican states of Baja California and Sonora (AGFD 2004, CNPS 2021f).	Known only from Imperial County (CNPS 2021f).	**Unlikely.** Small pockets of suitable sandy soils occur in the western extent of the Analysis Area and the suitable host plant (*Ambrosia dumosa*) occurs within the Analysis Area (**Appendix E Photos 13 and 14**).
Xylorhiza orcuttii Orcutt's woody-aster	Perennial herb that blooms March through April. Inhabits Sonoran desert scrub (CNPS 2021e). Elevation: 0 to 2,000 ft (CNPS 2021e).	Occurs in California and Baja California (CNPS 2021e).	Found in Imperial and San Diego counties (CNPS 2021e).	**Unlikely.** No historical records exist for this species within the Analysis Area. However, suitable Sonoran desert scrub occurs within the analysis Area.

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
REPTILES				
Gopherus agassizii [1] Mojave Desert Tortoise	Inhabits valleys, bajadas and hills with sandy loam or rocky soils in Mojave desertscrub and Lower Colorado River Valley subdivision of the Sonoran Desert. To escape extreme temperatures, excavates burrows under vegetation or rocks. Will also use natural or manmade caves. Typically associated with areas of creosote bush, areas with other sclerophyll shrubs and with small cacti or areas with Joshua trees. Forages on grasses, forbs and succulents (AGFD 2010a). In the contact zone between the species (i.e., the Black Mountains), *G. morafkai* generally is found in foothills, hillside slopes and more mountainous terrain than *G. agassizii* that is typically found on alluvial fans and valley bottoms (Edwards et al. 2015). In California, found in arid sandy or gravelly locations along riverbanks, washes, sandy dunes, alluvial fans, canyon bottoms, desert oases, rocky hillsides, creosote flats, and hillsides (CHS 2021b) Elevation: Range-wide, from below sea level in Death Valley to 5,000 ft in elevation (AGFD 2010a). Possibly up to 7,200 ft (CDFW 2000)	Occurs in the Mojave desert of Arizona, California, Nevada and Utah (Edwards et al. 2015, Murphy et al. 2011).	Throughout the Mojave Desert and south along the Colorado River along the east side of the Salton Basin in the Sonoran Desert but absent from the Coachella Valley except from the Boyd Deep Canyon Research Center area (CHS 2021b). Introduced population in Anza-Borrego State Park in San Diego County (CHS 2021b).	**Present.** Active Tortoise burrows and scat have been detected within the Analysis Area. Records of this species occur within the Analysis Area (**Appendix A**).

[1] Threatened, populations north and west of the Colorado River (USFWS 1980, USFWS 1990), critical habitat (USFWS 1980, USFWS 1994); Similarity of appearance (threatened) (USFWS 1990).

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Uma notata Colorado Desert fringe-toed lizard	Occupies fine, loose, wind-blown sand dunes, dry lakebeds, sandy beaches or riverbanks, desert washes, and sparse desert scrub in the Colorado and Sonoran desert (CDFW 2000). Utilize sparsely-vegetated arid areas and burrows as refugia (CHS 2021a). Elevation: sea level to 1,600 ft (CHS 2021a).	Occurs in California and Baja California (CHS 2021a).	Found in extreme southeast California in the Colorado Desert from the Salton Sea and Imperial sand hills east to the Colorado River, south to the Colorado River delta and on into northeastern Baja California, and east to Borrego Mountain (CHS 2021a).	**Possible.** A small area of potential suitable sandy substrate occurs at the western edge of the analysis Area outside of the Project Area (**Appendix E Photos 13 and 14**).

Table 6. CEQA Special-Status Species

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
BIRDS				
Melanerpes uropygialis Gila woodpecker	This species utilizes desert riparian and desert wash habitats, and orchard-vineyard and urban areas particularly in shade trees and date palm groves County (CDFW 1990). Utilizes areas with cottonwood and other desert riparian trees, shade trees, and date palms in California County (CDFW 1990). Also uses saguaros where available (CDFW 1990). Elevation: near sea level to 3,940 ft (NatureServe 2021e).	Found in southeast California, southwest Nevada, southern Arizona, southwest New Mexico and south into Mexico (Corman 2005a).	Resident in southern California along the Colorado River, and locally near Brawley, Imperial County (CDFW 1990).	**Low potential of occurrence.** because the majority of the Analysis Area does not contain appropriate habitat. We assessed all washes within the Analysis Area for woodpecker suitability and all washes were characterized by sparse ironwood, ocotillo, and low density of blue palo verde. There is one occurrence record for this species within the California Natural Diversity Database in these quadrangles (CDFW 2021) in an unnamed wash south of Indian Wash about 2.25 miles West of the Cargo Mountains from March 2002. We inspected this wash (**Appendix E Photo 17**) and the washes within the Analysis Area varied widely from the occurrence site. The washes in the Analysis Area are dissimilar to the occurrence site as represented in **Appendix E Photo 18**.
Taxostoma crissale Crissal thrasher	Inhabits dense sagebrush and other shrubs in desert washes and desert riparian areas with juniper and pinyon-juniper. Frequently found in habitats with mesquite, screwbean mesquite, ironwood, catclaw acacia, and arrowweed willow (CDFW 1990). Elevation: up to 5,900 ft (CDFW 1990).	Found throughout southwestern portions of the U.S. from southeastern California east through southern Nevada, southwestern Utah, norther Arizona, and southwestern New Mexico to western Texas and south to south-central Mexico and northeast Baja California (Shuford and Gardali 2008b).	Eastern Mojave Desert of Sand Bernardino and southeaster Inyo counties also resident in Imperial, Coachella, and Borrego valleys (CDFW 1990).	**Moderate potential of occurrence** due to range, appropriate habitat, but no occurrence record or observation during field investigation.

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Taxostoma lecontei Le Conte's thrasher	Utilize open desert wash, desert scrub, alkali desert scrub, desert succulent shrub habitats, and in Joshua tree habitat with scattered shrubs. Frequently use saltbush and cholla (CDFW 2005). Rarely occurs in habitats consisting entirely of creosotebush (NatureServe 2021f). Elevation: below sea level to 5,250 ft, mostly between 0 to 492 ft(NatureServe 2021f).	Occur throughout southwestern U.S. and northwestern Mexico (NatureServe 2021f, Sheppard 2019).	Found in southern California deserts from southern Mono County south to the Mexican border, and in western and southern San Joaquin Valley. Formerly found north to Fresno County and Kern County (CDFW 2005).	**Low potential of occurrence.** The low density cholla and creosotebush habitat dominance within the Analysis Area provides marginal habitat.
Falco mexicanus Prairie falcon	Breeds in open habitats, including shrub-step desert, grasslands with or without shrubs, and alpine tundra when cliffs or bluffs are present to provide nesting sites (Steenhof 2013). In Arizona, this species is found nesting in Sonoran desertscrub, in areas with mixed grassland and cold-temperate desertscrub, and pinyon pine-juniper or Madrean evergreen oak woodlands. Occasionally nest in areas of alpine grassland and mixed conifer forests. Open areas for foraging and the availability of nest sites are the primary determinants of the species distribution during the breeding season (Moors 2005). Nests primarily on cliff ledges but also use trees, buildings, electrical towers, and cliffs created by mines or quarries (Steenhof 2013). When food is plentiful, this raptor travels the least possible distance necessary to secure required food supplies but have been known to forage up to 15 miles from the nest (Tesky 1994b). During the fall and winter, increased numbers of individuals occur in open grasslands, creosote-bursage habitats, and agricultural areas (Moors 2005, Steenhof 2013). Elevation: Breeds 500–9,000 ft (Moors 2005). Elsewhere, up to 11,000 ft (Steenhof 2013).	Not considered a true migrant but undertakes seasonal movements in response to food availability and typically has widely separated nesting, post-nesting and wintering areas (Steenhof 2013). However, populations in California are resident. Breeds from south-central British Columbia and southern Alberta, through the western U.S., including western Texas, and into central Baja California, Chihuahua, Coahuila, central Durango, and San Luis Potosí. Winter range extends west to the Pacific Coast and eastward to Minnesota, northwest Iowa, east-central Missouri, central Oklahoma, and most of Texas. Mexican range expands slightly southward to include Baja California Sur, Zacatecas and possibly even to Oaxaca (Steenhof 2013).	Occurs throughout the state (Moors 2005).	**High potential of occurrence.** The Analysis Area occurs within suitable habitat in the range of this species and 2 occupied eyries were detected within the analysis Area (**Appendix E Photos 8 and 9**).

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Athene cunicularia hypugaea Western burrowing owl	This species inhabits flat or gently-sloping treeless and sparsely vegetated areas in deserts and grasslands (Poulin et al. 2011). In Arizona, this species most commonly breeds in grazed grasslands and open disturbed areas such as the edges of agricultural fields, fallow fields, bladed areas, irrigation embankments, airports and golf courses. This species additionally breeds in sparsely vegetated Sonoran or cold-temperate desertscrub (Martin 2005). Areas with burrows and unobstructed perches are favored (Martin 2005). Largely reliant on burrows dug by mammals but, on rare occasion, will dig their own holes (Klute et al. 2003, Poulin et al. 2011). Northern populations are migratory, and habitat used migratory and winter period is similar to that used for breeding but with some evidence of increased reliance on agricultural areas (Klute et al. 2003, Poulin et al. 2011). Elevation: In Arizona, 650–6,140 ft (AGFD 2001).	This species is a partial migrant, with northern populations being primarily migratory (Poulin et al. 2011). In southwestern states, individuals appear to make yearly decisions to remain on their breeding grounds or migrate, likely based on environmental conditions (Ogonowski and Conway 2009, Poulin et al. 2011). The hypugaea subspecies breeds in Alberta, British Columbia, Manitoba and Saskatchewan, Canada and 19 U.S. states including Arizona, California, Colorado, Idaho, Iowa, Kansas, Minnesota, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington and Wyoming (Klute et al. 2003). The breeding range extends southward into the Mexican states of Aguascalientes, Baja California, Baja California Sur, Chihuahua, Coahuila, Durango, Nuevo Leon, San Luis Potosí, Sinaloa, Sonora, Tamaulipas and Zacatecas (Poulin et al. 2011). Winters primarily in Arizona, California, Louisiana, New Mexico and Texas U.S., and southward through Mexico, excluding the Yucatan Peninsula, to Guatemala and Honduras, with rare reports as far south as Panama (Klute et al. 2003, Poulin et al. 2011).	Found nesting throughout the state where favorable habitat is present. Southern populations are primarily resident whereas northern populations are migratory and are on their breeding grounds mid-March through as late as mid-October (Martin 2005).	**Low potential of occurrence** due to range, appropriate habitat, but no historical occurrence records (Appendix D). In addition, no Ebird observations have been made for this species within or adjacent to the Analysis Area (eBird 2021). No observation of this species or potential burrows were recorded during the field survey. However, potentially suitable habitat occurs on the western and southern ends of the Analysis Area outside of the Project Area (**Figure 6 and Appendix E Photos 11 and 12**).
Poliptila melanura Black-tailed gnatcatcher	This species is associated with Mojave and Sonoroan desert scrub habitats. These habitats include mesquite, creosotebush, ocotillo and various cactus species (Tinant 2006).	Black-tailed gnatcatchers range from southern Nevada to northern Mexico and from southeastern California to southwestern New Mexico (Tinant 2006).	In California this species occurs only in southeastern California within suitable Mojavian and Sonoroan desert scrub habitats (Tinant 2006).	**High potential of occurrence.** The analysis Area occurs within suitable habitat within the range of this species and individuals were detected during the field survey.

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
INSECTS				
Anomala hardyorum Hardy's dune beetle	Member of the family Scarabaeidae. Most often found on north or east facing dune slip faces (UFWS 2006b).	Endemic to Algodones Dunes in North America (UFWS 2006b).	Known from two populations identified in Algodones Dune system in Imperial County (UFWS 2006b).	**No potential of occurrence.** No appropriate dune slip faces occur within the analysis Area.
Apiocera warneri Glamis sand fly	Member of the family Apioceridae. Flower-loving flies that are most common in dry, sandy habitats (Yeates and Irwin 1996) .	Family is known in the deserts of North America, South America, and Australia (Yeates and Irwin 1996).	Known from southern California (NatureServe 2021b).	**Low potential of occurrence.** A small area of sandy habitat occurs within the western edge of the Analysis Area outside of the Project Area.
Cyclocephala wandae Wandae dune beetle	Member of the family Scarabaeidae. Habitat information is lacking (UFWS 2006b).	Endemic to Algodones Dunes in North America (UFWS 2006b).	Known only from collections in the Algodones Dunes in Imperial County (UFWS 2006b).	**No potential of occurrence.** The Analysis Area occurs outside of the known range and suitable dune habitat.
Efferia macroxipha Glamis robberfly	In the genus *Efferia*. High diversity in arid or semi-arid ecosystems. Tend to perch close to the ground and often remain immobile.	Genus occur throughout the New World.	Known from southern California (Forbes 1988, NatureServe 2021c).	**Moderate Potential of occurrence.** The Analysis Area occurs within the known range**.**
Euparagia unidentata Algodones euparagia	In the family Vespidae. Inhabits desert regions (Bohart 1989). Limited habitat information available.	Endemic to Algodones Dunes in North America (Nature Serve 2021d, UFWS 2006b).	Endemic to Algodones Dunes in Imperial County (Nature Serve 2021d, UFWS 2006b).	**No potential of occurrence.** The Analysis Area occurs outside of the known range and suitable habitat.
Microbembex elegans Algodones elegant sand wasp	In the family Sphecidae. Small sized. Inhabits active slip faces within sand dune systems often found at the base of shrubs where detritus collects (UFWS 2006b).	Species in genus *Microbembix* are found in North and South America. Endemic to Algodones Dunes in North America (UFWS 2006b).	Known from two populations identified in Algodones Dune system in Imperial County (UFWS 2006b).	**No potential of occurrence.** The Analysis Area occurs outside of the known range and suitable habitat.
Perdita algodones Algodones perdita	Dune habitats (UFWS 2006b) Limited habitat information available.	Endemic to Algodones Dunes in North America (UFWS 2006b).	Known in the vicinity of Glamis, in Imperial County (UFWS 2006b).	**No potential of occurrence.** The Analysis Area occurs outside of the known range and suitable habitat.
Perdita frontalis Imperial perdita	All species in Perdita genus nest in sandy or partially sandy soil. Specialize on a variety plant families (Portman, Griswold, and Nell 2016).	Southwestern U.S. and Mexico (Portman, Griswold, and Nell 2016).	Southern California	**Low potential of occurrence.** A small area of sandy habitat occurs within the western edge of the Analysis Area outside of the Project Area.

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Perdita stephanomeriae A miner bee	All species in Perdita genus nest in sandy or partially sandy soil. Specialize on a variety plant families (Portman and Griswold 2017, Portman, Griswold, and Nell 2016).	Southwestern U.S. and Mexico (Portman, Griswold, and Nell 2016).	Southern California	**Low potential of occurrence.** A small area of sandy habitat occurs within the western edge of the Analysis Area outside of the Project Area.
Pseudocotalpa andrewsi Andrew's dune scrab beetle	In the family Scarabaeidae. Shining leaf chafer that inhabits drifting sand between dunes (USFW 2006a)	Endemic to Algodones Dunes in North America (UFWS 2006b).	Known from two populations identified in Algodones Dune system in Imperial County (UFWS 2006b).	**No potential of occurrence.** The Analysis Area occurs outside of suitable dune habitat.
MAMMALS				
Antrozous pallidus Pallid bat	Inhabits a wide variety of habitats including grasslands, shrublands, woodlands, and forest from sea level to mixed conifer forests (CDFW 1990c). Most common in open, dry habitats with rocky areas for roosting. Day roosts in caves, crevices, mines, and occasionally in hollow trees and buildings (CDFW 1990c). Night roots may be in more open sites including porches and buildings (CDFW 1990c). Elevation: 1,900 to 6,560 ft (NatureServe 2021a).	Ranges throughout western North America, from British Columbia's southern interior, south to Queretaro and Jalisco, and east to Texas. Isolated population in Cuba (WBWG 2018). Most abundant in xeric ecosystems, including the Great Basin, Mojave, and Sonoran Deserts (WBWG 2018).	Locally common at low elevations in California. Occurs throughout California except for the high Sierra Nevada to Kern Count and the northwestern corner of the state from Del Norte and western Siskiyou counties to northern Mendocino County (CDFW 1990c).	**High potential of occurrence.** This species has been observed within the Analysis Area (**Figure 7**) and suitable crevice and mine roosting habitat occurs within the Analysis Area (**Appendix E Photos 15 and 16**).
Corynorhinus townsendii Townsend's big-eared bat	Forages in edge habitats along streams and adjacent to or within a variety of wooded habitats. Roosts in cliffs, caves, mines, tunnels, and buildings (Diamond and Diamond 2014). Has a large home range and foraging distances (up to 93 miles) (Sherwin and Piaggio 2005). Elevation: Below 10,830 ft (Hammerson 2014).	Occurs from southern British Columbia, Canada and south through all western U.S. states eastward to the Black Hills of South Dakota and the Edwards Plateau in Texas. Isolated populations also exist in Oklahoma, Kansas, Arkansas, Missouri, Illinois, Indiana, Ohio, Kentucky, Virginia, and West Virginia. Range extends to the Isthmus of Tehuantepec, Mexico (Hammerson 2014).	Found throughout California but details of its distribution are not well known (CDFW 2000b).	**High potential of occurrence.** This species has been observed within the Analysis Area (**Figure 7**) and suitable mine roosting habitat occurs within the Analysis Area (**Appendix E Photos 15 and 16**).

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Eumops perotis californicus Greater western mastiff bat	This species is found in areas with cliffs, which are used for roosting, in desert scrub, chaparral, oak woodland, ponderosa pine belt, mixed conifer forests and high elevation meadows (Siders and Pierson 2005). Maternity roosts occur in exfoliating rock slabs, crevices in boulders and buildings (Siders and Pierson 2005). The morphology of this species prevents it from drinking from water sources less than 98 ft in length and the availability of water limits its distribution across the landscape (AGFD 2014b). In Arizona, this species is a year-round resident that occurs in rocky canyons with abundant roosting crevices. Forages widely from roost sites in lower and upper Sonoran desertscrub near cliffs (AGFD 2014b) and has been captured more than 18 miles from roost sites (Siders and Pierson 2005). Elevation: In Arizona, 240–8,475 ft (AGFD 2014b). Foraging up to 10,000 ft in California (WBWG 2018).	Occurs in Arizona, California, Nevada, New Mexico, Texas and Utah, U.S. and the Mexican states of Baja California, Chihuahua, Coahuila, Durango, Sinaloa, Sonora and Zacatecas (AGFD 2014b, Hammerson 1994, Siders and Pierson 2005).	Found in southeastern San Joaquin Valley and Coastal Ranges from Monterey County southward through southern California, from the coast eastward to the Colorado Desert (CDFW 1990).	**High potential of occurrence.** This species has been observed within the Analysis Area (**Figure 7**) and suitable rock slabs and crevice roosting habitat occurs within the Analysis Area.

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Macrotus californicus California leaf-nosed bat	Typically forages along washes within 6.2 miles of their roost sites (Brown 2005). Primarily consumes insects but also consumes fruits (AGFD 2014a, Brown 2005). In Arizona, this species is a year-round resident of Sonoran Desertscrub. Consumes primarily insects taken on the wing or gleaned from vegetation, but have also been reported to feed on fruits, including those of cacti. Roost sites have large areas of ceiling and flying space, and include abandoned underground mines, caves, and rock shelters (AGFD 2014a). Elevation: In Arizona, below 4,000 ft (AGFD 2014a). In California, records are below 2,000 ft (CDFW 1990a).	Occurs in Arizona, California, Nevada and Utah, U.S. and the Mexican states of Baja California, Baja California Sur, Chihuahua, Sinaloa, Sonora and Tamaulipas (AGFD 2014a, Hammerson 2015a). (CDFW 1990a).	Found from Riverside, Imperial, San Diego, and San Bernardino counties. Historically occurred from Los Angles to Sand Diego. Fairly common in some areas along the Colorado River (CDFW 1990a).	**High potential of occurrence.** This species has been previously observed within the Analysis Area, and suitable mine roosting habitat occurs within the Analysis Area (**Figure 7 and Appendix E Photos 15 and 16**). In Addition, during the habitat assessment visit, stringy black guano and urine staining was detected on the sides of mines within the Analysis Area indicating that this species is present.
Myotis velifer Cave myotis	Forages in desertscrub vegetation and is tolerant of high temperatures and low humidity. Roosts in caves, tunnels, abandoned underground mines, buildings and under bridges within a few miles of water. In Arizona, hibernation roosts are in wet mine tunnels above 6,000 ft (AGFD 2002a). In California, utilize desert scrub, desert succulent shrub, desert wash, and desert riparian.(CDFW 1990b). Elevation: 300–8,800 ft (AGFD 2002a).	Occurs in Arizona, California, Kansas, Nevada, New Mexico, Oklahoma, Texas and Utah, U.S. Range extends southward through Mexico to Honduras (AGFD 2002a, Hammerson 2015b).	Restricted in California to lowlands of the Colorado River and adjacent mountain ranges, in San Bernardino, Riverside and Imperial counties, although more common farther east (CFDW 1990b).	**Moderate potential of occurrence**. An observation record for this species occurs adjacent to the Analysis Area and the Analysis Area contains suitable mine roosting habitat **Figure 7 and Appendix E Photos 15 and 16**).
Nyctinomops femorosaccus Pocketed free-tailed bat	Inhabits pinyon-juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, and palm oasis. Roosts in rock crevices, caverns, or buildings. Drinks water from sources with open access and large surface areas (CDFW 2000a). Elevation: near sea level to about 7,300 ft (WBWG 2018).	Occurs in western North America from southern California, central Arizona, southern New Mexico, and western Texas, south into Mexico including Baja California (WBWG 2018).	Found in Riverside, San Diego, and Imperial counties. Rare in California (CDFW 2000a).	**Moderate potential of occurrence.** The Analysis Area occurs within the range of this species and suitable rock crevice roosting habitat occurs within the Analysis Area.

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
PLANTS				
Astragalus insularis* var. *harwoodii Harwood's milk-vetch	Annual herb that blooms January through May. Inhabits sandy or gravely soils in desert dunes and Mohavean desert scrub (CNPS 2021i). Elevation: 0 to 2,330 ft (CNPS 2021i).	Occurs in Arizona, California, Baja California, Nevada, and Sonora Mexico (CNPS 2021i).	Found in Imperial, Riverside, San Bernardino, and San Diego counties (CNPS 2021i).	**No potential of occurrence.** No suitable dune habitat in Mohavean desert scrub occurs within the analysis Area and no records for this species occur within the Analysis Area.
Calliandra erophylla Pink fairy-duster	Perennial deciduous shrub that blooms January through March. Inhabits sandy or rocky soils in Sonoran desert scrub (CNPS 2021j). Elevations: 393 to 4,925 ft (CNPS 2021j).	Occurs in Arizona, California, Baja California, New Mexico, Texas, Utah, and Sonora Mexico (CNPS 2021j).	Found in Imperial, Riverside, and San Diego counties (CNPS 2021j).	**High probability of occurrence.** An occurrence record for this species exists within the Analysis Area and the species was observed in very low densities within the Analysis Area (**Figure 7**).
Croton wigginsii Wiggin's croton	Perennial shrub that blooms March through May. Inhabits desert dunes and Sonoran desert scrub in sandy areas (CNPS 2021g). Elevation: 165 to 330 ft (CNPS 2021g).	Occurs in California, Arizona, Baja California and Sonora Mexico (CNPS 2021g).	Found in Imperial County (CNPS 2021g).	**Low probability of occurrence.** While no records of this species occur within the Analysis Area a small area of suitable sandy habitat in Sonoran desert scrub vegetation occurs on the western edge of the analysis Area outside of the Project Area.
Ditaxis claryana Glandular ditaxis	Perennial herb that blooms October, December, January, February, and March. Inhabits sandy areas in Mojavean desert scrub and Sonoran desert scrub (CNPS 2021h). Elevation: 0 to 1,525 ft (CNPS 2021h).	Occurs in Arizona, California, and Sonora Mexico (CNPS 2021h).	Found in Imperial, Riverside, and San Bernardino counties (CNPS 2021h).	**Low probability of occurrence.** While no records of this species occur within the Analysis Area a small area of suitable sandy area in Sonoran desert scrub vegetation occurs on the western edge of the analysis Area outside of the Project Area.
Palafoxia arida* var. *gigantea Giant Spanish needle	Annual/perennial herb that blooms January through May. Inhabits desert dunes (CNPS 2021b). Elevation: 50 to 330 ft (CNPS 2021b).	Occurs in California and Sonora Mexico (CNPS 2021b).	Known only from Imperial County (CNPS 2021b).	**No potential of occurrence.** No suitable dune habitats exist within the Analysis Area and no records of the species occur within the Analysis Area.

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Pholisma sonorae Sand food	Perennial herb (parasitic) that blooms April through June (CNPS 2021f). Inhabits sandy soils, sand dunes and other sandy areas. It is a root parasite of desert shrubs (Arizona Rare Plant Committee 2001, CNPS 2021f). Known hosts include *Ambrosia dumosa, Eriogonum deserticola, Pluchea sericea, Tiquilia palmeri* and *T. plicata* (Yatskievych 1994). Elevation: In California, below 656 ft (CNPS 2021f). In Arizona, below 1,345 ft (AGFD 2004).	Occurs in Arizona and California, U.S. and the Mexican states of Baja California and Sonora (AGFD 2004, CNPS 2021f).	Known only from Imperial County (CNPS 2021f).	**Low potential of occurrence**. Small pockets of suitable sandy soils occur in the western extent of the Analysis Area and the suitable host plant (*Ambrosia dumosa*) occurs within the Analysis Area.
REPTILES				
Gopherus agassizii [2] Mojave Desert Tortoise	Inhabits valleys, bajadas and hills with sandy loam or rocky soils in Mojave desertscrub and Lower Colorado River Valley subdivision of the Sonoran Desert. To escape extreme temperatures, excavates burrows under vegetation or rocks. Will also use natural or manmade caves. Typically associated with areas of creosote bush, areas with other sclerophyll shrubs and with small cacti or areas with Joshua trees. Forages on grasses, forbs and succulents (AGFD 2010a). In the contact zone between the species (i.e., the Black Mountains), G. morafkai generally is found in foothills, hillside slopes and more mountainous terrain than G. agassizii that is typically found on alluvial fans and valley bottoms (Edwards et al. 2015). Elevation: Range-wide, from below sea level in Death Valley to 5,000 ft in elevation (AGFD 2010a).	Occurs in the Mojave desert of Arizona, California, Nevada and Utah (Edwards et al. 2015, Murphy et al. 2011).	More common in southern, central and the extreme northeast portion of state, but occurs throughout the state where suitable habitat exists (AGFD 2011).	**High potential of occurrence**. Active Tortoise burrows and scat have been detected within the Analysis Area. Records of this species occur within the Analysis Area (**Appendices A and E Photo 19**).

[2] Threatened, populations north and west of the Colorado River (USFWS 1980, USFWS 1990), critical habitat (USFWS 1980, USFWS 1994); Similarity of appearance (threatened) (USFWS 1990).

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur
Phrynosoma mcallii Flat-tailed horned lizard	Inhabits hard packed sandy flats and low dunes in Lower Colorado River desertscrub community, particularly in areas with creosote-white bursage vegetation (USFWS Brennan 2008, 2011). Elevation: Below 820 ft (AGFD 2010b).	Occurs in Arizona and California, U.S. and the Mexican states of Baja California and Sonora (USFWS 2011).	Found in the extreme southwestern portion of the state in the Yuma Desert (AGFD 2010b, USFWS 2011).	**No potential of occurrence**. No suitable hard packed sandy flats or low dunes occur within the Analysis Area. No records for this species occur within the Analysis Area.
Uma notata Colorado desert fringe-toed lizard	Occupies fine, loose, wind-blown sand dunes, dry lakebeds, sandy beaches or riverbanks, desert washes, and sparse desert scrub in the Colorado and Sonoran desert (CDFW 2000). Utilize sparsely-vegetated arid areas and burrows as refugia (CHS 2021a). Elevation: sea level to 1,600 ft (CHS 2021a).	Occurs in California and Baja California (CHS 2021a).	Found in extreme southeast California in the Colorado Desert from the Salton Sea and Imperial sand hills east to the Colorado River, south to the Colorado River delta and on into northeastern Baja California, and east to Borrego Mountain (CHS 2021a).	**Low potential of occurrence.** A small area of potential suitable sandy substrate occurs at the western edge of the Analysis Area outside of the Project Area (**Figure 6 and Appendix E Photos 13 and 14**).

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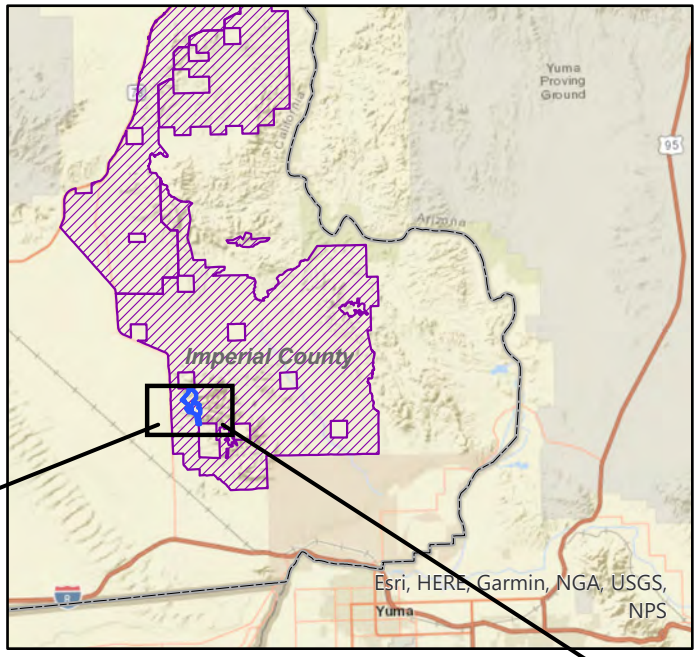
FIGURES

CALIFORNIA

PROJECT VICINITY



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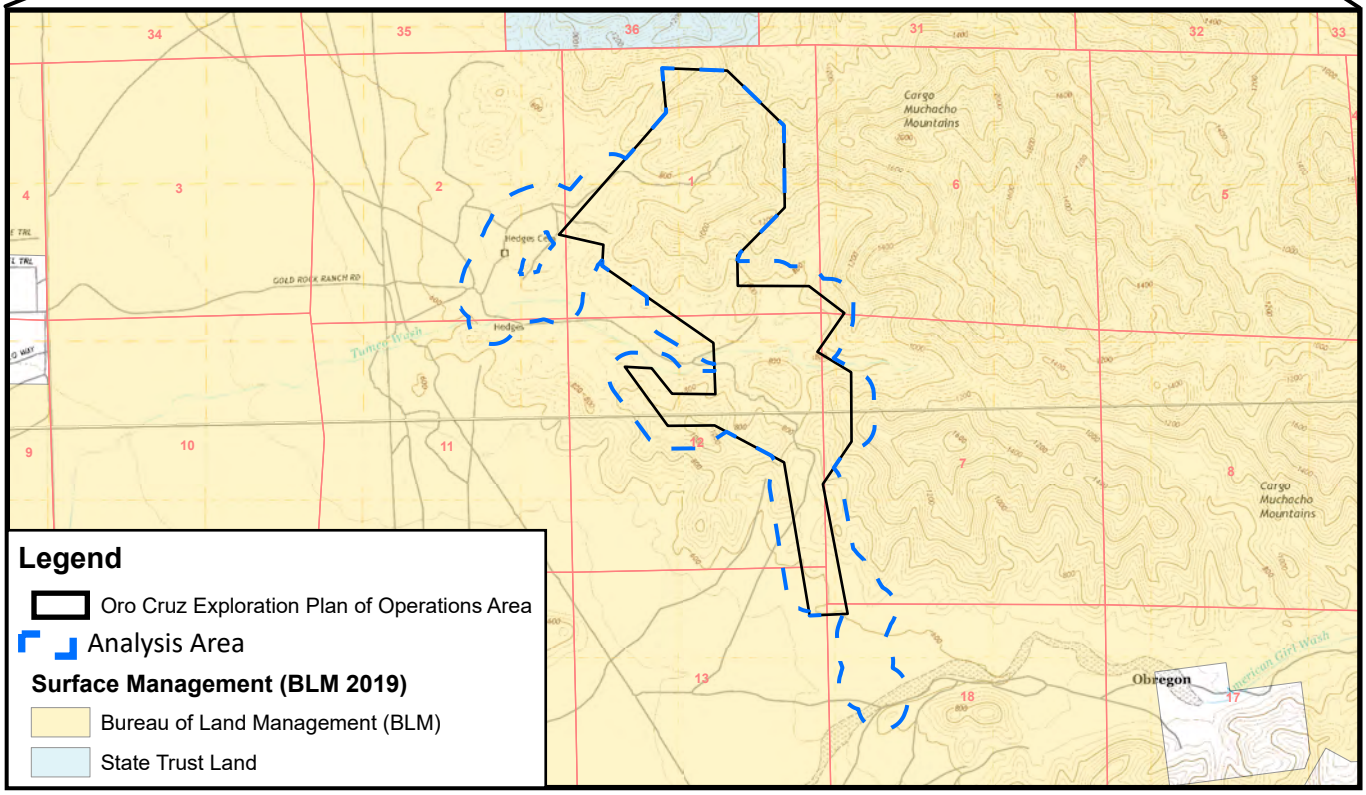

T15S, R20E, Portions of Sections 1, 2, 11, 12 and 13,
T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California,
Ogilby and Hedges USGS 7.5' Quadrangles (2018)
Data Source: SMP
Image Source: ArcGIS Online, World Street Map

Oro Cruz Pit Area Exploration Project
Biological Resource Technical Report and Assessment

VICINITY MAP

Figure 1

WestLand Resources

N

0 1,500 3,000 Feet

0 500 1,000 Meters

Drill Area 3
Drill Area 5
Drill Area 2
Drill Area 7
Drill Area 4
Drill Area 1
Oro Cruz Portal
Drill Area 6
Tumco Wash
American Girl Wash

Project Area
- Existing Access (Improvement Required)
- Existing Access (No Improvement Required)
- New Access Road
- Drill Area
- Oro Cruz Portal Staging Area

T15S, R20E, Portions of Sections 1, 2, 11, 12 and 13,
T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California,
Data Source: SMP
Image Source: ArcGIS Online, World Imagery, 2018

WestLand Resources

Legend
- Oro Cruz Exploration Plan of Operations Area
- Analysis Area

N
0 800 1,600 Feet
0 400 800 Meters

Oro Cruz Pit Area Exploration Project
Biological Resource Technical Report and Assessment

ANALYSIS AREA
Figure 2

Path: M:\Jobs\2000's\2072.03\ENV\BiologicalAssmt\ArcGISpro\OroCruzBA_2072_03\OroCruzBA_2072_03.aprx Date: 4/8/2021 User: cpowell

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T14S, R21E, Portions of Sections 19, and 29-32,
T15S, R20E, Portions of Sections 1-3, 10-15, 23-26, 35, and 36,
T15S, R21E, Portions of Sections 4-9, 16-21, and 28-32,
Imperial County, California,
Data Source: SMP
Image Source: ArcGIS Online, World Imagery, 2019

Legend

Oro Cruz Raptor Survey Area

Analysis Area

Sightings

Type

Eyrie

Likely nest

N

0 1,900 3,800 Feet

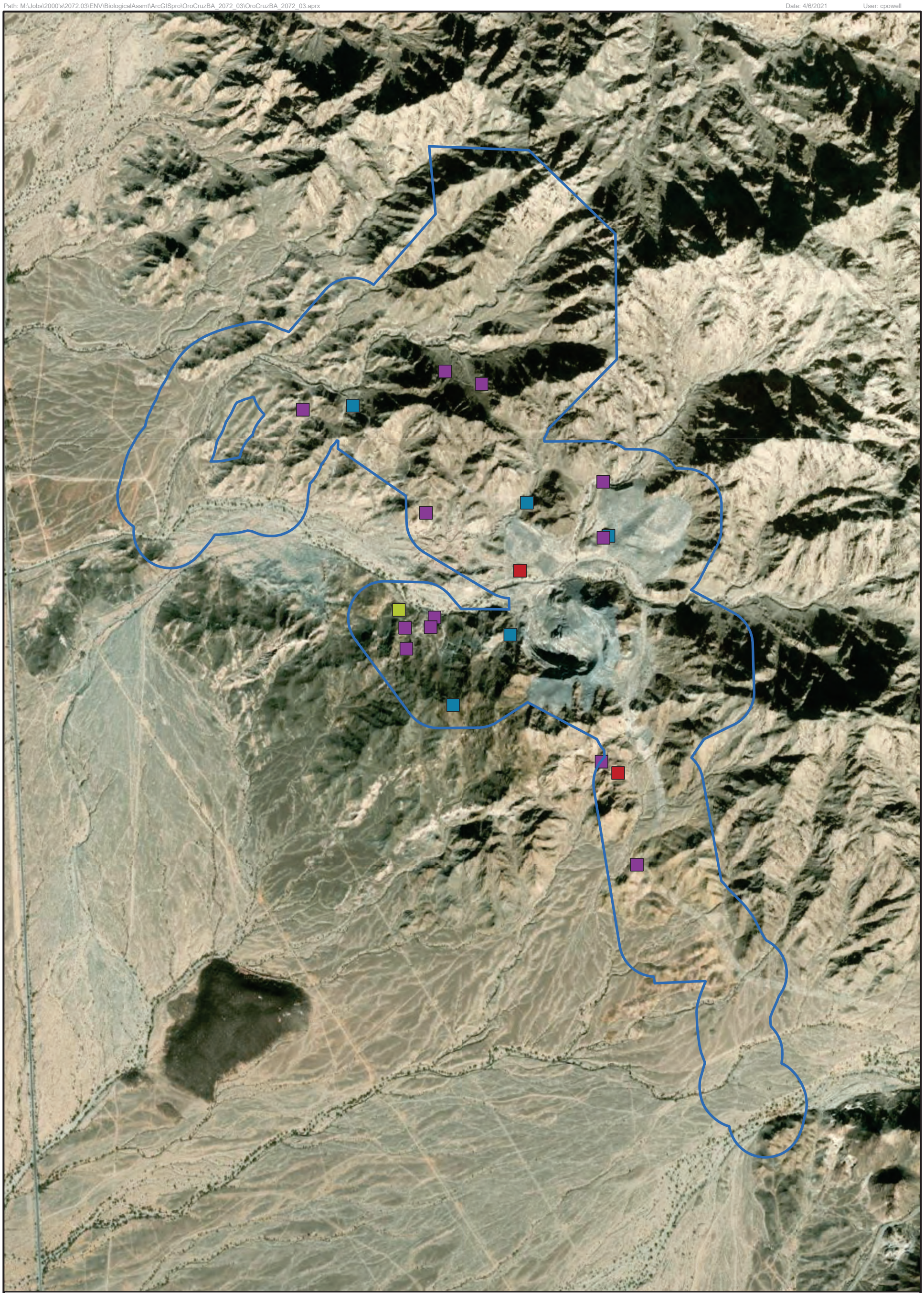
0 950 1,900 Meters

WestLand Resources

Oro Cruz Pit Area Exploration Project
Biological Resource Technical Report and Assessment

RAPTOR SURVEY AREA

Figure 3



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T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California,
Data Source: SMP
Image Source: ArcGIS Online, World Imagery, 2019

Legend

Analysis Area

Bat Species Observed

- California leaf-nosed bat
- Myo. s species
- Myotis species/California leaf-nosed bat
- unknown

WestLand Resources

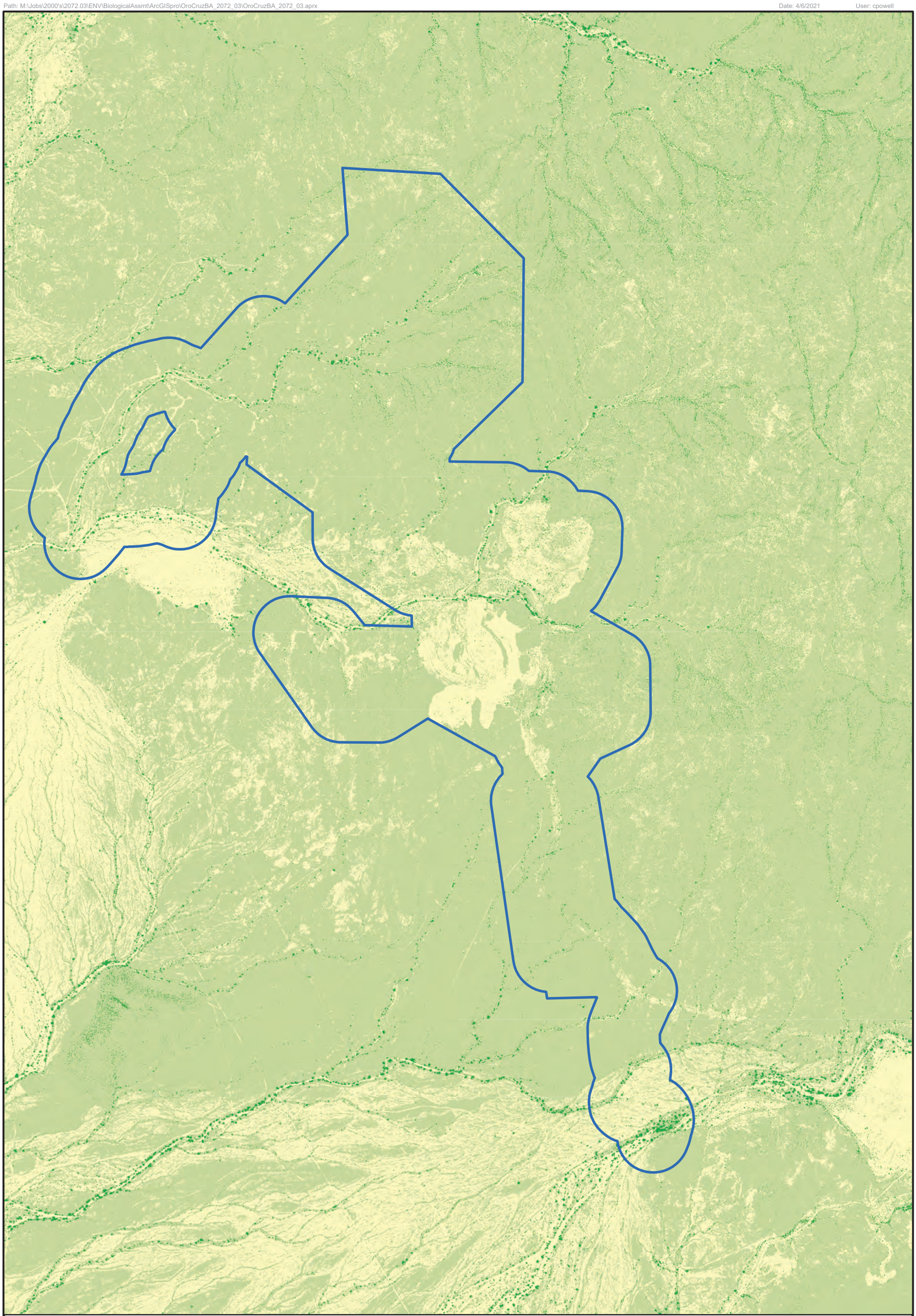
N

0 750 1,500 Feet

0 250 500 Meters

Oro Cruz Pit Area Exploration Project
Biological Resource Technical Report
and Assessment

BAT HABITAT ASSESSMENT
Figure 4



T15S, R20E, Portions of Sections 1, 2, 11, 12 and 13,
T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California,
Imperial County, California,
Data Source: SMP
Image Source: Supervised Classification from NAIP 2020

Legend

- Analysis Area
- Brassica (nigra) and other mustards semi-natural stands
- Parkinsonia florida—Olneya tesota alliance
- Larrea tridentata — Encelia farinosa alliance

N

0 750 1,500 Feet

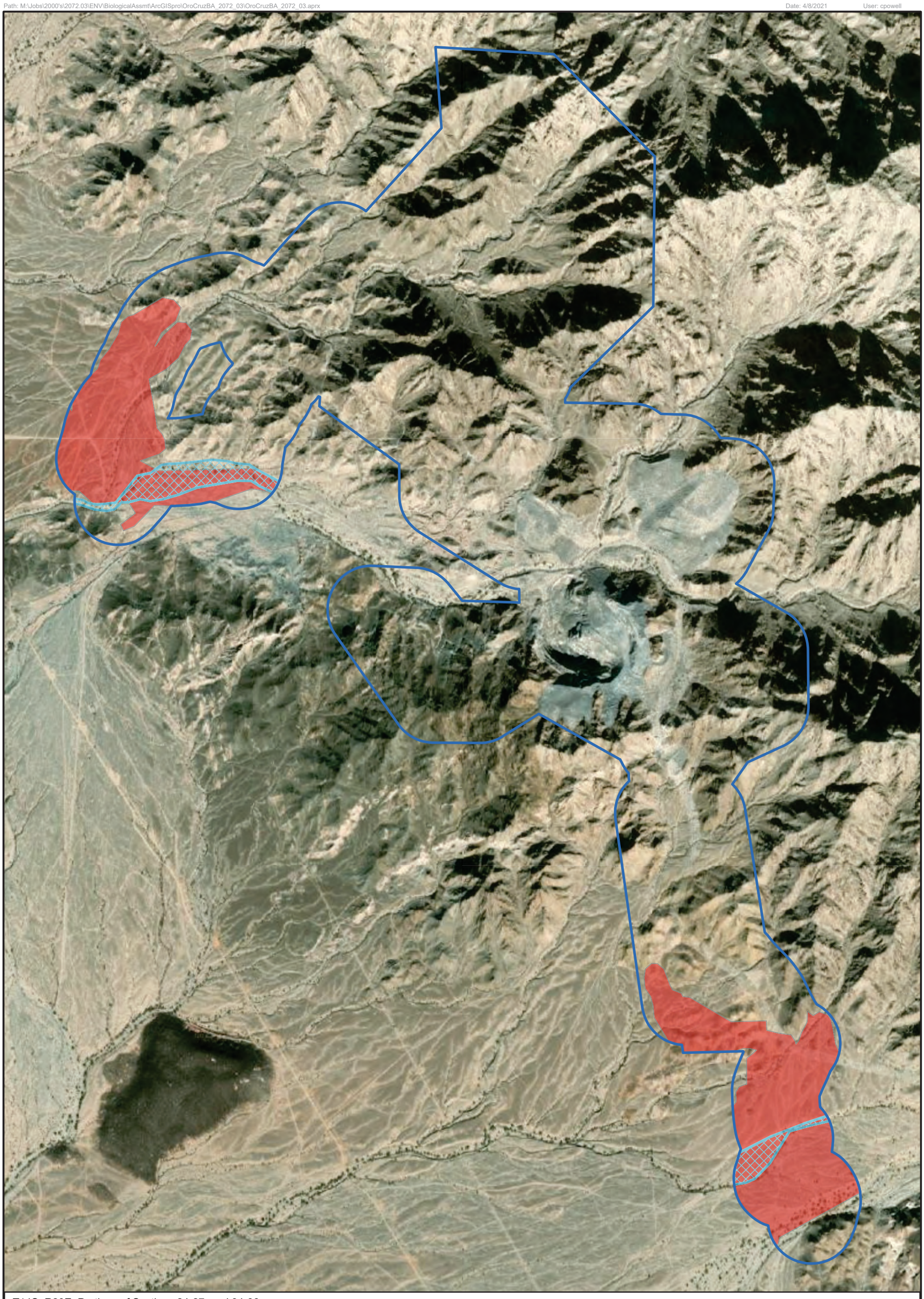
0 250 500 Meters

WestLand Resources

Oro Cruz Pit Area Exploration Project
Biological Resource Technical Report and Assessment

VEGETATION CLASSIFICATION

Figure 5



T14S, R20E, Portions of Sections 24-27, and 34-36,
T14S, R21E, Portions of Sections 19, and 29-32,
T15S, R20E, Portions of Sections 1-3, 10-15, 23-26, 35, and 36,
T15S, R21E, Portions of Sections 4-9, 16-21, and 28-32,
Imperial County, California,
Data Source: SMP
Image Source: ArcGIS Online, World Imagery, 2019

Legend

Analysis Area

Species

Fringe-toed lizard habitat

Burrowing owl habitat

Oro Cruz Pit Area Exploration Project
Biological Resource Technical Report and Assessment

WESTERN BURROWING OWL AND COLORADO DESERT FRINGE-TOED LIZARD HABITAT ASSESSMENT Figure 6

WestLand Resources

N

0 750 1,500 Feet

0 250 500 Meters

T15S, R20E, Portions of Sections 1, 2, 11, 12 and 13,
T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California,
Ogilby and Hedges USGS 7.5' Quadrangles (2018)
Data Source: SMP & Stantec
CDFW (https://apps.wildlife.ca.gov/)
CNPS (https://apps.wildlife.ca.gov/)
Image Source: ArcGIS Online, World Imagery, 2019

Legend

Analysis Area

Occurrences

- California leaf-nosed bat
- Pallid bat
- Tortoise Burrow
- Tortoise Scat
- Townsend's big-eared bat
- pink fairy-duster
- western mastiff bat

N

0 750 1,500 Feet

0 250 500 Meters

WestLand Resources

Oro Cruz Pit Area Exploration Project
Biological Resource Technical Report and Assessment

SPECIAL-STATUS SPECIES HISTORICAL OCCURRENCE WITHIN THE ANALYSIS AREA

Figure 7

APPENDIX A

Tortoise Survey

DESERT TORTOISE SURVEY REPORT
ORO CRUZ PROJECT

Prepared for:

Southern Empire Resources Corp. / SMP Gold Corp.
789 West Pender Street, Suite 420
Vancouver, British Columbia V6C 1H2

Prepared by:

Stantec Consulting Services Inc.
321 North Mall Drive, Suite I-202
St. George, Utah 84790

And

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Reno, Nevada 89511

Stantec Project Number 203722086

February 16, 2021

Sign-off Sheet and Signatures of Environmental Professionals

This document entitled Desert Tortoise Survey Report, Oro Cruz Project was prepared by Stantec Consulting Services Inc. (Stantec) for the account of Southern Empire Resources Corp/SMP Gold Corp. The material in it reflects Stantec's best judgment in light of the information available to it at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Stantec accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

All information, conclusions, and recommendations provided by Stantec in this document regarding the Desert Tortoise Report have been prepared by and/or under the supervision of and reviewed by the professionals whose signatures appear below.

Prepared by: _____
Greg Sharp
Environmental Scientist

Approved by: _____
Benjamin H. Veach, P.E.
Principal

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Appendix A Plants and Wildlife
Appendix B Datasheets
Appendix C Photographs

ACRONYMS AND ABBREVIATIONS

BLM	Bureau of Land Management
GIS	Geographic Information System
GPS	Global Positioning System
NEPA	National Environmental Policy Act
Project	Oro Cruz Drilling Plan Project
Stantec	Stantec Consulting Services Inc.
USFWS	United States Fish and Wildlife Service

1.0 SUMMARY

Stantec Consulting Services Inc. (Stantec) completed a desert tortoise survey of the Oro Cruz Drilling Plan Project (Project), located in Imperial County, California in the historic mining area of Tumco (**Figure 1**). The survey was conducted January 8 through 15, 2021.

The Project consists of seven planned drill exploration areas and associated access roads (Action Area, **Figure 2**). The total acres of surveys conducted in the drill exploration areas was 119.74 and the total miles of access road surveyed was 9.75. Areas of vertical, solid rock; highly-disturbed ground; or mine pits, within the drill areas, were considered unsuitable habitat for desert tortoise and not surveyed. Unsuitable habitat totaled 98.59 acres.

The following items of note were identified during this survey:

Drill Area 1 and associated access
No tortoise or tortoise sign was found in the drill area or associated accesses.

Drill Area 2 and associated access
Two tortoise burrows were found, one with scat at the entrance, indicating this is likely an active borrow. Both burrows were in good condition.

Drill Area 3 and associated access
Four tortoise burrows and a piece of scat were found in the drill area. One burrow had tortoise tracks in the front of it and another had scat. All of the burrows are considered active or good condition.

Drill Area 4 and associated access
No tortoise or tortoise sign was found in the drill area or associated accesses.

Drill Area 5 and associated access
One piece of tortoise scat was found in the drill area; however, no burrows were located.

Drill Area 6 and associated access
Two tortoise burrows were found in the drill area. One was in good condition; the other was deteriorated but had the correct shape.

Drill Area 7 and associated access
This drill area was highly disturbed and consisted of unsuitable habitat. Access roads were surveyed, and no tortoise or tortoise sign was found.

The preceding summary is intended for informational purposes only. Reading of the full body of this report is recommended.

2.0 INTRODUCTION

2.1 ACTION AREA DESCRIPTION

Stantec Consulting Services Inc. (Stantec) completed a desert tortoise survey of the Oro Cruz Drilling Plan Project (Project), located in Imperial County, California in the historic mining area of Tumco (**Figure 1**). The survey was conducted January 8 through 15, 2021.

The Project consists of seven planned drill exploration areas (218.33 acres) and associated access roads (9.75 miles) (Action Area, **Figure 2**). The Action Area is located within the Cargo Muchacho Mountains which consists of very rugged, eroding, rocky slopes. Mining has occurred in this area since the early 1800s. The most recent mining activity was in the mid to late 1990s. As such, much of the area has been disturbed from mining activities. Off-road vehicle use, recreational vehicle camping, and other outdoor activities have added to the disturbances in the area. Vegetation in the Project is low desert scrub typical of the high temperature region of southeast California.

The Action Area is within Bureau of Land Management (BLM) classified Category 3 desert tortoise habitat, lower quality habitat, and on the edge of tortoise's general distribution in southern California (BLM, 1994). In these areas, the tortoises occur in relatively low numbers. The Action Area is approximately 6.8 miles from United States Fish and Wildlife Service (USFWS)-designated critical habitat and is 2,750 feet south of the designated Colorado Desert Recovery unit (**Figure 1**).

A total of 119.74 acres were surveyed in the seven drill areas and 9.75 miles of access roads were surveyed. There were 98.59 acres within the seven drill areas that were determined to be unsuitable habitat and were not surveyed. These areas consisted of steep vertical cliffs; highly disturbed ground; or mine pits.

2.2 PERSONNEL QUALIFICATIONS

Greg Sharp – B.S. Degree, Fisheries and Wildlife Biology
Mr. Sharp has utilized numerous survey techniques to assess the presence of Threatened, Endangered, Candidate, and Sensitive plant and animal species throughout the western states on private, BLM, and United States Forest Service lands. Mr. Sharp is a certified desert tortoise biologist and has been doing biological surveys in Utah, Nevada, and California for over 20 years. Mr. Sharp has completed tortoise surveys in conjunction with the National Environmental Policy Act (NEPA) process for many large projects in the southwest and in the greater southwestern Utah area.

Seth Topham – B.S. Degree, Natural Resources
Mr. Topham has more than 15 years of experience working as a natural resource biologist/certified desert tortoise biologist in many areas of the western United States. He also has more than 10 years of experience in providing Geographical Information System (GIS) support for various natural resource projects. Mr. Topham has utilized many survey techniques to assess the presence and/or monitor the status of plant and animal species, including many listed as Threatened, Endangered, Candidate, or otherwise considered Sensitive. Mr. Topham has completed numerous tortoise surveys in conjunction with the NEPA process for many large projects in the southwest and in the greater southwestern Utah area.

3.0 METHODS

3.1 TORTOISE SURVEYS

Stantec biologists conducted desert tortoise surveys in the Action Area following the USFWS protocol *Preparing For Any Action That May Occur Within The Range Of The Mojave Desert Tortoise (Gopherus agassizii*) (USFWS, 2019). As required by the protocol, biologists walked parallel transects spaced 10 meters apart to achieve 100 percent coverage of the areas surveyed. The Action Area transects were mapped in GIS and uploaded to Collector, a global positioning system (GPS) application for field data collection, prior to the survey. The Collector application was used to locate and follow the established transect lines in the field. During the survey, special attention was given to the identification of desert tortoise and desert tortoise sign (e.g., burrows, scat, carcasses, etc.). Vegetation and other wildlife species were also identified during the survey. Survey information was recorded on established data sheets.

4.0 RESULTS

4.1 HABITAT

The Action Area is located within the Cargo Muchacho Mountains which consists of very rugged, eroding, rocky slopes. The Action Area is located along the western side of the mountains at an elevation ranging from 500 to 800 feet. Mining has occurred in this area since the early 1800s. The most recent mining activity was in the mid to late 1990s. As such, much of the area has been disturbed from mining activities. Other significant human activity in the area consists of off-road vehicle driving, recreational vehicle camping, and other outdoor activities. Vegetation in the Action Area is typical low desert scrub found in southeast California. Habitat in the Action Area consists of four types: steep slopes, bajadas, desert pavement areas and washes.

Vegetation cover is low but varies from almost zero on the steep rocky slopes and desert pavement to fairly dense in some of the washes and bajadas. Vegetation on the slopes and uplands consists of scattered creosote bush (*Larrea tridentata*), ocotillo (*Fouquieria splendens*), Inciensio (*Encelia farinose*) and scattered native grasses. Areas at the beginning of the bajadas and base of steep slopes offered foraging, shade and burrowing areas for desert tortoises. The deep cut washes concentrate rain fall and allow a greater variety of larger shrubs, trees, and ground cover. Dominant vegetation in these washes consisted of ironwood (*Olneya tesota*), mesquite (*Posopis juliflora*), palo verde (*Cercidium floridum*), and tamarisk (*Tamarix pentandra*). The washes in the area would supply needed forage and shade for the desert tortoise. The wash banks supply areas for caliche caves and burrows. Dominant vegetation in these washes consisted of ironwood, creosote bush, mesquite, palo verde, and tamarisk. A complete list of plants found in the survey area is included in **Appendix A**.

Soils in the Action Area developed from weathered granitic rock and schistose rock substrates. The soils consist of gravelly sands with large amounts of cobble, rock, and boulders. Hill slopes in the Action Area are steep and almost entirely covered in large, weathered rock. Alluvial fans and washes in the area contained the deeper soils and would be considered suitable for tortoise burrowing.

4.1.1 Physical and Biological Features of Critical Desert Tortoise Habitat Described for the Action Area

Although the Action Area is within BLM category III habitat, the area is outside of USFWS designated Critical Habitat (**Figure 1**) but per protocol, the habitat is described below using the physical and biological features for Designated Desert Tortoise Critical Habitat (USFWS 2019).

1. The Action Area provides areas of sufficient space for movement and for tortoise to reside in the area. However, large sections of the Action Area are made up of steep rocky slopes, past mining disturbances and mining pits that would preclude the tortoise from using these areas.

2. The washes, bajadas, and upland areas do support native plant forage for the desert tortoise. Most of the forage species would be found in the washes or bajadas, were soils are better and water would promote plant growth.

3. Suitable burrowing, nesting, and overwintering substrate is restricted in the Action Area to the deep cut washes where soils are deeper and consist of a sandy gravel mixture. Caliche

caves and other shelter sites are also found in these washes. Other deep shelter sites can be found at the base of the rocky steep slopes.

4. Vegetation density is generally low in the Action Area. Shrubs grow large enough to provide shade and shelter but are sparse. The washes in the Action Area do supply a denser tree and shrub cover that provides shade and shelter.

5. The Action Area is being disturbed from an increase in human activities related to recreational use of the area. Also, past mining activities have disturbed much of the Action Area.

4.2 TORTOISE SURVEY

The Action Area is located within 2,750 feet of the Colorado Desert Recovery Unit for the desert tortoise (**Figure 1**). Stantec completed desert tortoise surveys following the USFWS protocol- *Preparing For Any Action That May Occur Within The Range Of The Mojave Desert Tortoise (Gopherus agassizii*) (USFWS 2019). The survey was conducted January 8 through 15, 2021. The survey methods for small projects and linear projects were followed as the Action Area size was less than 500 acres and had linear access routes. The primary purpose of these surveys was to provide information on whether desert tortoises are likely to be present. Small project and linear project surveys can be completed any time of year as they are used to determine if desert tortoises are present in the area based on sign rather than live animals.

As required by the protocol, biologists walked parallel transects spaced 10 meters apart to achieve 100 percent coverage of the area surveyed. Stantec used the datasheet included in the protocol to record all evidence that indicates desert tortoises may be present (e.g., scat, burrows, carcasses, courtship rings, drinking depressions, etc. in addition to live tortoises) (**Appendix B**). The Action Area transects were mapped in GIS and uploaded to the Collector application using a handheld GPS device. The application was used to locate and follow the established transect lines in the field. Temperatures ranged from the mid 40's in the mornings, with afternoon highs ranging in the 70's. Below are the survey findings in the Action Area:

<u>Drill Area 1 and associated access</u>
Drill Area 1 (**Figure 2**) was located almost entirely in the rocky steep slope habitat with approximately half of the area being an open pit (Photos 1-2, 27-28, **Appendix C**). The area was 57.74 acres with 18.28 acres being surveyed as tortoise habitat.

No tortoise or tortoise sign was found in the drill area or associated accesses.

<u>Drill Area 2 and associated access</u>
Drill Area 2 (**Figure 2**) was located with approximately half of the area being tortoise habitat and the other half was steep and solid rock. (Photos 3-4, 23, 25, 29, **Appendix C**). The area was 54.84 acres with 34.03 acres being surveyed as tortoise habitat.

Two tortoise burrows were found, one had scat at the entrance (Photos 5, 24, **Appendix C**). All burrows were in good condition (Datasheets, **Appendix B**).

Drill Area 3 and associated access

Drill Area 3 (**Figure 2**) had a large wash that went down the middle of the area with the eastern portion of the area having steep and solid rock. (Photo 6, **Appendix C**). The area was 30.98 acres with 25.90 acres being surveyed as tortoise habitat.

Four tortoise burrows and a piece of scat were found in the drill area (Photos 7-10, **Appendix C**). One burrow had tortoise tracks in the front of it and another had scat. All are considered active or good condition (Datasheets, **Appendix B**).

Drill Area 4 and associated access

Drill Area 4 (**Figure 2**) was located almost entirely in the rocky steep slope habitat (Photos 11-12, 26, **Appendix C**). The area was 20.07 acres with 13.12 acres being surveyed as tortoise habitat.

No tortoise or tortoise sign was found in the drill area or associated accesses.

Drill Area 5 and associated access

Drill Area 5 (**Figure 2**) was located almost entirely in the rocky steep slope habitat (Photo 13, **Appendix C**). The area was 9.24 acres with 3.44 acres being surveyed as tortoise habitat.

One piece of tortoise scat was found in the drill area (Datasheets, **Appendix B**, Photo 14, **Appendix C**).

Drill Area 6 and associated access

Drill Area 6 (**Figure 2**) was located in an old, reclaimed haul route and included some rocky hills and bajada areas (Photo 15, **Appendix C**). The area was 24.98 acres with 100 percent being surveyed as tortoise habitat.

Two tortoise burrows were found in this drill area (Photo 16-17, **Appendix C)**. One was in good condition the other was deteriorated but had the correct shape (datasheets, **Appendix B**).

Drill Area 7 and associated access

Drill Area 7 (**Figure 2**) was located entirely in a mine waste dump area and was not surveyed as tortoise habitat. Access roads were surveyed (Photos 30-31, **Appendix C**).

No tortoise or tortoise sign was found in the associated accesses.

4.3 GENERAL WILDLIFE OBSERVATIONS

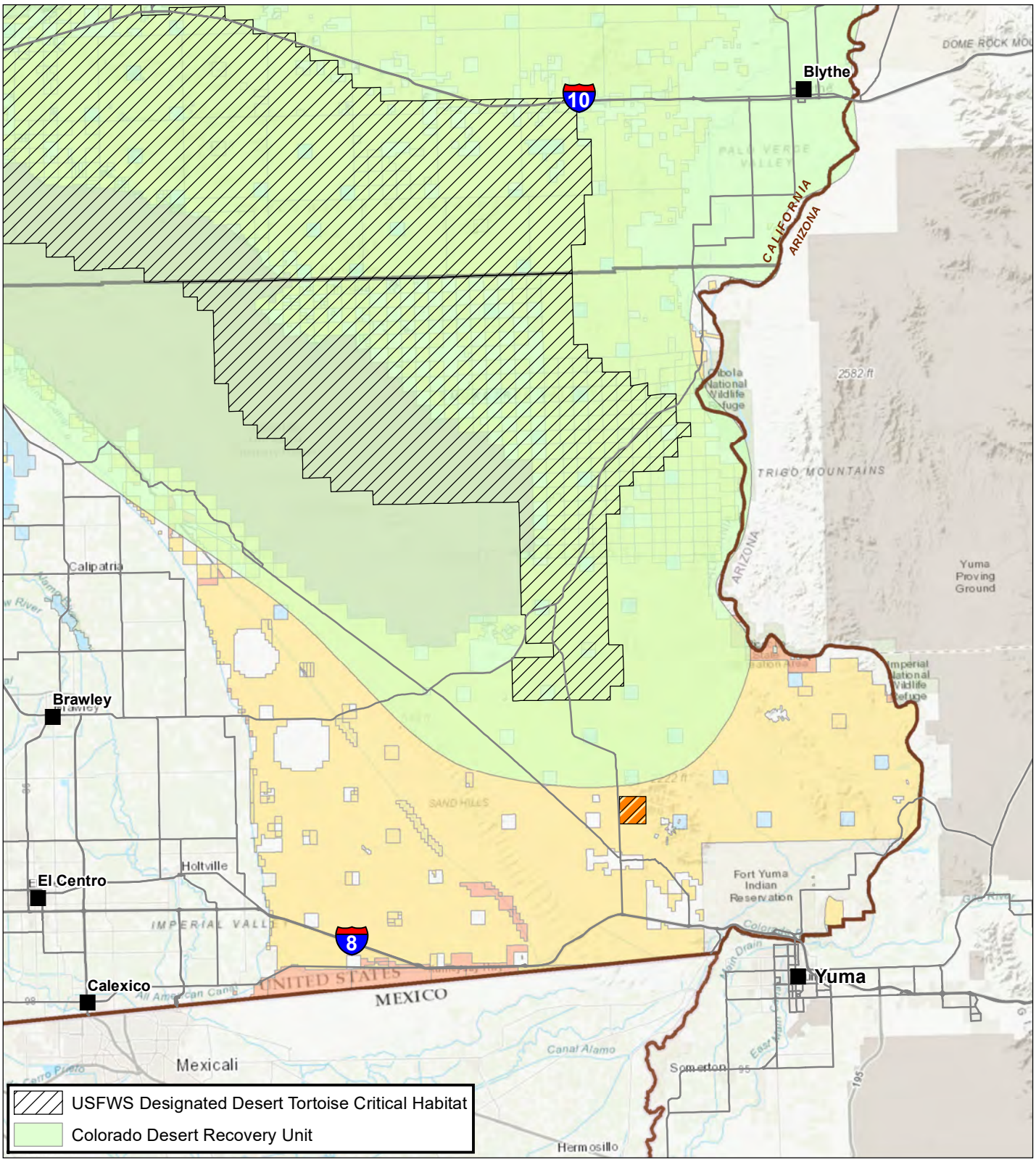
During the survey, observations were made of other wildlife species found or their sign (scat or tracks) and included many typical desert species of birds, reptiles, and mammals. A complete list is located in **Appendix A**

5.0 REFERENCES

Bureau of Land Management (BLM). 1994. Oro Cruz Operation of the American Girl Mining Project: Environmental Impact Statement. El Centro Resource Area. El Centro, California.

United States Fish and Wildlife Service (USFWS). 2019. Preparing For Any Action That May Occur Within The Range Of The Mojave Desert Tortoise (*Gopherus agassizii*). Ventura Office. Ventura, California.

FIGURES



Legend

Project Location

Land Status

- Bureau of Land Management
- Private
- State Lands
- Bureau of Reclamation
- Department of Defense

N

Stantec

0 5 10 Miles

1 in = 10 miles

Imperial County, CA
NAD 1983 UTM Zone 11N

DRAWN BY: JT	1ST REVIEW: CJ	2ND REVIEW: BV
DATE: 2/1/2021	PROJECT NO: 203722086	

Southern Empire Resources
SMP Gold Corp.
Oro Cruz Project Tortoise Survey

Figure 1
Project Location

V:\2037\Active\203722086\03_data\gis_cad\gis\mxds\Figure_1_Project_Location_v2_8x11P.mxd Revised: 2021-02-01 By: chrjohnson

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

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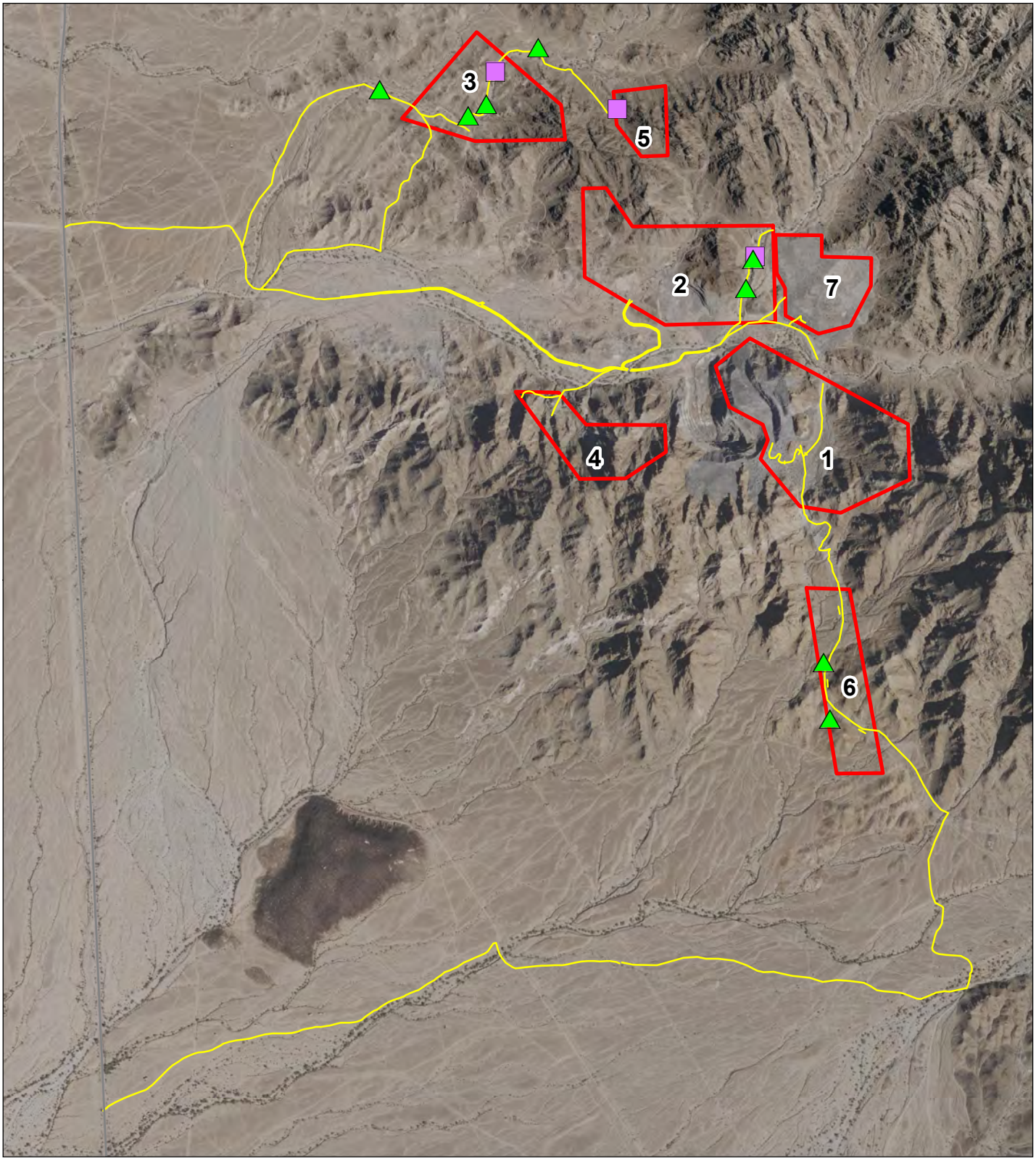
The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.



Legend

- Drill Areas
- Access Roads
- Tortoise Burrow
- Tortoise Scat

N

Stantec

Feet

0 800 1,600

1 in = 1,600 feet

Imperial County, CA
NAD 1983 UTM Zone 11N

DRAWN BY: JT | 1ST REVIEW: CJ | 2ND REVIEW: BV

DATE: 2/1/2021 | PROJECT NO: 203722086

Southern Empire Resources
SMP Gold Corp.
Oro Cruz Project Tortoise Survey

Figure 2
Survey Results

V:\2037\Active\203722086\03_data\gis_cad\gis\mxds\Figure_2_Survey_Results_Map_8x11P.mxd Revised: 2021-02-01 By: chrjohnson

Service Layer Credits: Esri, USDA Farm Service Agency

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The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

APPENDIX A

Plants and Wildlife

Common Name	Genus	Species
Plants		
catclaw	*Acacia*	*greggii*
Burrow bush	*Ambrosia*	*dumosa*
devil's lettuce	*Amsinckia*	*tessellata*
palo verde	*Cercidium*	*floridum*
devil's spine flower	*Chorizanthe*	*rigida*
wingnut cryptantha	*Cryptantha*	*pterocarya*
inciensio	*Encelia*	*farinosa*
desert trumpet	*Eriogonum*	*Inflatum*
buckwheat	*Eriogonum*	*deflexum*
barrel cactus	*Ferocactus*	*acanthodes*
ocotillo	*Fouquieria*	*splendens*
hopsage	*Grayia*	*spinosa*
range ratany	*Krameria*	*grayi*
creosote	*Larrea*	*tridentata*
desert pepperweed	*Lepidium*	*fremontii*
beaver tail cactus	*Opuntia*	*basilaris*
golden cholla	*Opuntia*	*acanthocarpa*
desert plantain	*Plantago*	*insularis*
mesquite	*Prosopis*	*juliflora*
nipple cactus	*Mammillaria*	*acanthocarpa*
clump grass	*Shismus*	*arabicus*
globemallow	*Sphaeralcea*	*emoryi*
Birds		
black-tailed gnatcatcher	*Polioptila*	*melanura*
black-throated sparrow	*Amphispiza*	*bilineata*
Costa's hummingbird	*Calypte*	*costae*
Gambel's quail	*Callipepla*	*gambelii*
ladder-backed woodpecker	*Picoides*	*scalaris*
loggerhead shrike	*Lanius*	*ludovicianus*
mourning dove	*Zenaida*	*macroura*
peregrine falcon	*Falco*	*peregrinus*
phainopepla	*Phainopepla*	*nitens*
red-tailed hawk	*Buteo*	*jamaicensis*
rock wren	*Salpinctes*	*obsoletus*
Say's phoebe	*Sayornis*	*saya*
turkey vulture	*Cathartes*	*aura*
Mammals		
antelope ground squirrel	*Ammospermophilus*	*leucurus*
mule deer	*Odocoileus*	*hemionus*
Reptiles		
desert tortoise	*Gopherus*	agassizii
Side-blotched lizard	*Uta*	*stansburiana*

APPENDIX B

Datasheets

Drill Area 2

Version: October 26, 2018

Date of survey: 11/01/2021 (day, month, year) Survey biologist(s): Seth.topham@stantec.com, 435-668-9723 - Greg.sharp2@stantec.com (name, email, and phone number)

Site description: Oro Cruz, 198 Acres, Southwest end of the Cargo Muchacho Mountains (project name and size; general location)

County: Imperial County, CA Quad: OGILBY/HEDGES Location: 704265, 3604260 NAD 83 Z14 (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: 37AC Transect #: NR-NS-114 Transect length: 114

GPS Start-point: 704546, 3640367 231 m (easting, northing, elevation in meters) Start time: 9:12 am/pm

GPS End-point: 704510, 3640370 (easting, northing, elevation in meters) End time: 9:20 am/pm

Start Temp: 65 °C End Temp: 65 °C

Live Tortoises

Detection number	GPS location Easting	GPS location Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL ≥180 mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1	704557	3640260	SCAT S3	2 PIECES
2				
3				
4				
5				
6				
7				
8				

Drill Area 2

Version: October 26, 2018

Date of survey: 14/01/2021 (day, month, year) Survey biologist(s): Seth.topham@stantec.com, 435-668-9723 - Greg.sharp2@stantec.com (name, email, and phone number)

Site description: Oro Cruz, 198 Acres, Southwest end of the Cargo Muchacho Mountains (project name and size; general location)

County: Imperial County, CA Quad: Ogilby/Hedges Location: 704285, 3604260 NAD83 Z11 (UTM coordinates, lat-long, and/or TRS, map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: 54.84 Transect #: 02 Transect length: _____

GPS Start-point: 704615, 3640340 230 m (easting, northing, elevation in meters) Start time: 10:06 am/pm

GPS End-point: 704398, 3639937, 215 m (easting, northing, elevation in meters) End time: 10:33 am/pm

Start Temp: 70 °C End Temp: 70 °C

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (in burrow: all of tortoise beneath plane of burrow opening, or not in burrow)	Approx MCL ≥180 mm? (Yes, No or Unknown)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (burrows, scats, carcass, etc)	Description and comments
1	704545	3640252	Burrow	Scat (S2)
2	704522	3640147	Burrow	No other sign.
3				
4				
5				
6				
7				
8				

DH2 - East - Access - South side

Photos say East Tr.

Drill Area 3

Version: October 26, 2018

Date of survey: 10/01/2021 (day, month, year) Survey biologist(s): Seth.topham@stantec.com, 435-668-9723 - Greg.sharp2@stantec.com (name, email, and phone number)

Site description: Oro Cruz, 198 Acres, Southwest end of the Cargo Muchacho Mountains (project name and size; general location)

County: Imperial County, CA Quad: Hodges Location: 703328 3640758 (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: Rd. width Transect #: Jumpo -5 Transect length: _____

GPS Start-point: 702152 3640376 176m (easting, northing, elevation in meters) Start time: 0845 am/pm

GPS End-point: 704075 3640752 233m (easting, northing, elevation in meters) End time: 1000 am/pm

Start Temp: 55 °C End Temp: hot °C

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL ≥180 mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3						
4						
5			none			
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1	703647	3640908	scat	1 piece, S2 cond.
2				
3				
4				
5				
6				
7				
8				

Drill Area 3

Version: October 26, 2018

Date of survey: 10/01/2021 (day, month, year) Survey biologist(s): Seth.topham@stantec.com 435-668-9723 - Greg.sharp2@stantec.com (name, email, and phone number)

Site description: Oro Cruz, 198 Acres, Southwest end of the Cargo Muchacho Mountains (project name and size; general location)

County: Imperial County, CA Quad: HODGES Location: 702152, 3640376 NAD83 Z11 (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage/or Sampling Area size to be surveyed: 2000 w.OTL Transect #: TURN N Transect length: _____

GPS Start-point: 704075, 3640752 233 m (easting, northing, elevation in meters) Start time: 8:53 am/pm

GPS End-point: 702152, 3640376 176 m (easting, northing, elevation in meters) End time: 10:30 am/pm

Start Temp: 55 °F End Temp: 60 °C

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL ≥180 mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1	703793	3640994	Burrow	TRACKS
2	703612	3640793	Burrow	SCAT
3	703548	3640754	Burrow	SCAT
4	703238	3640854	Burrow	GOOD CONDITION
5				
6				
7				
8				

Drill Area 5

Version: October 26, 2018

Date of survey: 11/01/2021 (day, month, year) Survey biologist(s): Seth.topham@stantec.com, 435-668-9723 - Greg.sharp2@stantec.com (name, email, and phone number)

Site description: Oro Cruz, 198 Acres, Southwest end of the Cargo Muchacho Mountains (project name and size; general location)

County: Imperial County, CA Quad: Hodges Location: 703328 3640758 (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: 31 Transect #: OH5-EW-17 Transect length:

GPS Start-point: 704077 3640834 (easting, northing, elevation in meters) Start time: 1444 am/pm

GPS End-point: 704075 3640715 (easting, northing, elevation in meters) End time: 1700 am/pm

Start Temp: 55° °C End Temp: 75 °C

Live Tortoises

Detection number	GPS location Easting	GPS location Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL ≥180 mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1	704077	3640776	Scat	52 Cnd., 1 piece
2				
3				
4				
5				
6				
7				
8				

Drill Area 6

Version: October 26, 2018

Date of survey: 11/01/2021 (day, month, year) Survey biologist(s): Seth.topham@stantec.com, 435-668-9723 - Greg.sharp2@stantec.com (name, email, and phone number)

Site description: Oro Cruz, 198 Acres, Southwest end of the Cargo Muchacho Mountains (project name and size; general location)

County: Imperial County, CA Quad: Glamis Location: 704864 3638784 (UTM coordinates, lat-long, and/or TRS, map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: 25 Transect #: D1&6-NS-S4 Transect length: 1658

GPS Start-point: 704817 3638601 (easting, northing, elevation in meters) Start time: 1355 am/pm

GPS End-point: 704817 3639092 (easting, northing, elevation in meters) End time: 1420 am/pm

Start Temp: 70 °C End Temp: 70 °C

Live Tortoises

Detection number	GPS location Easting	GPS location Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL ≥180 mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

JUNE

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1	704816	3638641	Burrow	NO OTHER SIGN
2				
3				
4				
5				
6				
7				
8				

Drill Area 6

Version: October 26, 2018

Date of survey: 11 /01/2021 (day, month, year) Survey biologist(s): Seth.topham@stantec.com, 435-668-9723 - Greg.sharp2@stantec.com (name, email, and phone number)

Site description: Oro Cruz, 198 Acres, Southwest end of the Cargo Muchacho Mountains (project name and size; general location)

County: Imperial County, CA Quad: OG Ilry Location: 704804, 3638784 NAD 83-21 (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: 25 Ac Transect #: DH6-NS-86 Transect length: 384

GPS Start-point: 704797, 3639095 203 m (easting, northing, elevation in meters) Start time: 2:23 am/pm

GPS End-point: 704795, 3638724 193 m (easting, northing, elevation in meters) End time: 253 am/pm

Start Temp: 70 °C End Temp: 70 °C

Live Tortoises

Detection number	GPS location Easting	GPS location Northing	Time	Tortoise location (in burrow: all of tortoise beneath plane of burrow opening, or not in burrow)	Approx MCL ≥180 mm? (Yes, No or Unknown)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (burrows, scats, carcass, etc)	Description and comments
1	704793	3638839	BURROW	SCAT PRESENT
2				
3				
4				
5				
6				
7				
8				

APPENDIX C

Photographs

Photo 1: Drill Area 1, general view of suitable desert tortoise habitat surveyed.

Photo 2: Drill Area 1, general view of un-suitable desert tortoise habitat not surveyed.

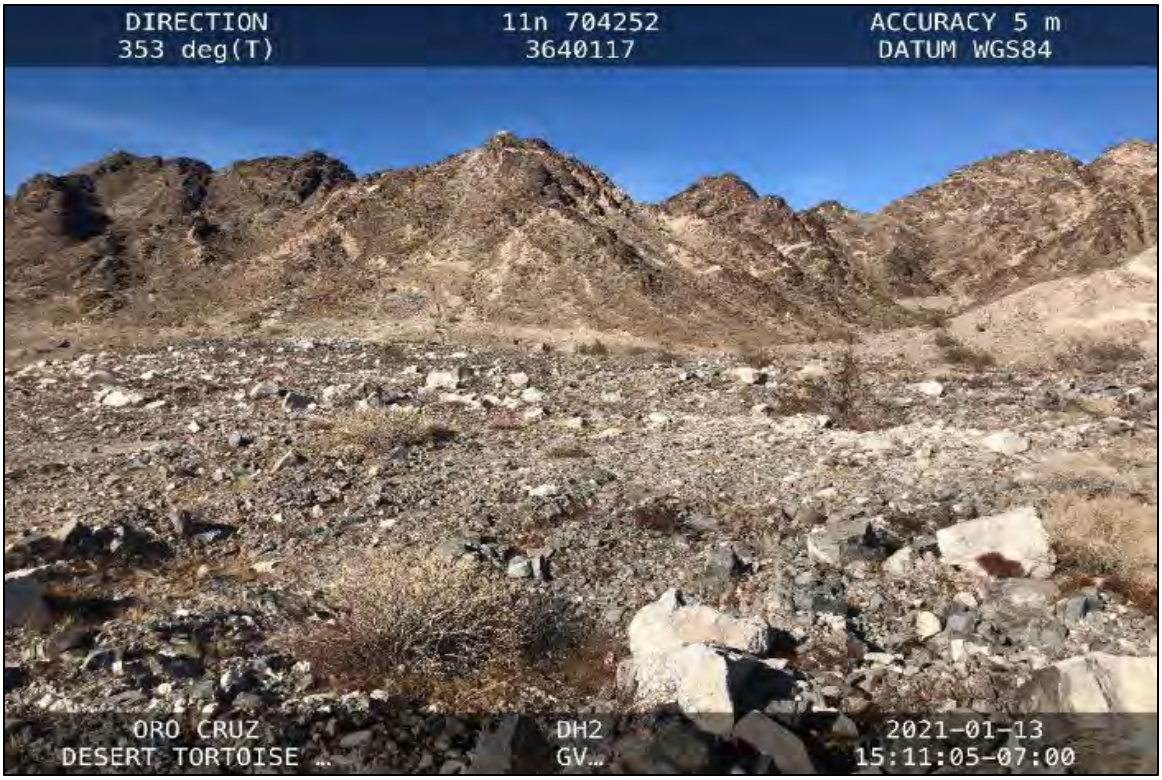

Photo 3: Drill Area 2, general view of suitable desert tortoise habitat surveyed.

Photo 4: Drill Area 2, general view of un-suitable desert tortoise habitat not surveyed.

Photo 5: Drill Area 2, desert tortoise scat.

Photo 6: Drill Area 3, general view of suitable desert tortoise habitat surveyed.

Photo 7: Drill Area 3, desert tortoise burrow with old desert tortoise scat and old tracks.

Photo 8: Drill Area 3, desert tortoise burrow with desert tortoise scat.

Photo 9: Drill Area 3, desert tortoise burrow.

Photo 10: Drill Area 3, desert tortoise scat.

Photo 11: Drill Area 4, general view of suitable desert tortoise habitat surveyed.

Photo 12: Drill Area 4, general view of unsuitable desert tortoise habitat not surveyed.

Photo 13: Drill Area 5, general view of suitable desert tortoise habitat surveyed.

Photo 14: Drill Area 5, desert tortoise scat.

Photo 15: Drill Area 6, general view of suitable desert tortoise habitat surveyed.

Photo 16: Drill Area 6, desert tortoise burrow.

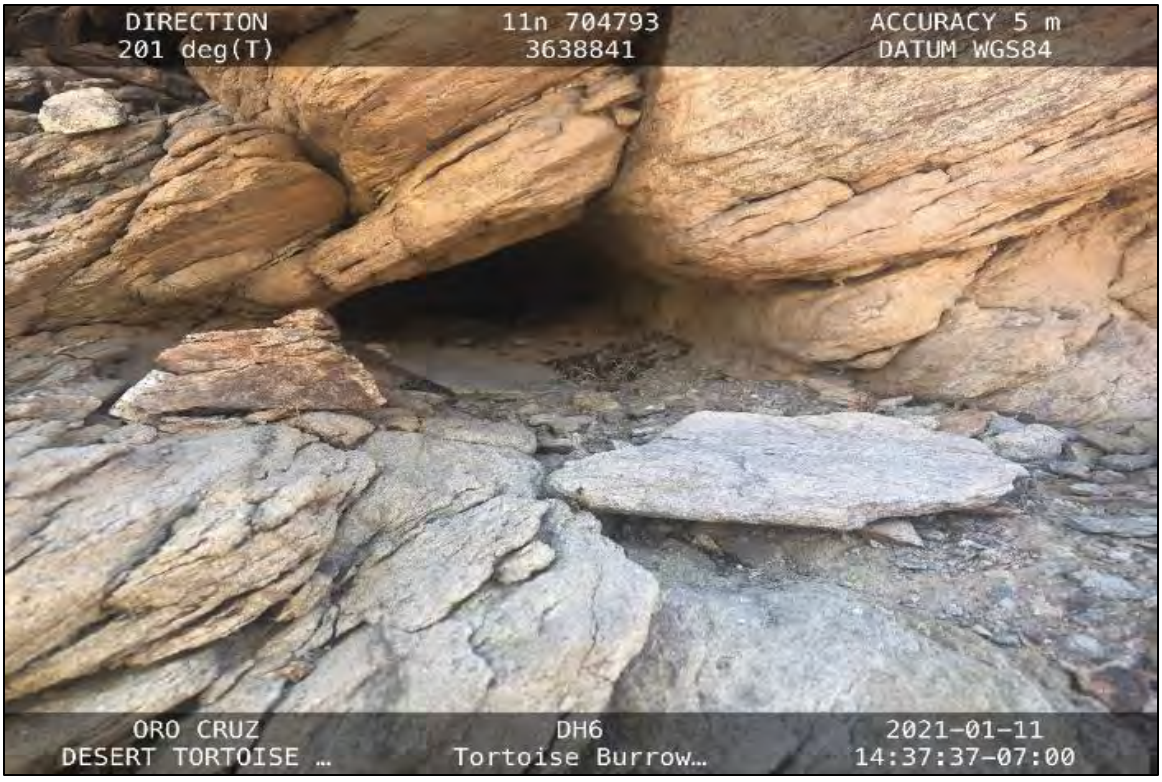

Photo 17: Drill Area 6, desert tortoise burrow (desert tortoise scat was present).

Photo 18: Portion of Access Tumco, general view of suitable desert tortoise habitat surveyed.

Photo 19: Access Road Tumco, desert tortoise burrow.

Photo 20: Portion of Access Tumco Gate Fork, general view of suitable desert tortoise habitat surveyed.

Photo 21: Portion of Access Tumco Main, general view of suitable desert tortoise habitat surveyed.

Photo 22: Portion of Access DH6 Main, general view of suitable desert tortoise habitat surveyed.

Photo 23: Portion of Access DH2, general view of suitable desert tortoise habitat surveyed.

Photo 24: Access DH2, desert tortoise burrow with desert tortoise scat.

Photo 25: Access DH2, desert tortoise burrow.

Photo 26: Portion of Access DH4, general view of suitable desert tortoise habitat surveyed.

Photo 27: Portion of Access DH1, general view of suitable desert tortoise habitat surveyed.

Photo 28: Portion of Access DH1 Access Spur, un-suitable desert tortoise habitat.

Photo 29: Portion of Access DH2 Alt Access, general view of suitable desert tortoise habitat surveyed.

Photo 30: Portion of Access DH7 Access East 1, general view.

Photo 31: Portion of Access DH7 East 2, general view of suitable desert tortoise habitat surveyed.

APPENDIX B

IPaC Screening

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Carlsbad Fish And Wildlife Office
2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385
Phone: (760) 431-9440 Fax: (760) 431-5901
http://www.fws.gov/carlsbad/

In Reply Refer To: March 05, 2021
Consultation Code: 08ECAR00-2021-SLI-0703
Event Code: 08ECAR00-2021-E-01567
Project Name: Oro Cruz

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Carlsbad Fish And Wildlife Office
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Project Summary

Consultation Code: 08ECAR00-2021-SLI-0703
Event Code: 08ECAR00-2021-E-01567
Project Name: Oro Cruz
Project Type: MINING
Project Description: Mine
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@32.8735665,-114.81136953158614,14z

Counties: Imperial County, California

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Reptiles

NAME	STATUS
Desert Tortoise *Gopherus agassizii*	Threatened

Population: Wherever found, except AZ south and east of Colorado R., and Mexico
There is **final** critical habitat for this species. The location of the critical habitat is not available.
Species profile: https://ecos.fws.gov/ecp/species/4481

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

APPENDIX C

BLM El Centro Sensitive Species

BLM Special Status Animal Species by Field Office

FIELD OFFICE		COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	STATE STATUS	BLM STATUS	OTHER STATUS
Alturas		24 Species					
	Mammal						
		Long-eared myotis	Myotis evotis			BLMS	
		Pacific fisher	Martes pennanti (pacifica) DPS	FC	SC	BLMS	SSC
		Pallid bat	Antrozous pallidus			BLMS	SSC
		Small-footed myotis	Myotis ciliolabrum			BLMS	
		Townsend's big-eared bat	Corynorhinus townsendii			BLMS	SSC
		Western mastiff-bat	Eumops perotis californicus			BLMS	SSC
	Bird						
		Bald eagle	Haliaeetus leucocephalus	FD	SE	BLMS	EA
		Bank swallow	Riparia riparia		ST	BLMS	
		Burrowing owl	Athene cunicularia			BLMS	SSC
		Golden eagle	Aquila chrysaetos			BLMS	EA
		Greater sage-grouse	Centrocercus urophasianus	FC		BLMS	SSC
		Greater sandhill crane	Grus canadensis tabida		ST	BLMS	SF
		Northern goshawk	Accipiter gentilis			BLMS	SSC
		Swainson's hawk	Buteo swainsoni		ST	BLMS	
		Tricolored blackbird	Agelaius tricolor			BLMS	SSC
	Reptile						
		Northern sagebrush lizard	Sceloporus graciosus graciosus			BLMS	
	Amphibian						
		Oregon spotted frog	Rana pretiosa	FC		BLMS	
		Western spadefoot toad	Spea hammondii			BLMS	
	Fish						
		Lost River sucker	Deltistes luxatus	FE	SE		SF
		Modoc sucker	Catostomus microps	FE	SE		SF
		Pacific lamprey	Entosphenus tridentatus			BLMS	
		Rough sculpin	Cottus asperrimus		ST	BLMS	
		Shortnose sucker	Chasmistes brevirostris	FE	SE		SF
	Invertebrate						

Federal Status: FE = Federally Endangered, FT = Federally Threatened, FC = Federal Candidate, FP = Proposed for Federal Listing, FD = Delisted from Federal ESA; State Status: SE = State Endangered, ST = State Threatened, SC = State Candidate, SD = Delisted from State ESA; Other Status: EA = Bald and Golden Eagle Protection Act, SF = Fully Protected, SSC = Species of Special Concern

All BLM CALIFORNIA SPECIAL STATUS PLANTS

Thursday, May 28, 2015
11:00:38 AM

SCIENTIFIC NAME	COMMON NAME	TYPE OF PLANT	FAMILY	FED STATUS	CA STATUS	BLM STATUS	CA RARE PLANT RANK	NNPS STATUS	GLOBAL RANK	STATE RANK	NV STATUS	RECOVERY PLAN?	DATE UPDATED	COMMENTS	ALTURAS	ARCATA	BAKERSFIELD	BARSTOW	BISHOP	EAGLE LAKE	EL CENTRO	HOLLISTER	MOTHER LODE	NEEDLES	PALM SPRINGS	REDDING	RIDGECREST	SURPRISE	UKIAH
Abronia umbellata var. breviflora	pink sand-verbena	VASC	Nyctaginaceae			BLMS	1B.1		G4G5T2	S1		No	29-Apr-13	Formerly subsp. *breviflora* (Standl.) Munz.		K													
Abronia villosa var. aurita	chaparral sand-verbena	VASC	Nyctaginaceae			BLMS	1B.1		G5T3T4	S2		No	06-Aug-13	CNDDB occurrences 2 and 91 are on BLM lands in the Palm Springs Field Office.							S				K				
Acanthomintha ilicifolia	San Diego thornmint	VASC	Lamiaceae	FT	SE		1B.1		G1	S2		No	12-Mar-15	Status changed from "K" to "S" on 8/6/2013. Naomi Fraga was unable to find the species on BLM lands when trying to collect seeds in 2012. Although there are several CNDDB occurences close to BLM lands, none of these actually intersect with BLM lands.											S				
Acanthoscyphus parishii var. goodmaniana	Cushenberry oxytheca	VASC	Polygonaceae	FE			1B.1		G4?T1	S1		No	06-Aug-13	Formerly *Oxytheca parishii* var. *goodmaniana*. Name change based on Reveal, J.L. 2004. Nomenclatural summary of Polygonaceae subfamily Eriogonoideae. Harvard Papers in Botany 9(1):144. A draft Recovery Plan was issued in 1997 but as of 8/6/2013 was not final. Some of the recovery actions in the draft plan have been started and partially implemented.				K									
Acmispon argyraeus var. multicaulis	scrub lotus	VASC	Fabaceae			BLMS	1B.3		G4?T2	S2		No	13-Sep-12	Formerly *Lotus argyraeus* (Greene) Greene var. *multicaulis* (Ottley) Isely. Occurs on BLM lands in vicinity of Dinosaur Trackway ACEC. Occurrence there discovered in 2008 acc. Jim Weigand.										K				
Acmispon rubriflorus	red-flowered lotus	VASC	Fabaceae			BLMS	1B.1		G1	S1		No	16-Nov-10	Formerly *Lotus rubriflorus* H.K. Sharsm.												S			

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Agave utahensis var. eborispina	ivory-spined agave	VASC	Agavaceae			BLMS	1B.3		G4T3Q	S2		No	08-Dec-10	Added to list on 12/8/2010. Species documented in April 2010 as part of CNPS Rare Plant Treasure Hunt on limestone outcrops in Chicago Canyon, Nopah Range, at a location where is was first discovered in 1978 (CNDDB Occurrence No. 4). Other older locations are also on BLM lands.				K												
Agrostis blasdalei	Blasdale's bent grass	VASC	Poaceae			BLMS	1B.2		G2	S2		No	29-Apr-13	On Shell Island off of Sea Ranch, Sonoma County, part of the California Coastal National Monument (source: Jim Weigand). Also suspected on the Stornetta Unit because it is known from closeby at Manchester State Beach (Jim Weigand, 2/3/2015).																K
Agrostis hooveri	Hoover's bent grass	VASC	Poaceae			BLMS	1B.2		G2	S2		No	29-Apr-13				K												
Agrostis lacuna-vernalis	vernal pool bent grass	VASC	Poaceae			BLMS	1B.1		G1	S1		No	18-Sep-12	New species added as California Rare Plant Rank 1B.1 on 6-14-2012. Known only from Butterfly Valley and Machine Gun Flats in the Fort Ord National Monument and adjacent Army lands.								K								
Albatrellus caeruleoporus	blue-pored polypore	FUNG	Albatrellaceae			BLMS			G3?	S1		No	16-Nov-10	G and S Heritage Rankings are from Oregon Natural Heritage Information Center 2007.		S													
Albatrellus ellisii	greening goat's foot	FUNG	Albatrellaceae			BLMS			G4	S2S3		No	16-Nov-10	G and S Heritage Rankings are from Oregon Natural Heritage Information Center 2007.		S													
Albatrellus flettii	blue-capped polypore	FUNG	Albatrellaceae			BLMS			None	None		No	16-Nov-10			S													
Allium hickmanii	Hickman's onion	VASC	Alliaceae			BLMS	1B.2		G2	S2		No	29-Apr-13	Fort Ord. Added based on 9/9/08 email from Bruce Delgado								K							
Allium jepsonii	Jepson's onion	VASC	Alliaceae			BLMS	1B.2		G1	S1		No	15-Nov-10										K			S			
Allium munzii	Munz's onion	VASC	Alliaceae	FE	ST		1B.1		G1	S1		No	13-Sep-12												S				
Allium shevockii	Spanish Needle onion	VASC	Alliaceae			BLMS	1B.3		G2	S2		No	15-Nov-10	Southern Sierra Nevada.			K										K		

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Allium tuolumnense	Rawhide Hill onion	VASC	Alliaceae			BLMS	1B.2		G2	S2		No	13-Sep-12										K							
Ambrosia pumila	San Diego ambrosia	VASC	Asteraceae	FE			1B.1		G1	S1		No	06-Aug-13	CNDDB Occurrence 54 is based on a 2005 collection by Salvato (UCR167870). CNDDB shows BLM as the land owner and most of the mapped 2/5 mile radius circle is BLM. On the basis of this occurrence the status was changed from "S" to "K" on 8/6/2013.											K					
Amsinckia lunaris	bent-flowered fiddleneck	VASC	Boraginaceae			BLMS	1B.2		G2?	S2?		No	13-Sep-12	Walker Ridge/Bear Creek (Source: Jim Weigand). Documented within the proposed right-of-way, as well as within the area of potential effect, of the AltaGas/Greenwing Energy proposed Walker Ridge wind farm (Vollmar Consulting, 2010 Sensitive Botanical Resources Survey Report, Walker Ridge Project Site, Lake and Colusa Counties, California, October 2010).												S				K
Ancistrocarphus keilii	Santa Ynez groundstar	VASC	Asteraceace			BLMS	1B.1		G1	S1		No	15-Nov-10				S												
Anisocarpus scabridus	scabrid alpine tarplant	VASC	Asteraceae			BLMS	1B.3		G2G3	S2S3		No	15-Nov-10													S			
Arabis mcdonaldiana	McDonald's rock-cress	VASC	Brassicaceae	FE	SE		1B.1		G2	S2		Yes	13-Sep-12	Name change from *Arabis macdonaldiana* to *Arabis mcdonaldiana* as of March 3, 2011.		K														
Arctostaphylos bakeri subsp. sublaevis	The Cedars manzanita	VASC	Ericaceae			BLMS	1B.2		G2T2	S2		No	23-Oct-12	CNDDB occurrence 1 on BLM and pvt lands at The Cedars. Headwaters of Big Austin Creek and East Austin Creek. 10,000's of plants according to CNDDB.																	K

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Arctostaphylos cansecens subsp. sonomensis	Sonoma canescent manzanita	VASC	Ericaceae			BLMS	1B.2		G3G4T2	S2		No	31-Mar-15	Walker Ridge/Bear Creek (Source: Jim Weigand). Documented within the proposed right-of-way, as well as within the area of potential effect, of the AltaGas/Greenwing Energy proposed Walker Ridge wind farm (Vollmar Consulting, 2010 Sensitive Botanical Resources Survey Report, Walker Ridge Project Site, Lake and Colusa Counties, California, October 2010).																K
Arctostaphylos cruzensis	Arroya de La Cruz manzanita	VASC	Ericaceae			BLMS	1B.2		G3	S3		No	31-Mar-15									S							
Arctostaphylos glandulosa ssp. gabrielensis	Gabilan Mountains manzanita	VASC	Ericaceae			BLMS	1B.2		G5T2	S2		No	13-Sep-12	Name change from *Arctostaphylos gabrielensis* to *Arctostaphylos glandulosa* ssp. *gabrielensis* as of August 23, 2010								S							
Arctostaphylos hookeri subsp. hookeri	Hooker's manzanita	VASC	Ericaceae			BLMS	1B.2		G3T2	S2		No	31-Mar-15									K							
Arctostaphylos klamathensis	Klamath manzanita	VASC	Ericaceae			BLMS	1B.2		G3	S3		No	31-Mar-15													S			
Arctostaphylos montereyensis	Monterey manzanita	VASC	Ericaceae			BLMS	1B.2		G2?	S2?		No	31-Mar-15	Fort Ord.								K							
Arctostaphylos morroensis	Morro manzanita	VASC	Ericaceae	FT			1B.1		G2	S2		Yes	13-Sep-12				K												
Arctostaphylos myrtifolia	Ione manzanita	VASC	Ericaceae	FT			1B.2		G2	S2		No	13-Sep-12										K						
Arctostaphylos nissenana	Nissenan manzanita	VASC	Ericaceae			BLMS	1B.2		G1	S1		No	31-Mar-15										K						
Arctostaphylos otayensis	Otay manzanita	VASC	Ericaceae			BLMS	1B.2		G2	S2		No	31-Mar-15												K				
Arctostaphylos pajaroensis	Pajaro manzanita	VASC	Ericaceae			BLMS	1B.1		G1	S1		No	31-Mar-15	Fort Ord. Added based on 9/9/08 email from Bruce Delgado.								K							
Arctostaphylos pilosula	Santa Margarita manzanita	VASC	Ericaceae			BLMS	1B.2		G3	S3		No	13-Sep-12				K												
Arctostaphylos pumila	sandmat manzanita	VASC	Ericaceae			BLMS	1B.2		G1	S1		No	31-Mar-15									K							

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Arctostaphylos rainbowensis	rainbow manzanita	VASC	Ericaceae			BLMS	1B.1		G2	S2		No	31-Mar-15	CNDDB Occurrence 43 is on BLM lands in Riverside County. Occurrence 56, is based on a 2005 collection by Woelfel and Woelfel, who claim it was collected on BLM lands in San Diego County, but CNDDB maps it as a 1/5 mile radius circle, some of which is BLM and some of which is private. Some other occurrences are close to but not on BLM lands.										K				
Arctostaphylos rudis	sand mesa manzanita	VASC	Ericaceae			BLMS	1B.2		G2	S2		No	31-Mar-15				K												
Aristocapsa insignis	Indian Valley spineflower	VASC	Polygonaceae			BLMS	1B.2		G2?	S2?		No	31-Mar-15				S												
Astragalus agnicidus	Humboldt milk-vetch	VASC	Fabaceae		SE	BLMS	1B.1		G3	S3		No	13-Sep-12			S													
Astragalus agrestis	field milk-vetch	VASC	Fabaceae			BLMS	2.B2		G5	S2?		No	31-Mar-15	This species is rather widespread elsewhere, so the primary value of this population is its disjunct location in CA, and maintaining the genetic viability of the species across its range.	K					K										
Astragalus albens	Cushenberry milk-vetch	VASC	Fabaceae	FE			1B.1		G1	S1		No	06-Aug-13	A draft Recovery Plan was issued in 1997 but as of 8/6/2013 was not final. Some of the recovery actions in the draft plan have been started and partially implemented.				K												
Astragalus anxius	Ash Valley milk-vetch	VASC	Fabaceae			BLMS	1B.3		G1	S1		No		In Ash Valley ACEC/RNA.	K														
Astragalus argophyllus var. argophyllus	silverleaf milk-vetch	VASC	Fabaceae			BLMS	2B.2		G5T4	S1		No	31-Mar-15						K	K									
Astragalus atratus var. mensanus	Darwin Mesa milk-vetch	VASC	Fabaceae			BLMS	1B.1		G4G5T1	S1		No	13-Sep-12	On Darwin Mesa.														K	
Astragalus bernardinus	San Bernardino Milk-Vetch	VASC	Fabaceae			BLMS	1B.2		G2G3	S2S3		No	06-Aug-13	Currently shown in Little San Bernardino Mountains, Little San Bernardino Mountains, New York Mountains, and Big Horn Mountains. There are 33 known occurrences in CNDDB, 12 between 1992 and 2011.				K							K				

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Astragalus brauntonii	Braunton's milk-vetch	VASC	Fabaceae	FE			1B.1		G2	S2		Yes	13-Sep-12												S				
Astragalus cimae var. sufflatus	inflated Cima milk-vetch	VASC	Fabaceae			BLMS	1B.3		G3T3	S3		No	31-Mar-15	CNDDB Occurrence number 2 is on BLM lands within the new boundary of the Cerro Gordo/Conglomerate Mesa ACEC.													K		
Astragalus deanei	Deane's milk-vetch	VASC	Fabaceae			BLMS	1B.1		G1	S1		No	31-Mar-15												K				
Astragalus douglasii var. perstrictus	Jacumba milk-vetch	VASC	Fabaceae			BLMS	1B.2		G5T2?	S2?		No	31-Mar-15												K				
Astragalus ertterae	Walker Pass milk-vetch	VASC	Fabaceae			BLMS	1B.3		G2	S2		No					K										K		
Astragalus funereus	black milk-vetch	VASC	Fabaceae			BLMS	1B.2		G2	S2.2		No						K											
Astragalus hornii var. hornii	Horn's milk-vetch	VASC	Fabaceae			BLMS	1B.1		G4G5T2T3	S1		No	13-Sep-12				K												
Astragalus jaegerianus	Lane Mtn. milk-vetch	VASC	Fabaceae	FE			1B.1		G1	S1		No	13-Sep-12					K											
Astragalus johannis-howellii	Long Valley milkvetch	VASC	Fabaceae		SR	BLMS	1B.2		G2	S2		No	31-Mar-15						K										
Astragalus lemmonii	Lemmon's milk-vetch	VASC	Fabaceae			BLMS	1B.2	W	G2	S2		No	13-Sep-12						S										
Astragalus lentiformis	lens-pod milk-vetch	VASC	Fabaceae			BLMS	1B.2		G2	S2		No							K										
Astragalus lentiginosus var. coachellae	Coachella Valley milk-vetch	VASC	Fabaceae	FE			1B.2		G5T1	S1		No	31-Mar-15												K				
Astragalus lentiginosus var. piscinensis	Fish Slough milk-vetch	VASC	Fabaceae	FT			1B.1		G5T1	S1		Yes	13-Sep-12						K										
Astragalus magdalenae var. peirsonii	Peirson's milk-vetch	VASC	Fabaceae	FT	SE		1B.2		G3G4T2	S2		No	13-Sep-12							K									
Astragalus mojavensis var. hemigyrus	curved-pod milkvetch	VASC	Fabaceae			BLMS	1B.1		G3G4T2T3	S1		No	15-Nov-10	Formerly on List 1A. Rediscovered on Darwin Mesa by Dana York in 2001 and verified in 2009.														K		
Astragalus monoensis	Mono milk-vetch	VASC	Fabaceae		SR	BLMS	1B.2		G2	S2		No	31-Mar-15	Was *A. monoensis* var. *monoensis* until the former *A. m.* var. *ravenii* was elevated to its own species (*A. ravenii Barneby).*					K											

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Astragalus nyensis	Nye milk-vetch	VASC	Fabaceae			BLMS	1B.1		G3	S1		No	18-Sep-12	CNDDB mapped 19 specific occurrences of this species found during surveys for a private solar development project in 2011. Specific occurrence number 2 is mapped on BLM lands (occurrence rating poor, only 1 plant found). Although the records in RareFind for occurrences 9 and 13 state that those occurrences occupy both private and BLM lands, both occurrences are mapped only on private lands.				K												
Astragalus oocarpus	San Diego rattleweed	VASC	Fabaceae			BLMS	1B.2		G3	S3		No	31-Mar-15											K				
Astragalus oophorus var. lavinii	Lavin's milk-vetch	VASC	Fabaceae			BLMS	1B.2		G4T2	S1		No	15-Nov-10	Bodie Hills.					K										
Astragalus pachypus var. jaegeri	Jaeger's bush milk-vetch	VASC	Fabaceae			BLMS	1B.1		G4T1	S1		No	30-Jul-13	CNDDB Occurrence 43, in Riverside County, is nonspecific, mapped in a 1 mile radius circle that includes BLM, State, and private lands; it is based on old (1880 and 1881) collections. Nonspecific Occurrence 6, also in Riverside County, has some BLM lands mapped inside a 1 mile radius circle, but most lands in the circle are private.											S				
Astragalus pseudiodanthus	Tonopah milk-vetch	VASC	Fabaceae			BLMS	1B.2		G3Q	S2		No	31-Mar-15						K										
Astragalus pulsiferae var. pulsiferae	Pulsifer's milk-vetch	VASC	Fabaceae			BLMS	1B.2	W	G4T2	S2 in CA; S1 in NV		No								K									

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Astragalus pulsiferae var. suksdorfii	Suksdorf's milk-vetch	VASC	Fabaceae			BLMS	1B.2		G4T2	S2		No	28-Apr-15	Occurrences formerly attributed to this species in the northern part of its range (formerly K in Alturas and Eagle Lake) are now *A. pulsiferae* var. *coronensis* [Welsh, S.L., R. Ondricek, and G. Clifton 2002. Varieties of *Astragalus pulsiferae* (Leguminosae). Rhodora 104:271-279]. Suspected in the Eagle Lake Field Office on conifer sites near Lake Almanor.						S										
Astragalus pycnostachyus var. pycnostachyus	coastal marsh milk-vetch	VASC	Fabaceae			BLMS	1B.2		G2T2	S2		No	28-Apr-15			K													
Astragalus rattanii var. jepsonianus	Jepson's milk-vetch	VASC	Fabaceae			BLMS	1B.2		G4T3	S3		No	13-Sep-12	Documented within the proposed right-of-way of the AltaGas/Greenwing Energy proposed Walker Ridge wind farm (Vollmar Consulting, 2010 Sensitive Botanical Resources Survey Report, Walker Ridge Project Site, Lake and Colusa Counties, California, October 2010).											S			K
Astragalus shevockii	Shevock's milk-vetch	VASC	Fabaceae			BLMS	1B.3		G3	S3		No	28-Apr-15				K												
Astragalus tener var. ferrisiae	Ferris's milk-vetch	VASC	Fabaceae			BLMS	1B.1		G1T1	S1		No	13-Sep-12													S			
Astragalus tiehmii	Tiehm's milk-vetch	VASC	Fabaceae			BLMS		W	G3	S2		No	28-Apr-15	Entire distribution of this plant is on public lands administered by the Surprise FO. Nevada only.															K	
Astragalus tricarinatus	triple-ribbed milk-vetch	VASC	Fabaceae	FE			1B.2		G1	S1		No	13-Sep-12												K				
Astragalus webberi	Webber's milk-vetch	VASC	Fabaceae			BLMS	1B.2		G1	S1		No							S										

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Atriplex argentea var. longitrichoma	Pahrump orache	VASC	Chenopodiaceae			BLMS	1B.1		G5T2	S2		No	03-Oct-11	The only two occurrences in CA are mapped by CNDDB on BLM lands in CA near the NV border. The occurrences are based on a 1983 collection by Mary DeDecker and on a 1991 collection by Stutz. Added to BLM SS plant list on 10/3/2011. Not sure why this species had not previously been on our list.				K												
Atriplex cordulata var. cordulata	heart-leaved saltbush	VASC	Chenopodiaceae			BLMS	1B.2		G3T2	S2		No	28-Apr-15	Occurrence number 82 in the CNDDB is on BLM lands in the Carrizo Plain. Other occurrences in the San Joaquin Valley are proximate to BLM lands.			K													
Atriplex cordulata var. erecticaulis	Earlimart orache	VASC	Chenopodaceae			BLMS	1B.2		G3T1	S1		No	28-Apr-15	Formerly *A. erecticaluis* Stutz, Chu & Sanderson.			S													
Atriplex coronata var. notatior	San Jacinto Valley crownscale	VASC	Chenopodiaceae	FE			1B.1		G4T1	S1		No	26-Aug-09	This plant had been considered K for many years but review of CNDDB on 8-26-09 shows no occurrences on BLM lands.											S					
Atriplex coronata var. vallicola	Lost Hills crownscale	VASC	Chenopodiaceae			BLMS	1B.2		G4T2	S2		No	15-Nov-10	Formerly *A. vallicola Hoover.*			K													
Atriplex subtilis	subtle orache	VASC	Chenopodaceae			BLMS	1B.2		G1	S1		No	28-Apr-15				S													
Baccharis vanessae	Encinitas coyotebrush	VASC	Asteraceae	FT	SE		1B.1		G1	S1		No	06-Aug-13	CNDDB Occurrence 30 is on BLM lands--11 plants observed in 2000 on south side of Otay Mountains in wilderness.											K					
Balsamorhiza lanata	woolly balsamroot	VASC	Asteraceae			BLMS	1B.2		G3	S3		No	13-Sep-12	Elevated to *B. lanata* from *B. hookeri* Nutt. var. *lanata Sharp.*												K				

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Balsamorhiza macrolepis	big-scale balsamroot	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	13-Sep-12	Formerly *B. macrolepis* Sharp var. *macrolepis*. Jepson Manual 2nd edition submerges *B. m.* var. *platylepis* (Sharp) Ferris, which was the only variety, into *B. hookeri* Nutt. Documented in the Ukiah Field Office within the proposed right-of-way of the AltaGas/Greenwing Energy proposed Walker Ridge wind farm (Vollmar Consulting, 2010 Sensitive Botanical Resources Survey Report, Walker Ridge Project Site, Lake and Colusa Counties, California, October 2010).									K			K			K
Balsamorhiza sericea	silky balsamroot	VASC	Asteraceae			BLMS	1B.3		G4Q	S3		No	28-Apr-15													S			
Berberis harrisoniana	Kofa Mountain barberry	VASC	Berberidaceae			BLMS	1B.2		G1G2	S1		No	28-Apr-15	In Whipple Wash										K						
Berberis nevinii	Nevin's barberry	VASC	Berberidaceae	FE	SE		1B.1		G1	S1		No	13-Sep-12	Formerly *Mahonia nevinii* (Gray) Fedde											K					
Bloomeria clevelandii	San Diego goldenstar	VASC	Themidaceae			BLMS	1B.1		G2	S2		No	06-Aug-13	Formerly *Muilla clevelandii* (S. Watson) Hoover. See discussion at: http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=121293. CNDDB specific Occurrence 19 is on both BLM and private lands. Occurrence 41 appears to be partially on BLM lands as well. Status changed from "S" to "K" on 8/6/2013.											K				
Boechera bodiensis	Bodie Hills rock cress	VASC	Brassicaceae			BLMS	1B.3		G2	S2		No	15-Nov-10	Formerly *Arabis bodiensis* Roll.					K											
Boechera lincolnensis	Lincoln rock cress	VASC	Brassicaeae			BLMS	2B.3		G4?	S2		No	28-Apr-15	Formerly *Arabis pulchra* S. Watson var. *munciensis* M.E. Jones. On Darwin Mesa. Formerly known as Darwin rock cress.														K		
Boechera serpenticola	Serpentine Rockcress	VASC	Brassicaceae			BLMS	1B.2		G1	S1		No	13-Sep-12	CNDDB maps nonspecific areas immediately adjacent to BLM lands near summit of Bully Choop Mountain. North-facing slopes on serpentine talus.													S			

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Boletus haematinus	red-pored bolete	FUNG	Boletaceae			BLMS			G2G3	S2?		Yes	28-Apr-15			S													
Brodiaea filifolia	thread-leaved brodiaea	VASC	Themidaceae	FT	SE		1B.1		G1	S1		No	06-Aug-13	CNDDB specific Occurrence 25 is partly on BLM lands. Status changed from "S" to "K" on 8/6/2013.											K				
Brodiaea insignis	Kaweah brodiaea	VASC	Themidaceae		SE	BLMS	1B.2		G1	S1		No	13-Sep-12				S												
Brodiaea orcuttii	Orcutt's brodiaea	VASC	Themidaceae			BLMS	1B.1		G2	S2		No	28-Apr-15												K				
Brodiaea rosea	Indian Valley brodiaea	VASC	Themidaceae		SE	BLMS	1B.1		G2	S2		No	28-Apr-15	Formerly *Brodiaea coronaria* (Salisb.) Engler subsp. *rosea* (Greene) Niehaus. Jepson Manual 2nd edition elevates to species.												S			K
Bryoria pseudocapillaris	horsehair lichen	LICH	Parmeliaceae			BLMS	3.2		G3	S2		No	28-Apr-15			K													
Bryoria spiralifera	twisted horsehair lichen	LICH	Parmeliaceae			BLMS	1B.1		G3	S1S2		No	26-Jan-15	Added to CDFW/CNPS list on 2/1/2010. Previously already on list as BLMS.		K													
Bryoria tortuosa	yellow-twist horsehair	LICH	Parmeliaceae			BLMS			G5	S2		No	28-Apr-15	S5 in OR; S3 in WA.		K										K			
Buxbaumia viridis	green bug moss	BRYO	Buxbaumiaceae			BLMS	2.2		G4G5	S2		No	03-Jun-13			K										S			
California macrophylla	round-leaved filaree	VASC	Geraniaceae			BLMS	1B.1		G2	S2		No	28-May-15	Nine CNDDB occurrences on the Payne Ranch, Colusa and Lake counties, Ukiah Field Office. CNDDB Occurrence 67 is on BLM lands in Riverside County, within the Palm Springs Field Office. Documented occurrences on BLM lands in the Carrizo Plain and on BLM lands in Hollister.			K					K			K				K
Calochortus clavatus var. avius	Pleasant Valley mariposa lily	VASC	Liliaceae			BLMS	1B.2		G4T2	S2		No	13-Sep-12										S						
Calochortus clavatus var. gracilis	slender mariposa lily	VASC	Liliaceae			BLMS	1B.2		G4T2T3	S2S3		No	28-Apr-15	The large polgon for nonspecific CNDDB Occurrence 18 in Los Angeles County overlaps some BLM lands and other occurrences are close to BLM lands in Los Angeles County.											S				

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Calochortus dunnii	Dunn's mariposa	VASC	Liliaceae		SR	BLMS	1B.2		G2?	S2?		No	28-Apr-15												K				
Calochortus excavatus	Inyo mariposa	VASC	Liliaceae			BLMS	1B.1		G2	S2		No	13-Sep-12						K										
Calochortus fimbriatus	late-flowered mariposa lily	VASC	Liliaceae			BLMS	1B.3		G3	S3		No	28-Apr-15	CNDDB Occurrence 41 on the Los Padres National Forest is within 800m of BLM lands in Ventura County. Added to the CNPS/CDFG lists as RPR 1B.3 on 10-26-2012.			S													
Calochortus greenei	Greene's mariposa	VASC	Liliaceae			BLMS	1B.2		G3	S3		No	13-Sep-12													K				
Calochortus longebarbatus var. longebarbatus	long-haired star-tulip	VASC	Liliaceae			BLMS	1B.2		G4T3	S3		No			S											S				
Calochortus monanthus	Shasta River mariposa	VASC	Liliaceae			BLMS	1A		GH	SH		No														S				
Calochortus obispoensis	San Luis mariposa lily	VASC	Liliaceae			BLMS	1B.2		G2	S2		No	28-Apr-15				S													
Calochortus palmeri var. palmeri	Palmer's mariposa lily	VASC	Liliaceae			BLMS	1B.2		G3T3?	s3?		No	28-Apr-15	CNDDB occurrence number 66 is located on Ridgecrest Field Office parcels. CNDDB occurrence 18 and 20 are located on scattered Bakersfield Field Office parcels.			K											K			
Calochortus persistens	Siskiyou mariposa lily	VASC	Liliaceae	FC	SR	BLMS	1B.2		G1	S1		No	28-Apr-15													S				
Calochortus raichei	The Cedars fairy-lantern	VASC	Liliaceae			BLMS	1B.2		G2	S2		No	23-Oct-12	CNDDB occurences 4 and 8 are definitely on BLM land at The Cedars; occurrence 7 is mapped as occurring partly on BLM land but RareFind account says it occurs on private land.																	K
Calochortus simulans	San Luis Obispo mariposa lily	VASC	Liliaceae			BLMS	1B.3		G2	S2		No	28-Apr-15				S													
Calochortus striatus	alkali mariposa lily	VASC	Liliaceae			BLMS	1B.2		G3	S3		No	28-Apr-15				K	S									K			
Calochortus westonii	Shirley Meadows star-tulip	VASC	Liliaceae			BLMS	1B.2		G2	S2		No	28-Apr-15				K													
Calycadenia hooveri	Hoover's calycadenia	VASC	Asteraceae			BLMS	1B.3		G3	S3		No	28-Apr-15				S													
Calycadenia micrantha	small-flowered calycadenia	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	28-Apr-15																	S

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Calycadenia villosa	dwarf calycadenia	VASC	Asteraceae			BLMS	1B.1		G3	S3		No	28-Apr-15				S												
Calyptridium parryi var. hesseae	Santa Cruz Mountains pussypaws	VASC	Montiaceae			BLMS	1B.1		G3G4T2	S2		No	27-Jun-13	The Jepson Manual 2nd edition retains the genus *Calyptridium* as well as the combination *C. parryi* var. *hesseae*. Flora North America moves *Calyptridium* to *Cistanthe* and reduces this var. to a synonym of *Cistanthe parryi*. There are two collections by C. Matt Guilliams and Michael G. Simpson (SDSU17444/17445) on BLM near Big and Little Spanish Lakes in Clear Creek Rec. Area. There is another collection by Griffin (JEPS77709) on BLM in N. Clear Creek Canyon. None of these yet mapped in CNDDB (as of 6/27/2013).								K							
Calyptridium pulchellum	Mariposa pussypaws	VASC	Montiaceae	FT			1B.1		G1	S1		No	15-Nov-10	This is the treatment in the Jepson Manual 2nd edition. Flora North America puts this species into the genus *Cistanthe*.			S													
Calystegia collina subsp. tridactylosa	three-fingered morning-glory	VASC	Convolvulaceae			BLMS	1B.2		G4T1	S1		No	22-Nov-10	Known to occur on BLM Toney Creek holding, Eden Valley. Documented in the Ukiah Field Office within the proposed right-of-way, as well as within the area of potential effect, of the AltaGas/Greenwing Energy proposed Walker Ridge wind farm (Vollmar Consulting, 2010 Sensitive Botanical Resources Survey Report, Walker Ridge Project Site, Lake and Colusa Counties, California, October 2010).		K													K
Calystegia purpurata subsp. saxicola	coastal bluff morning-glory	VASC	Convolvulaceae			BLMS	1B.2		G4T2T3	S2S3		No	26-Feb-15	Known form the Stornetta Unit, per the following collections: CAS263828, 1937, and RSA7999419, 2013.																	K

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Calystegia stebbinsii	Stebbins' morning glory	VASC	Convolvulaceae	FE	SE		1B.1		G1	S1		Yes	13-Sep-12										K						
Calystegia vanzuukiae	Van Zuuk's morning-glory	VASC	Convolvulaceae			BLMS	1B.3		G2Q	S2		No	20-Jan-15	First described by Brummitt, R.K. and S.M. Namoff. 2013. Calystegia vanzuukiae (Convolvulaceae), a remarkable new species from Central California. Aliso 31(1): 15-18. Added as 1B.3 on July 16, 2014. On serpentine and gabbro soils in the Sierra Nevada foothills of Placer and El Dorado counties. On BLM lands according to Graciela Hinshaw (email dated June 11, 2014).									K						
Camissonia benitensis	San Benito evening-primrose	VASC	Onagraceae	FT			1B.1		G2	S2		Yes	13-Sep-12									K							
Camissonia integrifolia	Kern River evening-primrose	VASC	Onagraceae			BLMS	1B.3		G2	S2		No	13-Sep-12				S												
Camissoniopsis hardhamiae	Hardham's evening-primrose	VASC	Onagraceae			BLMS	1B.2		G1Q	S1		No	17-Mar-15	Formerly *Camissonia hardhamiae* P.H. Raven. Slightly less than half of CNDDB specific occurrence 8 is mapped on BLM lands. Occurrence record reports lands as private, but this likely the result of not knowing where boundary with BLM was. Record from 4/10/1987.			K					S						
Campanula californica	swamp harebell	VASC	Campanulaceae			BLMS	1B.2		G3	S3		No	26-Feb-15	Known form the Stornetta Unit, per the following collection: SBBG124996, 1967.															K
Campanula exigua	chaparral harebell	VASC	Campanulaceae			BLMS	1B.2		G2	S2		No	28-Apr-15	CNDDB maps a nonspecific occurrence based on two Griffin collections along Clear Creek Rd; also a collection in the area by C. & P. McMillan (JEPS3010) has not yet been mapped by CNDDB (as of 6-27-2013).								K							
Campanula sharsmithiae	Sharsmith's harebell	VASC	Campanulaceae			BLMS	1B.2		G1	S1		No										S							
Campanula shetleri	Castle Crags harebell	VASC	Campanulaceae			BLMS	1B.3		G2	S2		No	28-Apr-15													S			

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Carex klamathensis	Klamath sedge	VASC	Cyperaceae			BLMS	1B.2		G2	S2		No	15-Nov-10	CNDDB maps (Occurrence 3) within 1/2 mile of BLM lands in Tehama Co. BLM lands appear to have same serpentine substrate as Occurrence 3 in CNDDB.												S			
Carex obispoensis	San Luis Obispo sedge	VASC	Cyperaceae			BLMS	1B.2		G2G3	S2S3		No	28-Apr-15				K												
Carex saliniformis	deceiving sedge	VASC	Cyperaceae			BLMS	1B.2		G2	S2		No	17-Mar-15	Known from Alder Creek near Stornetta Unit, according to Jim Weigand (2/3/2015).																S
Carlquistia muirii	Muir's raillardella	VASC	Asteraceae			BLMS	1B.3		G2	S2		No	28-Apr-15	Formerly *Raillardiopsis muirii* (Gray) Rydb.			K										K		
Carpenteria californica	tree-anemone	VASC	Hydrangeaceae		ST	BLMS	1B.2		G1?	S1?		No	28-Apr-15				S												
Castilleja ambigua subsp. humboldtiensis	Humboldt Bay owl's-clover	VASC	Orobanchaceae			BLMS	1B.2		G4T2	S2		No	28-Apr-15			K													
Castilleja ambigua subsp. Insalutata	pink Johnny-nip	VASC	Orobanchaceae			BLMS	1B.1		G4T1	S1		No	26-Jan-15	Added to CDFW/CNPS list as 1B.1 on 3/1/2010. Occurrence Number 13 (nonspecific 4/5 mile) is on Fort Ord in vicinity of Henneken Flats, "Mima Mound Area." The mapped circle spans BLM and Army lands (the latter of which may be transferred to BLM in the future).								S					
Castilleja campestris subsp. succulenta	succulent owl's clover	VASC	Orobanchaceae	FT	SE		1B.2		G4?T2	S2		No	28-Apr-15	Formerly designated as "K" in the Hollister FO (see Occurrence #35 in the CNDDB), but this is a holdover from the time the Hollister FO managed some of the public lands now in the Bakersfield FO.			K													
Castilleja densiflora subsp. obispoensis	Obispo Indian paintbrush	VASC	Orobanchaceae			BLMS	1B.2		G5T2	S2		No	28-Apr-15				S													
Castilleja gleasoni	Mt. Gleason Indian paintbrush	VASC	Orobanchaceae		SR	BLMS	1B.2		G2	S2		No	28-Apr-15	Name change from *Castilleja gleasonii* to *Castilleja gleasoni* as of March 3, 2011.												S				

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Castilleja mendocinensis	Mendocino Coast paintbrush	VASC	Orobanchaceae			BLMS	1B.2		G2	S2		No	28-Apr-15	Now known from the Stornetta Unit, as well as CCNM rocks at Mendocino. Stornetta collection: SBBG21322, 1964. Info from Jim Weigand, 2/3/2015.		S															K
Castilleja rubicundula subsp. rubicundula	pink creamsacs	VASC	Orobanchaceae			BLMS	1B.2		G5T2	S2		No	13-Sep-12	On BLM lands in Bear Creek Watershed acc to 12/10/08 email from Jim Weigand. Documented within the proposed right-of-way, as well as within the area of potential effect, of the AltaGas/Greenwing Energy proposed Walker Ridge wind farm (Vollmar Consulting, 2010 Sensitive Botanical Resources Survey Report, Walker Ridge Project Site, Lake and Colusa Counties, California, October 2010).												S			K
Caulanthus californicus	California jewelflower	VASC	Brassicaceae	FE	SE		1B.1		G1	S1		Yes	13-Sep-12				K					K							
Caulanthus lemmonii	Lemmon's jewelflower	VASC	Brassicaceae			BLMS	1B.2		G3	S3		No	28-Apr-15	Formerly *C. coulteri* Wats. var. *lemmonii* (Wats.) Munz.			K													
Ceanothus confusus	Rincon Ridge ceanothus	VASC	Rhamnaceae			BLMS	1B.1		G1	S1		No	28-Apr-15																	S
Ceanothus cyaneus	Lakeside ceanothus	VASC	Rhamnaceae			BLMS	1B.2		G2	S2		No	28-Apr-15												K					
Ceanothus divergens	Calistoga ceanothus	VASC	Rhamnaceae			BLMS	1B.2		G2	S2		No	28-Apr-15																	S
Ceanothus ferrisiae	coyote ceanothus	VASC	Rhamnaceae	FE			1B.1		G2	S2		Yes	13-Sep-12									S								
Ceanothus hearstiorum	Hearst's ceanothus	VASC	Rhamnaceae		SR	BLMS	1B.2		G1	S1		No										S								

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Ceanothus otayensis	Otay Mountain ceanothus	VASC	Rhamnaceae			BLMS	1B.2		G1	S1		No	30-Jul-13	CNDDB Occurrence 4 is clearly on BLM lands on the south slope of Otay Mountain, based on a 2001 field survey form from Julie Evens. Nonspecific Occurrence 1, on the northeast face of Otay Mountain, has its entire mapped 1-mile radius circle on BLM lands, as does the nonspecific 2/5 mile radius circle of Occurrence 2.										K					
Ceanothus roderickii	Pine Hill ceanothus	VASC	Rhamnaceae	FE	SR		1B.2		G1	S1		Yes	13-Sep-12										K						
Centromadia parryi subsp. congdonii	Congdon's tarplant	VASC	Asteraceae			BLMS	1B.1		G3T2	S2		No	28-Apr-15	Formerly *Hemizonia parryi* Greene subsp. *congdonii* (Rob. & Greenm.) Keck; Fort Ord. Rare Plant Rank changed from 1B.2 to 1B.1 by CNPS/CDFW on 11-5-2012.								K								
Centromadia parryi subsp. parryi	pappose tarplant	VASC	Asteraceae			BLMS	1B.2		G3T1	S1		No	28-Apr-15	Formerly *Hemizonia parryi* Greene. Known in Bear Creek watershed acc. 12/10/2008 email from Jim Weigand.																K
Chaenactis glabriuscula var. orcuttiana	Orcutt's pincushion	VASC	Asteraceae			BLMS	1B.1		G5T1	S1		No	18-Sep-12	CNDDB historic, nonspecific occurrence 12 on land slated for wind energy. There are BLM lands inside the 1 mile radius circle, but most of the lands inside the circle are private.							S									
Chaenactis suffrutescens	Shasta chaenactis	VASC	Asteraceae			BLMS	1B.3		G3	S3		No														K			
Chamaesyce hooveri	Hoover's spurge	VASC	Euphorbiaceae	FT			1B.2		G2	S2		Yes	13-Sep-12	Formerly *Chamaesyce hooveri* (Wheeler) Koutnik.												S			
Chlorogalum grandiflorum	Red Hills soaproot	VASC	Agavaceae			BLMS	1B.2		G3	S3		No	13-Sep-12										K						
Chlorogalum pomeridianum var. minus	dwarf soaproot	VASC	Agavaceae			BLMS	1B.2		G5T2	S2		No	13-Sep-12													K			K
Chlorogalum purpureum var. purpureum	purple amole	VASC	Agavaceae	FT			1B.1		G2T2	S2		No	13-Sep-12	Critical Habitat, known habitat in Bakersfield Field Office (Mineral Estate).			S					S							

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Chloropyron maritimum subsp. palustre	Pt. Reyes birds-beak	VASC	Orobanchaceae			BLMS	1B.2		G4?T2	S2		No	28-Apr-15	Name change from *Cordylanthus maritimus* subsp. *palustris* to *Chloropyron maritimum* subsp. *palustre* as of March 3, 2011.		K														
Chloropyron molle subsp. hispidum	hispid bird's-beak	VASC	Orobanchaceae			BLMS	1B.1		G2T2	S2		No	28-Apr-15	Name change from *Cordylanthus mollis* subsp. *hispidus* to *Chloropyron molle* subsp. *hispidum* as of March 3, 2011.			S					S									
Chloropyron tecopense	Tecopa bird's-beak	VASC	Orobanchaceae			BLMS	1B.2		G2	S1		No	03-Oct-11	Name change from *Cordylanthus tecopensis* to *Chloropyron tecopense* as of March 3, 2011.				K												
Choiromyces venosus	hypogeous truffle	FUNG	Tuberaceae			BLMS			G4G5	S1		No	28-Apr-15	Also S1 in OR.		K														
Chorizanthe biloba var. immemora	Hernandez spineflower	VASC	Polygonaceae			BLMS	1B.2		G3T1?	S1?		No	13-Sep-12	Near mouth of Clear Creek.								K								
Chorizanthe breweri	Brewer's spineflower	VASC	Polygonaceae			BLMS	1B.3		G2	S2		No	28-Apr-15				S													
Chorizanthe parryi var. parryi	Parry's spineflower	VASC	Polygonaceae			BLMS	1B.1		G3T3	S3		No	28-Apr-15	Occurrences 74 and 79 in CNDDB defintely on BLM lands; Occurrence 43 may be on BLM lands.												K					
Chorizanthe polygonoides var. longispina	long-spined spineflower	VASC	Polygonaceae			BLMS	1B.2		G5T3	S3		No	18-Sep-12	Specific CNDDB occurrences on BLM lands in Palm Springs, nonspecific CNDDB occurrence number 133 in El Centro includes BLM lands slated for renewable energy within the 1 mile radius mapped circle.							S					K					
Chorizanthe pungens var. pungens	Monterey spineflower	VASC	Polygonaceae	FT			1B.2		G2T2	S2		Yes	13-Sep-12									K								
Chorizanthe rectispina	straight-awned spineflower	VASC	Polygonaceae			BLMS	1B.3		G1	S1		No					K					K								
Chorizanthe robusta var. robusta	robust spineflower	VASC	Polygonaceae	FE			1B.1		G2T1	S1		Yes	15-Nov-10									S								

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Chorizanthe xanti var. leucotheca	white-bracted spineflower	VASC	Polygonaceae			BLMS	1B.2		G4T3	S3		No	28-Apr-15	CNDDB nonspecific Occurrence 33 near Old Woman Springs has BLM lands within the mapped 1-mile radius circle in the Barstow Field Office. Several specific and nonspecific occurrences are on BLM lands in the Palm Springs Field Office in and near Whitewater Canyon.				S							K				
Cirsium ciliolatum	Ashland thistle	VASC	Asteraceae		SE	BLMS	2B.1		G3	S1		No	28-Apr-15													S			
Cirsium crassicaule	slough thistle	VASC	Asteraceae			BLMS	1B.1		G2	S2		No	28-Apr-15				S												
Cirsium fontinale var. campylon	Mt. Hamilton thistle	VASC	Asteraceae			BLMS	1B.2		G2T2	S2		No	13-Sep-12									S							
Cirsium fontinale var. obispoense	Chorro Creek bog thistle	VASC	Asteraceae	FE	SE		1B.2		G2T2	S2		Yes	13-Sep-12				S												
Cirsium occidentale var. lucianum	Cuesta Ridge thistle	VASC	Asteraceae			BLMS	1B.2		G3G4T2	S2		No	13-Sep-12	CNDDB maps about a mile from BLM lands near Santa Margarita Lake.			S												
Cirsium rhothophilum	surf thistle	VASC	Asteraceae		ST	BLMS	1B.2		G1	S1		No	13-Sep-12	On BLM lands at the Point Sal ACEC.			K												
Cirsium scariosum var. loncholepis	La Graciosa thistle	VASC	Asteraceae	FE	ST		1B.1		G5T1	S1		No	13-Sep-12	Critical Habitat, potential habitat in the Bakersfield Field Office (Mineral Estate). Name change from *Cirsium loncholepis* to *Cirsium scariosum* var. *loncholepis* as of March 3, 2011.			S												
Clarkia australis	small southern clarkia	VASC	Onagraceae			BLMS	1B.2		G2	S2		No	28-Apr-15				S												
Clarkia biloba subsp. australis	Mariposa clarkia	VASC	Onagraceae			BLMS	1B.2		G4G5T2T3	S2S3		No	28-Apr-15										K						
Clarkia biloba subsp. brandegeae	Brandegee's clarkia	VASC	Onagraceae			BLMS	1B.2		G4G5T4	S2S3		No	28-Apr-15										K			K			
Clarkia borealis subsp. arida	Shasta clarkia	VASC	Onagraceae			BLMS	1B.1		G3T2	S2		No	18-Apr-13													K			
Clarkia borealis subsp. borealis	northern clarkia	VASC	Onagraceae			BLMS	1B.3		G3T3	S3		No	28-Apr-15													S			

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Clarkia delicata	delicate clarkia	VASC	Onagraceae			BLMS	1B.2		G3	S3		No	28-Apr-15	Collections by Mark Elvin 3365 (UC Irvine IRVC27200), April 24, 2004, and Jon P. Rebman et al. 8824 (UC Irvince IRVC27254), May 4, 2003, are both on BLM lands on Otay Mountain. Nonspecific CNDDB Occurrence 12 has some BLM lands within the mapped 1-mile radius circle.											K				
Clarkia gracilis subsp. albicaulis	white-stemmed clarkia	VASC	Onagraceae			BLMS	1B.2		G5T2	S2		No	28-Apr-15													K				
Clarkia mildrediae subsp. mildrediae	Mildred's clarkia	VASC	Onagraceae			BLMS	1B.3		G3T3	S3		No	13-Sep-12													S				
Clarkia mosquinii	Mosquin's clarkia	VASC	Onagraceae			BLMS	1B.1		G2	S2		No	15-Nov-10	Formerly *Clarkia mosquinii* subsp. *mosquinii* and *C. m.* subsp. *xerophila*.													K				
Clarkia rostrata	beaked clarkia	VASC	Onagraceae			BLMS	1B.3		G3	S3		No	28-Apr-15											K						
Clarkia springvillensis	Springville clarkia	VASC	Onagraceae	FT	SE		1B.2		G2	S2		No	13-Sep-12				S													
Clarkia tembloriensis subsp. calientensis	Vasek's clarkia	VASC	Onagraceae			BLMS	1B.1		G3T1	S1		No	18-Apr-13				S													
Clavariadelphus ligula	strap coral	FUNG	Gomphaceae			BLMS			None	None		No	16-Nov-10			S														
Clavulina castanopes var. lignicola	'hairy-stemmed coral'	FUNG	Clavulinaceae			BLMS			None	None		No	16-Nov-10			S														
Clinopodium chandleri	San Miguel savory	VASC	Lamiaceae			BLMS	1B.2		G2	S2		No	30-Jul-13	CNDDB occurrences 1, 2, and 3 are all on BLM lands north of Otay Mountain. Entire 1-mile radius circle of Occurrence 23 is on BLM lands on Otay Mountain.												K				
Clitocybe subditopoda	'little brown mushroom'	FUNG	Tricholomataceae			BLMS			G3G4	S1S3		No	28-Apr-15			K														
Collinsia antonina	San Antonio collinsia	VASC	Plantaginaceae			BLMS	1B.2		G1	S1		No	18-Apr-13									S								

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Comarostaphylis diversifolia subsp. diversifolia	summer holly	VASC	Rhamnaceae			BLMS	1B.2		G3T2	S2		No	30-Jul-13	CNDDB Occurrences 10, 83, and 88 are on BLM lands in the Otay Mountain area. Collection SD191122 by Jonathon K. Snapp-Cook and others, April 28, 2006, is on BLM lands on the west side of Otay Mountain.											K				
Cordyceps ophioglossoides	truffle eater	FUNG	Clavicipitaceae			BLMS			G3G4	S3S4		No	28-Apr-15			S													
Cordylanthus nidularius	Mt. Diablo bird's-beak	VASC	Orobanchaceae		SR	BLMS	1B.1		G1	S1		No	18-Apr-13									S							
Cordylanthus rigidus subsp. littoralis	seaside bird's-beak	VASC	Orobanchaceae		SE	BLMS	1B.1		G5T2	S2		No	13-Sep-12				K					K							
Cordylanthus tenuis subsp. pallescens	pallid bird's-beak	VASC	Orobanchaceae			BLMS	1B.2		G4G5T1	S1		No	13-Sep-12													S			
Croton wigginsii	Wiggins' croton	VASC	Euphorbiaceae		SR	BLMS	2B.2		G2G3	S2		No	28-Apr-15							K									
Cryptantha clokeyi	Clokey's cryptantha	VASC	Boraginaceae			BLMS	1B.2		G2	S2		No	13-Sep-12	SE Red Mt.													S		
Cryptantha crinita	silky cryptantha	VASC	Boraginaceae			BLMS	1B.2		G2	S2		No	13-Sep-12													K			
Cryptantha dissita	serpentine cryptantha	VASC	Boraginaceae			BLMS	1B.2		G2	S2		No	13-Sep-12	Suspected to occur at Eden Valley, Arcata Field Office. Name change from *Cryptantha clevelandii* var. *dissita* to *Cryptantha dissita* as of March 3, 2011. Species found on Walker Ridge (Ukiah Field Office) as part of rare plant inventory for proposed wind energy development. Re-ranked from rare plant rank 1B.1 to 1B.2 on 10-25-2012.		S											K
Cryptantha excavata	deep-scarred cryptantha	VASC	Boraginaceae			BLMS	1B.3		G1	S1		No	28-Apr-15	Known from Walker Ridge/Bear Creek acc. Jim Weigand. Old, nonspecific CNDDB occurrences mapped near BLM lands in Colusa County.																K
Cryptantha ganderi	Gander's cryptantha	VASC	Boraginaceae			BLMS	1B.1		G1G2	S1		No	13-Sep-12												S				

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Cryptantha mariposae	Mariposa cryptantha	VASC	Boraginaceae			BLMS	1B.3		G3	S3		No	28-Apr-15	Two collections by Vern Yadon, one in Clear Creek at 3307 ft elevation and the other at Santa Rita Peak, just below east side. CNDDB doesn't yet show these occurrences (as of 6/27/2013) but this is because they didn't know about them at last update (pers. comm. Nick Jensen, May 2009). This is a significant range extension. The Yadon collections were still not mapped in CDDB as of 4/28/2015.								K	K							
Cryptantha roosiorum	bristlecone cryptantha	VASC	Boraginaceae		SR	BLMS	1B.2		G2	S2		No	18-Apr-13						S								K		
Cryptantha schoolcraftii	Schoolcraft's cryptantha	VASC	Boraginaceae			BLMS	2B.2	W	G3	S1 (CA); S3 (NV)		No	28-Apr-15	Common name "ash cryptantha" used in Jepson Manual 2nd edition. Nevada Heritage Program uses "Schoolcraft catseye."															K	
Cusickiella quadricostata	Bodie Hills cusickiella	VASC	Brassicaceae			BLMS	1B.2		G3	S2		No	28-Apr-15						K										
Cylindropuntia fosbergii	pink teddy-bear cholla	VASC	Cactaceae			BLMS	1B.3		G2	S2		No	18-Sep-12	Treated as a hybrid, *C. xfosbergii* in the Jepson Manual, Second Edition, but based on a recent paper by Mayer et al. (*Madrono* 58: 106-112), CDFG and CNPS have elevated to specific level and assigned a California Rare Plant Rank of 1.3 (on 5-7-2012). Several occurrencs on BLM lands in the Monument Peak Quadrangle.							K									
Cylindropuntia munzii	Munz cholla	VASC	Cactaceae			BLMS	1B.3		G3	S1		No	18-Apr-13	Formerly *Opuntia munzii* C.B. Wolf.							K				K				
Cymopterus deserticola	desert cymopterus	VASC	Apiaceae			BLMS	1B.2		G2	S2		No	13-Sep-12	East of Cuddeback Lake and north of Edwards AFB.				K									K		
Cymopterus ripleyi var. saniculoides	Ripley's cymopterus	VASC	Apiaceae			BLMS	1B.2		G3G4T3Q	S1		No	18-Apr-13	NE Haiwee Reservoir.													K		
Cypripedium fasciculatum	clustered lady's slipper	VASC	Orchidaceae			BLMS	4.2		G4	S4		No	28-Apr-15													K			
Cypripedium montanum	mountain lady's slipper	VASC	Orchidaceae			BLMS	4.2		G4	S4		No	28-Apr-15													K			

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Dalea ornata	ornate dalea	VASC	Fabaceae			BLMS	2B.1		G4G5	S2		No	28-Apr-15	Only six closely associated occurrences are known of this plant in CA, and they are disjunct from the others in western NV. Known from the Snake and Columbia valleys in E. WA, OR, and SW ID. Occurrences in CA are grazed and subject to invasion form medusahead and cheatgrass.						K										
Dedeckera eurekensis	July gold	VASC	Polygonaceae		SR	BLMS	1B.3		G3	S3		No	28-Apr-15						K							K		
Deinandra arida	Red Rock tarplant	VASC	Asteraceae			BLMS	1B.2		G1	S1		No	18-Apr-13	Formerly *Hemizonia arida* Keck. Known to occur in Red Rock State Park.													S		
Deinandra conjugens	Otay tarplant	VASC	Asteraceae	FT	SE		1B.1		G1	S1		Yes	13-Sep-12	Formerly *Hemizonia conjugens* Keck. Review of CNDDB does not show any occurences on BLM land, though some are close.											S				
Deinandra floribunda	Tecate tarplant	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	28-Apr-15	Formerly *Hemizonia floribunda* A. Gray.											K				
Deinandra halliana	Hall's tarplant	VASC	Asteraceae			BLMS	1B.1		G2	S2		No	13-Sep-12	Formerly *Hemizonia halliana* Keck.			S					K							
Deinandra increscens subsp. villosa	Gaviota tarplant	VASC	Asteraceae	FE	SE		1B.1		G4G5T2	S2		No	13-Sep-12	Formerly *Hemizonia increscens* Keck subsp. *villosa* Tanowitz. Proposed Critical Habitat, mineral estate.			S												
Deinandra minthornii	Santa Suzana tarplant	VASC	Asteraceae		SR	BLMS	1B.2		G2	S2		No	28-Apr-15	Formerly *Hemizonia minthornii* Jeps.											S				

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Deinandra mohavensis	Mojave tarplant	VASC	Asteraceae		SE	BLMS	1B.3		G2G3	S2S3		No	30-Jul-13	Formerly *Hemizonia mohavensis* Keck. Already K for Ridgecrest and S for the Barstow Field Office. Added as S for the Bakersfield Field Office and K for the Palm Springs Field Office on 7/30/2013. CNDDB occurrences 34, 66, and 67 are entirely on BLM lands in the Ridgecrest Field Office, inside the DRECP planning area, but outside DFAs under any alternative. Occurrence 68 is non-specific; a small part of the mapped 1/5 mi radius circle has BLM lands and is outside of DFAs under any alternative. Occurrences 69 and 33 are in the Bakersfield Field Office, outside of the DRECP boundary; both are nonspecific occurrences with some BLM land inside polygons, but the species may not actually occur on BLM lands. Occurrence 15 in the Palm Springs Field Office is on BLM lands in San Diego County. Occurrences 56 and 64 are both nonspecific occurrences in Palm Springs with some BLM land inside polygons. Occurrence 1 is a nonspecific, 1-mile radius occurrence; the circle straddles the DRECP boundary and a small part of the circle is on BLM lands in Barstow (within DRECP boundary); the rest is military, Forest Service, and private.			S	S							K		K		
Delphinium hesperium subsp. cuyamaceae	Cuyamaca larkspur	VASC	Ranunculaceae		SR	BLMS	1B.2		G4T2	S2		No	28-Apr-15												S				
Delphinium parryi subsp. blochmaniae	dune larkspur	VASC	Ranunculaceae			BLMS	1B.2		G4T2	S2		No	28-Apr-15				S												

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Delphinium purpusii	Kern County Larkspur	VASC	Ranunculaceae			BLMS	1B.3		G2	S2		No	13-Sep-12	Known only from rocky areas in Kern and Tulare counties with 15-20 occurrences known. Very localized with several occurrences on road cuts.			K													
Delphinium recurvatum	recurved larkspur	VASC	Ranunculaceae			BLMS	1B.2		G3	S3		No	13-Sep-12				K					K								
Delphinium umbraculorum	umbrella larkspur	VASC	Ranunculaceae			BLMS	1B.3		G3	S3		No	28-Apr-15				S													
Dendriscocaulon intricatulum	northern moon shrub	LICH	Lobariaceae			BLMS			G3G4Q	S1		No	28-Apr-15			S										K				
Dendrocollybia racemosa	no common name	FUNG	Tricholomataceae			BLMS			G4	None		No	16-Nov-10	Formerly *Collybia racemosa* (Pers.) Quélet.		K										S				
Dermocybe humboldtensis	'little green mushroom'	FUNG	Cortinariaceae			BLMS			G1G2	S1?		No	28-Apr-15			K														
Dieteria asteroides var. lagunensis	Mount Laguna aster	VASC	Asteraceae		SR	BLMS	2B.1		G5T2T3Q	S1		No	28-Apr-15	Formerly *Machaeranthera asteroides* (Torr.) Greene var. *lagunensis* (Keck) Turner.							K									
Dithyrea maritima	beach spectaclepod	VASC	Brassicaceae		ST	BLMS	1B.1		G2	S1		No	28-Apr-15	Removed from the "S" list for the Palm Springs Field Office on 8/6/2013 because no known occurrences are near BLM lands. Still considered "S" for the Bakersfield Field Office based on CNDDB nonspecific Occurrence 29, the mapped 3/5 mile radius circle of which includes BLM lands at Point Sal.			S													
Dodecahema leptoceras	slender-horned spineflower	VASC	Polygonaceae	FE	SE		1B.1		G1	S1		No		Formerly *Centrostegia leptoceras* Gray.											K					
Dudleya abramsii subsp. murina	mouse-gray dudleya	VASC	Crassulaceae			BLMS	1B.3		G3T2	S2		No	28-Apr-15				S													
Dudleya multicaulis	many-stemmed dudleya	VASC	Crassulaceae			BLMS	1B.2		G2	S2		No	06-Aug-13	Status changed from "K" to "S" on 8/6/2013. Although nonspecific CNDDB Occurrence 9 has BLM lands within it (as well as private lands), the observers cite the lands as private.											S					

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Dudleya saxosa subsp. saxosa	Panamint dudleya	VASC	Crassulaceae			BLMS	1B.3		G4T3	S3		No	13-Sep-12	Panamint Mts: on BLM lands in Surprise Canyon--see 2005 Surprise Canyon ADEIS.													K		
Dudleya variegata	variegated dudleya	VASC	Crassulaceae			BLMS	1B.2		G2	S2		No	28-Apr-15												K				
Echinocereus engelmannii var. howei	Howe's hedgehog cactus	VASC	Cactaceae			BLMS	1B.1		G5T1	S1		No	18-Apr-13	*E. e.* var. *howei* not recognized in Jepson Manual 1st or 2nd edition or in Flora North America. It is recognized in the USDA Plants database. Original description is in the Cactus and Succulent Journal 46:80 (1974).										K					
Enceliopsis covillei	Panamint daisy	VASC	Asteraceae			BLMS	1B.2		G2?	S2?		No	28-Apr-15	Panamint Mts.													K		
Entoloma nitidum	'indigo entoloma'	FUNG	Entolomataceae			BLMS			G5	S1S3		No	28-Apr-15			K													
Epilobium oreganum	Oregon fireweed	VASC	Onagraceae			BLMS	1B.2		G2	S2		No	28-Apr-15													S			
Epilobium siskiyouense	Siskiyou fireweed	VASC	Onagraceae			BLMS	1B.3		G3	S3		No	28-Apr-15													S			
Eremalche kernensis	Kern mallow	VASC	Malvaceae	FE			1B.1		G3?T2Q	S2		Yes	18-Apr-13				K												
Eriastrum brandegeeae	Brandegee's eriastrum	VASC	Polemoniaceae			BLMS	1B.1		G1Q	S1		No	18-Apr-13	Reranked from California Rare Plant Rank 1B.2 to 1B.1 on 8-23-2012.													K			K
Eriastrum densifolium subsp. sanctorum	Santa Ana River woolystar	VASC	Polemoniaceae	FE	SE		1B.1		G4T1	S1		No	13-Sep-12												K				
Eriastrum harwoodii	Harwood's eriastrum	VASC	Polemoniaceae			BLMS	1B.2		G2	S2		No	28-Apr-15	CNDDB maps at least 3 occurrences on BLM lands in the Needles Field Office. Several new occurrences added in 2009 and 2010 as a result of solar power plant surveys and CNPS Rare Plant Treasure Hunt.										K	K				
Eriastrum luteum	yellow-flowered eriastrum	VASC	Polemoniaceae			BLMS	1B.2		G2	S2		No	28-Apr-15				K												
Ericameria fasciculata	Eastwood's goldenbush	VASC	Asteraceae			BLMS	1B.1		G2	S2		No	28-Apr-15									K							
Ericameria gilmanii	Gilman's goldenbush	VASC	Asteraceae			BLMS	1B.3		G1	S1		No	13-Sep-12	Owens Peak.													S		
Ericameria palmeri var. palmeri	Palmer's goldernbush	VASC	Asteraceae			BLMS	1B.1		G4T2T3	S1		No	15-Nov-10	Moved from CNPS list 2.2 to 1B.1 on 8/12/09. CNDDB Occurrence 2, anon-specific 1-mile radius circle, includes BLM lands within it.											S				

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Erigeron aequifolius	Hall's daisy	VASC	Asteraceae			BLMS	1B.3		G3	S3		No	28-Apr-15	S. Sierra.													K		
Erigeron blochmaniae	Blochman's leafy daisy	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	28-Apr-15				K												
Erigeron calvus	bald daisy	VASC	Asteraceae			BLMS	1B.1		G1Q	S1		No	18-Apr-13	This occurrence is based on a single collection by Olmstead in 1891. It is mapped as a best guess "just north of Swansea," and has a 1-mile radius circle to indicate a nonspecific occurrence. Most of the lands within that circle are BLM lands, so we should at least have the species on our list as suspected to occur. Although the Rarefind report states that there are taxonomic questions (and the Global Natureserve rank of G1Q also indicates this), the species is included in both Jepson Manual 2 and the Flora of North America.					S										
Erigeron multiceps	Kern River daisy	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	28-Apr-15				S												
Erigeron parishii	Parish's daisy	VASC	Asteraceae	FT			1B.1		G2	S2		No	06-Aug-13	A draft Recovery Plan was issued in 1997 but as of 8/6/2013 was not final. Some of the recovery actions in the draft plan have been started and partially implemented. Until 8/6/2013 this was considered "K" in the Palm Springs Field Office, but a review of CNDDB records shows that although there are many occurrences within the boundaries of the Palm Springs Field Office, none of these are near BLM lands.				K										
Erigeron serpentinus	serpentine daisy	VASC	Asteraceae			BLMS	1B.3		G2	S2		No	23-Oct-12	CNDDB Occurrence 3 is on BLM land at The Cedars.																K
Erigeron supplex	supple daisy	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	17-Mar-15	Old records from the Garcia River just east of the Stornetta Unit, according to Jim Weigand (2/3/2015).																S

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Erigeron uncialis var. uncialis	limestone daisy	VASC	Asteraceae			BLMS	1B.2		G3G4T2	S2		No	31-Mar-15	On private land within the new boundary of the Cerro Gordo/Conglomerate Mesa ACEC													S		
Eriodictyon altissimum	Indian Knob mountainbalm	VASC	Boraginaceae	FE	SE		1B.1		G1	S1		Yes	13-Sep-12				S												
Eriogonum alexanderae	Alexander's buckwheat	VASC	Polygonaceae			BLMS	1B.1		G2G3	S1		No	07-Jul-12	Name changed from *Eriogonum ochrocephalum* var. *alexanderae* to *Eriogonum alexanderae* and rare plant rank changed from Rank 2.2 to 1B.1 on 11/29/2011. Located in Mono County on Bodie Mountain. Likely on BLM lands there.					S										
Eriogonum apricum var. apricum	Ione buckwheat	VASC	Polygonaceae	FE	SE		1B.1		G1T1	S1		No	13-Sep-12										K						
Eriogonum bifurcatum	forked buckwheat	VASC	Polygonaceae			BLMS	1B.2		G3	S3		No	18-Apr-13					K											
Eriogonum cedrorum	The Cedars buckwheat	VASC	Polygonaceae			BLMS	1B.3		G1	S1		No	23-Oct-12	Specific CNDDB Occurrence 1 is mapped on BLM land at The Cedars.															K
Eriogonum contiguum	Reveal's buckwheat	VASC	Polygonaceae			BLMS	2B.3		G2	S2		No	28-Apr-15	CNDDB Occurrences 14, 15, and 18 are on BLM lands.													K		
Eriogonum crosbyae	Crosby's buckwheat	VASC	Polygonaceae			BLMS		W	G3	S3		No		S3 in NV. This plant is threatened by gold mining activity on the Nevada portion of the Surprise Field Office. 82% of this plants' total numbers are within the mining claim area. A few populations also occur in Oregon.														K	
Eriogonum eremicola	Wildrose Canyon buckwheat	VASC	Polygonaceae			BLMS	1B.3		G1	S1		No	13-Sep-12						S								K		
Eriogonum hoffmannii var. hoffmannii	Hoffmann's buckwheat	VASC	Polygonaceae			BLMS	1B.3		G3T2	S2		No	28-Apr-15	Panamint Mts.; Found in Surprise Canyon on BLM lands--see 2005 ADEIS.													K		
Eriogonum kelloggii	Red Mountain buckwheat	VASC	Polygonaceae		SE	BLMS	1B.2		G2	S2		No	28-Apr-15	Formerly a Federal candidate for listing. Removed from candidate list, Federal Register 29: 56029, September 18, 2014.		K													
Eriogonum kennedyi var. pinicola	Kern buckwheat	VASC	Polygonaceae			BLMS	1B.1		G4T1	S1		No	18-Apr-13				S										K		

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Eriogonum mensicola	Pinyon Mesa buckwheat	VASC	Polygonaceae			BLMS	1B.3		G2G3	S2		No	31-Mar-15	CNDDB occurrences 6 and 8 on BLM, perhaps within the boundary of the new Cerro Gordo/Conglomerate Mesa ACEC (the occurrences straddle the boundary). Other occurrences on Death Valley NP, China Lake NWS.													K		
Eriogonum microthecum var. panamintense	Panamint Mountains buckwheat	VASC	Polygonaceae			BLMS	1B.3		G5T3	S3		No	28-Apr-15	CNDDB occurrence number 7 is within the boundary of the new Cerro Gordo/Conglomerate Mesa ACEC. Other occurrences on BLM lands in the Ridgecrest and Bishop Field Offices.					K								K		
Eriogonum microthecum var. schoolcraftii	Schoolcraft's wild buckwheat	VASC	Polygonaceae			BLMS	1B.2	W	G5T3 in CA; G5T2 in NV	S3 (CA); S1 (NV)		No	28-Apr-15	Taxon described by: Reveal, J. L. 2004. New entities in *Eriogonum* (Polygonaceae: Eriogonoideae). Phytologia 86(3):121-159.						K								S	
Eriogonum nervulosum	Snow Mtn. buckwheat	VASC	Polygonaceae			BLMS	1B.2		G2	S2		No	13-Sep-12																K
Eriogonum nudum var. murinum	mouse buckwheat	VASC	Polygonaceae			BLMS	1B.2		G5T2	S2		No	28-Apr-15				K					K							
Eriogonum ovalifolium var. vineum	Cushenberry buckwheat	VASC	Polygonaceae	FE			1B.1		G5T1	S1		No	06-Aug-13	A draft Recovery Plan was issued in 1997 but as of 8/6/2013 was not final. Some of the recovery actions in the draft plan have been started and partially implemented.				K											
Eriogonum prociduum	prostrate buckwheat	VASC	Polygonaceae			BLMS	1B.2	W	G3	S3 (CA); S1 (NV)		No	28-Apr-15	Found in the Ash Valley RNA/ACEC.	K													K	
Eriogonum temblorense	Temblor buckwheat	VASC	Polygonaceae			BLMS	1B.2		G2	S2.2		No		Known only from eastern Monterey Co., eastern San Luis Obispo Co., and western Kern Co. Within the Bakersfield Field Office it occurs on shaly/barren soils in the Temblor Range and Elkhorn Plain. This habitat type appears to by very scattered and limited.			K												
Eriogonum thornei	Thorne's buckwheat	VASC	Polygonaceae		SE	BLMS	1B.2		G1	S1		No	13-Sep-12	Formerly *E. ericifolium* var. *thornei*, now elevated to species.											K				

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Eriogonum umbellatum var. ahartii	Ahart's buckwheat	VASC	Polygonaceae			BLMS	1B.2		G5T2	S2		No	03-Oct-11	Currently shown in 5 locations close to BLM lands. Rarefind shows that locations are near West Branch of Feather River, De Sabla, South of Paradise Lake, and near Magalia Reservoir on scattered parcels.												S				
Eriogonum umbellatum var. glaberrimum	green buckwheat	VASC	Polygonaceae			BLMS	1B.3		G5T2?	S2		No	18-Apr-13		S														S	
Eriogonum ursinum var. erubescens	blushing wild buckwheat	VASC	Polygonaceae			BLMS	1B.3		G3G4T2	S2		No	28-Apr-15	CNDDB maps very close to BLM lands, especially Occurrence 1.												S				
Eriophyllum mohavense	Barstow woolly-sunflower	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	13-Sep-12					K									K			
Erysimum ammophilum	coast wallflower	VASC	Brassicaceae			BLMS	1B.2		G2	S2		No	28-Apr-15									K								
Erysimum concinnum	bluff wallflower	VASC	Brassicaceae			BLMS	1B.2		G3	S3		No	26-Feb-15	Added to list as 1B.2 on 12/3/2012. Originally proposed to be added as 4.2, but final decision 1B.2 based on comments from field botanists. Substantial population on the north end of the King Range acc. Jennifer Wheeler. Biosystematic study of this plant and closely related congeners is currently underway.		K														
Erysimum menziesii	Menzies' wallflower	VASC	Brassicaceae	FE	SE		1B.1		G1	S1		No	28-Apr-15	Formerly *Erysimum menziesii* (Hook.) Wettst. subsp. *eurekense* R. Price, but that combination, along with the two other subspecies that were formerly recognized by CNPS and CDFW, was never validly published. All three subspecies, including subsp. *eurekense*, are now submerged into *E. menziesii* in the Jepson Manual II and by CNPS/CDFW per decision on 12-11-2012. The common name for the invalid combination, *E. m.* subsp. *eurekense*, Humboldt Bay wallflower, has also been dropped in favor of Menzies' wallflower.		K														

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Erythranthe calcicola	limestone monkeyflower	VASC	Phrymaceae			BLMS	1B.3		G2	S2		No	25-Jun-13	This species was newly described in 2012 by Naomi Fraga and added to RPR 1B.3 on on 6/24/2013. There are three occurrences on BLM lands in the Ridgecrest Field Office, according to Naomi.													K		
Erythranthe rhodopetra	Red Rock Canyon monkeyflower	VASC	Phrymaceae			BLMS	1B.1		G1	S1		No	30-Oct-13	This species was newly described in 2012 by Naomi Fraga. The discussion in the CNPS Rare Plant Forum (http://cnps.org/forums/showthread.php?t=1792) states that there are 2 (and possibly 3) occurrences on BLM lands in CA in the El Paso Mts of the Ridgecrest FO. More recent occurrences are all in Red Rock SP. Added to CDFW/CNPS list as 1B.1 on Jul 8, 2013. As of 10/30/2013 not yet mapped in CNDDB.													K		
Erythronium citrinum var. roderickii	Scott Mtn. fawn lily	VASC	Liliaceae			BLMS	1B.3		G4T3	S3		No	15-Nov-10													S			
Erythronium tuolumnense	Tuolumne fawn-lily	VASC	Liliaceae			BLMS	1B.2		G2	S2		No	13-Sep-12										K						
Eschscholzia minutiflora subsp. twisselmannii	Red Rock poppy	VASC	Papaveraceae			BLMS	1B.2		G5T2	S2		No	28-Apr-15	El Paso Mts.													K		
Eschscholzia rhombipetala	diamond-petaled California poppy	VASC	Papaveraceae			BLMS	1B.1		G1	S1		No	18-Apr-13				S												
Etriplex joaquinana	San Joaquin spearscale	VASC	Chenopodiaceae			BLMS	1B.2		G2	S2		No	28-Apr-15	Found by Craig Thomsen and Ellen Dean in Bear Creek Unit (Payne Ranch). Formerly Atriplex joaquinana A. Nelson.																K

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Euphorbia jaegeri	Orocopia Mountains spurge	VASC	Euphorbiaceae			BLMS	1B.1		G1	S1		No	30-Jul-13	Newly described in 2012 (*Aliso* 30: 1-4). There are only four known occurrences. CNDDB Occurrence 2 (Marble Mountains) and occurrences 3 and 4 (Bristol Mountains) are all on BLM lands in the Needles Field Office. Occurrence 4 is within the boundaries of a proposed wind farm. Occurrence 1, the type locality, is in the Orocopia Mountains (Palm Springs Field Office), where the nonspecific mapped 2/5 mile radius circle has both BLM and private lands within it. Added to the CNPS/CDFW lists on 1-17-2013.										K	S				
Euphorbia ocellata subsp. rattanii	Stony Creek spurge	VASC	Euphorbiaceae			BLMS	1B.2		G4T1T2	S1S2		No	13-Sep-12	Formerly *Chamaesyce ocellata* (Dur. & Hilg.) Millsp. subsp. rattanii (S. Watson) Koutnik.												K			
Euphorbia platysperma	flat-seeded spurge	VASC	Euphorbiaceae			BLMS	1B.2		G3	S1		No	28-Apr-15	Formerly *Chamaesyce platysperma* (Engelm.) Shinners. Until 8/6/2013 was considered "S" in Palm Springs, but a review of the CNDDB reveals no occurrences close to BLM lands in that Field Office. Still considered "S" in El Centro and added as "S" (on 8/6/2013) to Barstow based on the mapped polygon for CNDDB nonspecific Occurrence 3, which has BLM lands (as well as private lands) within it. Nonspecific Occurrence 4 in El Centro has BLM lands within the mapped 1-mile radius circle.				S			S						
Fremontodendron decumbens	Pine Hill flannelbush	VASC	Malvaceae	FE	SR		1B.2		G1	S1		Yes	13-Sep-12										K						
Fremontodendron mexicanum	Mexican flannelbush	VASC	Malvaceae	FE	SR		1B.1		G1	S1		No	13-Sep-12								K				K				
Fritillaria falcata	talus fritillary	VASC	Liliaceae			BLMS	1B.2		G2	S2		No	28-Apr-15									K							

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Fritillaria gentneri	Gentner's fritillaria	VASC	Liliaceae	FE			1B.1		G1	S1		Yes	13-Sep-12													K			
Fritillaria ojaiensis	Ojai fritillary	VASC	Liliaceae			BLMS	1B.2		G2	S2		No	13-Sep-12				S												
Fritillaria pluriflora	adobe-lily	VASC	Liliaceae			BLMS	1B.2		G3	S3		No	22-Nov-10	Documented in the Ukiah Field Office within the proposed right-of-way of the AltaGas/Greenwing Energy proposed Walker Ridge wind farm (Vollmar Consulting, 2010 Sensitive Botanical Resources Survey Report, Walker Ridge Project Site, Lake and Colusa Counties, California, October 2010). Also occurs elsewhere in the Ukiah Field Office.													S			K
Fritillaria striata	striped adobe-lily	VASC	Liliaceae		ST	BLMS	1B.1		G2	S2		No	13-Sep-12				S												
Fritillaria viridea	San Benito fritillary	VASC	Liliaceae			BLMS	1B.2		G2	S2		No	13-Sep-12									K							
Galium angustifolium subsp. onycense	Onyx peak bedstraw	VASC	Rubiaceae			BLMS	1B.3		G5T3	S3		No	28-Apr-15				K												
Galium californicum subsp. primum	Alvin Meadow bedstraw	VASC	Rubiaceae			BLMS	1B.2		G5T1Q	S1		No	13-Sep-12												S				
Galium californicum subsp. sierrae	El Dorado bedstraw	VASC	Rubiaceae	FE	SR		1B.2		G5T1	S1		Yes	13-Sep-12										K						
Galium glabrescens subsp. modocense	Modoc bedstraw	VASC	Rubiaceae			BLMS	1B.2		G4T3	S3		No	18-Apr-13		S														K
Galium grande	San Gabriel bedstraw	VASC	Rubiaceae			BLMS	1B.2		G2	S2		No	28-Apr-15												S				
Galium hardhamiae	Hardham's bedstraw	VASC	Rubiaceae			BLMS	1B.3		G3	S3		No	28-Apr-15				K												
Galium hilendiae subsp. kingstonense	Kingston bedstraw	VASC	Rubiaceae			BLMS	1B.3		G4T2	S2		No	18-Apr-13					K						K					
Galium serpenticum subsp. scotticum	Scott Mtn. bedstraw	VASC	Rubiaceae			BLMS	1B.2		G4G5T2	S2.2		No														K			
Galium serpenticum subsp. warnerense	Warner Mtns. bedstraw	VASC	Rubiaceae			BLMS	1B.2		G4G5T2	S2		No	18-Apr-13		S														S
Gentiana setigera	Mendocino gentian	VASC	Gentianaceae			BLMS	1B.2		G2	S1		No				K													

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Gilia capitata subsp. pacifica	Pacific gilia	VASC	Polemoniaceae			BLMS	1B.2		G5T3T4	S2		No	17-Mar-15	To be suspected on the Stornetta Unit according to Jim Weigand (2/3/2015).															S
Gilia millefoliata	dark-eyed gilia	VASC	Polemoniaceae			BLMS	1B.2		G2	S2		No	28-Apr-15			K													
Gilia tenuiflora subsp. arenaria	sand gilia	VASC	Polemoniaceae	FE	ST		1B.2		G3G4T2	S2		Yes										K							
Glossopetalon pungens	pungent glossopetalon	VASC	Crossosomataceae			BLMS	1B.2		G2G3	S1		No	18-Apr-13											K					
Gratiola heterosepala	Boggs Lake hedge-hyssop	VASC	Plantaginaceae		SE	BLMS	1B.2		G2	S2		No		This is a vernal pool plant. Can be found in man-made reservoirs.	K		K			K		K				K			
Grindelia fraxinipratensis	Ash Meadows gum-plant	VASC	Asteraceae	FT			1B.2		G2	S1	CE	Yes	13-Sep-12					K											
Grindelia hallii	San Diego gumplant	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	28-Apr-15	Although CNDDB occurrence 13 is nonspecific, the record states that the species was found on BLM lands.							K								
Gymnopilus punctifolius	'blue-green gymnopilus'	FUNG	Cortinariaceae			BLMS			G3G4	S2?		No	16-Nov-10			K													
Harmonia doris-nilesiae	Niles's harmonia	VASC	Asteraceae			BLMS	1B.1		G2	S2		No	28-Apr-15	Formerly *Madia doris-nilesiae* T.W. Nelson & J.P. Nelson.												S			
Harmonia hallii	Hall's harmonia	VASC	Asteraceae			BLMS	1B.2		G2	S2?		No	13-Sep-12	Formerly *Madia hallii* Keck. Documented in the Ukiah Field Office within the proposed right-of-way, as well as within the area of potential effect, of the AltaGas/Greenwing Energy proposed Walker Ridge wind farm (Vollmar Consulting, 2010 Sensitive Botanical Resources Survey Report, Walker Ridge Project Site, Lake and Colusa Counties, California, October 2010). Also elsewhere in the Ukiah Field Office.														K
Harmonia stebbinsii	Stebbins's harmonia	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	28-Apr-15	Formerly *Madia stebbinsi*i T.W. Nelson & J.P. Nelson.												K			
Helianthella castanea	Diablo rock-rose	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	13-Sep-12									S							

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Helianthus niveus subsp. tephrodes	Algodones Dunes sunflower	VASC	Asteraceae		SE	BLMS	1B.2		G4T2T3	S2		No	28-Apr-15								K								
Helianthus winteri	Winter's sunflower	VASC	Asteraceae			BLMS	1B.2		G1G2	S1S2		No	20-Jan-15	First described by Stebbins, J.C., C.J. Winchell, and J.V.H. Constable. 2013. Helianthus winteri (Asteraceae), a new perennial species from the southern Sierra Nevada foothills, California. Aliso 31: 19-24. Added to CDFW/CNPS list on 10/15/2014. Occurrence Number 2 (80m accuracy) is within 200m of isolated BLM 40-acre parcel centered at approximately -119.253672 36.592978 Decimal Degrees (NAD 83, UTM Zone 11N)			K											
Hesperevax sparsiflora subsp. brevifolia	short-leaved evax	VASC	Asteraceae			BLMS	1B.2		G4T2T3	S2S3		No	17-Mar-15	On BLM at Mattole Beach (in great numbers acc. Jennifer Wheeler) and at Samoa.		K														K
Hesperidanthus jaegeri	Jaeger's hesperidanthus	VASC	Brassicaceae			BLMS	1B.2		G2	S2		No	31-Mar-15	Formerly *Caulostramina jaegeri* . CNDDB Occurrence number 4 is definitely on BLM lands within the boundary of the new Cerro Gordo/Congolmerate Mesa ACEC. Occurrence number 2 is likely on BLM lands with the ACEC. Occurrence number 6, Keynot Peak near head of Keynot Canyon is on BLM lands but not clear whether in the Bishop or Ridgecrest Field Office (occurrence as mapped straddles the border between the two field offices).					S							K		
Hesperidanthus jaegeri	Jaeger's hesperidanthus	VASC	Brassicaceae			BLMS	1B.2		G2	S2		No	03-Jun-13	Formerly *Caulostramina jaegeri* (Roll.) Roll.					S								K		

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Hesperocyparis forbesii	Tecate cypress	VASC	Cupressaceae			BLMS	1B.1		G2	S2		No	03-Jun-13	Formerly *Cupressus forbesii*. The taxon was then moved to *Callitropsis forbesii* by Little (2006) Syst. Bot. 31(3):461-480. The Jepson Manual second edition uses *Hesperocyparis forbesii* in accordance with Adams et al. 2009. A new genus, *Hesperocyparis*, for the cypresses of the western hemisphere (Cupressaceae). Phytologia 91: 160-185.											K				
Hesperocyparis nevadensis	Piute cypress	VASC	Cupressaceae			BLMS	1B.2		G2	S2		No	28-Apr-15	Formerly *Cupressus nevadensis*. The taxon was then moved to *Callitropsis nevadensis* by Little (2006) Syst. Bot. 31(3):461-480. The Jepson Manual second edition uses *Hesperocyparis nevadensis* in accordance with Adams et al. 2009. A new genus, *Hesperocyparis*, for the cypresses of the western hemisphere (Cupressaceae). Phytologia 91: 160-185.			K										
Hesperolinon adenophyllum	glandular western flax	VASC	Linaceae			BLMS	1B.2		G3	S3		No	28-Apr-15																K
Hesperolinon breweri	Brewer's dwarf flax	VASC	Linaceae			BLMS	1B.2		G2	S2		No	13-Sep-12																S
Hesperolinon didymocarpum	Lake County dwarf flax	VASC	Linaceae		SE	BLMS	1B.2		G1	S1		No	13-Sep-12																S
Hesperolinon drymarioides	drymaria-like western flax	VASC	Linaceae			BLMS	1B.2		G2	S2		No	13-Sep-12	Documented in the Ukiah Field Office within the proposed right-of-way, as well as within the area of potential effect, of the AltaGas/Greenwing Energy proposed Walker Ridge wind farm (Volmar Consulting, 2010 Sensitive Botanical Resources Survey Report, Walker Ridge Project Site, Lake and Colusa Counties, California, October 2010). Also occurs elsewhere in the Ukiah Field Office.													K

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Hesperolinon sharsmithiae	Sharsmith's western flax	VASC	Linaceae			BLMS	1B.2		G2Q	S2		No	28-Mar-13	CNDDB Occurrence 53 is currently mapped by CNDDB as *H. tehamense* but CNPS/ CDFW now consider that occurrence to be *H. sharsmithiae* (http://cnps.org/forums/showthread.php?t=1723&highlight=Hesperolinon+sharsmithiae). *H. sharsmithiae* was added to the CNPS and CDFW lists on 12-14-2012.																K
Hesperolinon tehamense	Tehama County western flax	VASC	Linaceae			BLMS	1B.3		G2	S2		No	28-Mar-13	Added K for Ukiah on 3-28-2013 (was previously K for Redding only). CNDDB occurrences 18, 20, and 40 are all on BLM lands in the Ukiah FO. CNDDB Occurrence 53 is also currently mapped on BLM lands, but this occurrence is now considered by CNPS/CDFW to represent *H. sharsmithiae* (http://cnps.org/forums/showthread.php?t=1723&highlight=Hesperolinon+sharsmithiae).											K			K
Heterodermia leucomelos	ciliate strap-lichen	LICH	Physciaceae			BLMS			G4	None		No	16-Nov-10			K													
Heterotheca shevockii	Shevock's golden-aster	VASC	Asteraceae			BLMS	1B.3		G2	S2		No	03-Jun-13				S												
Heuchera brevistaminea	Laguna Mountains alumroot	VASC	Saxifragaceae			BLMS	1B.3		G3	S3		No	28-Apr-15	CNDDB Occurrence 5 is located on BLM lands.											K				
Horkelia bolanderi	Bolander's horkelia	VASC	Rosaceae			BLMS	1B.2		G1	S1		No	03-Jun-13	Very non-specific occurrence, CNDDB occurrence 9, encompasses BLM lands. Vollmar (Vollmar Consulting, 2010 Sensitive Botanical Resources Survey Report, Walker Ridge Project Site, Lake and Colusa Counties, California, October 2010) reported that suitable habitat is present on BLM lands.																S
Horkelia hendersonii	Henderson's horkelia	VASC	Rosaceae			BLMS	1B.1		G1G2	S1		No	28-Apr-15													S			
Horkelia parryi	Parry's horkelia	VASC	Rosaceae			BLMS	1B.2		G2	S2		No	28-Apr-15										K						

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Horkelia tenuiloba	thin-lobed horkelia	VASC	Rosaceae			BLMS	1B.2		G2	S2		No	28-Apr-15	Suspected to occur on BLM lands on and near Willis Ridge, acc. Jennifer Wheeler.		S														
Hosackia crassifolia var. otayensis	Otay Mountain lotus	VASC	Fabaceae			BLMS	1B.1		G5T1	S1		No	06-Aug-13	CNDDB occurrences 1, 2, and 3 are all on BLM lands on Otay Mountain.											K				
Hulsea californica	San Diego sunflower	VASC	Asteraceae			BLMS	1B.3		G2	S2		No	28-Apr-15	CNDDB occurrences 2 and 24 are located on BLM lands in the El Centro Field Office portion of San Diego County. Occurrences 10, 14, 22, 23, 26 are non-specific CNDDB occurrences that are located next to BLM lands in the El Centro Field Office part of San Diego County. Nonspecific Occurrence 29 in the Palm Springs Field Office portion of San Diego County has some BLM lands within the mapped 1-mile radius circle.							K				S				
Hydropus marginellus	'little brown mushroom'	FUNG	Tricholomataceae			BLMS			G3	S1S2		No	16-Nov-10			K													
Iris hartwegii subsp. columbiana	Tuolumne iris	VASC	Iridaceae			BLMS	1B.2		G4T1	S2		No	28-Apr-15										K						
Iris munzii	Munz's iris	VASC	Iridaceae			BLMS	1B.3		G2	S2		No	28-Apr-15				S												
Ivesia aperta var. aperta	Sierra Valley ivesia	VASC	Rosaceae			BLMS	1B.2	T	G2T2	S2 (CA); S1 (NV)		No	28-Apr-15							K								
Ivesia jaegeri	Jaeger's ivesia	VASC	Rosaceae			BLMS	1B.3		G2G3	S1		No	03-Jun-13											K					
Ivesia kingii var. kingii	alkali ivesia	VASC	Rosaceae			BLMS	2B.2		G4T3Q	S2		No	19-Aug-09	Moved from CNPS 1B.2 to 2.2 on 11/23/08 because more common in NV.					K										
Ivesia longibracteata	Castle Crags ivesia	VASC	Rosaceae			BLMS	1B.3		G1	S1		No	03-Jun-13													S			
Ivesia paniculata	Ash Creek ivesia	VASC	Rosaceae			BLMS	1B.2		G2	S2		No	03-Jun-13	Found in the Ash Valley RNA/ACEC.	K														
Ivesia patellifera	Kingston Mtns. ivesia	VASC	Rosaceae			BLMS	1B.3		G1	S2		No	03-Jun-13					K						K					
Ivesia pickeringii	Pickering's ivesia	VASC	Rosaceae			BLMS	1B.2		G2	S2.2		No													S				

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Ivesia rhypara var. rhypara	grimy ivesia	VASC	Rosaceae			BLMS		W	G2T2	S2 (NV)		No	28-Apr-15	This plant has 5 small occurrences in the Surprise Field Office within one mile of each other in NV. Listed as Endangered by the State of Oregon.															K	
Ivesia sericoleuca	Plumas ivesia	VASC	Rosaceae			BLMS	1B.2		G2	S2		No	28-Apr-15							S										
Ivesia webberi	Webber's ivesia	VASC	Rosaceae	FT			1B.1	T	G1	S2 (CA); S1 (NV)	CE	No	28-Apr-15	Listed as Threatened by the U.S. Fish and Wildlife Service on June 3, 2014 (79 Federal Register 106: 31878-31883). Critical Habitat designated on June 3, 2014 (79 Federal Register 106: 32126-32155). On BLM lands in Sierra Valley. Specific occurrence 1 as mapped by CNDDB does not include BLM lands within it, but 50 plants were found on BLM lands in the vicinity in 1992.						K										
Juncus leiospermus var. leiospermus	Red Bluff dwarf rush	VASC	Juncaceae			BLMS	1B.1		G2T2	S2		No	28-Apr-15													K			
Kaernefeltia californica	seaside thornbush	LICH	Parmeliaceae			BLMS			G3	None		No	16-Nov-10			K													
Lagophylla diabolensis	Diablo Range hare-leaf	VASC	Asteraceae			BLMS	1B.2		G2G3	S2S3		No	20-Jan-15	Recently described by Baldwin, B.G. 2013. Lagophylla diabolensis (Compositae-Madiinae), a new hare-leaf from the southern Diablo Range, California. Madroño 60(3): 249-254. Final decision to add to list 1B.2 made on 1/17/2014. At least 5 occurrences on BLM lands in Hollister FO.								K						
Lasthenia californica subsp. macrantha	perennial goldfields	VASC	Asteraceae			BLMS	1B.2		G3T2	S2		No	17-Mar-15	Known form the Stornetta Unit, per the following collections: JEPS21849, 1958, and CAS514082, 1967.																K
Lasthenia conjugens	Contra Costa goldfields	VASC	Asteraceae	FE			1B.1		G1	S1		Yes	13-Sep-12	Fort Ord.								K								
Lasthenia glabrata subsp. coulteri	Coulter's goldfields	VASC	Asteraceae			BLMS	1B.1		G4T2	S2		No	28-Apr-15				K												
Layia carnosa	beach layia	VASC	Asteraceae	FE	SE		1B.1		G2	S2		Yes	13-Sep-12			K													

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Layia discoidea	rayless tidytips	VASC	Asteraceae			BLMS	1B.1		G1	S1		No	28-Apr-15									K							
Layia heterotricha	pale-yellow layia	VASC	Asteraceae			BLMS	1B.1		G2	S2		No	13-Sep-12				K					K							
Layia jonesii	Jones' layia	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	28-Apr-15				S												
Layia leucopappa	Comanche Point layia	VASC	Asteraceae			BLMS	1B.1		G1	S1		No	03-Jun-13				S												
Layia munzii	Munz's tidy-tips	VASC	Asteraceae			BLMS	1B.2		G1	S1		No	03-Jun-13				K												
Layia septentrionalis	Colusa layia	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	28-Apr-15													S			S
Legenere limosa	legenere	VASC	Campanulaceae			BLMS	1B.1		G2	S2		No	28-Apr-15													K			
Lepechinia ganderi	Gander's pitcher-sage	VASC	Lamiaceae			BLMS	1B.3		G3?	S3		No	28-Apr-15												K				
Lepidium flavum var. felipense	Borrego Valley pepper-grass	VASC	Brassicaceae			BLMS	1B.2		G5T1	S1		No	06-Aug-13	This var. is not recognized by the Jepson Manual 2nd edition or by Flora North America. Changed from "S" in Palm Springs to "S" in El Centro on 8/6/2013 because CNDDB Occurrence 1, which has some BLM lands within the nonspecific 1-mile radius circle, is in the El Centro Field Office, not the Palm Springs Field Office. No occurrences are currently reported within the boundaries of the Palm Springs Field Office.							S									
Lepidium jaredii subsp. album	Panoche pepper-grass	VASC	Brassicaceae			BLMS	1B.2		G2T2	S2		No	03-Jun-13	This subsp. not recognized by Jepson Manual 1st or 2nd editions or by Flora North America.								K								
Lepidium jaredii subsp. jaredii	Jared's pepper-grass	VASC	Brassicaceae			BLMS	1B.2		G2T1T2	S1S2		No	28-Apr-15	Subspecies of *L. jaredii* are not recognized in Jepson Manual 1st or 2nd editions or by Flora North America.			K													
Leptosiphon nuttallii subsp. howellii	Mt. Tedoc linanthus	VASC	Polemoniaceae			BLMS	1B.3		G5T2	S2		No	13-Sep-12	Formerly *Linanthus nuttallii* Mlkn. Subsp. *howellii* Nelson & Patterson.												S				
Leptosyne hamiltonii	Mt. Hamilton coreopsis	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	28-Apr-15	Formerly *Coreopsis hamiltonii* (Elmer) H.K. Sharsm.								K								
Leucogaster citrinus	'yellow false truffle'	FUNG	Leucogastraceae			BLMS			G3G4	S1S2		No	28-Apr-15			K														
Lewisia cantelovii	Cantelow's lewisia	VASC	Portulacaceae			BLMS	1B.2		G3	S3		No	13-Sep-12										K			S				

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Lewisia cotyledon var. heckneri	Heckner's lewisia	VASC	Portulacaeae			BLMS	1B.2		G4T3	S3?		No	28-Apr-15													K			
Lilium maritimum	coast lily	VASC	Liliaceae			BLMS	1B.1		G2	S2		No	17-Mar-15	Known form the Stornetta Unit, per the following collection: CAS51392, 1967. Also seen by Jim Weigand in 2014 on Stornetta lands.																K
Lilium occidentale	western lily	VASC	Liliaceae	FE	SE		1B.1		G1	S1		Yes	13-Sep-12			S													
Limnanthes alba subsp. parishii	Cuyamaca meadowfoam	VASC	Limnanthaceae		SE	BLMS	1B.2		G3T2T3	S2S3		No	13-Sep-12	Formerly *L. gracilis* J.T. Howell subsp. *parishii* (Jeps.) C. Mason											S				
Limnanthes bakeri	Baker's meadowfoam	VASC	Limnanthaceae		SR	BLMS	1B.1		G1	S1		No	03-Jun-13			S													
Limnanthes floccosa subsp. bellingeriana	Bellinger's meadowfoam	VASC	Limnanthaceae			BLMS	1B.2		G4T3	S1		No	03-Jun-13		S											S			
Limnanthes floccosa subsp. californica	Butte County meadowfoam	VASC	Limnanthaceae	FE	SE		1B.1		G4T1	S1		Yes	13-Sep-12													S			
Linanthus bernardinus	Pioneertown linanthus	VASC	Polemoniacaeae			BLMS	1B.2		G2	G2		No	30-Oct-13	This species was newly described in 2012 by Naomi Fraga and D. Bell (Fraga, N. S. and D. S.Bell 2012. A new species of Linanthus (Polemoniaceae) from San Bernardino County, California. Aliso 30:97-102. The discussion in the CNPS Rare Plant Forum (http://cnps.org/forums/showthread.php?t=1813) states that there is potential habitat on BLM lands in the eastern Sawtooth Range. Added by CDFW and CNPS as 1B.2 on Sep 13, 2013. Several occurrences are mapped near BLM lands in the Barstow Field Office.				S											
Linanthus maculatus	Little San Bernardino Mtns. linanthus	VASC	Polemoniaceae			BLMS	1B.2		G2	S2		No	13-Sep-12	Formerly *Gilia maculata* Parrish.				K							K				
Linanthus orcuttii	Orcutt's linanthus	VASC	Polemoniaceae			BLMS	1B.3		G4	S2		No	13-Sep-12												S				
Lobaria oregana	Oregon lettuce lung	LICH	Lobariaceae			BLMS			None	None		No	16-Nov-10			K													

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Loeflingia squarrosa var. artemisiarum	Sagebrush loeflingia	VASC	Caryophyllaceae			BLMS	2B.2		G5T2T3	S2		No	28-Apr-15	Known to CA from only Lassen County (6 occ), Inyo County (5 occ), and two occurrences from Kern and Los Angeles counties. Three occurrences are on BLM lands within the Eagle Lake Field Office, 3 on private, and disjunct. Threatened by livestock trampling.					K	K									S	
Lomatium congdonii	Congdon's lomatium	VASC	Apiaceae			BLMS	1B.2		G2	S2		No	28-Apr-15	On BLM lands in the Red Hills, Tuolumne County.									K							
Lomatium roseanum	adobe lomatium	VASC	Apiaceae			BLMS	1B.2	W	G2G3	S2 (CA); S2 (NV)		No	03-Jun-13	Mike Dolan found ca. 500 plants on Likely Tablelands, in low sage infested with medusahead. Lat: 41.271339 degrees N, Long: -120.493347 degrees W; above and to south of Romero Creek, 4,640', clay loam soil.	K														S	
Lomatium shevockii	Owens Peak lomatium	VASC	Apiaceae			BLMS	1B.3		G2	S2		No	03-Jun-13				K										K		
Lupinus citrinus var. citrinus	orange lupine	VASC	Fabaceae			BLMS	1B.2		G2T2	S2		No	28-Apr-15				S												
Lupinus citrinus var. deflexus	Mariposa lupine	VASC	Fabaceae		ST	BLMS	1B.2		G2T1	S1		No	13-Sep-12	Previously shown as S in the Hollister Field Office, a holdover from the time that Hollister managed BLM lands in Mariposa County. Removed as S from Hollister and put as S in the Mother Lode Field Office. There are occurrences within 550 m from isolated BLM lands in T6S,R 19E, S6, MDM.									S						
Lupinus duranii	Mono Lake lupine	VASC	Fabaceae			BLMS	1B.2		G2	S2		No	28-Apr-15						K										
Lupinus excubitus var. medius	Mountain Springs bush lupine	VASC	Fabaceae			BLMS	1B.3		G4T2T3	S2		No									K				K				
Lupinus ludovicianus	San Luis Obispo County lupine	VASC	Fabaceae			BLMS	1B.2		G1	S1		No	28-Apr-15				S												

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Lupinus magnificus var. hesperius	McGee Meadows lupine	VASC	Fabaceae			BLMS	1B.3		G3T2Q	S2		No	28-Apr-15	Jepson Manual 2nd edition, equivocal about whether to recognize this variety, states: "If recognized taxonomically, straight-keeled pls from SNE assignable to *Lupinus magnificus* var. *hesperius* (A. Heller) C.P. Sm., McGee Meadows lupine." After review, CNPS and CNDDB kept as 1B.3 by decision dated Feb. 8, 2012. Occurs on Mt. Tom.					K											
Lupinus magnificus var. magnificus	Panamint Mtns. lupine	VASC	Fabaceae			BLMS	1B.2		G3T2Q	S2		No	03-Jun-13						S								K		
Lupinus sericatus	Cobb Mountain lupine	VASC	Fabaceae			BLMS	1B.2		G2	S2		No	28-Apr-15	Walker Ridge/Bear Creek, Sulphur Creek sub-watershed (Source: Jim Weigand).																K
Lupinus spectabilis	shaggyhair lupine	VASC	Fabaceae			BLMS	1B.2		G2	S2		No	28-Apr-15										K							
Lupinus uncialis	lilliput lupine	VASC	Fabaceae			BLMS	2B.2		G4	S2		No	28-Apr-15	Five occurrences known in Alturas Field Office. Twenty total occurences in CA, most on private lands, and some converted to homesites. Disjunct in CA. CA occurrences important for maintaining genetic viability of the species. Threats include grazing.	K															
Madia radiata	showy golden madia	VASC	Asteraceae			BLMS	1B.1		G2	S2		No					S					K							
Malacothamnus aboriginum	Indian Valley bush mallow	VASC	Malvaceae			BLMS	1B.2		G2	S2		No	13-Sep-12									K							
Malacothamnus hallii	Hall's bush-mallow	VASC	Malvaceae			BLMS	1B.2		G2Q	S2		No	18-Sep-12	CNDDB Occurrence 38, population found on BLM lands on 6/2011.																K
Malacothamnus palmeri var. involucratus	Carmel Valley bush-mallow	VASC	Malvaceae			BLMS	1B.2		G3T3Q	S3		No	28-Apr-15									K								
Malacothamnus palmeri var. lucianus	Arroyo Seco bush-mallow	VASC	Malvaceae			BLMS	1B.2		G3T1Q	S1		No	28-Apr-15									K								
Malacothrix saxatilis var. arachnoidea	Carmel Valley malacothrix	VASC	Asteraceae			BLMS	1B.2		G5T2	S2		No	28-Apr-15									S								

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Menodora spinescens var. mohavensis	Mojave menodora	VASC	Oleaceae			BLMS	1B.2		G4T2T3	S2S3		No	18-Sep-12	CNDDB mapped occurrences on BLM lands. One, Occurrence 10, on BLM lands slated for renewable energy.				K											
Mentzelia inyoensis	Inyo blazing star	VASC	Loasaceae			BLMS	1B.3	W	G3	S3		No	28-Apr-15	According to Anne Halford we have occurrences in Fish Slough and Travertine Hot Springs, and there's a very large population on the Inyo National Forest near Black Point (Mono Lake).					K										
Mentzelia polita	polished blazing star	VASC	Loasaceae			BLMS	1B.2		G2	S2		No	03-Jun-13	CNDDB maps one nonspecific occurrence on BLM land just north of the Eastern Mojave National Preserve on the Clark Mountain quad. CNPS Rare Plant Treasure Hunt found a new occurrence (CNDDB Occurrence No. 3) on the Ivanpah Lake quad.										K					
Mentzelia tridentata	creamy blazing star	VASC	Loasaceae			BLMS	1B.3		G3	S3		No	28-Apr-15	E. of Cuddeback Lake.													S		
Microseris paludosa	marsh microseris	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	17-Mar-15	Known form the Stornetta Unit, per the following collection: CAS514442, 1968.															K
Mimulus evanescens	ephemeral monkeyflower	VASC	Phrymaceae			BLMS	1B.2		G3	S2		No	28-Apr-15		K					S						S			
Mimulus filicaulis	slender-stemmed monkeyflower	VASC	Phrymaceae			BLMS	1B.2		G2	S2		No	28-Apr-15										K						
Mimulus gracilipes	slender-stalked monkerflower	VASC	Phrymaceae			BLMS	1B.2		G2G3	S2S3		No	16-Nov-10				S												
Mimulus mohavensis	Mojave monkeyflower	VASC	Phrymaceae			BLMS	1B.2		G2	S2		No	13-Sep-12					K											
Mimulus norrisii	Kaweah monkeyflower	VASC	Phrymaceae			BLMS	1B.3		G2	S2		No	28-Apr-15				K												
Mimulus pictus	Calico monkeyflower	VASC	Phrymaceae			BLMS	1B.2		G2	S2		No	28-Apr-15				K												
Mimulus pulchellus	pansy monkeyflower	VASC	Phrymaceae			BLMS	1B.2		G2G3	S2S3		No	13-Sep-12										K						
Mimulus shevockii	Kelso Creek monkeyflower	VASC	Phrymaceae			BLMS	1B.2		G2	S2		No	13-Sep-12				K										K		
Minuartia howellii	Howell's sandwort	VASC	Caryophyllaceae			BLMS	1B.3		G4	S2		No	13-Sep-12													S			
Minuartia stolonifera	Scott Mtn. sandwort	VASC	Caryophyllaceae			BLMS	1B.3		G2	S2		No	03-Jun-13													S			

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Monardella beneolens	sweet-smelling monardella	VASC	Lamiaceae			BLMS	1B.3		G1	S1		No	03-Jun-13	S. Sierra Nevada.													K		
Monardella boydii	Boyd's monardella	VASC	Lamiaceae			BLMS	1B.2		G2Q	S2		No	13-Sep-12	Specific CNDDB occurrences on BLM lands in Rodman Mtn Wilderness and Ord Mtn.				K												
Monardella eremicola	Clark Mountain monardella	VASC	Lamiaceae			BLMS	1B.3		G2G3Q	S2S3		No	18-Sep-12	This species was added as California Rare Plant Rank 1B.3 on 12-16-2011. The CNDDB maps three occurrences on BLM lands in the Kingston Mountains, all of which list BLM as the landowner.										K						
Monardella hypoleuca subsp. lanata	felt-leaved monardella	VASC	Lamiaceae			BLMS	1B.2		G4T3	S3		No	28-Apr-15	CNDDB Occurrence 2 is on BLM lands on Otay Mountain.											K				
Monardella linoides subsp. oblonga	Tehachapi monardella	VASC	Lamiaceae			BLMS	1B.3		G5T2	S2		No	28-Apr-15	CNDDB maps specific occurrences on BLM in the Tehachapi Mountains.													K		
Monardella nana subsp. leptosiphon	San Felipe monardella	VASC	Lamiaceae			BLMS	1B.2		G4G5T2Q	S2		No	03-Jun-13	Kevin Doran of the Palm Springs Field Office received a comment from the BLM Washington Office inquiring why the draft South Coast RMP did not list this as a SS plant. Review of RareFind information on 1-13-2011 shows that the plant is not very close to public lands in Palm Springs (it mostly occurs on higher elevation Forest Service lands), but that Occurrence 12 is close to public lands in El Centro (Banner Canyon area). CNPS and CNDDB originally considered dropping the species from its lists because The Jepson Manual, Second Edition, does not recognize any of the subspecies of *M. nana*. However, following a review on the CNPS Forum, the decision was made on 9-4-2012 to retain the taxon as a California Rare Plant Rank 1B.2 plant.							S								
Monardella robisonii	Robison monardella	VASC	Lamiaceae			BLMS	1B.3		G3	S3		No	13-Sep-12					K						K	S				

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Monardella sinuata subsp. nigrescens	northern curly-leaved monardella	VASC	Lamiaceae			BLMS	1B.2		G3T2	S2		No	26-Jan-15	Described by Elvin, M.A. and A.C. Sanders. 2009. Nomenclatural changes for Monardella (Lamiaceae) in California. Novon 19(3): 315-345. Added to CDFW/CNPS list as 1B.2 on 12-31-2013. At Fort Ord. Mapped mostly on Army lands but certainly to be expected on BLM (and the Army lands may be transferred to BLM in the future).								S							

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Monardella stoneana	Jennifer's monardella	VASC	Lamiaceae			BLMS	1B.2		G2	S1		No	28-Apr-15	CNDDB maps this species on BLM lands in the Otay Mt. Area. This species was formerly ascribed to *M. linoides* var. *viminea*, until the treatment by Elvin and Sanders in 2003 (Novon 13(4):425-432), which elevated the northern occurrences of *M. l.* var. *viminea* to *M. viminea* and included the southern occurrences in the new species *M. stoneana*. Despite the 2003 treatment, the U.S. Fish and Wildlife Service (FWS) continued to consider this species to be a federally endangered species because the agency did not recognize the 2003 treatment and continued to recognize the taxon it originally listed, *M. linoides* var. *viminea*, sensu lato, to include the new species, *M. stoneana*. By a rulemaking published in the Federal Register on March 6, 2012, FWS officially recognized the two new species, *M. stoneana* and *M. viminea*, and determined that *M. stoneana* does not warrant listing as endangered or threatened. Consequently, *M. stoneana* is no longer an endangered species. *M. viminea* is an endangered species, but is restricted to Miramar Marine Air Station and vicinity and does not occur on BLM lands.												K		
Monardella undulata subsp. crispa	crisp monardella	VASC	Lamiaceae			BLMS	1B.2		G3T2	S2		No	28-Apr-15				K												

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Monardella undulata subsp. undulata	San Luis Obispo monardella	VASC	Lamiaceae			BLMS	1B.2		G2	S2		No	28-Apr-15	Formerly *M. frutescens* (Hoov.) Jokerst. Occurs on BLM lands in the Point Sal ACEC (Occurrence 31 in the CNDDB). See Elvin, M. A. and A. C. Sanders. 2009. Nomenclatural changes for *Monardella* (Lamiaceae) in California. Novon 19:315-343.			K													
Monardella venosa	veiny monardella	VASC	Lamiaceae			BLMS	1B.1		G1	S1		No	03-Jun-13	Formerly *M. douglasii* Benth. var. *venosa* (Torr.) Jeps.												S				
Monolopia congdonii	San Joaquin woolly threads	VASC	Asteraceae	FE			1B.2		G2	S3		Yes	28-Apr-15	Formerly *Lembertia congdonii* (A. Gray) Greene.			K					K								
Mycena quinaultensis	'little brown mushroom'	FUNG	Tricholomataceae			BLMS			G2	S3		No	28-Apr-15			K														
Navarretia leucocephala subsp. bakeri	Baker's navarretia	VASC	Polemoniaceae			BLMS	1B.1		G4T2	S2		No	13-Sep-12													S				
Navarretia nigelliformis subsp. radians	shining navarretia	VASC	Polemoniaceae			BLMS	1B.2		G4T2	S2		No	13-Sep-12	Mason collection along Clear Creek Rd. Collection by Michael Denslow, Vern Yadon, and Julie Anne Delgado from a north fork of Cantua Creek; coordinates at Consortium of CA Herbaria are on BLM lands.								K								
Navarretia setiloba	Piute Mountains navarretia	VASC	Polemoniaceae			BLMS	1B.1		G2	S2		No	03-Jun-13				K													
Nemacladus twisselmannii	Twisselmann's nemacladus	VASC	Campanulaceae		SR	BLMS	1B.2		G1	S1		No	03-Jun-13				S													
Neviusia cliftonii	Shasta snow-wreath	VASC	Rosaceae			BLMS	1B.2		G2	S2		No	28-Apr-15													S				
Nitrophila mohavensis	Amargosa niterwort	VASC	Amaranthaceae	FE	SE		1B.1		G1	S1	CE	Yes	13-Sep-12	Formerly included in the family Chenopodiaceae but now considered by the Jepson Manual, 2nd edition, to be a member of the family Amaranthaceae.				K												
Nolina interrata	Dehesa nolina, bear grass	VASC	Ruscaceae		SE	BLMS	1B.1		G2	S2		No	13-Sep-12												S					
Oenothera wolfii	Wolf's evening-primrose	VASC	Onagraceae			BLMS	1B.1		G1	S1		No	03-Jun-13			S														

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Opuntia basilaris var. brachyclada	short-joint beavertail	VASC	Cactaceae			BLMS	1B.2		G5T3	S3		No	06-Aug-13	Until March 8, 2004, this var. had been considered K in both Needles and Barstow. But the Jepson Manual does not consider this a desert species, and a report by Pamela MacKay calls into question whether it ever occurred in the eastern Mojave. The draft BLM West Mojave Plan states that it only occurs on private lands in the WEMO planning area. It was therefore been changed to "S" in both Needles and Barstow. The CNPS Rare Plant Treasure Hunt documented an occurrence about 1 mile north of Cajon Pass on BLM land in 2010. The taxon has therefore been moved back to "K" for Barstow. On 8/6/2013 the taxon was added as "S" to the list for Palm Springs based on the fact that CNDDB nonspecific Occurrence 107 has some BLM lands within the mapped 4/5 mile radius circle.				K							S	S					
Opuntia basilaris var. treleasei	Bakersfield cactus	VASC	Cactaceae	FE	SE		1B.1		G5T1	S1		No	27-Jun-13	The Fish and Wildlife Service uses the name *O. treleasei* J.M. Coult., but both Jepson Manual 1st and 2nd editions use the nomenclature shown here. Occurs on split estate (private surface, BLM subsurface) in the Bakersfield Field Office. CNDDB occurrences 51 and 54 are very close to BLM lands in the Ridgecrest Field Office.				S										S		
Orcuttia californica	California orcutt grass	VASC	Poaceae	FE	SE		1B.1		G1	S1		Yes	13-Sep-12												S				
Orcuttia inaequalis	San Joaquin Valley orcutt grass	VASC	Poaceae	FT	SE		1B.1		G1	S1		Yes	11-Mar-13	This was formerly designated as K from the Hollister Field Office, but this was a holdover from the time that Hollister managed a part of what is now managed by the Bakersfield FO.				K											

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Orcuttia pilosa	hairy orcutt grass	VASC	Poaceae	FE	SE		1B.1		G1	S1		Yes	13-Sep-12													S			
Orcuttia tenuis	slender orcutt grass	VASC	Poaceae	FT	SE		1B.1		G2	S2		Yes	13-Sep-12	This is a vernal pool plant. Only one known population of this plant occurs in the Alturas Field Office.	K											K			
Oreostemma elatum	tall alpine aster	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	28-Apr-15							S									
Orthocarpus pachystachyus	Shasta orthocarpus	VASC	Orobanchaceae			BLMS	1B.1		G1	S1		No	16-Nov-10	Previously thought to be extinct.												S			
Orthodontium gracile	slender thread moss	BRYO	Bryaceae			BLMS			G5	S2S3		No	28-Apr-15			S													
Packera eurycephala var. lewisrosei	cut-leaved ragwort	VASC	Asteraceae			BLMS	1B.2		G4T2	S2		No	28-Apr-15	Formerly *Senecio eurycephalus* Torrey & A. Gray var. *lewisrosei* (J.T. Howell) T.M. Barkley.												K			
Packera ganderi	Gander's butterweed	VASC	Asteraceae		SR	BLMS	1B.2		G2	S2		No	28-Apr-15	Formerly *Senecio ganderi* T.M. Barkley & R.M. Beauch. Known on Potrero Mt. (Potrero Peak in spring 2007).											K				
Packera layneae	Layne's butterweed	VASC	Asteraceae	FT	SR		1B.2		G2	S2		No	13-Sep-12	Formerly *Senecio layneae* Greene.									K			S			
Palafoxia arida var. gigantea	giant Spanish needle	VASC	Asteraceae			BLMS	1B.3		G5T3	S2		No	13-Sep-12								K								
Panicum acuminatum var. thermale	Geyser's panicum	VASC	Poaceae		SE	BLMS	1B.2		G5T2Q	S2		No	28-Mar-13	Formerly *Dichanthelium lanuginosum* (Ell.) Gould var. *thermale* (Boland.) Spellenberg. Rare Plant Rank changed from 1B.1 to 1B.2 by CNPS/CDFW on 9-12-2012.															S
Pannaria rubiginosa	petaled mouse	LICH	Pannariaceae			BLMS			G3G5	S1		No	28-Apr-15			K													
Paronychia ahartii	Ahart's paronychia	VASC	Carophyllaceae			BLMS	1B.1		G2	S2		No	13-Sep-12													K			

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Pedicularis centranthera	dwarf lousewort	VASC	Orobanchaceae			BLMS	2B.3		G4	S2		No	28-Apr-15	Only five known occurrences form CA, all from Secret Valley in Lassen Co, on BLM lands managed by the Eagle Lake Field Office. These occurrences are rather disjunct from Harney and Lake counties in OR and primarily the eastern half of NV.						K										
Pediomelum castoreum	Beaver Dam breadroot	VASC	Fabaceae			BLMS	1B.2		G3	S2		No	13-Sep-12	Reranked from California Rare Plant Rank 4.3 to 1B.2 on 6-29-2011. CNDDB Occurrence 22 occurs on BLM lands in the Needles Field Office near Kingston Wash. Several other occurrences are either on or near BLM lands in the Barstow Field Office.				K						K					
Penstemon albomarginatus	white-margined beardtongue	VASC	Plataginaceae			BLMS	1B.1		G2	S1		No	16-Nov-10					K						K					
Penstemon bicolor subsp. roseus	rosy two-toned beardtongue	VASC	Plataginaceae			BLMS	1B.1		G3T3Q	S1		No	13-Sep-12	On BLM lands near Castle Mt. Mine and Hart Mt. Moved from CNPS List 2.2 to List 1B.1 on 12/8/09.										K					
Penstemon filiformis	thread-leaved beardtongue	VASC	Plantaginaceae			BLMS	1B.3		G3	S3		No	16-Nov-10													S			
Penstemon fruticiformis var. amargosae	Death Valley beardtongue	VASC	Plantaginaceae			BLMS	1B.3		G4T3	S2		No	28-Apr-15					K						K					
Penstemon janishiae	Janish's beardtongue	VASC	Plantaginaceae			BLMS	2B.2		G4	S1		No	28-Apr-15	Status of populations unknown; some have been extirpated. Threats are logging and home site development. Rare in CA, OR, and ID. CNDDB Occurrence 8 is mapped specifically on BLM lands. Occurrence 9 is nonspecific but entire mapped polygon on BLM. Changed from S to K on 8-19-09.	K													
Penstemon personatus	closed-throated beardtongue	VASC	Plantaginaceae			BLMS	1B.2		G2	S2		No	28-Apr-15													S			
Penstemon stephensii	Stephens' beardtongue	VASC	Plantaginaceae			BLMS	1B.3		G2	S2		No	13-Sep-12					K						K					
Penstemon sudans	Susanville beardtongue	VASC	Plantaginaceae			BLMS	1B.3		G3	S3		No	16-Nov-10							K									

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Pentachaeta exilis subsp. aeolica	slender pentachaeta	VASC	Asteraceae			BLMS	1B.2		G5T1	S1		No	13-Sep-12									K							
Perityle inyoensis	Inyo rock daisy	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	28-Apr-15	Occurrences 1 and 8 are entirely within the boundary of the new Cerro Gordo/Conglomerate Mesa ACEC. Occurrence 5 is partially within the ACEC, with the remainder on BLM land outside it.					S									K		
Perityle villosa	Hanaupah rock daisy	VASC	Asteraceae			BLMS	1B.3		G2	S2		No	03-Jun-13	Inyo Mts.														K		
Petalonyx thurberi subsp. gilmanii	Death Valley sandpaper-plant	VASC	Loasaceae			BLMS	1B.3		G5T2	S2		No						K										K		
Phacelia cookei	Cooke's phacelia	VASC	Boraginaceae			BLMS	1B.1		G1	S1		No	16-Nov-10													S				
Phacelia greenei	Scott Valley phacelia	VASC	Boraginaceae			BLMS	1B.2		G2	S2		No	16-Nov-10													K				
Phacelia inundata	playa phacelia	VASC	Boraginaceae			BLMS	1B.3	W	G2	S2 (CA); S2? (NV)		No	28-Apr-15		S					K								S		
Phacelia inyoensis	Inyo phacelia	VASC	Boraginaceae			BLMS	1B.2		G2	S2		No	13-Sep-12	Fish Slough and Alabama Hills.					K											
Phacelia leonis	Siskiyou phacelia	VASC	Boraginaceae			BLMS	1B.3		G3	S3		No	28-Apr-15													S				
Phacelia monoensis	Mono County phacelia	VASC	Boraginaceae			BLMS	1B.1	T	G3	S2		No	28-Apr-15						K											
Phacelia mustelina	Death Valley round-leaved phacelia	VASC	Boraginaceae			BLMS	1B.3		G2	S2		No	03-Jun-13	Saline Valley.													K			
Phacelia nashiana	Charlotte's phacelia	VASC	Boraginaceae			BLMS	1B.2		G3	S3		No	13-Sep-12				K										K			
Phacelia novenmillensis	Nine Mile Canyon phacelia	VASC	Boraginaceae			BLMS	1B.2		G3	S3		No	16-Nov-10				K										K			
Phacelia parishii	Parish's phacelia	VASC	Boraginaceae			BLMS	1B.1		G2G3	S1		No	03-Jun-13	The only known population on BLM lands in Southern California is within and immediately adjacent to a military maneuvering training area. This species was at one time considered extirpated in CA, but was rediscovered in 1989.				K												

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Phacelia phacelioides	Mount Diablo phacelia	VASC	Boraginaceae			BLMS	1B.2		G1	S1		No	03-Jun-13	Known but very uncommon within ACEC of Clear Creek Management Area acc 2009 Draft CCMA RMP/EIS. Six records from CCMA in Cal Flora 2009.								K								
Phaeocollybia californica	California phaeocollybia	FUNG	Cortinariaceae			BLMS			G3	None		No	28-Apr-15			K										S			
Phaeocollybia olivacea	olive phaeocollybia	FUNG	Cortinariaceae			BLMS			G3	None		No	16-Nov-10			K										S			
Phaeocollybia piceae	'spruce phaeocollybia'	FUNG	Cortinariaceae			BLMS			G3?	None		No	16-Nov-10			K													
Phaeocollybia pseudofestiva	no common name	FUNG	Cortinariaceae			BLMS			G3	None		No	16-Nov-10			S													
Phaeocollybia scatesiae	no common name	FUNG	Cortinariaceae			BLMS			G3?	None		No	16-Nov-10			K													
Phaeocollybia spadicea	spadicea phaecollybia	FUNG	Cortinariaceae			BLMS			G3G4	None		No	16-Nov-10			K										S			
Phlox hirsuta	Yreka phlox	VASC	Polemoniaceae	FE	SE		1B.2		G1	S1		Yes														S			
Pholisma sonorae	sand food	VASC	Boraginaceae			BLMS	1B.2		G2	S2		No	13-Sep-12	Formerly included in the family Lennoaceae.							K								
Piperia candida	white-flowered rein orchid	VASC	Orchidaceae			BLMS	1B.2		G3?	S2		No	03-Jun-13	May be on public lands on Red Mt. Jennifer to check--will leave as suspected for now.		S													
Piperia yadonii	Yadon's rein orchid	VASC	Orchciaceae	FE			1B.1		G2	S2		Yes	13-Sep-12									K							
Plagiobothrys uncinatus	hooked popcorn-flower	VASC	Boraginaceae			BLMS	1B.2		G2	S2		No	03-Jun-13				S												
Pleuropogon hooverianus	Hoover's semaphore grass	VASC	Poaceae		ST	BLMS	1B.1		G2	S2		No	13-Sep-12			S													
Poa diaboli	Diablo Canyon blue grass	VASC	Poaceae			BLMS	1B.2		G2	S2		No	28-Apr-15	May be on BLM lands in Ruda Canyon, San Luis Obispo Co.			S													
Polyctenium williamsiae	Williams's combleaf	VASC	Brassicaceae			BLMS	1B.2	T	G2Q	S1 (CA); S2 (NV)	CE	No	03-Jun-13	Known in Bishop on BLM land in the Bodie area. Because the Jepson Manual 2nd Edition and the Flora of North America reduced this species to synonomy under P. fremontii, the species was recently reviewed and kept on List 1B.2 by CNPS and CNDDB by decision dated February 8, 2012.	S				K	S									

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Polygonum polygaloides subsp. esotericum	Modoc County knotweed	VASC	Polygonaceae			BLMS	1B.1		G4G5T3	S3		No	28-Apr-15		K														
Polyozellus multiplex	blue chanterelle	FUNG	Thelephoraceae			BLMS			G4G5	None		No	16-Nov-10			S													
Potentilla basaltica	Black Rock potentilla	VASC	Rosaceae	FC		BLMS	1B.3	T	G1	S1(CA); S1 (NV)		No		Threats appear to be competition from meadow plant species.	K													S	
Pseudobahia peirsonii	Tulare pseudobahia	VASC	Asteraceae	FT	SE		1B.1		G1	S1		No					S												
Ptilidium californicum	Pacific fuzzwort	BRYO	Ptilidiaceae			BLMS	4.3		G3G4	S3?		No	03-Jun-13			K										S			
Puccinellia howellii	Howell's alkali-grass	VASC	Poaceae			BLMS	1B.1		G1	S1		No	03-Jun-13													S			
Puccinellia parishii	Parish's alkaligrass	VASC	Poaceae			BLMS	1B.1		G2G3	S1		No						S											
Pyrrocoma lucida	sticky pyrrocoma	VASC	Asteraceae			BLMS	1B.2		G3	S3		No	13-Sep-12							K									
Raillardella pringlei	showy raillardella	VASC	Asteraceae			BLMS	1B.2		G3	S3		No														S			
Ramalina pollinaria	dusty ramalina	LICH	Ramalinaceae			BLMS			G4	None		No	16-Nov-10			K													
Ramaria amyloidea	'pinkish coral mushroom'	FUNG	Ramariaceae			BLMS			G3	None		No	16-Nov-10			K													
Ramaria aurantiisiccescens	'yellow coral mushroom'	FUNG	Ramariaceae			BLMS			G3	None		No	16-Nov-10			K													
Ramaria cyaneigranosa	'pinkish coral mushroom'	FUNG	Ramariaceae			BLMS			G3	None		No	28-Apr-15			S													
Ramaria largentii	'orange coral mushroom'	FUNG	Ramariaceae			BLMS			G3	None		No	16-Nov-10			K													
Rhynchospora californica	California beaked-rush	VASC	Cyperaceae			BLMS	1B.1		G1	S1		No	03-Jun-13													S			
Ribes canthariforme	Moreno currant, San Diego currant	VASC	Grossulariaceae			BLMS	1B.3		G2	S2		No	16-Nov-10												S				
Ribes tularense	Sequoia gooseberry	VASC	Grossulariaceae			BLMS	1B.3		G2	S2		No	28-Apr-15				K												
Rorippa columbiae	Columbia yellow cress	VASC	Brassicaceae			BLMS	1B.2		G3	S1		No			S					S						S			
Rupertia hallii	Hall's rupertia	VASC	Fabaceae			BLMS	1B.2		G2G3	S2S3		No	28-Apr-15													K			
Sagittaria sanfordii	Sanford's arrowhead	VASC	Alismataceae			BLMS	1B.2		G3	S3		No	13-Sep-12													K			

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Saltugilia latimeri	Latimer's woodland-gilia	VASC	Polemoniaceae			BLMS	1B.2		G2	S2		No	28-Apr-15	Known to occur on BLM lands along or near currently designated OHV routes in the Old Dad Mountains south of the west end of the Mojave National Preserve acc. Jim Weigand.										K	K		K		
Salvia greatae	Orocopia sage	VASC	Lamiaceae			BLMS	1B.3		G2G3	S2S3		No	28-Apr-15	CNDDB Occurrence # 11 is from the south edge of the Trilobite Wilderness near Amboy (Needles Field Office), far from the core of its range in southern Riverside County. The occurrence (shown on BLM lands) is unvouchered and was listed as *Salvia* cf. *funerea* by Spaulding and Twitchell in 1978. CNDDB decided it must be *S. greatae*. Kam Barrows looked at the occurrence in 1986 and found no plants.										S	K				
Sanicula saxatilis	rock sanicle	VASC	Apiaceae		SR	BLMS	1B.2		G2	S2		No	13-Sep-12									S							
Sarcodon fuscoindicum	violet hedgehog	FUNG	Bankeraceae			BLMS			G3	None		No	16-Nov-10			K													
Sedum albomarginatum	Feather River stonecrop	VASC	Crassulaceae			BLMS	1B.2		G2	S2		No	28-Apr-15													S			
Sedum laxum subsp. eastwoodiae	Red Mountain stonecrop	VASC	Crassulaceae			BLMS	1B.2		G5T2	S2		No	03-Jun-13	Formerly *S. eastwoodiae* (Britton) Berger. Formerly a Federal candidate for listing, but removed from the candidate list on publication of a "Listing not warranted" finding by the U.S. Fish and Wildlife Service (Federal Register 79: 56029, September 18, 2014).		K												
Sedum obtusatum subsp. paradisum	Canyon Creek stonecrop	VASC	Crassulaceae			BLMS	1B.3		G4G5T2	S2		No	16-Nov-10	Formerly *S. paradisum* (M. Denton) M. Denton.													K			

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Senecio clevelandii var. heterophyllus	Red Hills ragwort	VASC	Asteraceae			BLMS	1B.2		G4?T2Q	S2?		Yes	03-Jun-13	*Senecio clevelandii* is now *Packera clevelandii*, but the combination *Packera clevelandii* var. *heterophylla* has not been validly published. This variety has been reduced to synonymy in the Jepson Manual 1st and 2nd editions. The treatment by Barkley in Jepson Manual 1 was not based on genetic work. Barkley's treatment has been continued by Trock in Jepson Manual 2 and Flora North America. CDFW, CNPS, and BLM will continue to recognize the variety until genetic work conclusively shows that vars. *clevelandii* and *heterophyllus* are actually the same taxon.									K						
Sidalcea covillei	Owens Valley checkerbloom	VASC	Malvaceae		SE	BLMS	1B.1		G2	S2		No	28-Apr-15						K										
Sidalcea hickmanii subsp. anomala	Cuesta Pass checkerbloom	VASC	Malvaceae		SR	BLMS	1B.2		G3T1	S1		No	13-Sep-12				S					S							
Sidalcea hickmanii subsp. parishii	Parish's checkerbloom	VASC	Malvaceae		SR	BLMS	1B.2		G3T1	S1		No	03-Jun-13	This species used to be a Federal candidate but was removed from the candidate list in 2006.												S				
Sidalcea keckii	Keck's checkerbloom	VASC	Malvaceae	FE			1B.1		G1	S1		No	13-Sep-12				K													
Sidalcea malviflora subsp. patula	Siskiyou checkerbloom	VASC	Malvaceae			BLMS	1B.2		G5T2	S2		No	13-Sep-12			S														
Sidalcea oregana subsp. eximia	coast checkerbloom	VASC	Malvaceae			BLMS	1B.2		G5T1	S1		No				S														
Sidalcea robusta	Butte County checkerbloom	VASC	Malvaceae			BLMS	1B.2		G2	S2		No	13-Sep-12													K				
Silene campanulata subsp. campanulata	Red Mountain catchfly	VASC	Caryophyllaceae		SE	BLMS	4.2		G5T3Q	S3		No	28-Apr-15	Known from Red Mountain, Mendocino Co., Arcata FO; suspected on public lands in Ukiah FO from an occurrence near public lands in the Gilmore Peak 24k quad, Colusa Co.			K													S

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Silene occidentalis subsp. longistipitata	long-stiped campion	VASC	Caryophyllaceae			BLMS	1B.2		G4T2Q	S2		No	16-Nov-10													S			
Smilax jamesii	English Peak greenbriar	VASC	Smilacaceae			BLMS	1B.3		G2	S2		No														S			
Sowerbyella rhenana	stalked orange peel fungus	FUNG	Pyrenemataceae			BLMS			G3G5	None		No	16-Nov-10			S										S			
Sparassis crispa	cauliflower mushroom	FUNG	Sparassidaceae			BLMS			None	None		No	16-Nov-10			K													
Spathularia flavida	fairy fan	FUNG	Cudoniaceae			BLMS			G4G5	None		No	16-Nov-10			K										S			
Sphaeralcea rusbyi var. eremicola	Rusby's desert-mallow	VASC	Malvaceae			BLMS	1B.2		G4T2	S2		No	13-Sep-12	CNPS Rare Plant Treasure Hunt found 19 new occurrences in 2010.										K						
Stenotus lanuginosus var. lanuginosus	woolly stenotus	VASC	Asteraceae			BLMS	2B.2		G5T3	S3		No	28-Apr-15	Known in CA from fewer than five occurrences. This species occurs at low numbers at each site.	K															
Stipa exigua	little ricegrass	VASC	Poaceae			BLMS	2B.3		G5	S2		No	03-Jun-13	Formerly *Oryzopsis exigua* Thurb. Known in CA from only two widely separated occurrences, one on public lands within the Eagle Lake Field Office which burned within the last few years. It is not common in NV. Threats include grazing and weed invasion following the recent fire.	K					K									S		
Streptanthus albidus subsp. albidus	Metcalf Canyon jewel-flower	VASC	Brassicaceae	FE			1B.1		G2T1	S1		Yes	13-Sep-12									S							
Streptanthus brachiatus subsp. brachiatus	Socrates Mine jewel-flower	VASC	Brassicaceae			BLMS	1B.2		G2T1	S1		Yes	03-Jun-13																K
Streptanthus brachiatus subsp. hoffmanii	Freed's jewelflower	VASC	Brassicaceae			BLMS	1B.2		G2T2	S2		No	16-Nov-10	This taxon was recognized in Jepson Manual 1st edition, but is reduced to synonymy under S. brachiatus in the 2nd edition.																K
Streptanthus callistus	Mount Hamilton jewel-flower	VASC	Brassicaceae			BLMS	1B.3		G1	S1		No	13-Sep-12									S							

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Streptanthus campestris	southern jewel-flower	VASC	Brassicaceae			BLMS	1B.3		G3	S3		No	28-Apr-15	Nonspecific CNDDB Occurrence 8, in the El Centro FO, is on lands slated for renewable energy; there are BLM lands within the mapped 1 mile radius circle, but there are also private lands. Occurrence 1, in the Palm Springs FO, contains BLM lands within the mapped 1 mile radius circle, but most of the lands within the circle are private.							S					S				
Streptanthus cordatus var. piutensis	Piute Mountains jewel-flower	VASC	Brassicaceae			BLMS	1B.2		G5T1	S1		No	03-Jun-13				K										K		
Streptanthus glandulosus subsp. hoffmannii	Hoffmann's jewel-flower	VASC	Brassicaceae			BLMS	1B.3		G4TH	SH		No	16-Nov-10	Elevated from *S. g.* var. *hoffmannii* Kruckeberg to subsp. *hoffmannii* in Jepson Manual 2nd edition.																S
Streptanthus morrisonii subsp. elatus	Three Peaks jewel-flower	VASC	Brassicaceae			BLMS	1B.2		G2T2	S2		No	28-Apr-15	Reduced to synonymy under *S. morrisonii* in Jepson Manual 2nd edition.																K
Streptanthus morrisonii subsp. hirtiflorus	Dorr's Cabin jewel-flower	VASC	Brassicaceae			BLMS	1B.2		G2T1	S1		No	28-Apr-15	Reduced to synonymy under *S. morrisonii* in Jepson Manual 2nd edition.																S
Streptanthus morrisonii subsp. kruckebergii	Kruckeberg's jewel-flower	VASC	Brassicaceae			BLMS	1B.2		G2T1	S1		No	03-Jun-13	Reduced to synonymy under *S. morrisonii* in Jepson Manual 2nd edition.																K
Streptanthus morrisonii subsp. morrisonii	Morrison's jewel-flower	VASC	Brassicaceae			BLMS	1B.2		G2T2	S2		No	28-Apr-15	The Jepson Manual 2nd edition does not recognize any subspecific taxa under *S. morrisonii*.																K
Streptanthus oliganthus	Masonic Mountain jewel-flower	VASC	Brassicaceae			BLMS	1B.2	W	G2G3	S2		No	28-Apr-15						K											
Streptanthus vernalis	early jewel-flower	VASC	Brassicaceae			BLMS	1B.2		G1	S1		No	24-Aug-09	Known from only one occurrence on serpentine at Three Peaks.																K
Stylocline citroleum	oil neststraw	VASC	Asteraceae			BLMS	1B.1		G2	S2		No	18-Sep-12	After reviewing CNDDB, specific occurrence 18 has BLM lands within the mapped circle.			K													
Stylocline masonii	Mason neststraw	VASC	Asteraceae			BLMS	1B.1		G1	S1		No	03-Jun-13				S													

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Sulcaria isidiifera	splitting yarn lichen	LICH	Alectoriaceae			BLMS	1B.1		G1	S1		No	26-Jan-15	A 5-acre BLM parcel is inside of the 1/5 mile circle mapped for Occurrence Number 4 of this species.			S													
Symphotrichum greatae	Greata's aster	VASC	Asteraceae			BLMS	1B.3		G3	S3		No	28-Apr-15	CNDDB Occurrence 41 in Ventura County abuts BLM lands in the Bakersfield Field Office. Occurrence 36 in Los Angeles County (Palm Springs Field Office) has small area of BLM lands within the nonspecific mapped 1-mile radius circle, this based on an 1893 collection.			S								S				
Symphyotrichum defoliatum	San Bernardino aster	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	13-Sep-12	Newly accepted name for *Aster bernardinus* H.M. Hall. CNDDB maps nonspecific location close to BLM lands on Mt. Laguna.							S				S		S		
Teloschistes flavicans	orangebush lichen	LICH	Teloschistaceae			BLMS			G4G5	None		No	16-Nov-10			S													
Tetracoccus dioicus	Parry's tetracoccus	VASC	Euphorbiaceae			BLMS	1B.2		G3?	S2		No	28-Apr-15												K				
Tetraphis geniculata	bent-kneed four-tooth moss	BRYO	Tetraphidaceae			BLMS			G3G5	None		No	16-Nov-10			S													
Thelypodium howellii var. howellii	Howell's thelypodium	VASC	Brassicaceae			BLMS	1B.2		G2T2	S2		No	03-Jun-13		S					K								S	
Thermopsis californica var. semota	velvety false lupine	VASC	Fabaceae			BLMS	1B.2		G4T2	S2		No	28-Apr-15	Nonspecific CNDDB Occurrence 16 borders BLM land slated for renewable energy.							S								
Thysanocarpus rigidus	Ridge Fringepod	VASC	Brassicaceae			BLMS	1B.2		G1G2	S1S2		No	03-Oct-11	Currently shown in 2 locations close to BLM lands in the Laguna Mountains.							S								
Tortula californica	California screw moss	BRYO	Pottiaceae			BLMS	1B.2		G2?	S2		No	13-Sep-12				S												
Trifolium buckwestiorum	Santa Cruz clover	VASC	Fabaceae			BLMS	1B.1		G2	S2		No	03-Jun-13	Known from 3 locations at Fort Ord, one of which along road scheduled to be widened (entered 1/24/02).								K							
Trifolium jokerstii	Butte County golden clover	VASC	Fabaceae			BLMS	1B.2		G2	S2		No	03-Jun-13													K			

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Trifolium kingii subsp. dedeckerae	DeDecker's clover	VASC	Fabaceae			BLMS	1B.3		G2	S2		No	28-Apr-15	DFG and CNPS still have as *T. dedeckerae* J.M Gillett. Was *Trifolium macilentum* var. *dedeckerae* (J.M. Gillett) Barneby in Jepson Manual 1st edition. The treatment used here is the treatment in Jepson Manual 2nd edition.			S										K		
Trifolium polyodon	Pacific Grove clover	VASC	Fabaceae		SR	BLMS	1B.1		G1	S1		No	03-Jun-13									K							
Triteleia piutensis	Piute Mountains triteleia	VASC	Themidaceae			BLMS	1B.1		G1	S1		No	20-Jan-15	Recently described by Kentner, E. and K. Steiner. 2014. A new species of Triteleia (Themidaceae) from the southern Sierra Nevada. Madroño 61(2): 227-230. Added to CDFW/CNPS list on 7/24/2014.			K												
Usnea longissima	long beard lichen	LICH	Parmeliaceae			BLMS	4.2		G4	S4		No	28-Apr-15			K													
Verbena californica	Red Hills vervain	VASC	Verbenaceae	FT	ST		1B.1		G2	S2		No	13-Sep-12										K						
Vermilacinia cephalota	powdery fog lichen	LICH	Ramalinaceae			BLMS			G3G4	None		No	16-Nov-10	Formerly *Niebla cephalota* (Tuck.) Rundel & Bowler, which the PLANTS database treats as a synonym.		K													
Wyethia reticulata	El Dorado mule ears	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	13-Sep-12	FWS Recovery Plan for Gabbro Soil Plants of the Central Sierra Nevada Foothills addresses this species even though it's not federally listed.									K						
Xylorhiza cognata	Mecca-aster	VASC	Asteraceae			BLMS	1B.2		G2	S2		No	03-Jun-13	Occurs on BLM lands along or near OHV routes and trails in the Meccacopia Special Recreation Area acc. Jim Weigand.											K				
Xylorhiza orcuttii	Orcutt's woody aster	VASC	Asteraceae			BLMS	1B.2		G2G3	S2		No	13-Sep-12								K								

SCIENTIFIC NAME	COMMON NAME	TYPE OF PLANT	FAMILY	FED STATUS	CA STATUS	BLM STATUS	CA RARE PLANT RANK	NNPS STATUS	GLOBAL RANK	STATE RANK	NV STATUS	RECOVERY PLAN?	DATE UPDATED	COMMENTS	ALTURAS	ARCATA	BAKERSFIELD	BARSTOW	BISHOP	EAGLE LAKE	EL CENTRO	HOLLISTER	MOTHER LODE	NEEDLES	PALM SPRINGS	REDDING	RIDGECREST	SURPRISE	UKIAH
Zeltnera namophila	spring-loving centaury	VASC	Gentianaceae	FT				t	G2Q	S2 (Nevada)	CE	Yes	28-Apr-15	Formerly *Centaurium namophilum* Reveal, C.R. Boome, & Beatley, this species is now treated as *Zeltnera namophila* in the Jepson Manual, 2nd edition. Although the CNPS Inventory, accessed 8/8/2013, still treats this as *Centaurium namophilum* (var. *namophilum*) and states that the species does not occur in California, citing previous records they consider to be based on a misidentification of *C. exaltatum* (Griseb.) Piper, the Jepson Manual 2 believes that the specimens referred to *C. exaltatum* are in fact *Z. namophila*. This species is almost certainly in the Carson Slough area of the Barstow Field Office.				K										

Type of Plant: BRYO = Bryophyte; FUNG = Fungus; LICH = Lichen; VASC = Vascular plant; Federal Status: FE = Federally Endangered; FT = Federally Threatened; FC = Federal Candidate; FP = Proposed for Federal Listing; FD = Federally Delisted. State of California (CA) Status: SE = State Endangered; ST = State Threatened; SR = State Rare. California Rare Plant Rank. 1! = Plants presumed extinct in CA; 1B = Plants rare, threatened, or endangered in CA and elsewhere- 2 = Plants rare, threatened, or endangered in CA, but more common elsewhere- 3 = Plants about which more Information is needed- 4 = Plants of limited distribution – a watch list/ Decimals following the CA Rare Plant Rank Numbers: x.1 = Seriously endangered in CA; x.2 = Fairly endangered in CA; x.3 = Not very endangered in CA. Nevada Native Plant Society (NNPS) Status: W = Watch List. State of Nevada (NV) Status: CE = Critically Endangered; CE# = Proposed for Critically Endangered. Global and State Rank: The Global Rank is assigned by NatureServe and reflects the overall condition of the element throughout its global range; G-ranks are used for species as a whole, T-ranks for subspecies; the State (S) Rank is assigned by the State Heritage Program and reflects the overall condition of the element within a State. Code meanings can be found at: http://www.natureserve.org/explorer/ranking.htm#interpret. Comments: Additional information, only provided for some plants. Date Updated: This field is provided to show when changes or updates were last made to an element; this tracking was implemented only in recent years, so the field is blank for most elements. K or S under BLM field offices: K = Known to occur on BLM lands managed by that field office; S = Suspected to occur on BLM lands managed by that field office.

FIELD OFFICE		COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	STATE STATUS	BLM STATUS	OTHER STATUS
		Shasta crayfish	Pacifastacus fortis	FE	SE		
Arcata		22 Species					
	Mammal						
		Fringed myotis	Myotis thysanodes			BLMS	
		Long-eared myotis	Myotis evotis			BLMS	
		Pacific fisher	Martes pennanti (pacifica) DPS	FC	SC	BLMS	SSC
		Pallid bat	Antrozous pallidus			BLMS	SSC
		Townsend's big-eared bat	Corynorhinus townsendii			BLMS	SSC
		Yuma myotis	Myotis yumanensis			BLMS	
	Bird						
		Bald eagle	Haliaeetus leucocephalus	FD	SE	BLMS	EA
		Bank swallow	Riparia riparia		ST	BLMS	
		Fork-tailed storm-petrel	Oceanodroma furcata			BLMS	SSC
		Golden eagle	Aquila chrysaetos			BLMS	EA
		Northern goshawk	Accipiter gentilis			BLMS	SSC
		Tricolored blackbird	Agelaius tricolor			BLMS	SSC
		Western yellow-billed cuckoo	Coccyzus americanus occidentalis	FC	SE	BLMS	
		White-tailed kite	Elanus leucurus			BLMS	SF
	Reptile						
		California mountain kingsnake	Lampropeltis zonata			BLMS	
	Amphibian						
		Foothill yellow-legged frog	Rana boylii			BLMS	
	Fish						
		Central Valley spring-run chinook salmon	Oncorhynchus tshawytscha ESU spring-run	FT	ST		
		Coho salmon - central California coast	Oncorhynchus kisutch	FE	SE		
		Pacific lamprey	Entosphenus tridentatus			BLMS	
	Invertebrate						
		Hooded lancetooth	Ancotrema voyanum			BLMS	
		Oregon shoulderband snail	Helminthoglypta hertleini			BLMS	
		Trinity shoulderband snail	Helminthoglypta talmadgei			BLMS	

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FIELD OFFICE		COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	STATE STATUS	BLM STATUS	OTHER STATUS
Bakersfield		50 Species					
	Mammal						
		California leaf-nosed bat	Macrotus californicus			BLMS	SSC
		Fringed myotis	Myotis thysanodes			BLMS	
		Giant kangaroo rat	Dipodomys ingens	FE	SE		
		Long-eared myotis	Myotis evotis			BLMS	
		Nelson's antelope squirrel	Ammospermophilus nelsoni		ST	BLMS	
		Owens Valley vole	Microtus californicus vallicola			BLMS	
		Pacific fisher	Martes pennanti (pacifica) DPS	FC	SC	BLMS	SSC
		Pallid bat	Antrozous pallidus			BLMS	SSC
		San Joaquin kit fox	Vulpes macrotis mutica	FE	ST		
		San Joaquin pocket mouse	Perognathus inornatus			BLMS	
		Short-nosed kangaroo rat	Dipodomys nitratoides brevinasus			BLMS	
		Sierra Nevada bighorn sheep	Ovis canadensis sierrae	FE	SE		SF
		Small-footed myotis	Myotis ciliolabrum			BLMS	
		Spotted bat	Euderma maculatum			BLMS	SSC
		Tipton kangaroo rat	Dipodomys nitratoides nitratoides	FE	SE		
		Townsend's big-eared bat	Corynorhinus townsendii			BLMS	SSC
		Tulare grasshopper mouse	Onychomys torridus tularensis			BLMS	
		Western mastiff-bat	Eumops perotis californicus			BLMS	SSC
		Yellow-eared pocket mouse	Perognathus xanthonotus			BLMS	
		Yuma myotis	Myotis yumanensis			BLMS	
	Bird						
		Bald eagle	Haliaeetus leucocephalus	FD	SE	BLMS	EA
		Bank swallow	Riparia riparia		ST	BLMS	
		Brown pelican	Pelecanus occidentalis	FD	SD	BLMS	SF
		Burrowing owl	Athene cunicularia			BLMS	SSC
		California black rail	Laterallus jamaicensis coturniculus		ST	BLMS	SF
		California spotted owl	Strix occidentalis occidentalis			BLMS	SSC
		Golden eagle	Aquila chrysaetos			BLMS	EA
		Gray vireo	Vireo vicinior			BLMS	SSC
		Least Bell's vireo	Vireo bellii pusillus	FE	SE		
		Mountain plover	Charadrius montanus			BLMS	SSC

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FIELD OFFICE		COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	STATE STATUS	BLM STATUS	OTHER STATUS
		Northern goshawk	Accipiter gentilis			BLMS	SSC
		San Joaquin Le Conte's thrasher	Toxostoma lecontei macmillanorum			BLMS	SSC
		Southwestern willow flycatcher	Empidonax traillii extimus	FE	SE		
		Swainson's hawk	Buteo swainsoni		ST	BLMS	
		Tricolored blackbird	Agelaius tricolor			BLMS	SSC
		Western yellow-billed cuckoo	Coccyzus americanus occidentalis	FC	SE	BLMS	
		White-tailed kite	Elanus leucurus			BLMS	SF
	Reptile						
		Blunt-nosed leopard lizard	Gambelia sila	FE	SE		SF
		California mountain kingsnake	Lampropeltis zonata			BLMS	
		Coast horned lizard	Phrynosoma blainvillii			BLMS	
		Southwestern pond turtle	Actinemys marmorata pallida			BLMS	
		Two-striped garter snake	Thamnophis hammondii			BLMS	
	Amphibian						
		California tiger salamander	Ambystoma californiense	FT	SC		SSC
		Foothill yellow-legged frog	Rana boylii			BLMS	
		Tehachapi slender salamander	Batrachoseps stebbinsi			BLMS	
		Western spadefoot toad	Spea hammondii			BLMS	
		Yellow-blotched salamander	Ensatina eschscholtzii croceator			BLMS	
	Fish						
		Pacific lamprey	Entosphenus tridentatus			BLMS	
		Unarmored threespine stickleback	Gasterosteus aculeatus williamsoni	FE	SE		SF
	Invertebrate						
		San Joaquin dune beetle	Coelus gracilis			BLMS	

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FIELD OFFICE		COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	STATE STATUS	BLM STATUS	OTHER STATUS
Barstow		23 Species					
	Mammal						
		Amargosa vole	Microtus californicus scirpensis	FE	SE		
		California leaf-nosed bat	Macrotus californicus			BLMS	SSC
		Desert bighorn sheep	Ovis canadensis nelsoni			BLMS	SF
		Fringed myotis	Myotis thysanodes			BLMS	
		Mohave ground squirrel	Spermophilus mohavensis		ST	BLMS	
		Pallid bat	Antrozous pallidus			BLMS	SSC
		Spotted bat	Euderma maculatum			BLMS	SSC
		Townsend's big-eared bat	Corynorhinus townsendii			BLMS	SSC
		Western mastiff-bat	Eumops perotis californicus			BLMS	SSC
	Bird						
		Bendire's thrasher	Toxostoma bendirei			BLMS	SSC
		Burrowing owl	Athene cunicularia			BLMS	SSC
		Gray vireo	Vireo vicinior			BLMS	SSC
		Least Bell's vireo	Vireo bellii pusillus	FE	SE		
		Southwestern willow flycatcher	Empidonax traillii extimus	FE	SE		
		Western yellow-billed cuckoo	Coccyzus americanus occidentalis	FC	SE	BLMS	
	Reptile						
		Desert tortoise	Gopherus agassizii	FT	ST		
		Gila monster	Heloderma suspectum			BLMS	
		Mojave fringe-toed lizard	Uma scoparia			BLMS	
		Southwestern pond turtle	Actinemys marmorata pallida			BLMS	
	Fish						
		Amargosa River pupfish	Cyprinodon nevadensis amargosae			BLMS	
		Amargosa speckled dace	Rhinichthys osculus ssp. 1			BLMS	
		Mojave tui chub	Siphateles bicolor mohavensis	FE	SE		SF
	Invertebrate						
		Shoshone Cave whip-scorpion	Hubbardia shoshonensis			BLMS	

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FIELD OFFICE		COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	STATE STATUS	BLM STATUS	OTHER STATUS
Bishop		30 Species					
	Mammal						
		Desert bighorn sheep	Ovis canadensis nelsoni			BLMS	SF
		Fringed myotis	Myotis thysanodes			BLMS	
		Long-eared myotis	Myotis evotis			BLMS	
		Mohave ground squirrel	Spermophilus mohavensis		ST	BLMS	
		Owens Valley vole	Microtus californicus vallicola			BLMS	
		Pacific fisher	Martes pennanti (pacifica) DPS	FC	SC	BLMS	SSC
		Pallid bat	Antrozous pallidus			BLMS	SSC
		Pygmy rabbit	Brachylagus idahoensis			BLMS	
		Sierra Nevada bighorn sheep	Ovis canadensis sierrae	FE	SE		SF
		Small-footed myotis	Myotis ciliolabrum			BLMS	
		Spotted bat	Euderma maculatum			BLMS	SSC
		Townsend's big-eared bat	Corynorhinus townsendii			BLMS	SSC
		Yuma myotis	Myotis yumanensis			BLMS	
	Bird						
		Bald eagle	Haliaeetus leucocephalus	FD	SE	BLMS	EA
		Bank swallow	Riparia riparia		ST	BLMS	
		Burrowing owl	Athene cunicularia			BLMS	SSC
		Golden eagle	Aquila chrysaetos			BLMS	EA
		Greater sage-grouse	Centrocercus urophasianus	FC		BLMS	SSC
		Least Bell's vireo	Vireo bellii pusillus	FE	SE		
		Northern goshawk	Accipiter gentilis			BLMS	SSC
		Swainson's hawk	Buteo swainsoni		ST	BLMS	
		Western yellow-billed cuckoo	Coccyzus americanus occidentalis	FC	SE	BLMS	
	Reptile						
		Northern sagebrush lizard	Sceloporus graciosus graciosus			BLMS	
		Panamint alligator lizard	Elgaria panamintina			BLMS	
	Amphibian						
		Black toad	Anaxyrus exsul		ST	BLMS	SF
		Inyo Mountains slender salamander	Batrachoseps campi			BLMS	
	Fish						
		Amargosa River pupfish	Cyprinodon nevadensis amargosae			BLMS	

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FIELD OFFICE		COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	STATE STATUS	BLM STATUS	OTHER STATUS
		Owens pupfish	Cyprinodon radiosus	FE	SE		SF
		Owens speckled dace	Rhinichthys osculus ssp. 2			BLMS	
		Owens tui chub	Siphateles bicolor snyderi	FE	SE		
Eagle Lake		20 Species					
	Mammal						
		Fringed myotis	Myotis thysanodes			BLMS	
		Long-eared myotis	Myotis evotis			BLMS	
		Pacific fisher	Martes pennanti (pacifica) DPS	FC	SC	BLMS	SSC
		Pallid bat	Antrozous pallidus			BLMS	SSC
		Pygmy rabbit	Brachylagus idahoensis			BLMS	
		Small-footed myotis	Myotis ciliolabrum			BLMS	
		Townsend's big-eared bat	Corynorhinus townsendii			BLMS	SSC
		Yuma myotis	Myotis yumanensis			BLMS	
	Bird						
		Bald eagle	Haliaeetus leucocephalus	FD	SE	BLMS	EA
		Bank swallow	Riparia riparia		ST	BLMS	
		Burrowing owl	Athene cunicularia			BLMS	SSC
		California spotted owl	Strix occidentalis occidentalis			BLMS	SSC
		Golden eagle	Aquila chrysaetos			BLMS	EA
		Greater sage-grouse	Centrocercus urophasianus	FC		BLMS	SSC
		Greater sandhill crane	Grus canadensis tabida		ST	BLMS	SF
		Northern goshawk	Accipiter gentilis			BLMS	SSC
		Swainson's hawk	Buteo swainsoni		ST	BLMS	
		Tricolored blackbird	Agelaius tricolor			BLMS	SSC
	Reptile						
		California mountain kingsnake	Lampropeltis zonata			BLMS	
		Northern sagebrush lizard	Sceloporus graciosus graciosus			BLMS	

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FIELD OFFICE		COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	STATE STATUS	BLM STATUS	OTHER STATUS
El Centro		40 Species					
	Mammal						
		California leaf-nosed bat	Macrotus californicus			BLMS	SSC
		Cave myotis	Myotis velifer			BLMS	SSC
		Desert bighorn sheep	Ovis canadensis nelsoni			BLMS	SF
		Fringed myotis	Myotis thysanodes			BLMS	
		Long-eared myotis	Myotis evotis			BLMS	
		Pallid bat	Antrozous pallidus			BLMS	SSC
		Palm Springs little pocket mouse	Perognathus longimembris bangsi			BLMS	
		Small-footed myotis	Myotis ciliolabrum			BLMS	
		Townsend's big-eared bat	Corynorhinus townsendii			BLMS	SSC
		Western mastiff-bat	Eumops perotis californicus			BLMS	SSC
		Yuma myotis	Myotis yumanensis			BLMS	
	Bird						
		Arizona bell's vireo	Vireo bellii arizonae		SE	BLMS	
		Brown pelican	Pelecanus occidentalis	FD	SD	BLMS	SF
		Burrowing owl	Athene cunicularia			BLMS	SSC
		California black rail	Laterallus jamaicensis coturniculus		ST	BLMS	SF
		California spotted owl	Strix occidentalis occidentalis			BLMS	SSC
		Elf owl	Micrathene whitneyi		SE	BLMS	
		Gila woodpecker	Melanerpes uropygialis		SE	BLMS	
		Gilded flicker	Colaptes chrysoides		SE	BLMS	
		Least Bell's vireo	Vireo bellii pusillus	FE	SE		
		Lucy's warbler	Oreothlypis luciae			BLMS	SSC
		Mountain plover	Charadrius montanus			BLMS	SSC
		Southwestern willow flycatcher	Empidonax traillii extimus	FE	SE		
		Tricolored blackbird	Agelaius tricolor			BLMS	SSC
		Western yellow-billed cuckoo	Coccyzus americanus occidentalis	FC	SE	BLMS	
		Yuma clapper rail	Rallus longirostris yumanensis	FE	ST		SF
	Reptile						
		Barefoot banded gecko	Coleonyx switaki		ST	BLMS	
		Coast horned lizard	Phrynosoma blainvillii			BLMS	
		Colorado Desert fringe-toed lizard	Uma notata			BLMS	

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FIELD OFFICE	COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	STATE STATUS	BLM STATUS	OTHER STATUS
	Desert tortoise	Gopherus agassizii	FT	ST		
	Flat-tailed horned lizard	Phrynosoma mcalli			BLMS	
	Southwestern pond turtle	Actinemys marmorata pallida			BLMS	
	Two-striped garter snake	Thamnophis hammondii			BLMS	
	Amphibian					
	Couch's spadefoot toad	Scaphiopus couchi			BLMS	
	Lowland leopard frog	Lithobates yavapaiensis			BLMS	
	Fish					
	Colorado pikeminnow	Ptychocheilus lucius	FE	SE		SF
	Desert pupfish	Cyprinodon macularius	FE	SE		
	Mojave tui chub	Siphateles bicolor mohavensis	FE	SE		SF
	Razorback sucker	Xyrauchen texanus	FE	SE		SF
	Unarmored threespine stickleback	Gasterosteus aculeatus williamsoni	FE	SE		SF

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FIELD OFFICE		COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	STATE STATUS	BLM STATUS	OTHER STATUS
Hollister		37 Species					
	Mammal						
		Fringed myotis	Myotis thysanodes			BLMS	
		Giant kangaroo rat	Dipodomys ingens	FE	SE		
		Long-eared myotis	Myotis evotis			BLMS	
		Nelson's antelope squirrel	Ammospermophilus nelsoni		ST	BLMS	
		Pallid bat	Antrozous pallidus			BLMS	SSC
		San Joaquin kit fox	Vulpes macrotis mutica	FE	ST		
		San Joaquin pocket mouse	Perognathus inornatus			BLMS	
		Short-nosed kangaroo rat	Dipodomys nitratoides brevinasus			BLMS	
		Small-footed myotis	Myotis ciliolabrum			BLMS	
		Townsend's big-eared bat	Corynorhinus townsendii			BLMS	SSC
		Tulare grasshopper mouse	Onychomys torridus tularensis			BLMS	
		Western mastiff-bat	Eumops perotis californicus			BLMS	SSC
		Yuma myotis	Myotis yumanensis			BLMS	
	Bird						
		Bald eagle	Haliaeetus leucocephalus	FD	SE	BLMS	EA
		Bank swallow	Riparia riparia		ST	BLMS	
		Brown pelican	Pelecanus occidentalis	FD	SD	BLMS	SF
		Burrowing owl	Athene cunicularia			BLMS	SSC
		California black rail	Laterallus jamaicensis coturniculus		ST	BLMS	SF
		California spotted owl	Strix occidentalis occidentalis			BLMS	SSC
		Golden eagle	Aquila chrysaetos			BLMS	EA
		Mountain plover	Charadrius montanus			BLMS	SSC
		Swainson's hawk	Buteo swainsoni		ST	BLMS	
		Tricolored blackbird	Agelaius tricolor			BLMS	SSC
		Western yellow-billed cuckoo	Coccyzus americanus occidentalis	FC	SE	BLMS	
		White-tailed kite	Elanus leucurus			BLMS	SF
	Reptile						
		Blunt-nosed leopard lizard	Gambelia sila	FE	SE		SF
		California mountain kingsnake	Lampropeltis zonata			BLMS	
		Coast horned lizard	Phrynosoma blainvillii			BLMS	
		Southwestern pond turtle	Actinemys marmorata pallida			BLMS	

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FIELD OFFICE		COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	STATE STATUS	BLM STATUS	OTHER STATUS
		Two-striped garter snake	Thamnophis hammondii			BLMS	
	Amphibian						
		California tiger salamander	Ambystoma californiense	FT	SC		SSC
		Foothill yellow-legged frog	Rana boylii			BLMS	
		Western spadefoot toad	Spea hammondii			BLMS	
	Fish						
		Coho salmon - central California coast	Oncorhynchus kisutch	FE	SE		
		Pacific lamprey	Entosphenus tridentatus			BLMS	
	Invertebrate						
		Ciervo aegialian scarab beetle	Aegialia concinna			BLMS	
		San Joaquin dune beetle	Coelus gracilis			BLMS	

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FIELD OFFICE	COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	STATE STATUS	BLM STATUS	OTHER STATUS
Mother Lode	33 Species					
	Mammal					
	Fringed myotis	Myotis thysanodes			BLMS	
	Long-eared myotis	Myotis evotis			BLMS	
	Pacific fisher	Martes pennanti (pacifica) DPS	FC	SC	BLMS	SSC
	Pallid bat	Antrozous pallidus			BLMS	SSC
	Small-footed myotis	Myotis ciliolabrum			BLMS	
	Spotted bat	Euderma maculatum			BLMS	SSC
	Townsend's big-eared bat	Corynorhinus townsendii			BLMS	SSC
	Western mastiff-bat	Eumops perotis californicus			BLMS	SSC
	Yuma myotis	Myotis yumanensis			BLMS	
	Bird					
	Bald eagle	Haliaeetus leucocephalus	FD	SE	BLMS	EA
	Bank swallow	Riparia riparia		ST	BLMS	
	Burrowing owl	Athene cunicularia			BLMS	SSC
	California black rail	Laterallus jamaicensis coturniculus		ST	BLMS	SF
	California spotted owl	Strix occidentalis occidentalis			BLMS	SSC
	Golden eagle	Aquila chrysaetos			BLMS	EA
	Greater sandhill crane	Grus canadensis tabida		ST	BLMS	SF
	Northern goshawk	Accipiter gentilis			BLMS	SSC
	Swainson's hawk	Buteo swainsoni		ST	BLMS	
	Tricolored blackbird	Agelaius tricolor			BLMS	SSC
	Western yellow-billed cuckoo	Coccyzus americanus occidentalis	FC	SE	BLMS	
	White-tailed kite	Elanus leucurus			BLMS	SF
	Reptile					
	California mountain kingsnake	Lampropeltis zonata			BLMS	
	Coast horned lizard	Phrynosoma blainvillii			BLMS	
	Amphibian					
	California tiger salamander	Ambystoma californiense	FT	SC		SSC
	Foothill yellow-legged frog	Rana boylii			BLMS	
	Limestone salamander	Hydromantes brunus		ST	BLMS	SF
	Western spadefoot toad	Spea hammondii			BLMS	
	Fish					

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FIELD OFFICE	COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	STATE STATUS	BLM STATUS	OTHER STATUS
	Central Valley spring-run chinook salmon	Oncorhynchus tshawytscha ESU spring-run	FT	ST		
	Pacific lamprey	Entosphenus tridentatus			BLMS	
	Red Hills roach	Lavinia symmetricus ssp. 3			BLMS	
Invertebrate						
	Hirsute Sierra sideband snail	Monadenia mormonum hirsute			BLMS	
	Keeled sideband snail	Monadenia circumcarinata			BLMS	
	Tuolumne sideband snail	Monadenia tuolumneana			BLMS	

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FIELD OFFICE		COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	STATE STATUS	BLM STATUS	OTHER STATUS
Needles		22 Species					
	Mammal						
		California leaf-nosed bat	Macrotus californicus			BLMS	SSC
		Desert bighorn sheep	Ovis canadensis nelsoni			BLMS	SF
		Pallid bat	Antrozous pallidus			BLMS	SSC
		Townsend's big-eared bat	Corynorhinus townsendii			BLMS	SSC
		Yuma myotis	Myotis yumanensis			BLMS	
	Bird						
		Arizona bell's vireo	Vireo bellii arizonae		SE	BLMS	
		Bendire's thrasher	Toxostoma bendirei			BLMS	SSC
		Burrowing owl	Athene cunicularia			BLMS	SSC
		Elf owl	Micrathene whitneyi		SE	BLMS	
		Gila woodpecker	Melanerpes uropygialis		SE	BLMS	
		Gilded flicker	Colaptes chrysoides		SE	BLMS	
		Gray vireo	Vireo vicinior			BLMS	SSC
		Lucy's warbler	Oreothlypis luciae			BLMS	SSC
		Southwestern willow flycatcher	Empidonax traillii extimus	FE	SE		
		Swainson's hawk	Buteo swainsoni		ST	BLMS	
		Yuma clapper rail	Rallus longirostris yumanensis	FE	ST		SF
	Reptile						
		Desert tortoise	Gopherus agassizii	FT	ST		
		Gila monster	Heloderma suspectum			BLMS	
		Mojave fringe-toed lizard	Uma scoparia			BLMS	
	Fish						
		Colorado pikeminnow	Ptychocheilus lucius	FE	SE		SF
		Mojave tui chub	Siphateles bicolor mohavensis	FE	SE		SF
		Razorback sucker	Xyrauchen texanus	FE	SE		SF

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FIELD OFFICE		COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	STATE STATUS	BLM STATUS	OTHER STATUS
Palm Springs		53 Species					
	Mammal						
		California leaf-nosed bat	Macrotus californicus			BLMS	SSC
		Cave myotis	Myotis velifer			BLMS	SSC
		Desert bighorn sheep	Ovis canadensis nelsoni			BLMS	SF
		Fringed myotis	Myotis thysanodes			BLMS	
		Long-eared myotis	Myotis evotis			BLMS	
		Pallid bat	Antrozous pallidus			BLMS	SSC
		Palm Springs little pocket mouse	Perognathus longimembris bangsi			BLMS	
		Palm Springs round-tailed ground squirrel	Spermophilus tereticaudus chlorus	FC		BLMS	SSC
		Small-footed myotis	Myotis ciliolabrum			BLMS	
		Spotted bat	Euderma maculatum			BLMS	SSC
		Stephens' kangaroo rat	Dipodomys stephensi	FE	ST		
		Townsend's big-eared bat	Corynorhinus townsendii			BLMS	SSC
		Western mastiff-bat	Eumops perotis californicus			BLMS	SSC
		White-eared pocket mouse	Perognathus alticola			BLMS	
		Yuma myotis	Myotis yumanensis			BLMS	
	Bird						
		Ashy storm-petrel	Oceanodroma homochroa			BLMS	SSC
		Bald eagle	Haliaeetus leucocephalus	FD	SE	BLMS	EA
		Bank swallow	Riparia riparia		ST	BLMS	
		Bendire's thrasher	Toxostoma bendirei			BLMS	SSC
		Brown pelican	Pelecanus occidentalis	FD	SD	BLMS	SF
		Burrowing owl	Athene cunicularia			BLMS	SSC
		California black rail	Laterallus jamaicensis coturniculus		ST	BLMS	SF
		California spotted owl	Strix occidentalis occidentalis			BLMS	SSC
		Elf owl	Micrathene whitneyi		SE	BLMS	
		Gilded flicker	Colaptes chrysoides		SE	BLMS	
		Golden eagle	Aquila chrysaetos			BLMS	EA
		Least Bell's vireo	Vireo bellii pusillus	FE	SE		
		Lucy's warbler	Oreothlypis luciae			BLMS	SSC
		Southwestern willow flycatcher	Empidonax traillii extimus	FE	SE		
		Tricolored blackbird	Agelaius tricolor			BLMS	SSC

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FIELD OFFICE		COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	STATE STATUS	BLM STATUS	OTHER STATUS
		Western yellow-billed cuckoo	Coccyzus americanus occidentalis	FC	SE	BLMS	
		White-tailed kite	Elanus leucurus			BLMS	SF
		Xantus' murrelet	Synthliboramphus hypoleucus	FC	ST	BLMS	
		Yuma clapper rail	Rallus longirostris yumanensis	FE	ST		SF
	Reptile						
		Coachella Valley fringe-toed lizard	Uma inornata	FT	SE		
		Coast horned lizard	Phrynosoma blainvillii			BLMS	
		Coronado skink	Plestiodon skiltonianus interparietalis			BLMS	
		Desert tortoise	Gopherus agassizii	FT	ST		
		Flat-tailed horned lizard	Phrynosoma mcalli			BLMS	
		Gila monster	Heloderma suspectum			BLMS	
		Mojave fringe-toed lizard	Uma scoparia			BLMS	
		Southwestern pond turtle	Actinemys marmorata pallida			BLMS	
		Two-striped garter snake	Thamnophis hammondii			BLMS	
	Amphibian						
		Couch's spadefoot toad	Scaphiopus couchi			BLMS	
		Desert slender salamander	Batrachoseps major aridus	FE	SE		
		Western spadefoot toad	Spea hammondii			BLMS	
		Yellow-blotched salamander	Ensatina eschscholtzii croceator			BLMS	
	Fish						
		Colorado pikeminnow	Ptychocheilus lucius	FE	SE		SF
		Desert pupfish	Cyprinodon macularius	FE	SE		
		Mojave tui chub	Siphateles bicolor mohavensis	FE	SE		SF
		Razorback sucker	Xyrauchen texanus	FE	SE		SF
		Unarmored threespine stickleback	Gasterosteus aculeatus williamsoni	FE	SE		SF
	Invertebrate						
		Thorne's hairstreak butterfly	Callophrys thornei			BLMS	

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FIELD OFFICE	COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	STATE STATUS	BLM STATUS	OTHER STATUS
Redding	38 Species					
	Mammal					
	Fringed myotis	Myotis thysanodes			BLMS	
	Long-eared myotis	Myotis evotis			BLMS	
	Pacific fisher	Martes pennanti (pacifica) DPS	FC	SC	BLMS	SSC
	Pallid bat	Antrozous pallidus			BLMS	SSC
	San Joaquin pocket mouse	Perognathus inornatus			BLMS	
	Spotted bat	Euderma maculatum			BLMS	SSC
	Townsend's big-eared bat	Corynorhinus townsendii			BLMS	SSC
	Western mastiff-bat	Eumops perotis californicus			BLMS	SSC
	Yuma myotis	Myotis yumanensis			BLMS	
	Bird					
	Bald eagle	Haliaeetus leucocephalus	FD	SE	BLMS	EA
	Bank swallow	Riparia riparia		ST	BLMS	
	Burrowing owl	Athene cunicularia			BLMS	SSC
	California black rail	Laterallus jamaicensis coturniculus		ST	BLMS	SF
	California spotted owl	Strix occidentalis occidentalis			BLMS	SSC
	Golden eagle	Aquila chrysaetos			BLMS	EA
	Greater sandhill crane	Grus canadensis tabida		ST	BLMS	SF
	Northern goshawk	Accipiter gentilis			BLMS	SSC
	Swainson's hawk	Buteo swainsoni		ST	BLMS	
	Tricolored blackbird	Agelaius tricolor			BLMS	SSC
	Western yellow-billed cuckoo	Coccyzus americanus occidentalis	FC	SE	BLMS	
	White-tailed kite	Elanus leucurus			BLMS	SF
	Reptile					
	California mountain kingsnake	Lampropeltis zonata			BLMS	
	Coast horned lizard	Phrynosoma blainvillii			BLMS	
	Amphibian					
	Foothill yellow-legged frog	Rana boylii			BLMS	
	Shasta salamander	Hydromantes shastae			BLMS	
	Western spadefoot toad	Spea hammondii			BLMS	
	Fish					
	Central Valley spring-run chinook salmon	Oncorhynchus tshawytscha ESU spring-run	FT	ST		

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FIELD OFFICE	COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	STATE STATUS	BLM STATUS	OTHER STATUS
	Lost River sucker	Deltistes luxatus	FE	SE		SF
	Pacific lamprey	Entosphenus tridentatus			BLMS	
	Rough sculpin	Cottus asperrimus		ST	BLMS	
	Sacramento River winter-run chinook salmon	Oncorhynchus tshawytscha ESU winter-run	FE	SE		
	Shortnose sucker	Chasmistes brevirostris	FE	SE		SF
Invertebrate						
	Big Bar hesperian snail	Vespericola pressleyi			BLMS	
	Hooded lancetooth	Ancotrema voyanum			BLMS	
	Oregon shoulderband snail	Helminthoglypta hertleini			BLMS	
	Siskiyou shoulderband snail	Monadenia chaceana			BLMS	
	Tehama chaparral snail	Trilobopsis tehamana			BLMS	
	Trinity shoulderband snail	Helminthoglypta talmadgei			BLMS	

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FIELD OFFICE	COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	STATE STATUS	BLM STATUS	OTHER STATUS
Ridgecrest	31 Species					
	Mammal					
	Desert bighorn sheep	Ovis canadensis nelsoni			BLMS	SF
	Long-eared myotis	Myotis evotis			BLMS	
	Mohave ground squirrel	Spermophilus mohavensis		ST	BLMS	
	Nelson's antelope squirrel	Ammospermophilus nelsoni		ST	BLMS	
	Owens Valley vole	Microtus californicus vallicola			BLMS	
	Pallid bat	Antrozous pallidus			BLMS	SSC
	San Joaquin pocket mouse	Perognathus inornatus			BLMS	
	Small-footed myotis	Myotis ciliolabrum			BLMS	
	Spotted bat	Euderma maculatum			BLMS	SSC
	Townsend's big-eared bat	Corynorhinus townsendii			BLMS	SSC
	Tulare grasshopper mouse	Onychomys torridus tularensis			BLMS	
	Western mastiff-bat	Eumops perotis californicus			BLMS	SSC
	Yellow-eared pocket mouse	Perognathus xanthonotus			BLMS	
	Yuma myotis	Myotis yumanensis			BLMS	
	Bird					
	Bendire's thrasher	Toxostoma bendirei			BLMS	SSC
	Burrowing owl	Athene cunicularia			BLMS	SSC
	California spotted owl	Strix occidentalis occidentalis			BLMS	SSC
	Golden eagle	Aquila chrysaetos			BLMS	EA
	Gray vireo	Vireo vicinior			BLMS	SSC
	Inyo California towhee	Melozone crissalis eremophilus	FT	SE		
	Mountain plover	Charadrius montanus			BLMS	SSC
	Swainson's hawk	Buteo swainsoni		ST	BLMS	
	Tricolored blackbird	Agelaius tricolor			BLMS	SSC
	Reptile					
	Desert tortoise	Gopherus agassizii	FT	ST		
	Northern sagebrush lizard	Sceloporus graciosus graciosus			BLMS	
	Panamint alligator lizard	Elgaria panamintina			BLMS	
	Southwestern pond turtle	Actinemys marmorata pallida			BLMS	
	Two-striped garter snake	Thamnophis hammondii			BLMS	
	Amphibian					

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FIELD OFFICE		COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	STATE STATUS	BLM STATUS	OTHER STATUS
		Black toad	Anaxyrus exsul		ST	BLMS	SF
		Inyo Mountains slender salamander	Batrachoseps campi			BLMS	
	Fish						
		Mojave tui chub	Siphateles bicolor mohavensis	FE	SE		SF
Surprise		10 Species					
	Mammal						
		Pallid bat	Antrozous pallidus			BLMS	SSC
		Sierra Nevada bighorn sheep	Ovis canadensis sierrae	FE	SE		SF
	Bird						
		Bald eagle	Haliaeetus leucocephalus	FD	SE	BLMS	EA
		Burrowing owl	Athene cunicularia			BLMS	SSC
		Golden eagle	Aquila chrysaetos			BLMS	EA
		Greater sage-grouse	Centrocercus urophasianus	FC		BLMS	SSC
		Greater sandhill crane	Grus canadensis tabida		ST	BLMS	SF
		Northern goshawk	Accipiter gentilis			BLMS	SSC
	Reptile						
		Northern sagebrush lizard	Sceloporus graciosus graciosus			BLMS	
	Fish						
		Wall Canyon sucker	Catostomus murivallis			BLMS	

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FIELD OFFICE		COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	STATE STATUS	BLM STATUS	OTHER STATUS
Ukiah		27 Species					
	Mammal						
		Fringed myotis	Myotis thysanodes			BLMS	
		Long-eared myotis	Myotis evotis			BLMS	
		Pacific fisher	Martes pennanti (pacifica) DPS	FC	SC	BLMS	SSC
		Pallid bat	Antrozous pallidus			BLMS	SSC
		San Joaquin pocket mouse	Perognathus inornatus			BLMS	
		Small-footed myotis	Myotis ciliolabrum			BLMS	
		Townsend's big-eared bat	Corynorhinus townsendii			BLMS	SSC
		Western mastiff-bat	Eumops perotis californicus			BLMS	SSC
		Yuma myotis	Myotis yumanensis			BLMS	
	Bird						
		Bald eagle	Haliaeetus leucocephalus	FD	SE	BLMS	EA
		Bank swallow	Riparia riparia		ST	BLMS	
		Burrowing owl	Athene cunicularia			BLMS	SSC
		California black rail	Laterallus jamaicensis coturniculus		ST	BLMS	SF
		Golden eagle	Aquila chrysaetos			BLMS	EA
		Mountain plover	Charadrius montanus			BLMS	SSC
		Northern goshawk	Accipiter gentilis			BLMS	SSC
		Swainson's hawk	Buteo swainsoni		ST	BLMS	
		Tricolored blackbird	Agelaius tricolor			BLMS	SSC
		Western yellow-billed cuckoo	Coccyzus americanus occidentalis	FC	SE	BLMS	
		White-tailed kite	Elanus leucurus			BLMS	SF
	Reptile						
		California mountain kingsnake	Lampropeltis zonata			BLMS	
	Amphibian						
		California tiger salamander	Ambystoma californiense	FT	SC		SSC
		Foothill yellow-legged frog	Rana boylii			BLMS	
		Western spadefoot toad	Spea hammondii			BLMS	
	Fish						
		Central Valley spring-run chinook salmon	Oncorhynchus tshawytscha ESU spring-run	FT	ST		
		Coho salmon - central California coast	Oncorhynchus kisutch	FE	SE		
		Pacific lamprey	Entosphenus tridentatus			BLMS	

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APPENDIX D

California Department of Fish and Wildlife RareFind report

CALIFORNIA DEPARTMENT OF FISH and WILDLIFE **RareFind**

Query Summary:
Quad IS (Ogilby (3211477) OR Hedges (3211487))
AND County IS (Imperial)

Print Close

CNDDB Element Query Results

Scientific Name	Common Name	Taxonomic Group	Element Code	Total Occs	Returned Occs	Federal Status	State Status	Global Rank	State Rank	CA Rare Plant Rank	Other Status	Habitats
Anomala hardyorum	Hardy's dune beetle	Insects	IICOL30060	17	1	None	None	G1	S1	null	null	Desert dunes, Sonoran desert scrub
Antrozous pallidus	pallid bat	Mammals	AMACC10010	420	2	None	None	G5	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive, WBWG_H-High Priority	Chaparral, Coastal scrub, Desert wash, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Riparian woodland, Sonoran desert scrub, Upper montane coniferous forest, Valley & foothill grassland
Apiocera warneri	Glamis sand fly	Insects	IIDIP54020	1	1	None	None	G1G2	S1S2	null	null	Desert dunes
Astragalus insularis var. harwoodii	Harwood's milk-vetch	Dicots	PDFAB0F491	120	2	None	None	G5T4	S2	2B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Desert dunes, Desert wash, Mojavean desert scrub
Calliandra eriophylla	pink fairy-duster	Dicots	PDFAB0N040	53	20	None	None	G5	S3	2B.3	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Sonoran desert scrub
Corynorhinus townsendii	Townsend's big-eared bat	Mammals	AMACC08010	635	1	None	None	G3G4	S2	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive, WBWG_H-High Priority	Broadleaved upland forest, Chaparral, Chenopod scrub, Great Basin grassland, Great Basin scrub, Joshua tree woodland, Lower montane coniferous forest, Meadow & seep, Mojavean desert scrub, Riparian forest, Riparian woodland, Sonoran

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Ogilby (3211477) OR Hedges (3211487))
 AND County IS (Imperial)

Map Index Number: 63284
EO Index: 63376
Key Quad: Hedges (3211487)
Element Code: ABNYF04150
Occurrence Number: 30
Occurrence Last Updated: 2005-12-01

Scientific Name: *Melanerpes uropygialis*
Common Name: Gila woodpecker

Listing Status: **Federal:** None
State: Endangered
Rare Plant Rank:
Other Lists: BLM_S-Sensitive
IUCN_LC-Least Concern
USFWS_BCC-Birds of Conservation Concern

CNDDB Element Ranks: **Global:** G5
State: S1

General Habitat:
IN CALIFORNIA, INHABITS COTTONWOODS AND OTHER DESERT RIPARIAN TREES, SHADE TREES, AND DATE PALMS.

Micro Habitat:
CAVITY NESTER IN RIPARIAN TREES OR SAGUARO CACTUS.

Last Date Observed: 2002-03-09
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2002-03-09
Occurrence Rank: Fair
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:
UNNAMED WASH SOUTH OF INDIAN WASH, ABOUT 2.25 MILES WEST OF THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:

Ecological:
DESERT WASH WOODLAND WITH PALO VERDE & IRONWOOD SURROUNDED BY DISTURBED CREOSOTE BUSH SCRUB.

Threats:
OFF-ROAD VEHICLE USE.

General:
1 ADULT OBSERVED 9 MAR 2002.

PLSS: T14S, R20E, Sec. 34 (S)
Accuracy: 80 meters
Area (acres): 0
UTM: Zone-11 N3642305 E699897
Latitude/Longitude: 32.90071 / -114.86272
Elevation (feet): 537

County Summary:
Imperial

Quad Summary:
Hedges (3211487)

Sources:
KON02F0001 KONECNY, J. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR MELANERPES UROPYGIALIS 2002-03-09

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 06541
Key Quad: Hedges (3211487)
Occurrence Number: 31

EO Index: 25005
Element Code: ABPBJ08030
Occurrence Last Updated: 1989-08-10

Scientific Name: *Polioptila melanura*
Common Name: black-tailed gnatcatcher

Listing Status: **Federal:** None
State: None

CNDDB Element Ranks: **Global:** G5
State: S3S4

Rare Plant Rank:

Other Lists: CDFW_WL-Watch List
IUCN_LC-Least Concern

General Habitat:

PRIMARILY INHABITS WOODED DESERT WASH HABITATS; ALSO OCCURS IN DESERT SCRUB HABITAT, ESPECIALLY IN WINTER.

Micro Habitat:

NESTS IN DESERT WASHES CONTAINING MESQUITE, PALO VERDE, IRONWOOD, ACACIA; ABSENT FROM AREAS WHERE SALT CEDAR INTRODUCED.

Last Date Observed: 1977-06-07
Last Survey Date: 1977-06-07
Owner/Manager: BLM
Presence: Presumed Extant

Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:

INDIAN WASH, AT HWY S-34, APPROX 12.5 MI N OF I-80 AND 12 MILES S OF HWY 78.

Detailed Location:

Ecological:

Threats:

General:

NESTING BIRDS OBSERVED DURING SUMMER 1977 STUDY; 13 BREEDING PAIRS ESTIMATED.

PLSS: T14S, R20E, Sec. 22, NE (S)
UTM: Zone-11 N3645946 E700809

Accuracy: 1 mile
Latitude/Longitude: 32.93336 / -114.85219

Area (acres): 0
Elevation (feet): 620

County Summary:	Quad Summary:
Imperial	Hedges (3211487)

Sources:

BLM80S0014 BLM - DESERT PLAN STAFF - COMPILATION OF HISTORIC MUSEUM SPECIMEN INFORMATION FOR POLIOPTILA MELANURA LUCIDA, COLLECTED DURING THE PREPARATION OF "THE CALIFORNIA DESERT PLAN". 1980-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 06541
Key Quad: Hedges (3211487)
Occurrence Number: 47

EO Index: 24395
Element Code: ABPBK06090
Occurrence Last Updated: 1989-08-10

Scientific Name: *Toxostoma crissale*
Common Name: Crissal thrasher

Listing Status: **Federal:** None
State: None

CNDDB Element Ranks: **Global:** G5
State: S3

Rare Plant Rank:

Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern

General Habitat:

RESIDENT OF SOUTHEASTERN DESERTS IN DESERT RIPARIAN AND DESERT WASH HABITATS.

Micro Habitat:

NESTS IN DENSE VEGETATION ALONG STREAMS/WASHES; MESQUITE, SCREWBEAN MESQUITE, IRONWOOD, CATCLAW, ACACIA, ARROWWEED, WILLOW.

Last Date Observed: 1977-06-07
Last Survey Date: 1977-06-07
Owner/Manager: BLM
Presence: Presumed Extant

Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:

INDIAN WASH, AT HWY S-34, APPROX 12.5 MI N OF I-80 AND 12 MILES S OF HWY 78.

Detailed Location:

Ecological:

Threats:

General:

NESTING BIRDS OBS DURING SUMMER 1977 STUDY; ESTIMATED THREE BREEDING PAIRS.

PLSS: T14S, R20E, Sec. 22 (S)
UTM: Zone-11 N3645946 E700809

Accuracy: 1 mile
Latitude/Longitude: 32.93336 / -114.85219

Area (acres): 0
Elevation (feet): 620

County Summary:	Quad Summary:
Imperial	Hedges (3211487)

Sources:

BLM80S0013 BLM - DESERT PLAN STAFF - COMPILATION OF HISTORIC MUSEUM SPECIMEN INFORMATION FOR TOXOSTOMA DORSALE, COLLECTED DURING THE PREPARATION OF "THE CALIFORNIA DESERT PLAN". 1980-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 06550
Key Quad: Ogilby (3211477)
Occurrence Number: 35
EO Index: 24533
Element Code: ABPBK06100
Occurrence Last Updated: 1989-08-10

Scientific Name: *Toxostoma lecontei*
Common Name: Le Conte's thrasher

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G4
State: S3
Rare Plant Rank:
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
NABCI_RWL-Red Watch List
USFWS_BCC-Birds of Conservation Concern

General Habitat:

DESERT RESIDENT; PRIMARILY OF OPEN DESERT WASH, DESERT SCRUB, ALKALI DESERT SCRUB, AND DESERT SUCCULENT SCRUB HABITATS.

Micro Habitat:

COMMONLY NESTS IN A DENSE, SPINY SHRUB OR DENSELY BRANCHED CACTUS IN DESERT WASH HABITAT, USUALLY 2-8 FEET ABOVE GROUND.

Last Date Observed: 1896-03-16
Last Survey Date: 1896-03-16
Owner/Manager: UNKNOWN
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:

OGILBY.

Detailed Location:

Ecological:

Threats:

General:

CAS SPECIMEN #55196.

PLSS: T15S, R20E, Sec. 35, NW (S)
UTM: Zone-11 N3633124 E702138
Accuracy: 1 mile
Latitude/Longitude: 32.81754 / -114.84079
Area (acres): 0
Elevation (feet): 360

County Summary:

Imperial

Quad Summary:

Ogilby (3211477)

Sources:

BLM80R0014 BUREAU OF LAND MANAGEMENT - THE CALIFORNIA DESERT PLAN 1980-02-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 06541
Key Quad: Hedges (3211487)
Occurrence Number: 88

EO Index: 24493
Element Code: ABPBK06100
Occurrence Last Updated: 1989-08-10

Scientific Name: *Toxostoma lecontei*
Common Name: Le Conte's thrasher

Listing Status: **Federal:** None
State: None

CNDDB Element Ranks: **Global:** G4
State: S3

Rare Plant Rank:

Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
NABCI_RWL-Red Watch List
USFWS_BCC-Birds of Conservation Concern

General Habitat:

DESERT RESIDENT; PRIMARILY OF OPEN DESERT WASH, DESERT SCRUB, ALKALI DESERT SCRUB, AND DESERT SUCCULENT SCRUB HABITATS.

Micro Habitat:

COMMONLY NESTS IN A DENSE, SPINY SHRUB OR DENSELY BRANCHED CACTUS IN DESERT WASH HABITAT, USUALLY 2-8 FEET ABOVE GROUND.

Last Date Observed: 1977-06-07
Last Survey Date: 1977-06-07
Owner/Manager: BLM
Presence: Presumed Extant

Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:

INDIAN WASH, AT HWY S-34, APPROX 12.5 MI N OF I-80 AND 12 MILES S OF HWY 78.

Detailed Location:

Ecological:

Threats:

General:

NESTING BIRDS OBS DURING SUMMER 1977 STUDY; ESTIMATED ONE BREEDING PAIR.

PLSS: T14S, R20E, Sec. 22, NE (S)
UTM: Zone-11 N3645946 E700809

Accuracy: 1 mile
Latitude/Longitude: 32.93336 / -114.85219

Area (acres): 0
Elevation (feet): 620

County Summary:

Imperial

Quad Summary:

Hedges (3211487)

Sources:

BLM80R0014 BUREAU OF LAND MANAGEMENT - THE CALIFORNIA DESERT PLAN 1980-02-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 33092
Key Quad: Ogilby (3211477)
Occurrence Number: 13
EO Index: 3603
Element Code: AMACB01010
Occurrence Last Updated: 2007-04-03

Scientific Name: *Macrotus californicus*
Common Name: California leaf-nosed bat

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G4
State: S3
Rare Plant Rank:
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
WBWG_H-High Priority

General Habitat:

DESERT RIPARIAN, DESERT WASH, DESERT SCRUB, DESERT SUCCULENT SCRUB, ALKALI SCRUB AND PALM OASIS HABITATS.

Micro Habitat:

NEEDS ROCKY, RUGGED TERRAIN WITH MINES OR CAVES FOR ROOSTING.

Last Date Observed: 1999-01-XX
Last Survey Date: 1999-01-XX
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Excellent
Trend: Unknown

Location:

"CARGO MINE," IN JACKSON GULCH, ABOUT 3.5 MILES ENE OF OGILBY, IN THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:

THIS MINE IS PROTECTED BY A STURDY, HIGH CHAIN LINK FENCE, A LOCKED GATE, AND SIGNS. INDIVIDUALS WERE OBSERVED ROOSING ON 30 APR 1992. 1993-1999 NUMBERS REFER TO OUTFLIGHT COUNTS. 650-750 OUTFLIGHT COUNT (OFC) WINTER 1990/91.

Ecological:

HABITAT CONSISTS OF CREOSOTE BUSH SCRUB IN THE LOWER SONORAN LIFE ZONE. THIS POPULATION EXPERIENCES FLUCTUATIONS, BASED ON ACTIONS IN NEARBY MINES.

Threats:

POSSIBLE THREATS INCLUDE RENEWED MINING, HUMAN (RECREATIONAL) DISURBANCE, AND MINE CLOSURE FOR HAZARD ABATEMENT.

General:

132 INDIVS APRIL, 260 OFC MAY, 152 OFC JUNE, 636 OFC DEC 1992. 109 26 JUNE; 207 3 JULY; 1462 10 DEC 1993. 764 WINTER 1994. 222 JUL 1995. 1289 JAN, 182 JUL 1996. 266 JAN, 195 JUN 1997. 221 JAN, 183 JUN 1998. 1292 JAN 1999.

PLSS: T15S, R21E, Sec. 20, SE (S)
Accuracy: 80 meters
Area (acres): 0
UTM: Zone-11 N3635139 E707835
Latitude/Longitude: 32.83464 / -114.77952
Elevation (feet): 720

County Summary:	Quad Summary:
Imperial	Ogilby (3211477)

Sources:

BRO92F0019	BROWN, P. - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS (ROOST SITE) 1992-04-30
BRO92R0002	BROWN-BERRY BIOLOGICAL CONSULTING - A SUMMER BASELINE SURVEY FOR THE CALIFORNIA LEAF-NOSED BAT IN THE CARGO MUCHACHO MOUNTAINS. 1992-10-02
BRO92R0003	BROWN, P.E. - A SPRING SURVEY FOR BATS OF THE AMERICAN GIRL CANYON PROJECT AND THE ORO CRUZ PROJECT, CARGO MUCHACHO MOUNTAINS, IMPERIAL COUNTY, CALIFORNIA. 1992-06-05
BRO93F0045	BROWN-BERRY BIOLOGICAL CONSULTING - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS (ROOST SITE) 1993-07-03
BRO98U0002	BROWN-BERRY BIOLOGICAL CONSULTING - REGARDING: RESULTS OF SUMMER AND WINTER BASELINE MONITORING FOR BATS IN THE VICINITY OF THE ORO CRUZ PROJECT AND THE CARGO MINE, CARGO MUCHACHO MOUNTAINS, CA. 1998-05-04
BRO99U0001	BROWN-BERRY BIOLOGICAL CONSULTING - BAT CENSUS OF CARGO MUCHACHO MINES, AUGUST 1989-JANUARY 1999 1999-01-XX
BRO99U0002	BROWN-BERRY BIOLOGICAL CONSULTING - REGARDING: RESULTS OF SUMMER AND WINTER BASELINE MONITORING FOR BATS IN THE VICINITY OF THE ORO CRUZ PROJECT AND THE CARGO MINE, CARGO MUCHACHO MOUNTAINS, CA. 1999-02-08

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 33093
EO Index: 3604
Key Quad: Ogilby (3211477)
Element Code: AMACB01010
Occurrence Number: 14
Occurrence Last Updated: 1995-04-04

Scientific Name: *Macrotus californicus*
Common Name: California leaf-nosed bat

Listing Status: **Federal:** None
State: None
Rare Plant Rank:

CNDDB Element Ranks: **Global:** G4
State: S3
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
WBWG_H-High Priority

General Habitat:
DESERT RIPARIAN, DESERT WASH, DESERT SCRUB, DESERT SUCCULENT SCRUB, ALKALI SCRUB AND PALM OASIS HABITATS.

Micro Habitat:
NEEDS ROCKY, RUGGED TERRAIN WITH MINES OR CAVES FOR ROOSTING.

Last Date Observed: 1993-12-14
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1993-12-14
Occurrence Rank: Good
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:
"NE OF CARGO MINE," VICINITY OF JACKSON GULCH, IN THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:

Ecological:
HABITAT CONSISTS OF CREOSOTE BUSH SCRUB IN THE LOWER SONORAN LIFE ZONE.

Threats:

General:
1 ADULT OBSERVED ROOSTING.

PLSS: T15S, R21E (S)
Accuracy: 1/5 mile
Area (acres): 0
UTM: Zone-11 N3635466 E708291
Latitude/Longitude: 32.83750 / -114.77458
Elevation (feet): 880

County Summary:	Quad Summary:
Imperial	Ogilby (3211477)

Sources:
BRO93F0046 BROWN-BERRY BIOLOGICAL CONSULTING - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS (ROOST SITE) 1993-12-14

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 33094
EO Index: 3602
Key Quad: Ogilby (3211477)
Element Code: AMACB01010
Occurrence Number: 15
Occurrence Last Updated: 1995-04-12

Scientific Name: *Macrotus californicus*
Common Name: California leaf-nosed bat

Listing Status: **Federal:** None
State: None

CNDDB Element Ranks: **Global:** G4
State: S3

Rare Plant Rank:

Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
WBWG_H-High Priority

General Habitat:

DESERT RIPARIAN, DESERT WASH, DESERT SCRUB, DESERT SUCCULENT SCRUB, ALKALI SCRUB AND PALM OASIS HABITATS.

Micro Habitat:

NEEDS ROCKY, RUGGED TERRAIN WITH MINES OR CAVES FOR ROOSTING.

Last Date Observed: 1992-05-04
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1992-05-04
Occurrence Rank: Good
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

"SOUTH OF CARGO MINE," VICINITY OF JACKSON GULCH, IN THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:

Ecological:

HABITAT CONSISTS OF CREOSOTE BUSH SCRUB IN THE LOWER SONORAN LIFE ZONE.

Threats:

POSSIBLE THREATS INCLUDE RENEWED MINING, HUMAN (RECREATIONAL) DISTURBANCE, AND MINE CLOSURE FOR HAZARD ABATEMENT.

General:

3 INDIVIDUALS OBSERVED ROOSTING & 54 COUNTED ENTERING & EXITING THE MINE ON 4 MAY 1992. EUMOPS PEROTIS HEARD FLYING OVER.

PLSS: T15S, R21E (S)
Accuracy: 1/5 mile
Area (acres): 0
UTM: Zone-11 N3634743 E707905
Latitude/Longitude: 32.83105 / -114.77886
Elevation (feet): 560

County Summary:

Imperial

Quad Summary:

Ogilby (3211477)

Sources:

BRO92F0020 BROWN, P. - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS (ROOST SITE) 1992-05-04

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 33095
EO Index: 3605
Key Quad: Ogilby (3211477)
Element Code: AMACB01010
Occurrence Number: 16
Occurrence Last Updated: 2007-04-03

Scientific Name: *Macrotus californicus*
Common Name: California leaf-nosed bat

Listing Status: **Federal:** None
State: None
Rare Plant Rank:

CNDDB Element Ranks: **Global:** G4
State: S3
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
WBWG_H-High Priority

General Habitat:

DESERT RIPARIAN, DESERT WASH, DESERT SCRUB, DESERT SUCCULENT SCRUB, ALKALI SCRUB AND PALM OASIS HABITATS.

Micro Habitat:

NEEDS ROCKY, RUGGED TERRAIN WITH MINES OR CAVES FOR ROOSTING.

Last Date Observed: 1996-07-03
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1996-07-03
Occurrence Rank: Good
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

"PADRE MADRE CLAIM," SOUTH OF THE AMERICAN GIRL WASH, IN THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:

ONE PORTION OF THIS ROOST IS LOCATED OUTSIDE THE FENCE AND ONE PART IS LOCATED INSIDE THE FENCE. INCLUDES SOUTH OF MINE IN INCLINE ON TOP OF HILL.

Ecological:

HABITAT CONSISTS OF CREOSOTE BUSH SCRUB IN THE LOWER SONORAN LIFE ZONE.

Threats:

POSSIBLE THREATS INCLUDE RENEWED MINING, HUMAN (RECREATIONAL) DISTURBANCE, AND MINE CLOSURE FOR HAZARD ABATEMENT.

General:

ROOST SITE. OUTSIDE FENCE: 10 OBSERVED 2 MAY, 10 OBSERVED 18 JUN 1992; INSIDE FENCE: 8 OBSERVED ON 2 MAY, 6 OBSERVED ON 18 JUN 1992. OUTFLIGHT COUNT OF 55 + 25 ON 3 JUL 1996.

PLSS: T15S, R21E, Sec. 19, NE (S)
Accuracy: 1/5 mile
Area (acres): 0
UTM: Zone-11 N3635878 E706624
Latitude/Longitude: 32.84153 / -114.79229
Elevation (feet): 600

County Summary:	Quad Summary:
Imperial	Ogilby (3211477)

Sources:

BRO92F0021	BROWN, P. - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS (ROOST SITE) 1992-05-02
BRO92F0022	BROWN, P. - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS (ROOST SITE) 1992-05-02
BRO92R0002	BROWN-BERRY BIOLOGICAL CONSULTING - A SUMMER BASELINE SURVEY FOR THE CALIFORNIA LEAF-NOSED BAT IN THE CARGO MUCHACHO MOUNTAINS. 1992-10-02
BRO92R0003	BROWN, P.E. - A SPRING SURVEY FOR BATS OF THE AMERICAN GIRL CANYON PROJECT AND THE ORO CRUZ PROJECT, CARGO MUCHACHO MOUNTAINS, IMPERIAL COUNTY, CALIFORNIA. 1992-06-05
BRO99U0001	BROWN-BERRY BIOLOGICAL CONSULTING - BAT CENSUS OF CARGO MUCHACHO MINES, AUGUST 1989-JANUARY 1999 1999-01-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 33096
EO Index: 3606
Key Quad: Ogilby (3211477)
Element Code: AMACB01010
Occurrence Number: 17
Occurrence Last Updated: 2007-03-05

Scientific Name: *Macrotus californicus*
Common Name: California leaf-nosed bat

Listing Status: **Federal:** None
State: None
Rare Plant Rank:

CNDDB Element Ranks: **Global:** G4
State: S3
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
WBWG_H-High Priority

General Habitat:

DESERT RIPARIAN, DESERT WASH, DESERT SCRUB, DESERT SUCCULENT SCRUB, ALKALI SCRUB AND PALM OASIS HABITATS.

Micro Habitat:

NEEDS ROCKY, RUGGED TERRAIN WITH MINES OR CAVES FOR ROOSTING.

Last Date Observed: 2006-01-15
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2006-01-15
Occurrence Rank: Good
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

"GUADALUPE MINE," IN THE VICINITY OF THE AMERICAN GIRL WASH, IN THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:

2006 OBSERVATION FROM SHAFT OMR #13346.

Ecological:

HABITAT CONSISTS OF CREOSOTE BUSH SCRUB IN THE LOWER SONORAN LIFE ZONE.

Threats:

POSSIBLE THREATS INCLUDE RENEWED MINING, HUMAN (RECREATIONAL) DISTURBANCE, AND MINE CLOSURE FOR HAZARD ABATEMENT.

General:

10 FEMALES AND 2 MALES OBSERVED ROOSTING ON 15 DECEMBER 1992; 10 OF THE BATS HAD BEEN PREVIOUSLY BANDED AND ROOSTED IN THE AMERICAN BOY MINE, WHCIH IS NOW AN ACTIVE MINING SITE. GUANO DETECTED DURING SURVEY ON 15 JAN 2006.

PLSS: T15S, R21E, Sec. 16, SW (S)
Accuracy: 80 meters
Area (acres): 0
UTM: Zone-11 N3637459 E709123
Latitude/Longitude: 32.85530 / -114.76525
Elevation (feet): 880

County Summary:	Quad Summary:
Imperial	Ogilby (3211477)

Sources:

BRO06R0001	BROWN, P. (BROWN-BERRY BIOLOGICAL CONSULTING) - CALIFORNIA STATE LANDS COMMISSION MINE SITE DESCRIPTIONS AND BAT SURVEY RESULTS 2006-02-04
BRO92F0023	BROWN, P. - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS (ROOST SITE) 1992-12-15

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 33097
EO Index: 3607
Key Quad: Ogilby (3211477)
Element Code: AMACB01010
Occurrence Number: 18
Occurrence Last Updated: 2011-01-18

Scientific Name: *Macrotus californicus*
Common Name: California leaf-nosed bat

Listing Status: **Federal:** None
State: None
Rare Plant Rank:

CNDDB Element Ranks: **Global:** G4
State: S3
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
WBWG_H-High Priority

General Habitat:
DESERT RIPARIAN, DESERT WASH, DESERT SCRUB, DESERT SUCCULENT SCRUB, ALKALI SCRUB AND PALM OASIS HABITATS.

Micro Habitat:
NEEDS ROCKY, RUGGED TERRAIN WITH MINES OR CAVES FOR ROOSTING.

Last Date Observed: 1992-10-12
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1992-10-12
Occurrence Rank: Good
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:
"TYBO MINE," VICINITY OF THE AMERICAN GIRL WASH, IN THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:
INCLUDES LOCALITY "AMERICAN GIRL MINE."

Ecological:
HABITAT CONSISTS OF CREOSOTE BUSH SCRUB IN THE LOWER SONORAN LIFE ZONE.

Threats:
POSSIBLE THREATS INCLUDE RENEWED MINING, HUMAN (RECREATIONAL) DISTURBANCE, AND MINE CLOSURE FOR HAZARD ABATEMENT.

General:
HISTORIC SITE. 150-200 OBS BY P. BROWN 1977. POPULATION HAS LIKELY DECREASED DUE TO RENEWED MINING IN THE AREA AND REMOVAL OF WASH VEGETATION. 4 INDIVIDUALS OBSERVED ROOSTING ON 12 OCTOBER 1992.

PLSS: T15S, R21E (S)
Accuracy: 1/5 mile
Area (acres): 0
UTM: Zone-11 N3637467 E707137
Latitude/Longitude: 32.85575 / -114.78645
Elevation (feet): 740

County Summary:	Quad Summary:
Imperial	Ogilby (3211477)

Sources:

BLM80R0014	BUREAU OF LAND MANAGEMENT - THE CALIFORNIA DESERT PLAN 1980-02-XX
BRO92F0024	BROWN, P. - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS (ROOST SITE) 1992-12-10
BRO93U0001	BROWN, P.E., R.D. BERRY & C. BROWN - ABSTRACT OF A PAPER PRESENTED AT THE CALIFORNIA MINING ASSOCIATION ANNUAL MEETING IN MONTEREY, MARCH 10, 1993. 1993-03-10

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	26333	**EO Index:**	40808
Key Quad:	Hedges (3211487)	**Element Code:**	AMACB01010
Occurrence Number:	26	**Occurrence Last Updated:**	2007-04-03

Scientific Name: *Macrotus californicus*

Common Name: California leaf-nosed bat

Listing Status: **Federal:** None

State: None

CNDDB Element Ranks: **Global:** G4

State: S3

Rare Plant Rank:

Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
WBWG_H-High Priority

General Habitat:

DESERT RIPARIAN, DESERT WASH, DESERT SCRUB, DESERT SUCCULENT SCRUB, ALKALI SCRUB AND PALM OASIS HABITATS.

Micro Habitat:

NEEDS ROCKY, RUGGED TERRAIN WITH MINES OR CAVES FOR ROOSTING.

Last Date Observed:	1999-01-XX	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1999-01-XX	**Occurrence Rank:**	Good
Owner/Manager:	BLM	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

MESQUITE ADIT, TUMCO WASH, IN THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:

GATED MINE ENTRANCE. LOCATED TO W OF THE GOLDEN RING. INCLUDES QUEEN INCLINE & MESQUITE MINE. ABOUT 80 OBS 1989. 12 CAPT/BANDED (C/B) FEB, 49 OBS JUL, 44 IN DEC 1990. 2 C/B MAY, 12 CAPT, 8 OBS DEC 1991. 3 OBS APR/MAY 1992.

Ecological:

HABITAT CONSISTS OF CREOSOTE BUSH SCRUB IN THE LOWER SONORAN LIFE ZONE.

Threats:

POSSIBLE THREAT OF MINING - SITE IS UNDER CLAIM TO A MINING COMPANY, HUMAN DISTURBANCE, CLOSURE FOR HAZARD ABATEMENT.

General:

3 BANDED BATS CAPT JUN, 15 C/B DEC 1992. ~5 CAPT JUN, 2 IN JUL, 1 OBS DEC '93.1 OBS MAR, OBS IN JUN, 27 IN DEC '94. OBS MAR, 18 IN 6 JUL '95. 13 OBS IN JAN, OBS IN JUL '96.15 OBS JAN, OBS JUN '97. 13 OBS JAN, OBS JUN '98. 27 OBS JAN '99.

PLSS:	T15S, R20E, Sec. 01, SW (S)	**Accuracy:**	2/5 mile	**Area (acres):**	0
UTM:	Zone-11 N3640372 E703297	**Latitude/Longitude:**	32.88266 / -114.82683	**Elevation (feet):**	700

County Summary:	**Quad Summary:**
Imperial	Hedges (3211487)

Sources:

BRO92F0047	BROWN, P. - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS 1992-04-30
BRO92R0002	BROWN-BERRY BIOLOGICAL CONSULTING - A SUMMER BASELINE SURVEY FOR THE CALIFORNIA LEAF-NOSED BAT IN THE CARGO MUCHACHO MOUNTAINS. 1992-10-02
BRO92R0003	BROWN, P.E. - A SPRING SURVEY FOR BATS OF THE AMERICAN GIRL CANYON PROJECT AND THE ORO CRUZ PROJECT, CARGO MUCHACHO MOUNTAINS, IMPERIAL COUNTY, CALIFORNIA. 1992-06-05
BRO93F0073	BROWN & BERRY BIOLOGICAL - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS 1993-06-28
BRO99U0001	BROWN-BERRY BIOLOGICAL CONSULTING - BAT CENSUS OF CARGO MUCHACHO MINES, AUGUST 1989-JANUARY 1999 1999-01-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 26334
Key Quad: Hedges (3211487)
Occurrence Number: 27
EO Index: 40809
Element Code: AMACB01010
Occurrence Last Updated: 2011-08-16

Scientific Name: *Macrotus californicus*
Common Name: California leaf-nosed bat

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G4
State: S3
Rare Plant Rank:
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
WBWG_H-High Priority

General Habitat:
DESERT RIPARIAN, DESERT WASH, DESERT SCRUB, DESERT SUCCULENT SCRUB, ALKALI SCRUB AND PALM OASIS HABITATS.

Micro Habitat:
NEEDS ROCKY, RUGGED TERRAIN WITH MINES OR CAVES FOR ROOSTING.

Last Date Observed: 1999-01-XX
Last Survey Date: 1999-01-XX
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Good
Trend: Unknown

Location:
(GOLDEN) QUEEN MINE, IN TUMCO WASH, IN THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:
1990 OBS MATERNITY ROOST. MESQUITE, GOLDEN KING & CROWN MINES & EAST & WEST SOVERIGN PROSPECT INCLUDED HERE. OBS EXITING INCLINE & SHAFT IN 1989 OBS & IN JUN 1992. 125 OBS AUG 1989. OBS FEB/JUL/DEC 1990. 2 OBS DEC 1991.

Ecological:
HABITAT CONSISTS OF CREOSOTE BUSH SCRUB IN THE LOWER SONORAN LIFE ZONE.

Threats:
RENEWED MINING, HUMAN DISTURBANCE, CLOSURE FOR HAZARD ABATEMENT.

General:
14 BANDED, 178 OBS MAY/JUN, 208 OBS DEC 1992. 40 OBS 29 JUN, 5 OBS JUL, 295 OBS DEC, 10 OBS DEC '93. OBS IN MAR/JUN/JUL/DEC '94. OBS MAR/JUL '95. 6 OBS JUN, 147 JAN/JUN/JUL '96. OBS JAN/JUN '97. 68 OBS JAN, 50 OBS JUN 1998. 190 OBS JAN '99.

PLSS: T15S, R20E, Sec. 01 (S)
Accuracy: 2/5 mile
Area (acres): 0
UTM: Zone-11 N3640600 E703890
Latitude/Longitude: 32.88460 / -114.82044
Elevation (feet): 720

County Summary:	Quad Summary:
Imperial	Hedges (3211487)

Sources:

BRO92F0048	BROWN, P. - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS 1992-06-26
BRO92F0049	BROWN, P. - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS 1992-06-20
BRO92F0050	BROWN, P. - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS 1992-06-19
BRO92F0051	BROWN, P. - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS 1992-06-20
BRO92F0052	BROWN, P. - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS 1992-05-01
BRO92R0002	BROWN-BERRY BIOLOGICAL CONSULTING - A SUMMER BASELINE SURVEY FOR THE CALIFORNIA LEAF-NOSED BAT IN THE CARGO MUCHACHO MOUNTAINS. 1992-10-02
BRO92R0003	BROWN, P.E. - A SPRING SURVEY FOR BATS OF THE AMERICAN GIRL CANYON PROJECT AND THE ORO CRUZ PROJECT, CARGO MUCHACHO MOUNTAINS, IMPERIAL COUNTY, CALIFORNIA. 1992-06-05
BRO93F0047	BROWN-BERRY BIOLOGICAL CONSULTING - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS (ROOST SITE) 1993-01-23
BRO93F0068	BROWN & BERRY BIOLOGICAL - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS 1993-12-11
BRO93F0069	BROWN & BERRY BIOLOGICAL - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS 1993-07-05
BRO93F0070	BROWN & BERRY BIOLOGICAL - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS 1993-06-29
BRO93F0071	BROWN & BERRY BIOLOGICAL - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS 1993-07-07
BRO93F0072	BROWN & BERRY BIOLOGICAL - FIELD SURVEY FORM FOR MACROTUS CALIFORNICUS 1993-12-13
BRO98U0002	BROWN-BERRY BIOLOGICAL CONSULTING - REGARDING: RESULTS OF SUMMER AND WINTER BASELINE MONITORING FOR BATS IN THE VICINITY OF THE ORO CRUZ PROJECT AND THE CARGO MINE, CARGO MUCHACHO MOUNTAINS, CA. 1998-05-04
BRO99U0002	BROWN-BERRY BIOLOGICAL CONSULTING - REGARDING: RESULTS OF SUMMER AND WINTER BASELINE MONITORING FOR BATS IN THE VICINITY OF THE ORO CRUZ PROJECT AND THE CARGO MINE, CARGO MUCHACHO MOUNTAINS, CA. 1999-02-08

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 66655
Key Quad: Hedges (3211487)
Occurrence Number: 31
EO Index: 68474
Element Code: AMACB01010
Occurrence Last Updated: 2007-04-20

Scientific Name: *Macrotus californicus*
Common Name: California leaf-nosed bat

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G4
State: S3
Rare Plant Rank:
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
WBWG_H-High Priority

General Habitat:
DESERT RIPARIAN, DESERT WASH, DESERT SCRUB, DESERT SUCCULENT SCRUB, ALKALI SCRUB AND PALM OASIS HABITATS.

Micro Habitat:
NEEDS ROCKY, RUGGED TERRAIN WITH MINES OR CAVES FOR ROOSTING.

Last Date Observed: 2006-01-25
Last Survey Date: 2006-01-25
Owner/Manager: UNKNOWN
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
CARGO MUCHACHO MOUNTAINS, ABOUT 1.4 MI NORTH OF HEDGES.

Detailed Location:
SHAFT & ADIT OMR #13313 & 13316 AND DECLINE OMR #13320.

Ecological:
MATERNITY COLONY FOR MACROTUS CALIFORNICUS.

Threats:

General:
45 INDIVIDUALS OBSERVED IN A SIDE DRIFT OFF THE NORTHWEST BRANCH, 4 FEMALES CAPTURED, BANDED & RELEASED INSIDE THE MINE ON 25 JAN 2006.

PLSS: T14S, R20E, Sec. 36, W (S)
Accuracy: non-specific area
Area (acres): 156
UTM: Zone-11 N3642270 E703327
Latitude/Longitude: 32.89976 / -114.82608
Elevation (feet): 780

County Summary:	Quad Summary:
Imperial	Hedges (3211487)

Sources:

BRO06R0001	BROWN, P. (BROWN-BERRY BIOLOGICAL CONSULTING) - CALIFORNIA STATE LANDS COMMISSION MINE SITE DESCRIPTIONS AND BAT SURVEY RESULTS 2006-02-04
BRO06R0002	BROWN, P. (BROWN-BERRY BIOLOGICAL CONSULTING) - CALIFORNIA STATE LANDS COMMISSION MINE SITE DESCRIPTIONS AND BAT SURVEY RESULTS 2006-06-15

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 68784
EO Index: 69287
Key Quad: Ogilby (3211477)
Element Code: AMACB01010
Occurrence Number: 40
Occurrence Last Updated: 2007-04-10

Scientific Name: *Macrotus californicus*
Common Name: California leaf-nosed bat

Listing Status: **Federal:** None
State: None

CNDDB Element Ranks: **Global:** G4
State: S3

Rare Plant Rank:

Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
WBWG_H-High Priority

General Habitat:

DESERT RIPARIAN, DESERT WASH, DESERT SCRUB, DESERT SUCCULENT SCRUB, ALKALI SCRUB AND PALM OASIS HABITATS.

Micro Habitat:

NEEDS ROCKY, RUGGED TERRAIN WITH MINES OR CAVES FOR ROOSTING.

Last Date Observed: 1999-01-17
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1999-01-17
Occurrence Rank: Unknown
Owner/Manager: UNKNOWN
Trend: Unknown
Presence: Presumed Extant

Location:

AMERICAN BOY MINE. CARGO MUCHACHO MOUNTAINS, TUMCO WASH.

Detailed Location:

Ecological:

Threats:

General:

MAINLY WINTER ROOST PRIOR TO CLOSURE IN 1992. 2 INDIVIDUALS OBSERVED EMERGING FROM ADIT IN JUN 1997. 1 INDIVIDUAL & GUANO OBSERVED IN JAN 1998. OUTFLIGHT COUNT OF 6 INDIVIDUALS AND GUANO OBSERVED 17 JAN 1999.

PLSS: T15S, R21E, Sec. 16, NW (S)
Accuracy: 1/10 mile
Area (acres): 0
UTM: Zone-11 N3638222 E708635
Latitude/Longitude: 32.86227 / -114.77028
Elevation (feet): 740

County Summary:

Imperial

Quad Summary:

Ogilby (3211477)

Sources:

BRO98U0002	BROWN-BERRY BIOLOGICAL CONSULTING - REGARDING: RESULTS OF SUMMER AND WINTER BASELINE MONITORING FOR BATS IN THE VICINITY OF THE ORO CRUZ PROJECT AND THE CARGO MINE, CARGO MUCHACHO MOUNTAINS, CA. 1998-05-04
BRO99U0001	BROWN-BERRY BIOLOGICAL CONSULTING - BAT CENSUS OF CARGO MUCHACHO MINES, AUGUST 1989-JANUARY 1999 1999-01-XX
BRO99U0002	BROWN-BERRY BIOLOGICAL CONSULTING - REGARDING: RESULTS OF SUMMER AND WINTER BASELINE MONITORING FOR BATS IN THE VICINITY OF THE ORO CRUZ PROJECT AND THE CARGO MINE, CARGO MUCHACHO MOUNTAINS, CA. 1999-02-08

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 06550
Key Quad: Ogilby (3211477)
Occurrence Number: 46
EO Index: 82343
Element Code: AMACB01010
Occurrence Last Updated: 2011-01-18

Scientific Name: *Macrotus californicus*
Common Name: California leaf-nosed bat

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G4
State: S3
Rare Plant Rank:
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
WBWG_H-High Priority

General Habitat:
DESERT RIPARIAN, DESERT WASH, DESERT SCRUB, DESERT SUCCULENT SCRUB, ALKALI SCRUB AND PALM OASIS HABITATS.

Micro Habitat:
NEEDS ROCKY, RUGGED TERRAIN WITH MINES OR CAVES FOR ROOSTING.

Last Date Observed: 1944-11-23
Last Survey Date: 1944-11-23
Owner/Manager: UNKNOWN
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
OGILBY.

Detailed Location:

Ecological:

Threats:

General:
2 FEMALES COLLECTED 30 MAY 1943. 4 MALES COLLECTED 24 NOV 1944 BY D.G. CONSTANTINE (LACM #11652-11657).

PLSS: T15S, R20E, Sec. 35 (S)
Accuracy: 1 mile
Area (acres): 0
UTM: Zone-11 N3633124 E702138
Latitude/Longitude: 32.81754 / -114.84079
Elevation (feet): 360

County Summary:	Quad Summary:
Imperial	Ogilby (3211477)

Sources:

BLM80R0014	BUREAU OF LAND MANAGEMENT - THE CALIFORNIA DESERT PLAN 1980-02-XX
CON44S0001	CONSTANTINE, D.G. - LACM RECORDS FOR MACROTUS CALIFORNICUS RECORDS FROM OGILBY 1944-11-24

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 68363
EO Index: 68553
Key Quad: Hedges (3211487)
Element Code: AMACC01050
Occurrence Number: 10
Occurrence Last Updated: 2007-03-07

Scientific Name: *Myotis velifer*
Common Name: cave myotis

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G5
State: S1
Rare Plant Rank:
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
WBWG_M-Medium Priority

General Habitat:
LOWLANDS OF THE COLORADO RIVER AND ADJACENT MOUNTAIN RANGES.

Micro Habitat:
REQUIRE CAVES OR MINES FOR ROOSTING.

Last Date Observed: 2006-06-05
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2006-06-05
Occurrence Rank: Unknown
Owner/Manager: UNKNOWN
Trend: Unknown
Presence: Presumed Extant

Location:
CARGO MUCHACHO MOUNTAINS, ABOUT 1.5 MI NORTH OF HEDGES.

Detailed Location:
SHAFT OMR 13328 IN NW 1/4 OF SECTION 36, NEAR THE BASE OF A WEST FACING HILL. SHAFT WAS 10 X 10 X 50 FT DEEP WITH UNSTABLE LOOSE ROCK IN THE TOP 10 FEET.

Ecological:

Threats:

General:
1 BAT OBSERVED EXITING THE SHAFT AFTER DARK 5 JUN 2005. BAT APPEARED TO BE MYOTIS VELIFER BASED ON A COMPARISON OF OBSERVATION TIME WITH TIME OF ACOUSTIC RECORDS BUT IDENTIFICATION IS NOT CONFIRMED. M. VELIFER IS RARE HERE.

PLSS: T14S, R20E, Sec. 36, NW (S)
Accuracy: non-specific area
Area (acres): 151
UTM: Zone-11 N3643058 E703316
Latitude/Longitude: 32.90686 / -114.82603
Elevation (feet): 820

County Summary:	Quad Summary:
Imperial	Hedges (3211487)

Sources:

BRO06R0002	BROWN, P. (BROWN-BERRY BIOLOGICAL CONSULTING) - CALIFORNIA STATE LANDS COMMISSION MINE SITE DESCRIPTIONS AND BAT SURVEY RESULTS 2006-06-15

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 91986
Key Quad: Hedges (3211487)
Occurrence Number: 252
EO Index: 93061
Element Code: AMACC08010
Occurrence Last Updated: 2014-04-07

Scientific Name: *Corynorhinus townsendii*
Common Name: Townsend's big-eared bat

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G3G4
State: S2
Rare Plant Rank:
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
USFS_S-Sensitive
WBWG_H-High Priority

General Habitat:
THROUGHOUT CALIFORNIA IN A WIDE VARIETY OF HABITATS. MOST COMMON IN MESIC SITES.

Micro Habitat:
ROOSTS IN THE OPEN, HANGING FROM WALLS AND CEILINGS. ROOSTING SITES LIMITING. EXTREMELY SENSITIVE TO HUMAN DISTURBANCE.

Last Date Observed: 1947-05-28
Last Survey Date: 1947-05-28
Owner/Manager: UNKNOWN
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
ABOUT 1.4 MI E OF OGILBY ROAD AT GOLD ROCK RANCH ROAD AND ABOUT 3.2 MI NW OF PASADENA PEAK.

Detailed Location:
MAPPED TO LOCALITY STATED AS "TUMCO MINE, 5 MI N, 2 MI E OGILBY."

Ecological:

Threats:

General:
1 MALE COLLECTED ON 28 MAY 1947 (MVZ #106720) BY S. BENSON.

PLSS: T15S, R20E, Sec. 01, SE (S)
UTM: Zone-11 N3640199 E704351
Accuracy: 1/10 mile
Latitude/Longitude: 32.88090 / -114.81559
Area (acres): 0
Elevation (feet): 830

County Summary:
Imperial

Quad Summary:
Hedges (3211487)

Sources:
BEN47S0006 BENSON, S. - MVZ #106720 1947-05-28

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 66500
Key Quad: Hedges (3211487)
Occurrence Number: 21
EO Index: 18838
Element Code: AMACC10010
Occurrence Last Updated: 2011-08-31

Scientific Name: *Antrozous pallidus*
Common Name: pallid bat

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G5
State: S3

Rare Plant Rank:

Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
USFS_S-Sensitive
WBWG_H-High Priority

General Habitat:

DESERTS, GRASSLANDS, SHRUBLANDS, WOODLANDS AND FORESTS. MOST COMMON IN OPEN, DRY HABITATS WITH ROCKY AREAS FOR ROOSTING.

Micro Habitat:

ROOSTS MUST PROTECT BATS FROM HIGH TEMPERATURES. VERY SENSITIVE TO DISTURBANCE OF ROOSTING SITES.

Last Date Observed: 1998-06-13
Last Survey Date: 1998-06-13
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Good
Trend: Unknown

Location:

TUMCO WASH, IN THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:

INCLUDES QUEEN INCLINE, TUMCO WASH, MESQUITE ADIT, TUMCO WASH, CROWN, QUEEN, W & E SOVEREIGN & TUMCO MINE. OBS FLYING IN CAVE IN 1992. MATERNITY COLONY OBS IN 1998.

Ecological:

HABITAT SURROUNDING ROOST CONSISTS OF CREOSOTE BUSH SCRUB IN THE LOWER SONORAN LIFE ZONE.

Threats:

THREATENED BY A PROPOSAL TO RENEW MINING.

General:

1 M COLL 17 JUL 1958 (MVZ #122877). 14 OBS AUG 1989. 4 JUV OBS JUN 1992. 5 IN CAVE, 87 IN OUTFLIGHT COUNT MIXED W/ MACROTUS, 25 CAPT 26 JUN-1 JUL 1993. OBS IN MAR/JUN 1994, MAR 1995, JUL 1996, JUN 1997, & JUN 1998.

PLSS: T15S, R20E, Sec. 01 (S)
Accuracy: 3/5 mile
Area (acres): 0
UTM: Zone-11 N3640196 E703630
Latitude/Longitude: 32.88100 / -114.82330
Elevation (feet): 720

County Summary:	Quad Summary:
Imperial	Ogilby (3211477), Hedges (3211487)

Sources:

BRO92R0002	BROWN-BERRY BIOLOGICAL CONSULTING - A SUMMER BASELINE SURVEY FOR THE CALIFORNIA LEAF-NOSED BAT IN THE CARGO MUCHACHO MOUNTAINS. 1992-10-02
BRO93F0003	BROWN-BERRY BIOLOGICAL CONSULTING - FIELD SURVEY FORM FOR ANTROZOUS PALLIDUS (ROOST SITE) 1993-06-27
BRO93F0004	BROWN-BERRY BIOLOGICAL CONSULTING - FIELD SURVEY FORM FOR ANTROZOUS PALLIDUS (ROOST SITE) 1993-06-26
BRO98U0002	BROWN-BERRY BIOLOGICAL CONSULTING - REGARDING: RESULTS OF SUMMER AND WINTER BASELINE MONITORING FOR BATS IN THE VICINITY OF THE ORO CRUZ PROJECT AND THE CARGO MINE, CARGO MUCHACHO MOUNTAINS, CA. 1998-05-04
BRO99U0001	BROWN-BERRY BIOLOGICAL CONSULTING - BAT CENSUS OF CARGO MUCHACHO MINES, AUGUST 1989-JANUARY 1999 1999-01-XX
BRO99U0002	BROWN-BERRY BIOLOGICAL CONSULTING - REGARDING: RESULTS OF SUMMER AND WINTER BASELINE MONITORING FOR BATS IN THE VICINITY OF THE ORO CRUZ PROJECT AND THE CARGO MINE, CARGO MUCHACHO MOUNTAINS, CA. 1999-02-08
MAN04S0028	MAMMAL NETWORKED INFORMATION SYSTEM (MANIS) - PRINTOUT OF ANTROZOUS PALLIDUS SPECIMEN RECORDS FROM MANIS. INCLUDES RECORDS FROM MVZ, CAS, KU, UWBM, UMNH, LACM, MSB, FMNH, TTU, MSU. 2004-12-09

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 66655
Key Quad: Hedges (3211487)
Occurrence Number: 317
EO Index: 66798
Element Code: AMACC10010
Occurrence Last Updated: 2007-03-12

Scientific Name: *Antrozous pallidus*
Common Name: pallid bat

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G5
State: S3

Rare Plant Rank:
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
USFS_S-Sensitive
WBWG_H-High Priority

General Habitat:
DESERTS, GRASSLANDS, SHRUBLANDS, WOODLANDS AND FORESTS. MOST COMMON IN OPEN, DRY HABITATS WITH ROCKY AREAS FOR ROOSTING.

Micro Habitat:
ROOSTS MUST PROTECT BATS FROM HIGH TEMPERATURES. VERY SENSITIVE TO DISTURBANCE OF ROOSTING SITES.

Last Date Observed: 2006-06-05
Last Survey Date: 2006-06-05
Owner/Manager: UNKNOWN
Presence: Presumed Extant

Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
MINES IN THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:
SHAFT & ADIT OMR #13313 & 13316 AND DECLINE OMR #13320.

Ecological:
NIGHT ROOST FOR ANTROZOUS PALLIDUS.

Threats:

General:
6 INDIVIDUALS OBSERVED NIGHT ROOSTING, INCLUDING 1 WITH A PUP ATTACHED, OBSERVED 5 JUN 2006.

PLSS: T14S, R20E, Sec. 36, W (S)
Accuracy: non-specific area
Area (acres): 156
UTM: Zone-11 N3642270 E703327
Latitude/Longitude: 32.89976 / -114.82608
Elevation (feet): 780

County Summary:
Imperial

Quad Summary:
Hedges (3211487)

Sources:

BRO06R0001	BROWN, P. (BROWN-BERRY BIOLOGICAL CONSULTING) - CALIFORNIA STATE LANDS COMMISSION MINE SITE DESCRIPTIONS AND BAT SURVEY RESULTS 2006-02-04
BRO06R0002	BROWN, P. (BROWN-BERRY BIOLOGICAL CONSULTING) - CALIFORNIA STATE LANDS COMMISSION MINE SITE DESCRIPTIONS AND BAT SURVEY RESULTS 2006-06-15

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 26366
Key Quad: Ogilby (3211477)
Occurrence Number: 3
EO Index: 4093
Element Code: AMACD02011
Occurrence Last Updated: 1995-02-08

Scientific Name: *Eumops perotis californicus*
Common Name: western mastiff bat

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G5T4
State: S3S4
Rare Plant Rank:
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
WBWG_H-High Priority

General Habitat:
MANY OPEN, SEMI-ARID TO ARID HABITATS, INCLUDING CONIFER & DECIDUOUS WOODLANDS, COASTAL SCRUB, GRASSLANDS, CHAPARRAL, ETC.

Micro Habitat:
ROOSTS IN CREVICES IN CLIFF FACES, HIGH BUILDINGS, TREES AND TUNNELS.

Last Date Observed: 1993-07-03
Last Survey Date: 1993-07-03
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
CARGO MINE, IN JACKSON GULCH, IN THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:

Ecological:
HABITAT CONSISTS OF CREOSOTE BUSH SCRUB IN THE LOWER SONORAN LIFE ZONE.

Threats:

General:
MINE SITE IS FENCED. MASTIFF BAT HEARD FLYING OVERHEAD.

PLSS: T15S, R21E (S)
Accuracy: 1 mile
Area (acres): 0
UTM: Zone-11 N3635161 E707853
Latitude/Longitude: 32.83483 / -114.77933
Elevation (feet): 720

County Summary:	Quad Summary:
Imperial	Ogilby (3211477)

Sources:
BRO93F0023 BROWN-BERRY BIOLOGICAL CONSULTING - FIELD SURVEY FORM FOR EUMOPS PEROTIS (CALIFORNICUS) 1993-07-03

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 26334
Key Quad: Hedges (3211487)
Occurrence Number: 4
EO Index: 4095
Element Code: AMACD02011
Occurrence Last Updated: 1999-02-03

Scientific Name: *Eumops perotis californicus*
Common Name: western mastiff bat

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G5T4
State: S3S4
Rare Plant Rank:
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
WBWG_H-High Priority

General Habitat:

MANY OPEN, SEMI-ARID TO ARID HABITATS, INCLUDING CONIFER & DECIDUOUS WOODLANDS, COASTAL SCRUB, GRASSLANDS, CHAPARRAL, ETC.

Micro Habitat:

ROOSTS IN CREVICES IN CLIFF FACES, HIGH BUILDINGS, TREES AND TUNNELS.

Last Date Observed: 1993-06-28
Last Survey Date: 1993-06-28
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:

QUEEN MINE, IN TUMCO WASH, IN THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:

SITE: LARGE INCLINE ENTRANCE WITH A SHAFT TO THE SOUTHWEST.

Ecological:

HABITAT CONSISTS OF CREOSOTE BUSH SCRUB IN THE LOWER SONORAN LIFE ZONE.

Threats:

General:

TWO MASTIFF BATS HEARD FLYING OVERHEAD.

PLSS: T15S, R20E, Sec. 01 (S)
Accuracy: 2/5 mile
Area (acres): 0
UTM: Zone-11 N3640600 E703890
Latitude/Longitude: 32.88460 / -114.82044
Elevation (feet): 720

County Summary:	Quad Summary:
Imperial	Hedges (3211487)

Sources:

BRO93F0024 BROWN-BERRY BIOLOGICAL CONSULTING - FIELD SURVEY FORM FOR EUMOPS PEROTIS (CALIFORNICUS) 1993-06-28

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 26365
Key Quad: Hedges (3211487)
Occurrence Number: 5
EO Index: 4094
Element Code: AMACD02011
Occurrence Last Updated: 1995-02-08

Scientific Name: *Eumops perotis californicus*
Common Name: western mastiff bat

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G5T4
State: S3S4
Rare Plant Rank:
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
WBWG_H-High Priority

General Habitat:
MANY OPEN, SEMI-ARID TO ARID HABITATS, INCLUDING CONIFER & DECIDUOUS WOODLANDS, COASTAL SCRUB, GRASSLANDS, CHAPARRAL, ETC.

Micro Habitat:
ROOSTS IN CREVICES IN CLIFF FACES, HIGH BUILDINGS, TREES AND TUNNELS.

Last Date Observed: 1993-12-11
Last Survey Date: 1993-12-11
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
CROWN MINE, IN TUMCO WASH, IN THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:

Ecological:
HABITAT CONSISTS OF CREOSOTE BUSH SCRUB IN THE LOWER SONORAN LIFE ZONE.

Threats:

General:
MASTIFF BATS WERE HEARD FLYING OVER THE SITE.

PLSS: T15S, R20E, Sec. 12 (S)
Accuracy: 3/5 mile
Area (acres): 0
UTM: Zone-11 N3639579 E704305
Latitude/Longitude: 32.87532 / -114.81623
Elevation (feet): 680

County Summary:	Quad Summary:
Imperial	Ogilby (3211477), Hedges (3211487)

Sources:
BRO93F0025 BROWN-BERRY BIOLOGICAL CONSULTING - FIELD SURVEY FORM FOR EUMOPS PEROTIS (CALIFORNICUS) 1993-12-11

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 68739
Key Quad: Hedges (3211487)
Occurrence Number: 199
EO Index: 69217
Element Code: AMACD02011
Occurrence Last Updated: 2007-03-28

Scientific Name: *Eumops perotis californicus*
Common Name: western mastiff bat

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G5T4
State: S3S4
Rare Plant Rank:
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
WBWG_H-High Priority

General Habitat:
MANY OPEN, SEMI-ARID TO ARID HABITATS, INCLUDING CONIFER & DECIDUOUS WOODLANDS, COASTAL SCRUB, GRASSLANDS, CHAPARRAL, ETC.

Micro Habitat:
ROOSTS IN CREVICES IN CLIFF FACES, HIGH BUILDINGS, TREES AND TUNNELS.

Last Date Observed: 1997-06-11
Last Survey Date: 1997-06-11
Owner/Manager: UNKNOWN
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
ABOUT 6 MILES NORTH OF CARGO MUCHACHO MOUNTAINS, VICINITY OF INDIAN WASH.

Detailed Location:
MAPPED ACCORDING TO T-R-S DATA PROVIDED BY SOURCE. SOURCE GIVES LOCALITY AS "CHEMGOLD IMPERIAL PROJECT SITE."

Ecological:

Threats:

General:
INDIVIDUAL(S) DETECTED ACOUSTICALLY (2 AUDIBLE PASSES OVER THE PROPERTY) ON 11 JUN 1997.

PLSS: T13S, R21E, Sec. 32 (S)
Accuracy: non-specific area
Area (acres): 4,252
UTM: Zone-11 N3652207 E706316
Latitude/Longitude: 32.98877 / -114.79191
Elevation (feet): 800

County Summary:
Imperial

Quad Summary:
Hedges (3211487), Quartz Peak (3311417)

Sources:

BRO97R0001 BROWN, P.E. (BROWN-BERRY BIOLOGICAL CONSULTING) - REGARDING: BAT SURVEY OF THE CHEMGOLD IMPERIAL PROJECT SITE. 1997-07-11

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	68739	**EO Index:**	69218
Key Quad:	Hedges (3211487)	**Element Code:**	AMACD04010
Occurrence Number:	38	**Occurrence Last Updated:**	2007-03-28

Scientific Name: *Nyctinomops femorosaccus*

Common Name: pocketed free-tailed bat

Listing Status: **Federal:** None
State: None

Rare Plant Rank:

CNDDB Element Ranks: **Global:** G4
State: S3

Other Lists: CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
WBWG_M-Medium Priority

General Habitat:

VARIETY OF ARID AREAS IN SOUTHERN CALIFORNIA; PINE-JUNIPER WOODLANDS, DESERT SCRUB, PALM OASIS, DESERT WASH, DESERT RIPARIAN, ETC.

Micro Habitat:

ROCKY AREAS WITH HIGH CLIFFS.

Last Date Observed:	1997-06-11	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1997-06-11	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

ABOUT 6 MILES NORTH OF CARGO MUCHACHO MOUNTAINS, VICINITY OF INDIAN WASH.

Detailed Location:

MAPPED ACCORDING TO T-R-S DATA PROVIDED BY SOURCE. SOURCE GIVES LOCALITY AS "CHEMGOLD IMPERIAL PROJECT SITE."

Ecological:

Threats:

General:

INDIVIDUAL(S) DETECTED ACOUSTICALLY ON 3 OCCASIONS ON 11 JUN 1997.

PLSS:	T13S, R21E, Sec. 32 (S)	**Accuracy:**	non-specific area	**Area (acres):**	4,252
UTM:	Zone-11 N3652207 E706316	**Latitude/Longitude:**	32.98877 / -114.79191	**Elevation (feet):**	800

County Summary:	**Quad Summary:**
Imperial	Hedges (3211487), Quartz Peak (3311417)

Sources:

BRO97R0001	BROWN, P.E. (BROWN-BERRY BIOLOGICAL CONSULTING) - REGARDING: BAT SURVEY OF THE CHEMGOLD IMPERIAL PROJECT SITE. 1997-07-11

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	72878	**EO Index:**	73765
Key Quad:	Clyde (3211488)	**Element Code:**	ARAAF01012
Occurrence Number:	150	**Occurrence Last Updated:**	2011-11-29

Scientific Name: *Gopherus agassizii* **Common Name:** desert tortoise

Listing Status: **Federal:** Threatened **Rare Plant Rank:**

State: Threatened **Other Lists:** IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G3

State: S2S3

General Habitat:

MOST COMMON IN DESERT SCRUB, DESERT WASH, AND JOSHUA TREE HABITATS; OCCURS IN ALMOST EVERY DESERT HABITAT.

Micro Habitat:

REQUIRE FRIABLE SOIL FOR BURROW AND NEST CONSTRUCTION. CREOSOTE BUSH HABITAT WITH LARGE ANNUAL WILDFLOWER BLOOMS PREFERRED.

Last Date Observed:	2005-04-27	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2005-04-27	**Occurrence Rank:**	Good
Owner/Manager:	BLM	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

ALONG PIPELINE & WALKER WAY NORTH & SOUTH OF INDIAN WASH, 3.0 - 4.5 MI NW OF THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:

MAPPED TO PROVIDED COORDINATES AND MAPS. SE SEC 20, W SEC 28, NE SEC 33, SW SEC 34, AND NW SEC 3.

Ecological:

HABITAT CONSISTED OF CREOSOTE SCRUB WITH PATCHES OF DESERT WASH WOODLAND. DOMINANT SPECIES INCL. BURROBRUSH, BIG GALLETA, IRONWOOD, PALO VERDE, CHEESEWEED, BOXTHORN, AFRICAN MUSTARD, MEDITERRANEAN GRASS, & PLANTAIN.

Threats:

POTENTIAL THREATS INCLUDE ROAD & OFF-HIGHWAY TRAFFIC, MILITARY OPERATIONS, PIPELINE CONSTRUCTION, & DEVELOPMENT.

General:

3-4 APR 2001: 8 TORTOISES, 2 CARCASSES, 1 SCUTE, 8 BURROWS (1 OLD, 1 ABANDONED), & 7 SCAT SITES (2 OLD). 21 MAY-10 JUN 2002: 5 TORTOISES (1 IN BURROW, ALL HEALTHY). 18-27 APR 2005: 5 TORTOISES, 27 BURROWS, 6 PALLET BURROWS, & 8 SCAT SITES.

PLSS:	T14S, R20E, Sec. 28 (S)	**Accuracy:**	specific area	**Area (acres):**	230
UTM:	Zone-11 N3643986 E698390	**Latitude/Longitude:**	32.91613 / -114.87847	**Elevation (feet):**	550

County Summary:	**Quad Summary:**
Imperial	Hedges (3211487), Clyde (3211488)

Sources:

GER02F0002	GERMAN, E. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2002-05-29
GOE02F0008	GOETTEE, P. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2002-06-07
GOE02F0009	GOETTEE, P. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2002-05-30
GOE02F0012	GOETTEE, R. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2002-06-10
GRA02F0003	GRANT, C. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2002-05-21
MAL01F0004	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0005	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0006	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0007	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0008	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0011	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0012	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0013	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0168	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0171	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0172	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0173	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0174	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0175	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0176	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0177	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0178	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-04
MAL01F0179	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-04
MAL01F0195	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0201	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-04
MAL01F0209	MALO, L. - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0210	MALO, L. - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
MAL01F0211	MALO, L. - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-03
TET05R0001	TETRA TECH - 2005 SURVEY DESERT TORTOISE (GOPHERUS AZISII) NORTH BAJA PIPELINE EXPANSION PROJECT (NBX) RIVERSIDE AND IMPERIAL COUNTIES, CALIFORNIA. 2005-04-27

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 72990
Key Quad: Hedges (3211487)
Occurrence Number: 168
EO Index: 73903
Element Code: ARAAF01012
Occurrence Last Updated: 2008-11-24

Scientific Name: *Gopherus agassizii*
Common Name: desert tortoise

Listing Status: **Federal:** Threatened
State: Threatened
Rare Plant Rank:
Other Lists: IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G3
State: S2S3

General Habitat:

MOST COMMON IN DESERT SCRUB, DESERT WASH, AND JOSHUA TREE HABITATS; OCCURS IN ALMOST EVERY DESERT HABITAT.

Micro Habitat:

REQUIRE FRIABLE SOIL FOR BURROW AND NEST CONSTRUCTION. CREOSOTE BUSH HABITAT WITH LARGE ANNUAL WILDFLOWER BLOOMS PREFERRED.

Last Date Observed: 2005-01-23
Last Survey Date: 2005-01-23
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:

WEST SIDE OF INDIAN PASS RD, 2.22 MI NE OF THE INTERSECTION OF HWY S34 & INDIAN PASS RD.

Detailed Location:

Ecological:

DESERT PAVEMENT WITH NUMEROUS SMALL WASHES DOMINATED BY IRONWOOD. SURROUNDING AREA IS USED FOR ORVS, RECREATION AND HUNTING.

Threats:

ORVS.

General:

1 JUVENILE (6" LONG) OBSERVED AT BURROW SITE ON 23 JAN 2005.

PLSS: T14S, R20E, Sec. 11 (S)
Accuracy: 80 meters
Area (acres): 0
UTM: Zone-11 N3648684 E702075
Latitude/Longitude: 32.95780 / -114.83806
Elevation (feet): 685

County Summary:

Imperial

Quad Summary:

Hedges (3211487)

Sources:

STE05F0004 STEWARD, D. (U.S. BUREAU OF LAND MANAGEMENT-EL CENTRO) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2005-01-23

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	73129	**EO Index:**	74060
Key Quad:	Hedges (3211487)	**Element Code:**	ARAAF01012
Occurrence Number:	219	**Occurrence Last Updated:**	2011-11-28

Scientific Name: *Gopherus agassizii* **Common Name:** desert tortoise

Listing Status: **Federal:** Threatened **Rare Plant Rank:**

State: Threatened **Other Lists:** IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G3

State: S2S3

General Habitat:

MOST COMMON IN DESERT SCRUB, DESERT WASH, AND JOSHUA TREE HABITATS; OCCURS IN ALMOST EVERY DESERT HABITAT.

Micro Habitat:

REQUIRE FRIABLE SOIL FOR BURROW AND NEST CONSTRUCTION. CREOSOTE BUSH HABITAT WITH LARGE ANNUAL WILDFLOWER BLOOMS PREFERRED.

Last Date Observed:	2005-04-27	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2005-04-27	**Occurrence Rank:**	Excellent
Owner/Manager:	BLM	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

ABOUT 0.7 MI W OF HEDGES ON EAST SIDE OF OGILBY RD, AND ABOUT 1.2 MI E OF GOLD ROCK RANCH.

Detailed Location:

SE QUARTER OF SEC 3, SW QUARTER OF SEC 2, AND NW QUARTER OF SEC 11. MAPPED TO PROVIDED COORDINATES.

Ecological:

HABITAT CONSISTED OF CREOSOTE SCRUB WITH PATCHES OF DESERT WASH WOODLAND. DOMINANT SPECIES INCLUDED BURROBRUSH, BIG GALLETA, IRONWOOD, PALO VERDE, CHEESEWEED, BOXTHORN, AFRICAN MUSTARD, MEDITERRANEAN GRASS, & PLANTAIN.

Threats:

POTENTIAL THREATS INCLUDED ROAD, PEDESTRIAN, & OFF-HIGHWAY TRAFFIC, MILITARY OPERATIONS, FIREARMS USAGE, & DEVELOPMENT.

General:

10 INCH FEMALE AND 210 MM MALE (BOTH IN A BURROWS), 2 ACTIVE BURROWS, AND 3 FRESH SCAT SITES OBSERVED ON 4 APR 2001. 2 BURROWS AND 2 SCAT SITES OBSERVED BETWEEN 18 & 27 APR 2005.

PLSS:	T15S, R20E, Sec. 03, SE (S)	**Accuracy:**	specific area	**Area (acres):**	29
UTM:	Zone-11 N3640253 E701613	**Latitude/Longitude:**	32.88189 / -114.84484	**Elevation (feet):**	550

County Summary:	**Quad Summary:**
Imperial	Hedges (3211487)

Sources:

MAL01F0002	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-04
MAL01F0003	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-04
MAL01F0181	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-04
MAL01F0182	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-04
MAL01F0183	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-04
MAL01F0184	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-04
TET05R0001	TETRA TECH - 2005 SURVEY DESERT TORTOISE (GOPHERUS AZISII) NORTH BAJA PIPELINE EXPANSION PROJECT (NBX) RIVERSIDE AND IMPERIAL COUNTIES, CALIFORNIA. 2005-04-27

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	73130	**EO Index:**	74061
Key Quad:	Hedges (3211487)	**Element Code:**	ARAAF01012
Occurrence Number:	220	**Occurrence Last Updated:**	2011-10-21

Scientific Name: *Gopherus agassizii* **Common Name:** desert tortoise

Listing Status: **Federal:** Threatened **Rare Plant Rank:**

State: Threatened **Other Lists:** IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G3

State: S2S3

General Habitat:

MOST COMMON IN DESERT SCRUB, DESERT WASH, AND JOSHUA TREE HABITATS; OCCURS IN ALMOST EVERY DESERT HABITAT.

Micro Habitat:

REQUIRE FRIABLE SOIL FOR BURROW AND NEST CONSTRUCTION. CREOSOTE BUSH HABITAT WITH LARGE ANNUAL WILDFLOWER BLOOMS PREFERRED.

Last Date Observed:	2001-04-06	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2001-04-06	**Occurrence Rank:**	Excellent
Owner/Manager:	BLM	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

INDIAN WASH, 0.25 MI SSW OF WHERE HWY 34 CROSSES THE WASH, NNW OF CARGO MUCHACHO MOUNTAINS.

Detailed Location:

MAPPED TO PROVIDED COORDINATES.

Ecological:

HABITAT CONSISTED OF OPEN CREOSOTE SCRUB HABITAT WITH A MIX OF CREOSOTE AND AMBROSIA DUMOSA NEAR POWER LINES AND A ROAD.

Threats:

POTENTIAL THREATS INCLUDE ORV AND ROAD TRAFFIC.

General:

10" FEMALE TORTOISE, MALE CARCASS (LESS THAN 5 YEARS DEAD), 3 SCATS, AND A BURROW OBSERVED ON 6 APR 2001.

PLSS:	T14S, R20E, Sec. 22 (S)	**Accuracy:**	specific area	**Area (acres):**	15
UTM:	Zone-11 N3645181 E700920	**Latitude/Longitude:**	32.92644 / -114.85117	**Elevation (feet):**	615

County Summary:	**Quad Summary:**
Imperial	Hedges (3211487)

Sources:

MAL01F0009	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-06
MAL01F0192	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-06
MAL01F0194	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-06

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 73131
Key Quad: Hedges (3211487)
Occurrence Number: 221
EO Index: 74062
Element Code: ARAAF01012
Occurrence Last Updated: 2011-10-21

Scientific Name: *Gopherus agassizii*
Common Name: desert tortoise

Listing Status: **Federal:** Threatened
State: Threatened
Rare Plant Rank:
Other Lists: IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G3
State: S2S3

General Habitat:

MOST COMMON IN DESERT SCRUB, DESERT WASH, AND JOSHUA TREE HABITATS; OCCURS IN ALMOST EVERY DESERT HABITAT.

Micro Habitat:

REQUIRE FRIABLE SOIL FOR BURROW AND NEST CONSTRUCTION. CREOSOTE BUSH HABITAT WITH LARGE ANNUAL WILDFLOWER BLOOMS PREFERRED.

Last Date Observed: 2001-04-06
Last Survey Date: 2001-04-06
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Excellent
Trend: Unknown

Location:

0.9 MILE NE OF HWY 34 AT INDIAN PASS RD, NNW OF CARGO MUCHACHO MOUNTAINS.

Detailed Location:

NEAR CENTER OF SEC 15. MAPPED TO PROVIDED COORDINATES.

Ecological:

HABITAT CONSISTED OF OPEN CREOSOTE SCRUB HABITAT NEAR POWER LINES.

Threats:

POTENTIAL THREATS INCLUDE ROAD TRAFFIC AND OFF-HIGHWAY VEHICLES.

General:

1 TORTOISE (8-9" LONG) IN BURROW AND 6 OTHER BURROWS (AT LEAST 2 ACTIVE) OBSERVED ON 6 APR 2001.

PLSS: T14S, R20E, Sec. 15 (S)
Accuracy: specific area
Area (acres): 22
UTM: Zone-11 N3647577 E700243
Latitude/Longitude: 32.94817 / -114.85788
Elevation (feet): 630

County Summary:

Imperial

Quad Summary:

Hedges (3211487)

Sources:

MAL01F0010	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-06
MAL01F0188	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-06
MAL01F0189	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-06
MAL01F0190	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-06
MAL01F0191	MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-06

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	82148	**EO Index:**	83131
Key Quad:	Ogilby (3211477)	**Element Code:**	ARAAF01012
Occurrence Number:	294	**Occurrence Last Updated:**	2011-04-04

Scientific Name: *Gopherus agassizii* **Common Name:** desert tortoise

Listing Status: **Federal:** Threatened **Rare Plant Rank:**

State: Threatened **Other Lists:** IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G3

State: S2S3

General Habitat:

MOST COMMON IN DESERT SCRUB, DESERT WASH, AND JOSHUA TREE HABITATS; OCCURS IN ALMOST EVERY DESERT HABITAT.

Micro Habitat:

REQUIRE FRIABLE SOIL FOR BURROW AND NEST CONSTRUCTION. CREOSOTE BUSH HABITAT WITH LARGE ANNUAL WILDFLOWER BLOOMS PREFERRED.

Last Date Observed:	1988-03-19	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1988-03-19	**Occurrence Rank:**	Unknown
Owner/Manager:	BLM, PVT-EVERGLADE LLC	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

AMERICAN GIRL WASH NEAR OBREGON, IN THE CARGO MUCHACHO MOUNTAINS, ABOUT 9 MI NW OF ARAZ JUNCTION.

Detailed Location:

MAPPED TO PROVIDED MAP.

Ecological:

HABITAT CONSISTED OF A LOW VALLEY BETWEEN SEVERAL BARREN LOW HILLS. PALLET WAS OBSERVED UNDER A LARGE FRANSERIA SHRUB.

Threats:

POSSIBLY THREATENED BY EARTH MOVING ACTIVITIES FROM MINING OPERATIONS.

General:

1 ADULT MALE TORTOISE (>25 YEARS OLD, 258 MM MCL) OBS WALKING NEAR PALLET BURROW 20 MAR 1988. 8 OF 13 TRANSECTS IN GENERAL AREA FOUND BURROWS OR PALLET BURROWS & LARGE AMOUNTS OF TORTOISE SCAT WAS FOUND AT THE AMERICAN BOY MINE TUNNEL.

PLSS:	T15S, R21E, Sec. 17 (S)	**Accuracy:**	2/5 mile	**Area (acres):**	0
UTM:	Zone-11 N3637866 E707119	**Latitude/Longitude:**	32.85935 / -114.78655	**Elevation (feet):**	660

County Summary:	**Quad Summary:**
Imperial	Ogilby (3211477)

Sources:

MED88R0001 MEDICA, P. - SURVEY OF THE SOUTHWESTERN PORTION OF THE CARGO MUCHACHO MOUNTAINS FOR THE DESERT TORTOISE IN THE VICINITY OF THE AMERICAN GIRL MINE. 1988-03-20

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 82786
Key Quad: Hedges (3211487)
Occurrence Number: 467
EO Index: 83784
Element Code: ARAAF01012
Occurrence Last Updated: 2011-07-21

Scientific Name: *Gopherus agassizii*
Common Name: desert tortoise

Listing Status: **Federal:** Threatened
State: Threatened
Rare Plant Rank:
Other Lists: IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G3
State: S2S3

General Habitat:

MOST COMMON IN DESERT SCRUB, DESERT WASH, AND JOSHUA TREE HABITATS; OCCURS IN ALMOST EVERY DESERT HABITAT.

Micro Habitat:

REQUIRE FRIABLE SOIL FOR BURROW AND NEST CONSTRUCTION. CREOSOTE BUSH HABITAT WITH LARGE ANNUAL WILDFLOWER BLOOMS PREFERRED.

Last Date Observed: 2001-04-06
Last Survey Date: 2001-04-06
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Excellent
Trend: Unknown

Location:

0.9 MI WSW OF LA COLORADO MINE, 2 MI NW OF HEDGES, NW OF CARGO MUCHACHO MOUNTAINS, ABOUT 17.5 MI NW OF YUMA.

Detailed Location:

MAPPED TO PROVIDED COORDINATES.

Ecological:

HABITAT CONSISTED OF OPEN DESERT WASH WOODLAND WITH A MIX OF IRONWOOD AND PALO VERDE NEAR POWER LINES.

Threats:

POTENTIAL THREATS INCLUDE OFF-HIGHWAY VEHICLES.

General:

2 BURROWS WITH 4 OLD SCATS OBSERVED 6 APR 2001.

PLSS: T14S, R20E, Sec. 35, NW (S)
Accuracy: 80 meters
Area (acres): 0
UTM: Zone-11 N3643007 E701447
Latitude/Longitude: 32.90674 / -114.84601
Elevation (feet): 620

County Summary:	Quad Summary:
Imperial	Hedges (3211487)

Sources:

MAL01F0193 MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-06

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 82788
EO Index: 83785
Key Quad: Hedges (3211487)
Element Code: ARAAF01012
Occurrence Number: 468
Occurrence Last Updated: 2011-07-21

Scientific Name: *Gopherus agassizii*
Common Name: desert tortoise

Listing Status: **Federal:** Threatened
State: Threatened
Rare Plant Rank:
Other Lists: IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G3
State: S2S3

General Habitat:

MOST COMMON IN DESERT SCRUB, DESERT WASH, AND JOSHUA TREE HABITATS; OCCURS IN ALMOST EVERY DESERT HABITAT.

Micro Habitat:

REQUIRE FRIABLE SOIL FOR BURROW AND NEST CONSTRUCTION. CREOSOTE BUSH HABITAT WITH LARGE ANNUAL WILDFLOWER BLOOMS PREFERRED.

Last Date Observed: 2001-04-06
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2001-04-06
Occurrence Rank: Good
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

6 MI NNW OF HEDGES, JUST NW OF CARGO MUCHACHO MOUNTAINS, ABOUT 21 MI NW OF YUMA.

Detailed Location:

MAPPED TO PROVIDED COORDINATES.

Ecological:

HABITAT CONSISTED OF OPEN CREOSOTE SCRUB HABITAT NEAR POWER LINES.

Threats:

POTENTIAL THREATS INCLUDE OFF-HIGHWAY VEHICLES.

General:

A 9" LONG MALE CARCASS RECENTLY KILLED OBSERVED WITH BURROW AND PALLETS BURROWS, AND ANOTHER ACTIVE BURROW OBSERVED SEPARATELY, BOTH ON 6 APR 2001.

PLSS: T14S, R20E, Sec. 10, NW (S)
Accuracy: specific area
Area (acres): 8
UTM: Zone-11 N3649143 E699938
Latitude/Longitude: 32.96234 / -114.86080
Elevation (feet): 700

County Summary:	Quad Summary:
Imperial	Hedges (3211487)

Sources:

MAL01F0185 MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-06

MAL01F0186 MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-06

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 82790
EO Index: 83786
Key Quad: Hedges (3211487)
Element Code: ARAAF01012
Occurrence Number: 469
Occurrence Last Updated: 2011-07-21

Scientific Name: *Gopherus agassizii*
Common Name: desert tortoise

Listing Status: **Federal:** Threatened
State: Threatened
Rare Plant Rank:
Other Lists: IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G3
State: S2S3

General Habitat:

MOST COMMON IN DESERT SCRUB, DESERT WASH, AND JOSHUA TREE HABITATS; OCCURS IN ALMOST EVERY DESERT HABITAT.

Micro Habitat:

REQUIRE FRIABLE SOIL FOR BURROW AND NEST CONSTRUCTION. CREOSOTE BUSH HABITAT WITH LARGE ANNUAL WILDFLOWER BLOOMS PREFERRED.

Last Date Observed: 2001-04-06
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2001-04-06
Occurrence Rank: Excellent
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

5.5 MI NNW OF HEDGES, JUST NW OF CARGO MUCHACHO MOUNTAINS, ABOUT 20.5 MI NW OF YUMA.

Detailed Location:

MAPPED TO PROVIDED COORDINATES FOR BURROW WITH SCAT.

Ecological:

HABITAT CONSISTED OF OPEN CREOSOTE SCRUB HABITAT NEAR POWER LINES.

Threats:

POTENTIAL THREATS INCLUDE OFF-HIGHWAY VEHICLES.

General:

BURROW WITH SCAT OBSERVED ON 6 APR 2001. OLD SCAT ALSO FOUND NEARBY TO THE NNW ON SAME DATE.

PLSS: T14S, R20E, Sec. 15, N (S)
Accuracy: 80 meters
Area (acres): 0
UTM: Zone-11 N3648110 E700475
Latitude/Longitude: 32.95293 / -114.85529
Elevation (feet): 650

County Summary:

Imperial

Quad Summary:

Hedges (3211487)

Sources:

MAL01F0187 MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-06

MAL01F0199 MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-06

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 84033
Key Quad: Ogilby (3211477)
Occurrence Number: 876
EO Index: 85069
Element Code: ARAAF01012
Occurrence Last Updated: 2011-10-20

Scientific Name: *Gopherus agassizii*
Common Name: desert tortoise

Listing Status: **Federal:** Threatened
State: Threatened
Rare Plant Rank:
Other Lists: IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G3
State: S2S3

General Habitat:

MOST COMMON IN DESERT SCRUB, DESERT WASH, AND JOSHUA TREE HABITATS; OCCURS IN ALMOST EVERY DESERT HABITAT.

Micro Habitat:

REQUIRE FRIABLE SOIL FOR BURROW AND NEST CONSTRUCTION. CREOSOTE BUSH HABITAT WITH LARGE ANNUAL WILDFLOWER BLOOMS PREFERRED.

Last Date Observed: 2005-04-27
Last Survey Date: 2005-04-27
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:

1 MI SSW OF HEDGES, JUST NW OF CARGO MUCHACHO MTNS, ABOUT 15 MI NW OF YUMA.

Detailed Location:

MAPPED TO PROVIDED COORDINATES.

Ecological:

HABITAT CONSISTED OF CREOSOTE SCRUB WITH PATCHES OF DESERT WASH WOODLAND. DOMINANT SPECIES INCL. BURROBRUSH, BIG GALLETA, IRONWOOD, PALO VERDE, CHEESEWEED, BOXTHORN, AFRICAN MUSTARD, MEDITERRANEAN GRASS, & PLANTAIN.

Threats:

POTENTIAL THREATS INCLUDE ROAD, PEDESTRIAN, & OFF-HIGHWAY TRAFFIC, MILITARY OPERATIONS, FIREARMS USAGE, & DEVELOPMENT.

General:

3 TORTOISE BURROWS OBSERVED BETWEEN 18 & 27 APR 2005.

PLSS: T15S, R20E, Sec. 14, SW (S)
Accuracy: 80 meters
Area (acres): 0
UTM: Zone-11 N3637487 E702200
Latitude/Longitude: 32.85686 / -114.83917
Elevation (feet): 470

County Summary:	Quad Summary:
Imperial	Ogilby (3211477)

Sources:

TET05R0001 TETRA TECH - 2005 SURVEY DESERT TORTOISE (GOPHERUS AZISII) NORTH BAJA PIPELINE EXPANSION PROJECT (NBX) RIVERSIDE AND IMPERIAL COUNTIES, CALIFORNIA. 2005-04-27

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 84034
EO Index: 85070
Key Quad: Ogilby (3211477)
Element Code: ARAAF01012
Occurrence Number: 877
Occurrence Last Updated: 2011-11-21

Scientific Name: *Gopherus agassizii*
Common Name: desert tortoise

Listing Status: **Federal:** Threatened
Rare Plant Rank:
State: Threatened
Other Lists: IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G3
State: S2S3

General Habitat:

MOST COMMON IN DESERT SCRUB, DESERT WASH, AND JOSHUA TREE HABITATS; OCCURS IN ALMOST EVERY DESERT HABITAT.

Micro Habitat:

REQUIRE FRIABLE SOIL FOR BURROW AND NEST CONSTRUCTION. CREOSOTE BUSH HABITAT WITH LARGE ANNUAL WILDFLOWER BLOOMS PREFERRED.

Last Date Observed: 2005-04-27
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2005-04-27
Occurrence Rank: Good
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

1 MI SSW OF HEDGES, JUST NW OF CARGO MUCHACHO MTNS, ABOUT 15 MI NW OF YUMA.

Detailed Location:

MAPPED TO CARCASS COORDINATES.

Ecological:

HABITAT CONSISTED OF CREOSOTE SCRUB WITH PATCHES OF DESERT WASH WOODLAND. DOMINANT SPECIES INCL. BURROBRUSH, BIG GALLETA, IRONWOOD, PALO VERDE, CHEESEWEED, BOXTHORN, AFRICAN MUSTARD, MEDITERRANEAN GRASS, & PLANTAIN.

Threats:

POTENTIAL THREATS INCLUDE ROAD, PEDESTRIAN, & OFF-HIGHWAY TRAFFIC, MILITARY OPERATIONS, FIREARMS USAGE, & DEVELOPMENT.

General:

4 PIECES OF SCAT OBSERVED 4 APR 2001. TORTOISE CARCASS OBSERVED BETWEEN 18 & 27 APR 2005.

PLSS: T15S, R20E, Sec. 14, NW (S)
Accuracy: 80 meters
Area (acres): 0
UTM: Zone-11 N3638296 E702226
Latitude/Longitude: 32.86414 / -114.83872
Elevation (feet): 490

County Summary:	Quad Summary:
Imperial	Ogilby (3211477)

Sources:

MAL01F0247	MALO, L. - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-04
TET05R0001	TETRA TECH - 2005 SURVEY DESERT TORTOISE (GOPHERUS AZISII) NORTH BAJA PIPELINE EXPANSION PROJECT (NBX) RIVERSIDE AND IMPERIAL COUNTIES, CALIFORNIA. 2005-04-27

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 84035
EO Index: 85071
Key Quad: Hedges (3211487)
Element Code: ARAAF01012
Occurrence Number: 878
Occurrence Last Updated: 2011-11-21

Scientific Name: *Gopherus agassizii*
Common Name: desert tortoise

Listing Status: **Federal:** Threatened
State: Threatened
Rare Plant Rank:
Other Lists: IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G3
State: S2S3

General Habitat:

MOST COMMON IN DESERT SCRUB, DESERT WASH, AND JOSHUA TREE HABITATS; OCCURS IN ALMOST EVERY DESERT HABITAT.

Micro Habitat:

REQUIRE FRIABLE SOIL FOR BURROW AND NEST CONSTRUCTION. CREOSOTE BUSH HABITAT WITH LARGE ANNUAL WILDFLOWER BLOOMS PREFERRED.

Last Date Observed: 2001-04-04
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2001-04-04
Occurrence Rank: Good
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

1.5 MI WNW OF HEDGES, JUST NW OF CARGO MUCHACHO MTNS, ABOUT 17 MI NW OF YUMA.

Detailed Location:

MAPPED TO PROVIDED COORDINATES.

Ecological:

HABITAT CONSISTED OF OPEN CREOSOTE SCRUB HABITAT.

Threats:

POTENTIAL THREATS INCLUDE OFF-HIGHWAY VEHICLES.

General:

CARCASS OBSERVED 4 APR 2001.

PLSS: T15S, R20E, Sec. 03, NE (S)
Accuracy: 80 meters
Area (acres): 0
UTM: Zone-11 N3640982 E701289
Latitude/Longitude: 32.88853 / -114.84813
Elevation (feet): 540

County Summary:	Quad Summary:
Imperial	Hedges (3211487)

Sources:

MAL01F0180 MALO, L. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-04

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 84137
Key Quad: Ogilby (3211477)
Occurrence Number: 906
EO Index: 85165
Element Code: ARAAF01012
Occurrence Last Updated: 2011-11-04

Scientific Name: *Gopherus agassizii*
Common Name: desert tortoise

Listing Status: **Federal:** Threatened
State: Threatened
Rare Plant Rank:
Other Lists: IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G3
State: S2S3

General Habitat:

MOST COMMON IN DESERT SCRUB, DESERT WASH, AND JOSHUA TREE HABITATS; OCCURS IN ALMOST EVERY DESERT HABITAT.

Micro Habitat:

REQUIRE FRIABLE SOIL FOR BURROW AND NEST CONSTRUCTION. CREOSOTE BUSH HABITAT WITH LARGE ANNUAL WILDFLOWER BLOOMS PREFERRED.

Last Date Observed: 2001-04-04
Last Survey Date: 2001-04-04
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:

2 MI N OF OGILBY, 3.5 MI ESE OF CACTUS, W OF CARGO MUCHACHO MTNS.

Detailed Location:

MAPPED TO PROVIDED COORDINATES.

Ecological:

HABITAT CONSISTED OF CREOSOTE SCRUB WITH AMBROSIA.

Threats:

POTENTIAL THREATS INCLUDED ORV USE.

General:

FRESH SCAT OBSERVED 4 APR 2001.

PLSS: T15S, R20E, Sec. 23, NW (S)
UTM: Zone-11 N3636478 E702069
Accuracy: 80 meters
Latitude/Longitude: 32.84778 / -114.84078
Area (acres): 0
Elevation (feet): 450

County Summary:	Quad Summary:
Imperial	Ogilby (3211477)

Sources:

MAL01F0246 MALO, L. - FIELD SURVEY FORM FOR GOPHERUS AGASSIZII 2001-04-04

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 06562
EO Index: 14018
Key Quad: Ogilby (3211477)
Element Code: ARACF12040
Occurrence Number: 32
Occurrence Last Updated: 2003-01-17

Scientific Name: *Phrynosoma mcallii*
Common Name: flat-tailed horned lizard

Listing Status: **Federal:** None
State: None
Rare Plant Rank:

CNDDB Element Ranks: **Global:** G3
State: S2
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

General Habitat:

RESTRICTED TO DESERT WASHES AND DESERT FLATS IN CENTRAL RIVERSIDE, EASTERN SAN DIEGO, AND IMPERIAL COUNTIES.

Micro Habitat:

CRITICAL HABITAT ELEMENT IS FINE SAND, INTO WHICH LIZARDS BURROW TO AVOID TEMPERATURE EXTREMES; REQUIRES VEGETATIVE COVER AND ANTS.

Last Date Observed: 2002-06-09
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2002-06-09
Occurrence Rank: Excellent
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

ABOUT 0.8 MILE SE OF I-8 AT OGILBY ROAD AND 4 MI S OF OGILBY.

Detailed Location:

1979: LOCATION GIVEN ONLY AS SECTION 24. 2002: SPECIFIC LOCATION GIVEN ON OBSERVATION ALONG PIPELINE.

Ecological:

CREOSOTE SCRUB, SANDY GRAVEL.

Threats:

OHV TRAFFIC AND PIPELINE CONSTRUCTION.

General:

1 LIZARD AND 3 SCATS OBSERVED ON 26 APR 1979, LOCATION GIVEN ONLY AS SECTION 24. 1 LIVE ADULT FOUND IN PIPELINE TRENCH AND MOVED 100 YDS WEST OF RIGHT-OF-WAY ON 9 JUN 2002.

PLSS: T16S, R20E, Sec. 24, SW (S)
Accuracy: 1/10 mile
Area (acres): 0
UTM: Zone-11 N3626132 E703835
Latitude/Longitude: 32.75420 / -114.82421
Elevation (feet): 240

County Summary:	Quad Summary:
Imperial	Ogilby (3211477)

Sources:

HAS02F0004	HASHAGEN, K. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR PHRYNOSOMA MCALLII 2002-06-09
TUR80R0001	TURNER, F. ET AL. - A SURVEY OF THE OCCURRENCE AND ABUNDANCE OF THE FLAT-TAILED HORNED LIZARD IN CALIFORNIA. LABORATORY OF NUCLEAR MEDICINE AND RADIATION BIOLOGY, UC LOS ANGELES 1980-01-25

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	23027	**EO Index:**	14019
Key Quad:	Ogilby (3211477)	**Element Code:**	ARACF12040
Occurrence Number:	33	**Occurrence Last Updated:**	2015-09-03

Scientific Name: *Phrynosoma mcallii*

Common Name: flat-tailed horned lizard

Listing Status: **Federal:** None
State: None

Rare Plant Rank:

CNDDB Element Ranks: **Global:** G3
State: S2

Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

General Habitat:

RESTRICTED TO DESERT WASHES AND DESERT FLATS IN CENTRAL RIVERSIDE, EASTERN SAN DIEGO, AND IMPERIAL COUNTIES.

Micro Habitat:

CRITICAL HABITAT ELEMENT IS FINE SAND, INTO WHICH LIZARDS BURROW TO AVOID TEMPERATURE EXTREMES; REQUIRES VEGETATIVE COVER AND ANTS.

Last Date Observed:	2013-04-28	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2013-04-28	**Occurrence Rank:**	Unknown
Owner/Manager:	BLM	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

INTERSECTION OF INTERSTATE 8 AND BLYTHE OGILBY ROAD, PILOT KNOB MESA, EAST OF ALGODONES DUNES.

Detailed Location:

MAPPED TO INCLUDE 1966 LOCALITY, "3.9 MI S OGILBY," 1968 LOCALITY, "OGILBY RD NEAR US HWY 80" (NOW I-8), AND COORDINATES GIVEN FOR 2013 DETECTION.1979 DETECTION LOCATION REPORTED ONLY AS SECTION 23 ALSO ATTRIBUTED HERE.

Ecological:

DUNE HABITAT.

Threats:

General:

1 COLLECTED 14 MAY 1966. 1 COLLECTED 8 SEP 1968. ONE OBSERVED 26 APR 1979. 1 OBSERVED ON 28 APR 2013.

PLSS:	T16S, R20E, Sec. 23, NW (S)	**Accuracy:**	2/5 mile	**Area (acres):**	0
UTM:	Zone-11 N3626458 E702395	**Latitude/Longitude:**	32.75740 / -114.83950	**Elevation (feet):**	220

County Summary:	**Quad Summary:**
Imperial	Ogilby (3211477)

Sources:

HER16D0001	HERP, INC. - HERPETOLOGICAL EDUCATION AND RESEARCH PROJECT (HERP) DATABASE. FORMERLY A PROJECT OF THE NORTH AMERICAN FIELD HERPING ASSOCIATION 2016-10-11
MCD66S0001	MCDIARMID, R. - MCDIARMID #66-17 -1 LACM #8862 COLLECTED FROM 3.9 MI S OGILBY 1966-05-14
TUR80R0001	TURNER, F. ET AL. - A SURVEY OF THE OCCURRENCE AND ABUNDANCE OF THE FLAT-TAILED HORNED LIZARD IN CALIFORNIA. LABORATORY OF NUCLEAR MEDICINE AND RADIATION BIOLOGY, UC LOS ANGELES 1980-01-25
WIE68S0001	WIEWANDT, T. - UAZ #28045 COLLECTED FROM OGILBY RD NEAR US HWY 80 1968-09-08

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	06544	**EO Index:**	14020
Key Quad:	Ogilby (3211477)	**Element Code:**	ARACF12040
Occurrence Number:	34	**Occurrence Last Updated:**	2012-06-20

Scientific Name: *Phrynosoma mcallii*

Common Name: flat-tailed horned lizard

Listing Status: **Federal:** None

State: None

Rare Plant Rank:

Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

CNDDB Element Ranks: **Global:** G3

State: S2

General Habitat:

RESTRICTED TO DESERT WASHES AND DESERT FLATS IN CENTRAL RIVERSIDE, EASTERN SAN DIEGO, AND IMPERIAL COUNTIES.

Micro Habitat:

CRITICAL HABITAT ELEMENT IS FINE SAND, INTO WHICH LIZARDS BURROW TO AVOID TEMPERATURE EXTREMES; REQUIRES VEGETATIVE COVER AND ANTS.

Last Date Observed:	1979-04-27	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1980-06-20	**Occurrence Rank:**	Unknown
Owner/Manager:	BLM	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

PILOT KNOB MESA, ABOUT 1 MILE NW OF I-8 AT OGILBY RD (S34) AND 2 MILES SSW OF OGILBY.

Detailed Location:

SDNHM LOCALITIES: "OGILBY; 2 MILES SW OF." MAPPED TO PROVIDED TRS FROM 1979 "SECTION SEARCHES." VICINITY OF PLOT #7 IN 1980 SURVEY, ABOUT 1 MILE NW OF S34 AT I-8.

Ecological:

1980: CREOSOTE AND BURSAGE WERE DOMINANT PERENNIALS, IRONWOOD PRESENT. POGONOMYRMEX NESTS FOUND AT SITE. FRINGE-TOED LIZARDS ALSO OCCUR IN THIS AREA & HAVE SCAT INDISTINGUISHABLE FROM THAT OF FTHL; MORE RESEARCH IN THIS AREA IS NEEDED.

Threats:

General:

SDNHM #56513 & 56514 COLLECTED BY M. MCCOID ON 25 MAY 1975. 1 OBSERVED IN SEC 10, 1 OBSERVED IN SEC 15 ON 27 APR 1979. 0 FTHL AND 6 SCATS FOUND 17-20 JUN 1980.

PLSS:	T16S, R20E, Sec. 10 (S)	**Accuracy:**	non-specific area	**Area (acres):**	1,296
UTM:	Zone-11 N3628756 E701038	**Latitude/Longitude:**	32.77837 / -114.85348	**Elevation (feet):**	240

County Summary:	**Quad Summary:**
Imperial	Ogilby (3211477)

Sources:

ALT80R0001	ALTMAN, E. ET AL. - AN EVALUATION OF THE RELATIVE ABUNDANCE OF THE FLAT-TAILED HORNED LIZARD (PHRYNOSOMA MCALLII) IN 10 AREAS IN SOUTHEASTERN CALIFORNIA 1980-09-XX
HER09S0001	HERPNET - PRINTOUT OF PHRYNOSOMA MCALLII RECORDS FROM MULTIPLE MUSEUMS EXCEPT MVZ. 2009-12-09
TUR80R0001	TURNER, F. ET AL. - A SURVEY OF THE OCCURRENCE AND ABUNDANCE OF THE FLAT-TAILED HORNED LIZARD IN CALIFORNIA. LABORATORY OF NUCLEAR MEDICINE AND RADIATION BIOLOGY, UC LOS ANGELES 1980-01-25

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 06564
Key Quad: Ogilby (3211477)
Occurrence Number: 39
EO Index: 22417
Element Code: ARACF12040
Occurrence Last Updated: 2012-09-26

Scientific Name: *Phrynosoma mcallii*
Common Name: flat-tailed horned lizard

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G3
State: S2
Rare Plant Rank:
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

General Habitat:

RESTRICTED TO DESERT WASHES AND DESERT FLATS IN CENTRAL RIVERSIDE, EASTERN SAN DIEGO, AND IMPERIAL COUNTIES.

Micro Habitat:

CRITICAL HABITAT ELEMENT IS FINE SAND, INTO WHICH LIZARDS BURROW TO AVOID TEMPERATURE EXTREMES; REQUIRES VEGETATIVE COVER AND ANTS.

Last Date Observed: 1947-07-26
Last Survey Date: 1947-07-26
Owner/Manager: UNKNOWN
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:

ALONG I-8, ABOUT 2 MILES W OF FELICITY AND 5 MILES SSE OF OGILBY.

Detailed Location:

COULD NOT LOCATE PROVIDED LOCALITY "SPRINGERS." MAPPED TO TRS GIVEN IN BLM'S COMPILATION OF MUSEUM SPECIMENS (BLM80S0020).

Ecological:

Threats:

General:

SDMNH SPECIMEN #38521 COLLECTED BY CHARLES SHAW ON 26 JUL 1947.

PLSS: T16S, R21E, Sec. 19, NW (S)
UTM: Zone-11 N3626155 E705959
Accuracy: 2/5 mile
Latitude/Longitude: 32.75401 / -114.80155
Area (acres): 0
Elevation (feet): 253

County Summary:	Quad Summary:
Imperial	Grays Well NE (3211467), Ogilby (3211477)

Sources:

BLM80S0020	BUREAU OF LAND MANAGEMENT - DESERT PLAN STAFF - COMPILATION OF HISTORIC MUSEUM SPECIMEN INFORMATION FOR PHRYNOSOMA MCALLII, COLLECTED DURING THE PREPARATION OF "THE CALIFORNIA DESERT PLAN" 1980-XX-XX
HER09S0001	HERPNET - PRINTOUT OF PHRYNOSOMA MCALLII RECORDS FROM MULTIPLE MUSEUMS EXCEPT MVZ. 2009-12-09

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 39690
EO Index: 34692
Key Quad: Grays Well NE (3211467)
Element Code: ARACF12040
Occurrence Number: 79
Occurrence Last Updated: 1998-09-10

Scientific Name: *Phrynosoma mcallii*
Common Name: flat-tailed horned lizard

Listing Status: **Federal:** None
State: None
Rare Plant Rank:

CNDDB Element Ranks: **Global:** G3
State: S2
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

General Habitat:

RESTRICTED TO DESERT WASHES AND DESERT FLATS IN CENTRAL RIVERSIDE, EASTERN SAN DIEGO, AND IMPERIAL COUNTIES.

Micro Habitat:

CRITICAL HABITAT ELEMENT IS FINE SAND, INTO WHICH LIZARDS BURROW TO AVOID TEMPERATURE EXTREMES; REQUIRES VEGETATIVE COVER AND ANTS.

Last Date Observed: 1984-05-17
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1984-05-17
Occurrence Rank: Unknown
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

WHERE HIGHWAY 8 CROSSES THE ALL AMERICAN CANAL (BM 196), SE TOWARD CALIFORNIA-MEXICO BORDER, 5 MILES NE OF GRAYS WELL.

Detailed Location:

SCAT FOUND ON NORTH SIDE OF CANAL FROM HIGHWAY CROSSING TO 3 MILES SOUTHEAST OF HIGHWAY 8.

Ecological:

MOST OF THE HABITAT ALONG THE PROPOSED CANAL ROUTE COULD CONTAIN LIZARDS EXCEPT WETLAND/RIPARIAN AREA BETWEEN DROPS 3 & 4, & ALGODONES DUNES (BETWEEN SEGMENT MARKERS 7 TO 11).

Threats:

General:

ABUNDANCE INDEX OF LIZARDS WAS DETERMINED PER SECTION BY COUNTING SCAT.

PLSS: T16S, R20E, Sec. 52 (S)
Accuracy: non-specific area
Area (acres): 193
UTM: Zone-11 N3624577 E701707
Latitude/Longitude: 32.74057 / -114.84725
Elevation (feet): 200

County Summary:

Imperial

Quad Summary:

Grays Well NE (3211467), Ogilby (3211477)

Sources:

ROR84R0001 RORABAUGH, J. (U.S. BUREAU OF RECLAMATION) - AN EVALUATION OF FLAT-TAILED HORNED LIZARD (PHRYNOSOMA MCALLII) HABITAT QUALITY ALONG 40.9 KM (25.4 MI) OF THE PROPOSED ALL-AMERICAN CANAL ROUTE IN IMPERIAL COUNTY, CALIFORNIA 1984-06-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 49935
EO Index: 49935
Key Quad: Ogilby (3211477)
Element Code: ARACF12040
Occurrence Number: 89
Occurrence Last Updated: 2015-09-03

Scientific Name: *Phrynosoma mcallii*
Common Name: flat-tailed horned lizard

Listing Status: **Federal:** None
State: None
Rare Plant Rank:

CNDDB Element Ranks: **Global:** G3
State: S2
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

General Habitat:

RESTRICTED TO DESERT WASHES AND DESERT FLATS IN CENTRAL RIVERSIDE, EASTERN SAN DIEGO, AND IMPERIAL COUNTIES.

Micro Habitat:

CRITICAL HABITAT ELEMENT IS FINE SAND, INTO WHICH LIZARDS BURROW TO AVOID TEMPERATURE EXTREMES; REQUIRES VEGETATIVE COVER AND ANTS.

Last Date Observed: 2002-05-29
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2002-05-29
Occurrence Rank: Excellent
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

0.5 MILE ESE OF THE JUNCTION OF INTERSTATE 8 AND BLYTHE OGILBY ROAD, EAST SIDE OF ALGODONES DUNES.

Detailed Location:

Ecological:

CREOSOTE SCRUB, SANDY GRAVEL, FLAT.

Threats:

PIPELINE CONSTRUCTION, SURROUNDING USE IS DESERT RECREATION.

General:

ONE ADULT KILLED BY CONSTRUCTION EQUIPMENT 29 MAY 2002.

PLSS: T16S, R20E, Sec. 23, NE (S)
Accuracy: 1/10 mile
Area (acres): 0
UTM: Zone-11 N3626463 E703430
Latitude/Longitude: 32.75725 / -114.82845
Elevation (feet): 220

County Summary:	Quad Summary:
Imperial	Ogilby (3211477)

Sources:

NIE02F0002 NIEUWEHUIZEN, I. (FOSTER WHEELER ENVIRONMENTAL) - FIELD SURVEY FORM FOR PHRYNOSOMA MCALLII 2002-05-29

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 06540
EO Index: 22762
Key Quad: Ogilby (3211477)
Element Code: IICOL30060
Occurrence Number: 5
Occurrence Last Updated: 1989-08-11

Scientific Name: *Anomala hardyorum*
Common Name: Hardy's dune beetle

Listing Status: **Federal:** None
State: None
Rare Plant Rank:
Other Lists:

CNDDB Element Ranks: **Global:** G1
State: S1

General Habitat:

KNOWN ONLY FROM CREOSOTE BUSH SCRUB HABITAT IN THE VICINITY OF THE ALGODONES DUNES, IMPERIAL COUNTY.

Micro Habitat:

ADULTS ACTIVE AT DUSK, GENERALLY ON NORTH OR EAST SLIP FACES OF DUNES.

Last Date Observed: 1979-04-12
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1979-04-12
Occurrence Rank: Unknown
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

ALGODONES DUNE SYSTEM, 4 MI SSW OF OGILBY.

Detailed Location:

Ecological:

NO KNOWN HOST PLANT. ADULTS HAVE BEEN SIFTED FROM SAND BENEATH A WIDE VARIETY OF PLANTS. NOTHING IS KNOWN OF THE IMMATURE STAGES. ADULTS ARE ACTIVE AT DUSK, GENERALLY ON NORTH- OR EAST-FACING SLIP FACES.

Threats:

General:

PLSS: T16S, R20E, Sec. 22, NW (S)
Accuracy: 1/5 mile
Area (acres): 0
UTM: Zone-11 N3626372 E700427
Latitude/Longitude: 32.75699 / -114.86051
Elevation (feet): 205

County Summary:	Quad Summary:
Imperial	Ogilby (3211477)

Sources:

HAR79R0001 HARDY, A. ET AL. (CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE) - AN INVENTORY OF SELECTED COLEOPTERA FROM THE ALGODONES DUNES. REPORT TO BLM, CONTRACT CA-060-CT 8-68. 1979-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: B5349
Key Quad: Glamis (3211581)
Occurrence Number: 1
EO Index: 118239
Element Code: IICOL33020
Occurrence Last Updated: 2020-05-01

Scientific Name: *Cyclocephala wandae*
Common Name: Wandae dune beetle

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G1G2
State: S1S2
Rare Plant Rank:
Other Lists:

General Habitat:
ENDEMIC TO THE ALGODONES DUNES IN IMPERIAL COUNTY.

Micro Habitat:

Last Date Observed: 1972-09-XX
Last Survey Date: 1972-09-XX
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
ALGODONES DUNES, SE OF THE SALTON SEA.

Detailed Location:
MAPPED NON-SPECIFICALLY ACROSS THE EXTENT OF THE ALGODONES DUNES.

Ecological:

Threats:

General:
SPECIMENS WERE COLLECTED USING BLACKLIGHTS IN 1971 AND 1972.

PLSS: T14S, R18E, Sec. 53 (S)
Accuracy: non-specific area
Area (acres): 148,089
UTM: Zone-11 N3642497 E681857
Latitude/Longitude: 32.90558 / -115.05548
Elevation (feet): 250

County Summary:
Imperial

Quad Summary:
Grays Well NE (3211467), Grays Well (3211468), Ogilby (3211477), Cactus (3211478), Clyde (3211488), Glamis SE (3211571), Glamis (3211581), Glamis NW (3211582), East of Acolita (3311511), Acolita (3311512), Amos (3311513), Tortuga (3311523)

Sources:

AND79R0001	ANDREWS, F. ET AL. (CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE) - THE COLEOPTEROUS FAUNA OF SELECTED CALIFORNIA SAND DUNES. REPORT TO BLM. 1979-03-15
HAR74A0001	HARDY, A. (CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE) - A NEW SPECIES OF CYCLOCEPHALA LATREILLE FROM CALIFORNIA SAND DUNES (COLEOPTERA: SCARABAEIDAE). THE PAN-PACIFIC ENTOMOLOGIST 50: 160-161. 1974-04-XX
KIM07U0001	KIMSEY, L. (UNIVERSITY OF CALIFORNIA, DAVIS) - COMPILED INVERTEBRATE COLLECTION RECORDS NEAR ALGODONES DUNES FROM VARIOUS INSTITUTIONS (UCB, UCD, UCR, USU, USNM, CAS, MCZ, LAMNH, AMNH, CDFA). 2007-04-XX
WAS72S0001	WASBAUER, M. & A. HARDY - CAS #11941 & USNM #11065335 & CMN #17140 COLLECTED 3 MI NW OF GLAMIS 1972-09-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 06540
EO Index: 22697
Key Quad: Ogilby (3211477)
Element Code: IICOL37020
Occurrence Number: 15
Occurrence Last Updated: 1989-08-11

Scientific Name: *Pseudocotalpa andrewsi*
Common Name: Andrew's dune scarab beetle

Listing Status: **Federal:** None
State: None
Rare Plant Rank:
Other Lists:

CNDDB Element Ranks: **Global:** G1
State: S1

General Habitat:

ENDEMIC TO THE CREOSOTE BUSH SCRUB HABITAT OF ALGODONES DUNES, NW OF GLAMIS, IMPERIAL COUNTY; 100-400 FT ELEVATION.

Micro Habitat:

INHABITS BOTH SURFACE AND SUB-SURFACE OF SAND, UTILIZING THE WET SAND INTERFACE AS PROTECTION FROM THE HEAT OF THE DAY.

Last Date Observed: 1979-04-12
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1979-04-12
Occurrence Rank: Unknown
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

ALGODONES DUNE SYSTEM, 4 MI SSW OF OGILBY.

Detailed Location:

ENDEMIC TO THE ALGODONES DUNES.

Ecological:

FLIGHT ACTIVITY 10-30 MINUTES AFTER SUNSET, DIGGING IN 1-2 MINUTES AFTER LANDING, DESCENDING TO THE WET SAND INTERFACE (USUALLY 5-8 CM, UP TO 30 CM). HOST PLANT UNKNOWN, ALTHOUGH MOST ADULTS SWARM AROUND CREOSOTE.

Threats:

OHVS. THE DUNES SOUTH OF HWY 78 ARE THE IMPERIAL SAND DUNES OHVA.

General:

ADULTS SWARM FROM APRIL TO MID-MAY.

PLSS: T16S, R20E, Sec. 22 (S)
Accuracy: 1/5 mile
Area (acres): 0
UTM: Zone-11 N3626372 E700427
Latitude/Longitude: 32.75699 / -114.86051
Elevation (feet): 200

County Summary:

Imperial

Quad Summary:

Ogilby (3211477)

Sources:

HAR79R0001 HARDY, A. ET AL. (CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE) - AN INVENTORY OF SELECTED COLEOPTERA FROM THE ALGODONES DUNES. REPORT TO BLM, CONTRACT CA-060-CT 8-68. 1979-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: B5349
EO Index: 118258
Key Quad: Glamis (3211581)
Element Code: IIDIP07040
Occurrence Number: 1
Occurrence Last Updated: 2020-05-01

Scientific Name: *Efferia macroxipha*
Common Name: Glamis robberfly

Listing Status: **Federal:** None
State: None
Rare Plant Rank:
Other Lists:

CNDDB Element Ranks: **Global:** G1G2
State: S1S2

General Habitat:
ENDEMIC TO THE ALGODONES DUNES IN IMPERIAL COUNTY.

Micro Habitat:

Last Date Observed: 1988-09-12
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1988-09-12
Occurrence Rank: Unknown
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:
ALGODONES DUNES, SE OF THE SALTON SEA.

Detailed Location:
MAPPED NON-SPECIFICALLY ACROSS THE EXTENT OF THE ALGODONES DUNES.

Ecological:

Threats:

General:
SPECIMENS WERE COLLECTED IN THIS VICINITY IN 1986, 1987, AND 1988.

PLSS: T14S, R18E, Sec. 53 (S)
Accuracy: non-specific area
Area (acres): 148,089
UTM: Zone-11 N3642497 E681857
Latitude/Longitude: 32.90558 / -115.05548
Elevation (feet): 250

County Summary:
Imperial

Quad Summary:
Grays Well NE (3211467), Grays Well (3211468), Ogilby (3211477), Cactus (3211478), Clyde (3211488), Glamis SE (3211571), Glamis (3211581), Glamis NW (3211582), East of Acolita (3311511), Acolita (3311512), Amos (3311513), Tortuga (3311523)

Sources:

FOR88S0001	FORBES, G. - NMSU #48873, 48903, 48905, 48906, 48908-48911, 48914, 48915, 48919, 48922, 48925, 48928, 48929, 48931 & 48933 COLLECTED FROM ALGODONES DUNES, RT 78, 0.8 MI W GECKO RD 1988-09-12
KIM07U0001	KIMSEY, L. (UNIVERSITY OF CALIFORNIA, DAVIS) - COMPILED INVERTEBRATE COLLECTION RECORDS NEAR ALGODONES DUNES FROM VARIOUS INSTITUTIONS (UCB, UCD, UCR, USU, USNM, CAS, MCZ, LAMNH, AMNH, CDFA). 2007-04-XX
KIM17A0001	KIMSEY, L. ET AL. - INSECT BIODIVERSITY OF THE ALGODONES DUNES OF CALIFORNIA 2017-11-24
ROG86S0001	ROGERS, R. - CAS #16132 & NMSU #48932 COLLECTED FROM SAND DUNES, 2 MI W OF GLAMIS, HWY 78 1986-09-19
ROG87S0001	ROGERS, R. - NMSU #48916, 48918, 48926 & 48927 COLLECTED FROM GECKO CAMPGROUND RD, NEAR HWY 78 1987-09-12
ROG87S0002	ROGERS, R. - NMSU #48920 COLLECTED FROM GECKO CAMPGROUND RD, NEAR HWY 78 1987-09-21

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: B5349
Key Quad: Glamis (3211581)
Occurrence Number: 1
EO Index: 118240
Element Code: IIDIP54020
Occurrence Last Updated: 2020-04-28

Scientific Name: *Apiocera warneri*
Common Name: Glamis sand fly

Listing Status: **Federal:** None
State: None
Rare Plant Rank:
Other Lists:

CNDDB Element Ranks: **Global:** G1G2
State: S1S2

General Habitat:
ENDEMIC TO THE ALGODONES DUNES IN IMPERIAL COUNTY.

Micro Habitat:

Last Date Observed: 1982-09-15
Last Survey Date: 1982-09-15
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
ALGODONES DUNES, SE OF THE SALTON SEA.

Detailed Location:
MAPPED NON-SPECIFICALLY ACROSS THE EXTENT OF THE ALGODONES DUNES.

Ecological:

Threats:

General:
THIS SPECIES IS ONLY KNOWN FROM THE TYPE COLLECTIONS. THESE WERE MADE 1.5 MILES WEST OF GLAMIS AND 4 MILES NORTH OF GLAMIS ON 15 SEP 1982.

PLSS: T14S, R18E, Sec. 53 (S)
Accuracy: non-specific area
Area (acres): 148,089
UTM: Zone-11 N3642497 E681857
Latitude/Longitude: 32.90558 / -115.05548
Elevation (feet): 250

County Summary:	Quad Summary:
Imperial	Grays Well NE (3211467), Grays Well (3211468), Ogilby (3211477), Cactus (3211478), Clyde (3211488), Glamis SE (3211571), Glamis (3211581), Glamis NW (3211582), East of Acolita (3311511), Acolita (3311512), Amos (3311513), Tortuga (3311523)

Sources:

CAZ85A0002	CAZIER, M. - NEW SPECIES AND NOTES ON FLIES BELONGING TO THE GENUS APIOCERA (DIPTERA, APIOCERIDAE). AMERICAN MUSEUM NOVITATES 2837: 1-28. 1985-11-14
KIM07U0001	KIMSEY, L. (UNIVERSITY OF CALIFORNIA, DAVIS) - COMPILED INVERTEBRATE COLLECTION RECORDS NEAR ALGODONES DUNES FROM VARIOUS INSTITUTIONS (UCB, UCD, UCR, USU, USNM, CAS, MCZ, LAMNH, AMNH, CDFA). 2007-04-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: B5349
Key Quad: Glamis (3211581)
Occurrence Number: 1
EO Index: 118355
Element Code: IIHYM01130
Occurrence Last Updated: 2020-05-06

Scientific Name: *Perdita algodones*
Common Name: Algodones perdita

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G1G2
State: S1S2
Rare Plant Rank:
Other Lists:

General Habitat:
ENDEMIC TO THE ALGODONES DUNES IN IMPERIAL COUNTY.

Micro Habitat:

Last Date Observed: 1972-04-09
Last Survey Date: 1972-04-09
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
ALGODONES DUNES, SE OF THE SALTON SEA.

Detailed Location:
MAPPED NON-SPECIFICALLY ACROSS THE EXTENT OF THE ALGODONES DUNES.

Ecological:

Threats:

General:
COLLECTIONS WERE MADE FROM THIS VICINITY IN 1965, 1968, AND 1972.

PLSS: T14S, R18E, Sec. 53 (S)
Accuracy: non-specific area
Area (acres): 148,089
UTM: Zone-11 N3642497 E681857
Latitude/Longitude: 32.90558 / -115.05548
Elevation (feet): 250

County Summary:
Imperial

Quad Summary:
Grays Well NE (3211467), Grays Well (3211468), Ogilby (3211477), Cactus (3211478), Clyde (3211488), Glamis SE (3211571), Glamis (3211581), Glamis NW (3211582), East of Acolita (3311511), Acolita (3311512), Amos (3311513), Tortuga (3311523)

Sources:

HAR72S0005	HARDY, A. - UCRC #165955 COLLECTED 3 MILES NW OF GLAMIS, KIPF ROAD, ALGODONES DUNES 1972-04-09
IRW65S0001	IRWIN, M. - UCRC #165956 COLLECTED 1 MILE WEST OF GLAMIS 1965-04-25
KIM07U0001	KIMSEY, L. (UNIVERSITY OF CALIFORNIA, DAVIS) - COMPILED INVERTEBRATE COLLECTION RECORDS NEAR ALGODONES DUNES FROM VARIOUS INSTITUTIONS (UCB, UCD, UCR, USU, USNM, CAS, MCZ, LAMNH, AMNH, CDFA). 2007-04-XX
RAU68S0001	RAUCH, P. - CAS #14416 COLLECTED 3.5 MILES NW OF GLAMIS 1968-04-13
TIM80A0001	TIMBERLAKE, P. - SUPPLEMENTARY STUDIES ON THE SYSTEMATICS OF THE GENUS PERDITA (HYMENOPTERA, ANDRENIDAE), PART II. UNIVERSITY OF CALIFORNIA PUBLICATIONS IN ENTOMOLOGY 85. 1980-05-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: B5349
Key Quad: Glamis (3211581)
Occurrence Number: 1
EO Index: 119180
Element Code: IIHYM01140
Occurrence Last Updated: 2020-09-28

Scientific Name: *Perdita frontalis*
Common Name: Imperial Perdita

Listing Status: **Federal:** None
State: None
Rare Plant Rank:
Other Lists:

CNDDB Element Ranks: **Global:** G1G2
State: S1S2

General Habitat:

Micro Habitat:

Last Date Observed: 2014-05-10
Last Survey Date: 2014-05-10
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:

ALGODONES DUNES, SE OF THE SALTON SEA.

Detailed Location:

VARIOUS COLLECTION LOCALITIES DESCRIBED AS FROM GLAMIS TO 5.7 MILES WEST OF GLAMIS. MAPPED NON-SPECIFICALLY ACROSS THE EXTENT OF THE ALGODONES DUNES.

Ecological:

MOST COLLECTIONS WERE MADE FROM FLOWERS OF TIQUILA PLICATA.

Threats:

General:

COLLECTIONS WERE MADE IN 1960, 1962, 2012, 2013, AND 2014.

PLSS: T14S, R18E, Sec. 53 (S)
Accuracy: non-specific area
Area (acres): 148,089
UTM: Zone-11 N3642497 E681857
Latitude/Longitude: 32.90558 / -115.05548
Elevation (feet): 250

County Summary:

Imperial

Quad Summary:

Grays Well NE (3211467), Grays Well (3211468), Ogilby (3211477), Cactus (3211478), Clyde (3211488), Glamis SE (3211571), Glamis (3211581), Glamis NW (3211582), East of Acolita (3311511), Acolita (3311512), Amos (3311513), Tortuga (3311523)

Sources:

DIC60S0004	DICKSON, R. - CAS #14531 COLLECTED FROM SAND DUNES, 5.7 MILES WEST OF GLAMIS, IMPERIAL CO, CA, ON ERIOGONUM DESERTICOLA 1960-07-25
DIC60S0005	DICKSON, R. - UCRC #173923 COLLECTED E BRAWLEY, ON ERIOGONUM DESERTICOLA 1960-06-28
DIC60S0006	DICKSON, R. - UCRC #173924 COLLECTED FROM SAND DUNES S OF BRAWLEY, ON COLDENIA PLICATA 1960-07-11
KIM07U0001	KIMSEY, L. (UNIVERSITY OF CALIFORNIA, DAVIS) - COMPILED INVERTEBRATE COLLECTION RECORDS NEAR ALGODONES DUNES FROM VARIOUS INSTITUTIONS (UCB, UCD, UCR, USU, USNM, CAS, MCZ, LAMNH, AMNH, CDFA). 2007-04-XX
POR16A0001	PORTMAN, Z. ET AL. - TAXONOMIC REVISION OF PERDITA SUBGENUS HETEROPERDITA TIMBERLAKE (HYMENOPTERA: ANDREDIDAE), WITH DESCRIPTIONS OF TWO ANT-LIKE MALES. ZOOTAXA 4214(1): 1-97. 2016-XX-XX
TIM68A0001	TIMBERLAKE, P. - A REVISIONAL STUDY OF THE BEES OF THE GENUS PERDITA F. SMITH, WITH SPECIAL REFERENCE TO THE FAUNA OF THE PACFIC COAST. PART VII. UNIVERSITY OF CA PUBLICATIONS IN ENTOMOLOGY 49. 1968-XX-XX
YAN20U0001	YANEGA, D. (UNIVERSITY OF CALIFORNIA, RIVERSIDE) - EMAIL REGARDING PERDITA FRONTALIS COLLECTION LOCALITES 2020-09-25

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: B5349
Key Quad: Glamis (3211581)
Occurrence Number: 2
EO Index: 119019
Element Code: IIHYM01840
Occurrence Last Updated: 2020-08-10

Scientific Name: *Perdita stephanomeriae*
Common Name: a miner bee

Listing Status: **Federal:** None
State: None
Rare Plant Rank:
Other Lists:

CNDDB Element Ranks: **Global:** GNR
State: S1S2

General Habitat:

Micro Habitat:

Last Date Observed: 1965-06-13
Last Survey Date: 1965-06-13
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:

ALGODONES DUNES, SE OF THE SALTON SEA.

Detailed Location:

COLLECTION LOCALITY GIVEN ONLY AS "GLAMIS." MAPPED BY CNDDB NON-SPECIFICALLY ACROSS THE EXTENT OF THE GLAMIS DUNES, ALSO KNOW AS THE ALGODONES DUNES.

Ecological:

Threats:

General:

COLLECTED ON 13 JUN 1965. SPECIMENS ORIGINALLY USED TO DESCRIBE THE SPECIES PERDITA GLAMIS, BUT THAT SPECIES WAS LATER LUMPED INTO PERDITA STEPHANOMERIAE.

PLSS: T14S, R18E, Sec. 53 (S)
Accuracy: non-specific area
Area (acres): 148,089
UTM: Zone-11 N3642497 E681857
Latitude/Longitude: 32.90558 / -115.05548
Elevation (feet): 250

County Summary:

Imperial

Quad Summary:

Grays Well NE (3211467), Grays Well (3211468), Ogilby (3211477), Cactus (3211478), Clyde (3211488), Glamis SE (3211571), Glamis (3211581), Glamis NW (3211582), East of Acolita (3311511), Acolita (3311512), Amos (3311513), Tortuga (3311523)

Sources:

KIM07U0001	KIMSEY, L. (UNIVERSITY OF CALIFORNIA, DAVIS) - COMPILED INVERTEBRATE COLLECTION RECORDS NEAR ALGODONES DUNES FROM VARIOUS INSTITUTIONS (UCB, UCD, UCR, USU, USNM, CAS, MCZ, LAMNH, AMNH, CDFA). 2007-04-XX
POR17A0001	PORTMAN, Z. & T. GRISWOLD - REVIEW OF PERDITA SUBGENUS PROCOCKERELLIA TIMBERLAKE (HYMENOPTERA, ANDRENIDAE) AND THE FIRST PERDITA GYNANDROMORPH. ZOOKEYS 712: 87-111. 2017-XX-XX
TIM80A0001	TIMBERLAKE, P. - SUPPLEMENTARY STUDIES ON THE SYSTEMATICS OF THE GENUS PERDITA (HYMENOPTERA, ANDRENIDAE), PART II. UNIVERSITY OF CALIFORNIA PUBLICATIONS IN ENTOMOLOGY 85. 1980-05-XX
WAL65S0004	WALLACE, G. - UCRC #174303 & CAS #14544 COLLECTED FROM GLAMIS 1965-06-13

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: B5349
Key Quad: Glamis (3211581)
Occurrence Number: 1
EO Index: 118339
Element Code: IIHYM90010
Occurrence Last Updated: 2020-05-05

Scientific Name: *Microbembex elegans*
Common Name: Algodones elegant sand wasp

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G1G2
State: S1S2
Rare Plant Rank:
Other Lists:

General Habitat:
ENDEMIC TO THE ALGODONES DUNES IN IMPERIAL COUNTY

Micro Habitat:

Last Date Observed: 1988-10-10
Last Survey Date: 1988-10-10
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
ALGODONES DUNES, SE OF THE SALTON SEA.

Detailed Location:
MAPPED NON-SPECIFICALLY ACROSS THE EXTENT OF THE ALGODONES DUNES.

Ecological:
FOUND ONLY AROUND THE BASES OF SHRUBS WHERE DETRITUS COLLECTS ON ACTIVE SLIP FACES OF THE DUNES.

Threats:

General:
THIS SPECIES IS ONLY KNOWN FROM THE TYPE COLLECTIONS. THESE WERE MADE FROM GLAMIS DUNES, 1 MILE WEST OF GLAMIS IN SEP 1987 AND OCT 1988, AND ALSO 4 MILES SOUTH OF OGILBY IN OCT 1988.

PLSS: T14S, R18E, Sec. 53 (S)
Accuracy: non-specific area
Area (acres): 148,089
UTM: Zone-11 N3642497 E681857
Latitude/Longitude: 32.90558 / -115.05548
Elevation (feet): 250

County Summary:
Imperial

Quad Summary:
Grays Well NE (3211467), Grays Well (3211468), Ogilby (3211477), Cactus (3211478), Clyde (3211488), Glamis SE (3211571), Glamis (3211581), Glamis NW (3211582), East of Acolita (3311511), Acolita (3311512), Amos (3311513), Tortuga (3311523)

Sources:

GRI96A0001	GRISWOLD, T. (UTAH STATE UNIVERSITY) - A NEW MICROBEMBEX ENDEMIC TO THE ALGODONES DUNES, CALIFORNIA (HYMENOPTERA: SPHECIDAE).PAN-PACIFIC ENTOMOLOGIST 72(3): 142-144. 1996-XX-XX
KIM07U0001	KIMSEY, L. (UNIVERSITY OF CALIFORNIA, DAVIS) - COMPILED INVERTEBRATE COLLECTION RECORDS NEAR ALGODONES DUNES FROM VARIOUS INSTITUTIONS (UCB, UCD, UCR, USU, USNM, CAS, MCZ, LAMNH, AMNH, CDFA). 2007-04-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: B5349
Key Quad: Glamis (3211581)
Occurrence Number: 1
EO Index: 118271
Element Code: IIHYMBC010
Occurrence Last Updated: 2020-05-04

Scientific Name: *Euparagia unidentata*
Common Name: Algodones euparagia

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G1G2
State: S1S2
Rare Plant Rank:
Other Lists:

General Habitat:

Micro Habitat:

Last Date Observed: 2008-06-03
Last Survey Date: 2008-06-03
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:

ALGODONES DUNES, SE OF THE SALTON SEA.

Detailed Location:

MAPPED NON-SPECIFICALLY ACROSS THE EXTENT OF THE ALGODONES DUNES.

Ecological:

Threats:

General:

COLLECTIONS WERE MADE FROM THIS VICINITY IN 1960 AND 2008.

PLSS: T14S, R18E, Sec. 53 (S)
Accuracy: non-specific area
Area (acres): 148,089
UTM: Zone-11 N3642497 E681857
Latitude/Longitude: 32.90558 / -115.05548
Elevation (feet): 250

County Summary:

Imperial

Quad Summary:

Grays Well NE (3211467), Grays Well (3211468), Ogilby (3211477), Cactus (3211478), Clyde (3211488), Glamis SE (3211571), Glamis (3211581), Glamis NW (3211582), East of Acolita (3311511), Acolita (3311512), Amos (3311513), Tortuga (3311523)

Sources:

ANONDS0367	ANONYMOUS - AMNH #178751 COLLECTED FROM GECKO RD S OF ALGODONES DUNES WILDERNESS AREA XXXX-XX-XX
CAR09A0001	CARPENTER, J. & L. KIMSEY - THE GENUS EUPARAGIA CRESSON (HYMENOPTERA: VESPIDAE; EUPARAGIINAE). AMERICAN MUSEUM NOVITATES 3643: 1-11. 2009-03-31
DIC60S0001	DICKSON, R. - UCRC #71283 & 71284 COLLECTED FROM ERIOGONUM DESERTICOLA AT SAND DUNES EAST OF BRAWLEY 1960-06-13
DIC60S0002	DICKSON, R. - UCRC #71288 COLLECTED FROM ERIOGONUM DESERTICOLA 7 MILES WEST OF GLAMIS 1960-07-25
DIC60S0003	DICKSON, R. - UCRC #71285, 71286, 71287 & 71289 COLLECTED FROM COLDENIA PLICATA 2 MILES WEST OF GLAMIS 1960-07-25
KIM17A0001	KIMSEY, L. ET AL. - INSECT BIODIVERSITY OF THE ALGODONES DUNES OF CALIFORNIA 2017-11-24

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 77872
EO Index: 6544
Key Quad: Glamis (3211581)
Element Code: PDAST6T012
Occurrence Number: 1
Occurrence Last Updated: 2014-05-28

Scientific Name: *Palafoxia arida var. gigantea*
Common Name: giant spanish-needle

Listing Status: **Federal:** None
State: None
Rare Plant Rank: 1B.3
Other Lists: BLM_S-Sensitive
SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

CNDDB Element Ranks: **Global:** G5T3?
State: S2

General Habitat:

DESERT DUNES.

Micro Habitat:

ACTIVE AND STABLE DUNE AREAS; ASSOCIATED WITH AMMOBROMA SONORAE, ASTRAGALUS LENTIGINOSUS BORREGANUS, ETC. 20-95 M.

Last Date Observed: 2013-04-20
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2013-04-20
Occurrence Rank: Unknown
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

ALGODONES DUNES.

Detailed Location:

SCATTERED THROUGHOUT THE DUNES FROM SOUTHERN PACIFIC RR TRACKS WEST TO THE COACHELLA CANAL AND FROM MAMMOTH WASH SOUTH TO THE CA/MEXICO BORDER. MAPPED BY CNDDB USING MULTIPLE MAP SOURCES.

Ecological:

SAND DUNES WITHIN DESERT PSAMMOPHYTIC SCRUB (STABILIZED AND PARTIALLY STABILIZED DESERT DUNES). ASSOCIATES INCLUDE SEVERAL RARE PLANTS: AMMOBROMA SONORAE, ASTRAGALUS LENTIGINOSUS BORREGANUS, ERIOGONUM DESERTICOLA, PILOSTYLES THURBERI, ETC.

Threats:

ORV USE.

General:

>3,000 PLANTS SEEN ALONG ALL AMERICAN CANAL IN 1993. 34,649 IN 1998; 1,458 IN 1999; 13,933 IN 2000. 25 PLANTS ALONG HWY 78 JUST E OF GECKO RD IN 2009. 80+ PLANTS N OF HWY 78 ~1 MI NW OF OSBORNE LOOKOUT IN 2013. INCL FRMR EOS 2-49, 51, 52.

PLSS: T14S, R18E, Sec. 51 (S)
Accuracy: specific area
Area (acres): 118,017
UTM: Zone-11 N3644086 E681072
Latitude/Longitude: 32.92004 / -115.06355
Elevation (feet):

County Summary:

Imperial, Mexico

Quad Summary:

Grays Well NE (3211467), Grays Well (3211468), Ogilby (3211477), Cactus (3211478), Clyde (3211488), Glamis SE (3211571), Glamis (3211581), Glamis NW (3211582), East of Acolita (3311511), Acolita (3311512), Amos (3311513), Tortuga (3311523)

Sources:

ALE41S0030	ALEXANDER, A. & L. KELLOGG - ALEXANDER #1936 UC #669289 POM #115609, GH #427281 1941-03-14
AND09S0005	ANDRE, J. & T. LA DOUX - ANDRE #9871 UCR #211316, RSA #760079, GMDRC #2967 (CITED IN AND10D0001) 2009-02-26
AND10D0001	ANDRE, J. - EXCEL TABLE OF MULTIPLE PLANT COLLECTIONS 2010-01-18
ANO69S0003	ANONYMOUS - ANONYMOUS #11 UCR #16704 1969-05-24
BAR67S0001	BARR, R. - BARR #67-128 UA (AS CITED IN WAR87R0001) 1967-04-16
BEL13S0009	BELL, D. ET AL. - BELL #4823 RSA #806857 2013-04-20
BEL13U0002	BELL, D. - OBSERVATIONS OF RARE PLANT TAXA FROM DESERT CNPS RARE PLANT TREASURE HUNT SURVEYS, SPRING 2013 2013-03-XX
BEN33S0011	BENSON, L. - BENSON #4223 RSA #431136 1933-04-01

BLM00R0001	BLM-BUREAU OF LAND MANAGEMENT - MONITORING OF SPECIAL STATUS PLANTS IN THE ALGODONES DUNES, IMPERIAL COUNTY, CALIFORNIA: RESULTS OF 1998 MONITORING AND COMPARISON WITH THE DATA FROM WESTECS 1977 MONITORING STUDY 2000-11-XX
BLM01R0001	BLM-BUREAU OF LAND MANAGEMENT - MONITORING OF SPECIAL STATUS PLANTS IN THE ALGODONES DUNES, IMPERIAL COUNTY, CALIFORNIA: 1977, 1998, 1999, AND 2000 2001-06-XX
BLM77F0001	BLM-BUREAU OF LAND MANAGEMENT - FIELD SURVEY FORM FOR PALAFOXIA ARIDA VAR. GIGANTEA 1977-10-13
BLM78F0001	SEARS, W. - BLM (S-II) FIELD SURVEY FORM FOR PALAFOXIA ARIDA VAR. GIGANTEA 1978-XX-XX
BLM86R0002	BLM-BUREAU OF LAND MANAGEMENT - PROPOSED 1985 PLAN AMENDMENTS VOL. 2 1986-01-XX
BOW70S0001	BOWERS, D. - BOWERS #1608 RSA #786954 1970-12-29
BOW81S0001	BOWERS, J. - BOWERS #2076 UA (AS CITED IN WAR87R0001) 1981-03-14
BOW83S0003	BOWERS, J. & S. MCLAUGHLIN - BOWERS #2785 UCR #46271 1983-11-12
BRO80S0003	BROWNELL, K. - BROWNELL #206 UCSB #36654 1980-05-17
CHM00R0001	CH2M HILL - IMPERIAL IRRIGATION DISTRICT (IID)/SAN DIEGO COUNTY WATER AUTHORITY (SDCWA) WATER CONSERVATION AND TRANSFER PROJECT EIR/EIS, SCOPING SUMMARY REPORT 2000-03-10
DAV79S0003	DAVIDSON, C. ET AL. - DAVIDSON #7742 HSU #82914 POM #363734 1979-04-28
DAV79S0004	DAVIDSON, C. ET AL. - DAVIDSON #7792 POM #363735 1979-04-28
DEF33S0002	DE FOREST, H. & J. REMPEL - DE FOREST #17695 RSA #363761 1933-04-10
DUN35S0005	DUNKLE, M. - DUNKLE #4586 POM #363736 1935-04-18
FER38S0002	FERRIS, R. & R. ROSSBACH - FERRIS #9588 UC #604962 POM #19546, GH #427279 1938-05-17
FUL59S0002	FULLER, T. - FULLER #3273 CDA #8432 1959-10-07
GIL28S0004	GILMAN, M. - GILMAN SN POM #145269 1928-04-XX
GOR80S0003	GORDON, P. - GORDON #630 UCSB #37387 1980-05-17
GRA78S0002	GRANGER, S. - GRANGER SN RSA #650937 1978-04-03
GUI08S0005	GUILLIAMS, C. & J. MARSHALL - GUILLIAMS #635 SDSU #18373 & #18392 2008-04-23
GUS83S0012	GUSTAFSON, R. & KEELEY - GUSTAFSON #2569 POM #363733 1983-05-06
HIG74S0001	HIGGINS, L. - HIGGINS #8507 ASU (AS CITED IN WAR87R0001) 1974-04-12
HIT66S0008	HITCHCOCK, C. - HITCHCOCK #24287 DAV #134877 1966-03-19
HOW64S0005	HOWE, D. - HOWE #3756 SD #60969 SDSU #369 1964-04-11
HOW80S0004	HOWE, D. - HOWE SN SD #128762 1980-04-14
HUN80S0001	HUNKINS, C. - HUNKINS #80030903, SEINET #2053908, DES #27249, DBG (CITED IN WAR87R0001) 1980-03-09
JEP27S0017	JEPSON, W. - JEPSON #11722 JEPS #34765 1927-04-15
JON31S0014	JONES, M. - JONES #28599 POM #188054 UC #479265 1931-09-24
JOR82S0002	JORGENSEN, J. - JORGENSEN #305 UCSB #39124 1982-03-24
KEL37S0001	KELLER, A. - KELLER SN RSA #603891 SD #17611 1937-05-31
KEL37S0002	KELLER, A. - KELLER SN SD #17612 1937-05-31
KEL41S0001	KELLOGG, L. ET AL. - KELLOGG ET AL. #1936 UA #189037 (AS CITED IN WAR87R0001) 1941-03-14
LAT77S0004	LATTING, J. - LATTING SN UC #1746487 UCR #115382, SEINET #238517, UTC #230538, DAV #134884 1977-12-11
MAC97S0005	MACKAY, P. - MACKAY #130 VVC #648 1997-03-01
MCG71S0001	MCGEHEE, R. - MCGEHEE #352 SJSU #11689 1971-02-13
MIN64S0002	MINNICH, J. - MINNICH #64-3-25-14 UCR 1964-03-25
MUN32S0027	MUNZ, P. & C. HITCHCOCK - MUNZ #12131 UC #495107 1932-04-05
NEL30S0001	NELSON, A. - NELSON #11161 DS #231258 1930-02-27
NEL36A0001	NELSON, A. - ROCKY MOUNTAIN HERBARIUM STUDIES IV. AMERICAN JOURNAL OF BOTANY 23: 265-271. 1936-XX-XX
NIE77U0021	NIEHAUS, T. - CNPS STATUS REPORT 1977-XX-XX
PEI27S0010	PEIRSON, F. - PEIRSON #7198 RSA #92214 SD #87849 1927-04-15
PIT98S0003	PITZER, B. - PITZER #3477 SD #144029 UCR #102678 1998-02-02
POR03S0027	PORTER, J. - PORTER #13491 RSA #767601 2003-03-04

RAV58S0027	RAVEN, P. - RAVEN #12910 JEPS #30466 RSA #127758 1958-05-06
REC79R0001	U.S. BUREAU OF RECLAMATION - REPORT ON RARE PLANT POPULATIONS ALONG THE ALL AMERICAN CANAL 1979-XX-XX
REI96S0007	REINA, A. & T. VAN DEVENDER - REINA #220 RSA #592920, UCR #97014. SEINET #1110597, ASU, SEINET #891496, ASU #324968 1996-04-27
RIC79S0004	RICH, B. - RICH #79004 RSA #291588 1979-04-21
ROM79R0001	ROMSPERT, A. & J. BURK - ALGODONES DUNES SENSITIVE PLANT PROJECT - C.S.U. FULLERTON PREPARED FOR BLM 1979-XX-XX
ROS63S0001	ROSSBACH, G. - ROSSBACH #5239 UC #1351650 1963-07-03
SEA78S0005	SEARS - SEARS #764 UCR #33542 1978-03-15
SIM65S0001	SIMPSON, J. - SIMPSON SN SD #103941 1965-05-13
STE90S0003	STEWART, J. - STEWART #649 UCR #89809 1990-03-14
STO96S0002	STONE, B. & J. DICE - STONE SN SD #138925 1996-04-29
SWA11S0038	SWANSON, A. - SWANSON #194 RSA #776107 2011-03-09
THO64S0037	THORNE, R. & RUTHERFORD - THORNE #33611 RSA #167678, GH #427280 1964-04-11
THO78S0051	THORNE, R. - THORNE #52150 RSA #336258 1978-05-30
THO84S0002	THORNE, R. ET AL. - THORNE #58265 RSA #331168 1984-04-27
TUR62S0001	TURNER, B. - TURNER #4757 SD #108087 1962-04-19
VAN05S0003	VAN DAM, A. - VAN DAM SN UCR #165596 2005-04-19
VAS64S0002	VASEK, F. - VASEK #640411-2 UCR #3820, UCSB #38383 1964-04-11
VAS64S0006	VASEK, F. - VASEK #640411-03 UCR #3819 1964-04-11
VER64S0005	VERITY, D. ET AL. - VERITY SN SFV #4269A 1964-02-15
WAR87R0001	WARREN, P. & A. LAURENZI - RARE PLANTS SURVEY OF THE YUMA DISTRICT. 1987-08-XX
WES77R0003	WESTEC SERVICES, INC. - SURVEY OF SENSITIVE PLANTS OF THE ALGODONES DUNES - PREPARED FOR BLM. 1977-08-XX
WIE35S0023	WIEGAND, K. & M. WIEGAND - WIEGAND #2578 GH #427282 1935-XX-XX
WIL05U0001	WILLOUGHBY, J. - EMAIL TO R. BITTMAN REGARDING DATA ON ALGODONES DUNES PLANTS 2005-11-30
WIL64S0002	WILSON, K. - WILSON #1327 SFV #4068 1964-04-11
WOL31S0036	WOLF, C. - WOLF #1888 RSA #2149 1931-03-14
WOLNDS0001	WOLF - WOLF #1888 HERBARIUM UNKNOWN XXXX-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 92503
EO Index: 93647
Key Quad: Ogilby (3211477)
Element Code: PDAST6T012
Occurrence Number: 56
Occurrence Last Updated: 2014-05-28

Scientific Name: *Palafoxia arida var. gigantea*
Common Name: giant spanish-needle

Listing Status: **Federal:** None
State: None
Rare Plant Rank: 1B.3
Other Lists: BLM_S-Sensitive
SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

CNDDB Element Ranks: **Global:** G5T3?
State: S2

General Habitat:
DESERT DUNES.

Micro Habitat:
ACTIVE AND STABLE DUNE AREAS; ASSOCIATED WITH AMMOBROMA SONORAE, ASTRAGALUS LENTIGINOSUS BORREGANUS, ETC. 20-95 M.

Last Date Observed: 2002-03-02
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2002-03-02
Occurrence Rank: Unknown
Owner/Manager: UNKNOWN
Trend: Unknown
Presence: Presumed Extant

Location:
IMPERIAL DUNES RECREATION AREA (ALGODONES DUNES), 0.5 MILE WSW OF OGILBY, WEST OF COUNTY ROAD S34.

Detailed Location:
MAPPED ACCORDING TO COORDINATES PROVIDED ON A 2002 PORTER ET AL. COLLECTION; DATUM UNKNOWN; MAPPED TO ENCOMPASS NAD27 AND NAD83.

Ecological:
SHALLOW DUNES AND SANDY SOILS OF BRAIDED WASH.

Threats:

General:
ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 2002 PORTER ET AL. COLLECTION.

PLSS: T15S, R20E, Sec. 34, E (S)
Accuracy: 80 meters
Area (acres): 0
UTM: Zone-11 N3632803 E701564
Latitude/Longitude: 32.81475 / -114.84698
Elevation (feet): 310

County Summary:
Imperial

Quad Summary:
Ogilby (3211477)

Sources:
POR02S0002 PORTER, J. ET AL. - PORTER #13401 RSA #767464, ARIZ #412699 2002-03-02

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 35287
EO Index: 5532
Key Quad: Ogilby (3211477)
Element Code: PDEUP080L0
Occurrence Number: 1
Occurrence Last Updated: 1996-08-27

Scientific Name: *Ditaxis claryana*
Common Name: glandular ditaxis

Listing Status: **Federal:** None
State: None
Rare Plant Rank: 2B.2
Other Lists:

CNDDB Element Ranks: **Global:** G3G4
State: S2

General Habitat:
MOJAVEAN DESERT SCRUB, SONORAN DESERT SCRUB.

Micro Habitat:
IN DRY WASHES AND ON ROCKY HILLSIDES. SANDY SOILS. 15-505 M.

Last Date Observed: 1978-03-15
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1978-03-15
Occurrence Rank: Unknown
Owner/Manager: UNKNOWN
Trend: Unknown
Presence: Presumed Extant

Location:
ABOUT 1.5 MILES NORTHEAST OF OGILBY, SOUTHWEST OF THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:
OBSERVED AT T15S R20E SECTIONS 24 AND 25.

Ecological:
GROWING IN LOWER FAN OF DRY WASH ON GRAVELLY/SANDY SOILS WITHIN CREOSOTE SCRUB.

Threats:

General:
50-100 PLANTS OBSERVED OVER LESS THAN 100 ACRES IN 1978.

PLSS: T15S, R20E, Sec. 24 (S)
Accuracy: 1 mile
Area (acres): 0
UTM: Zone-11 N3635326 E704098
Latitude/Longitude: 32.83702 / -114.81938
Elevation (feet): 550

County Summary:
Imperial

Quad Summary:
Ogilby (3211477)

Sources:
SEA78F0003 SEARS, W. - FIELD SURVEY FORM FOR DITAXIS CLARYANA 1978-03-15

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	76081	**EO Index:**	77074
Key Quad:	Ogilby (3211477)	**Element Code:**	PDEUP0H140
Occurrence Number:	38	**Occurrence Last Updated:**	2014-09-17

Scientific Name: *Croton wigginsii*

Common Name: Wiggins' croton

Listing Status: **Federal:** None

State: Rare

CNDDB Element Ranks: **Global:** G2G3

State: S2

Rare Plant Rank: 2B.2

Other Lists: BLM_S-Sensitive
SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

General Habitat:

DESERT DUNES, SONORAN DESERT SCRUB.

Micro Habitat:

ON SAND DUNES AND IN SANDY ARROYOS. 0-155 M.

Last Date Observed:	2002-07-15	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2002-07-15	**Occurrence Rank:**	Unknown
Owner/Manager:	BLM	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

SE END OF THE ALGODONES DUNES; NEAR THE JUNCTION OF INTERSTATE 8 AND BLYTHE OGILBY ROAD.

Detailed Location:

MAPPED BY CNDDB AS BEST GUESS AROUND SECTION 23 ACCORDING TO TRS INFORMATION ON A 1978 SEARS FIELD SURVEY FORM.

Ecological:

SPARSE DESERT SCRUB ON LOOSE SAND. ASSOCIATES INCLUDE AMMOBROMA SONORAE, PETALONYX THURBERI, TIQUILIA PLICATA, PALAFOXIA ARIDA GIGANTEA, OENOTHERA.

Threats:

General:

SITE BASED ON A VAGUE 1978 SEARS SURVEY FORM. COLLECTIONS FROM "DIRT TRACK HEADING E 3.3 MI FROM GRAYS WELL RD EXIT OFF I-8", "4.1 MI S OF OGILBY AT OGILBY RD, EXIT I-10", AND "OGILBY RD, E SIDE ALGODONES DUNES, S OF I-8" ATTRIBUTED HERE.

PLSS:	T16S, R20E, Sec. 23 (S)	**Accuracy:**	non-specific area	**Area (acres):**	649
UTM:	Zone-11 N3626368 E702733	**Latitude/Longitude:**	32.75652 / -114.83591	**Elevation (feet):**	200

County Summary:	**Quad Summary:**
Imperial	Grays Well NE (3211467), Ogilby (3211477)

Sources:

DAV79S0009	DAVIDSON, C. - DAVIDSON #7794 RSA #480697 1979-04-28
SEA78F0001	SEARS, W. - FIELD SURVEY FORM FOR CROTON WIGGINSII 1978-03-15
SEA78S0010	SEARS - SEARS #765 SEINET #3107109, FLD #4500 1978-XX-XX
VAN02S0001	VAN DEVENDER, T. ET AL. - VAN DEVENDER #2002-473 SEINET #281192 & #286839, USON #12101 2002-07-15

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 28142
EO Index: 17711
Key Quad: Ogilby (3211477)
Element Code: PDFAB0F491
Occurrence Number: 1
Occurrence Last Updated: 2011-10-18

Scientific Name: *Astragalus insularis var. harwoodii*
Common Name: Harwood's milk-vetch

Listing Status: **Federal:** None
State: None
Rare Plant Rank: 2B.2
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

CNDDB Element Ranks: **Global:** G5T4
State: S2

General Habitat:

DESERT DUNES, MOJAVEAN DESERT SCRUB.

Micro Habitat:

OPEN SANDY FLATS AND SANDY OR STONY DESERT WASHES; MOSTLY IN CREOSOTE BUSH SCRUB. -45-700 M.

Last Date Observed: 2008-03-20
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2008-03-20
Occurrence Rank: Unknown
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

VICINITY OF THE INTERSECTION OF OLD HIGHWAY 80 (NOW I-8) AND OGILBY ROAD (HWY S34), SE END OF PILOT KNOB MESA.

Detailed Location:

MAPPED BY CNDDB AS A NON-SPECIFIC POLYGON ALONG OLIGBY RD (HWY S34) TO ENCOMPASS 3 COLLECTIONS FROM "0.5 MI N OF INTERSECTION", "100 M N OF JUNCTION, W SIDE OF ROAD" AND "SE OF INTERSECTION, 30 M E OF OGILBY ROAD".

Ecological:

SPARSE CREOSOTE BUSH SCRUB WITH ASCLEPIAS SP, STEPHANOMERIA SP, AMBROSIA DUMOSA, AND ABRONIA VILLOSA. IN SUN ON DRY, SANDY FLATS.

Threats:

General:

SITE BASED ON MULTIPLE COLLECTIONS FROM THIS AREA; LAST COLLECTED BY GUILLIAMS & MARSHALL IN 2008. NEED MAP DETAIL FOR THIS SITE.

PLSS: T16S, R20E, Sec. 14, S (S)
Accuracy: non-specific area
Area (acres): 69
UTM: Zone-11 N3627208 E702645
Latitude/Longitude: 32.76411 / -114.83667
Elevation (feet): 240

County Summary:

Imperial

Quad Summary:

Ogilby (3211477)

Sources:

ARM83S0003	ARMSTRONG, W. - ARMSTRONG SN SD #115067 1983-05-10
ATW70S0001	ATWOOD, N. - ATWOOD #2335 NY #1258227 1970-04-02
BAL58S0002	BALLS, E. & P. EVERETT - BALLS #22890 UC #1080347, RSA #124371 1958-03-20
GUI08S0004	GUILLIAMS, C. & J. MARSHALL - GUILLIAMS #631 SDSU #18741 2008-04-23
MCL85S0002	MCLAUGHLIN, S. & J. BOWERS - MCLAUGHLIN #2946 ARIZ #257606 1985-03-10
MCL87A0001	MCLAUGHLIN, S. ET AL. - VASCULAR PLANTS OF EASTERN IMPERIAL COUNTY, CA. MADRONO VOL. 34, NO. 4, PP. 359-378, 1987. 1987-XX-XX
THO64S0038	THORNE, R. & R. RUTHERFORD - THORNE #33564 RSA #754257 & #800188 1964-04-10

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 77752
EO Index: 78652
Key Quad: Grays Well NE (3211467)
Element Code: PDFAB0F491
Occurrence Number: 43
Occurrence Last Updated: 2009-12-29

Scientific Name: *Astragalus insularis var. harwoodii*
Common Name: Harwood's milk-vetch

Listing Status: **Federal:** None
State: None
Rare Plant Rank: 2B.2
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

CNDDB Element Ranks: **Global:** G5T4
State: S2

General Habitat:
DESERT DUNES, MOJAVEAN DESERT SCRUB.

Micro Habitat:
OPEN SANDY FLATS AND SANDY OR STONY DESERT WASHES; MOSTLY IN CREOSOTE BUSH SCRUB. -45-700 M.

Last Date Observed: 1985-03-10
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1985-03-10
Occurrence Rank: Unknown
Owner/Manager: UNKNOWN
Trend: Unknown
Presence: Presumed Extant

Location:
I-8 AT JUNCTION WITH SIDEWINDER RD, SE END OF PILOT KNOB MESA.

Detailed Location:
MAPPED BY CNDDB AS BEST GUESS AT THE JUNCTION OF I-8 AND SIDEWINDER RD.

Ecological:
SANDY SOIL WITH LARREA AND CROTON CALIFORNICUS.

Threats:

General:
ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1985 MCLAUGHLIN & BOWERS COLLECTION, MENTIONED AS "UNCOMMON" IN 1985.

PLSS: T16S, R21E, Sec. 21 (S)
Accuracy: 3/5 mile
Area (acres): 0
UTM: Zone-11 N3625454 E710370
Latitude/Longitude: 32.74686 / -114.75465
Elevation (feet): 250

County Summary:
Imperial

Quad Summary:
Yuma West (3211466), Grays Well NE (3211467), Araz (3211476), Ogilby (3211477)

Sources:

MCL85S0001 MCLAUGHLIN, S. & J. BOWERS - MCLAUGHLIN #2942 ARIZ #257607 1985-03-10

MCL87A0001 MCLAUGHLIN, S. ET AL. - VASCULAR PLANTS OF EASTERN IMPERIAL COUNTY, CA. MADRONO VOL. 34, NO. 4, PP. 359-378, 1987. 1987-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	36276	**EO Index:**	31273
Key Quad:	Ogilby (3211477)	**Element Code:**	PDFAB0N040
Occurrence Number:	1	**Occurrence Last Updated:**	2014-08-25

Scientific Name: *Calliandra eriophylla*

Common Name: pink fairy-duster

Listing Status: **Federal:** None

State: None

Rare Plant Rank: 2B.3

Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

CNDDB Element Ranks: **Global:** G5

State: S3

General Habitat:

SONORAN DESERT SCRUB.

Micro Habitat:

SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed:	1990-XX-XX	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1990-XX-XX	**Occurrence Rank:**	Unknown
Owner/Manager:	BLM?	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

VICINITY OF AMERICAN GIRL MINE, CARGO MUCHACHO MOUNTAINS, EAST OF OGILBY.

Detailed Location:

E POLYGON: EXACT LOCATION OF POPULATION(S) NOT PROVIDED; PROJECT SITES ARE WITHIN LARGE PORTIONS OF T15S R21E SECTIONS 17, 18, 19 AND THE SW 1/4 OF SEC 20. W POLYGON: EXACT LOCATION UNKNOWN; MAPPED BASED ON TRS FROM 1978 SEARS COLLECTION.

Ecological:

GROWING IN SHALLOW, STABLE HEAD WASHES AT THE BASE OF THE MOUNTAINS AND ON THE SHALLOW FAN WASHES OUT ON THE ALLUVIAL FANS WHERE THE WASHES BRANCH OUT AND FLOOD WATERS LOSE VELOCITY. DESERT PAVEMENT & WASHES; SANDY SOIL; WITH LARREA.

Threats:

MINING ACTIVITY. PLANTS REPORTEDLY RECOLONIZE DISTURBED AREAS.

General:

W POLYGON IS BASED ON A 1978 SEARS COLLECTION FROM "1 MI N OF OGILBY, 2 MI DOWN DESERT RAT TRAILER PARK RD" WITH GIVEN TRS "T15S R20E S24 & S25" AND GIVEN ELEVATION OF 500 TO 650 FT. E POLYGON OBSERVED IN 1990. NEEDS FIELDWORK.

PLSS:	T15S, R21E, Sec. 17 (S)	**Accuracy:**	non-specific area	**Area (acres):**	3,278
UTM:	Zone-11 N3636835 E706926	**Latitude/Longitude:**	32.85010 / -114.78884	**Elevation (feet):**	1,000

County Summary:	**Quad Summary:**
Imperial	Ogilby (3211477)

Sources:

NEW91U0001	NEWTON, G. - PORTION OF ENVIRONMENTAL DOCUMENT FOR AMERICAN GIRL CANYON PROJECT AND MESQUITE PROJECT. 1991-03-06
SEA78S0009	SEARS - SEARS #776 SEINET #3107285, FLD #4678 1978-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 36283
EO Index: 31280
Key Quad: Ogilby (3211477)
Element Code: PDFAB0N040
Occurrence Number: 2
Occurrence Last Updated: 1997-07-30

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None
Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden
CNDDB Element Ranks: **Global:** G5
State: S3

General Habitat:
SONORAN DESERT SCRUB.

Micro Habitat:
SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 1979-04-29
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1979-04-29
Occurrence Rank: Unknown
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:
ALONG RAILROAD ACCESS ROAD 2.2 MILES SOUTHEAST OF CACTUS, PILOT KNOB MESA.

Detailed Location:
NEAR RAILROAD BRIDGE 714-12.

Ecological:
ROCKY WASH CHANNEL. CREOSOTE BUSH SCRUB WITH BEBBIA, OLNEYA, AND CERCIDIUM.

Threats:

General:
ONLY SOURCE OF INFORMATION FOR THIS SITE IS 1979 COLLECTION BY DAVIDSON ET AL.

PLSS: T15S, R20E, Sec. 21 (S)
Accuracy: non-specific area
Area (acres): 85
UTM: Zone-11 N3635628 E699398
Latitude/Longitude: 32.84061 / -114.86950
Elevation (feet): 390

County Summary:
Imperial

Quad Summary:
Ogilby (3211477), Cactus (3211478)

Sources:
DAV79S0001 DAVIDSON, C. ET AL. - DAVIDSON #7803 HSC #66468, POM #347335 1979-04-29

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 36278
EO Index: 31275
Key Quad: Ogilby (3211477)
Element Code: PDFAB0N040
Occurrence Number: 3
Occurrence Last Updated: 2014-08-25

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None
Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

CNDDB Element Ranks: **Global:** G5
State: S3

General Habitat:

SONORAN DESERT SCRUB.

Micro Habitat:

SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 1958-03-20
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2013-03-10
Occurrence Rank: Unknown
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

3.5 MILES NORTH OF OGILBY ON ROAD TO BLYTHE.

Detailed Location:

EXACT LOCATION UNKNOWN. MAPPED AS BEST GUESS BASED ON 1958 BALLS COLLECTION WITH GIVEN ELEV OF 499 FT. A 1937 WIGGINS COLLECTION FROM "3.5 MI N OF OGILBY ON ROAD TO PALO VERDE, ELEV 440 FT" IS ATTRIBUTED HERE; ELEV DOES NOT MATCH LOCALITY.

Ecological:

GRAVELLY SLOPES AND RUNNEL-INTERFLUVE SYSTEM. PONDEROSA PINE COMMUNITY IN CLAY SOIL, SOUTH ASPECT.

Threats:

General:

MAIN SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1958 BALLS COLLECTION. A 1940 WOGLUM COLLECTION FROM "4 MILES NORTH OF OGILBY" IS ALSO ATTRIBUTED TO THIS SITE. BELL SURVEYED THIS AREA IN 2013, BUT NO PLANTS WERE FOUND.

PLSS: T15S, R20E, Sec. 11, SW (S)
Accuracy: non-specific area
Area (acres): 31
UTM: Zone-11 N3638658 E702214
Latitude/Longitude: 32.86740 / -114.83877
Elevation (feet): 499

County Summary:

Imperial

Quad Summary:

Ogilby (3211477)

Sources:

BAL58S0015	BALLS, E. & P. EVERETT - BALLS #22923 SD #48547, RSA #124333 1958-03-20
BEL13U0002	BELL, D. - OBSERVATIONS OF RARE PLANT TAXA FROM DESERT CNPS RARE PLANT TREASURE HUNT SURVEYS, SPRING 2013 2013-03-XX
WIG37S0002	WIGGINS, I. - WIGGINS #8557 POM #265282, DS #278459, SEINET #902098, ARIZ #137709 1937-02-17
WOG40S0014	WOGLUM, R. - WOGLUM #2460 RSA #28737 & 630291, SEINET #2011354, SJNM 1940-03-10

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 36282
EO Index: 31279
Key Quad: Hedges (3211487)
Element Code: PDFAB0N040
Occurrence Number: 5
Occurrence Last Updated: 2010-07-09

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None
Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

CNDDB Element Ranks: **Global:** G5
State: S3

General Habitat:

SONORAN DESERT SCRUB.

Micro Habitat:

SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 1987-01-10
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1987-01-10
Occurrence Rank: Unknown
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

IN WASHES ALONG THE HYDUKE MINE ROAD NORTH OF THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:

ALONG ROAD ON THE SOUTH SIDE OF INDIAN WASH. MAPPED AS LARGE AREA EXTENDING FROM T14S R20E S 1/2 SEC 13 AT THE W END TO T14S R21E N 1/2 SEC 10 (PROJECTED) AT THE E END. APPARENTLY RESTRICTED TO "BLUE DOTTED LINE" WASHES ON MAP PROVIDED.

Ecological:

LOW TOTAL COVER (<5%) IN SMALL WASHES WITH LARREA TRIDENTATA, FOQUIERIA SPLENDENS, FRANSERIA DUMOSA, ACACIA GREGGII, AND KRAMERIA PARVIFLORA. LARGER WASHES SUPPORT OLNEYA TESOTA-CERCIDIUM FLORIDUM WOODLAND.

Threats:

General:

FEWER THAN 5 PLANTS PER ACRE OBSERVED BY HOLLAND AND DAINS IN 1987.

PLSS: T14S, R21E, Sec. 17 (S)
Accuracy: non-specific area
Area (acres): 757
UTM: Zone-11 N3647996 E706948
Latitude/Longitude: 32.95070 / -114.78611
Elevation (feet): 720

County Summary:

Imperial

Quad Summary:

Picacho Peak (3211486), Hedges (3211487)

Sources:

HOL87F0070 HOLLAND, R. & V. DAINS - FIELD SURVEY FORM FOR CALLIANDRA ERIOPHYLLA 1987-01-10

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 36284
EO Index: 31281
Key Quad: Hedges (3211487)
Element Code: PDFAB0N040
Occurrence Number: 6
Occurrence Last Updated: 2008-09-05

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None
Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

CNDDB Element Ranks: **Global:** G5
State: S3

General Habitat:
SONORAN DESERT SCRUB.

Micro Habitat:
SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 1932-04-05
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1932-04-05
Occurrence Rank: Unknown
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:
NEAR TUMCO IN THE CARGO MUCHACHO MOUNTAINS.

Detailed Location:
EXACT LOCATION UNKNOWN. MAPPED BY CNDDB AS A BEST GUESS IN THE VICINITY OF THE TUMCO MINE NEAR THE HEAD OF TUMCO WASH.

Ecological:
IN SMALL GULLIES.

Threats:

General:
SITE KNOWN FROM A 1932 COLLECTION BY MUNZ & HITCHCOCK. NEEDS FIELDWORK.

PLSS: T15S, R20E, Sec. 12 (S)
Accuracy: 3/5 mile
Area (acres): 0
UTM: Zone-11 N3640164 E704289
Latitude/Longitude: 32.88060 / -114.81628
Elevation (feet):

County Summary:
Imperial

Quad Summary:
Ogilby (3211477), Hedges (3211487)

Sources:
MUN32S0020 MUNZ, P. & C. HITCHCOCK - MUNZ #12134 POM #184095, DS #221047 & #690509 1932-04-05

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 62018
EO Index: 62054
Key Quad: Hedges (3211487)
Element Code: PDFAB0N040
Occurrence Number: 13
Occurrence Last Updated: 2005-07-19

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None
Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

CNDDB Element Ranks: **Global:** G5
State: S3

General Habitat:
SONORAN DESERT SCRUB.

Micro Habitat:
SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 1991-04-10
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1991-04-10
Occurrence Rank: Unknown
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:
IN AND ADJACENT TO INDIAN WASH; 6 MILES NORTH OF CARGO MUCHACHO MOUNTAINS, AND 7 TO 8 MILES NORTH OF HEDGES.

Detailed Location:
AROUND 800 FOOT ELEVATION.

Ecological:
DESERT PAVEMENT/DESERT WASH. FOUND WITH FOUQUIERIA SPLENDENS, LARREA TRIDENTATA, AMBROSIA DUMOSA, OLNEYA TESOTA, ENCELIA FARINOSA, ET AL.

Threats:

General:
1991 LARUE COLLECTION IS THE ONLY SOURCE FOR THIS SITE. NEEDS FIELDWORK.

PLSS: T14S, R21E, Sec. 05 (S)
Accuracy: 1 mile
Area (acres): 0
UTM: Zone-11 N3651157 E707383
Latitude/Longitude: 32.97910 / -114.78074
Elevation (feet): 800

County Summary:
Imperial

Quad Summary:
Hedges (3211487)

Sources:
LAR91S0001 LARUE, E. - LARUE #91-32 UCR #67337, RSA #528113, CAS #850219, SEINET #902096, ARIZ #294039 1991-04-10

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 62020
EO Index: 62056
Key Quad: Hedges (3211487)
Element Code: PDFAB0N040
Occurrence Number: 14
Occurrence Last Updated: 2005-07-19

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None
Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

CNDDB Element Ranks: **Global:** G5
State: S3

General Habitat:
SONORAN DESERT SCRUB.

Micro Habitat:
SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 2001-03-26
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2001-03-26
Occurrence Rank: Fair
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:
1.4 AIR MILES NNW OF GOLD ROCK RANCH.

Detailed Location:
IN THE NW 1/4 OF THE SW 1/4 OF SECTION 34.

Ecological:
STRINGER WASH, FOUND WITH OCOTILLO, CREOSOTE BUSH, AND WHITE BURSAGE.

Threats:
THREATENED BY NORTH BAJA PIPELINE PROJECT, LITTER, AND ORV USE.

General:
10 PLANTS SEEN IN 2001.

PLSS: T14S, R20E, Sec. 34, SW (S)
Accuracy: 80 meters
Area (acres): 0
UTM: Zone-11 N3642412 E699726
Latitude/Longitude: 32.90170 / -114.86453
Elevation (feet): 545

County Summary:
Imperial

Quad Summary:
Hedges (3211487)

Sources:
AND01F0024 ANDERSON, B. & J. SCHEFFEL - FIELD SURVEY FORM FOR CALLIANDRA ERIOPHYLLA 2001-03-26

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 62021
Key Quad: Hedges (3211487)
Occurrence Number: 15
EO Index: 62057
Element Code: PDFAB0N040
Occurrence Last Updated: 2005-07-19

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G5
State: S3
Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

General Habitat:
SONORAN DESERT SCRUB.

Micro Habitat:
SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 2001-03-26
Last Survey Date: 2001-03-26
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Good
Trend: Unknown

Location:
ABOUT 0.7 AIR MILE NNE OF GOLD ROCK RANCH, NORTHWEST OF HEDGES.

Detailed Location:

Ecological:
FOUND WITH OCOTILLO, CREOSOTE BUSH, CHOLLA, WHITE BURSAGE, IRONWOOD, CAT CLAW, AND BOX THORN.

Threats:
THREATENED BY NORTH BAJA PIPELINE PROJECT.

General:
84 PLANTS TOTAL (FOR 8 SMALL COLONIES) OBSERVED IN 2001.

PLSS: T15S, R20E, Sec. 03, NW (S)
UTM: Zone-11 N3641423 E700606
Accuracy: specific area
Latitude/Longitude: 32.89262 / -114.85533
Area (acres): 39
Elevation (feet): 540

County Summary:
Imperial

Quad Summary:
Hedges (3211487)

Sources:
AND01F0024 ANDERSON, B. & J. SCHEFFEL - FIELD SURVEY FORM FOR CALLIANDRA ERIOPHYLLA 2001-03-26

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	62023	**EO Index:**	62059
Key Quad:	Hedges (3211487)	**Element Code:**	PDFAB0N040
Occurrence Number:	16	**Occurrence Last Updated:**	2014-08-22

Scientific Name: *Calliandra eriophylla*

Common Name: pink fairy-duster

Listing Status: **Federal:** None

State: None

Rare Plant Rank: 2B.3

Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

CNDDB Element Ranks: **Global:** G5

State: S3

General Habitat:

SONORAN DESERT SCRUB.

Micro Habitat:

SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed:	2013-03-10	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2013-03-10	**Occurrence Rank:**	Good
Owner/Manager:	BLM	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

0.7 AIR MILE NORTHWEST OF HEDGES, 0.2 TO 0.6 MILE NORTH OF TUMCO WASH. NW SLOPES OF CARGO MUCHACHO MOUNTAINS.

Detailed Location:

IN THE SE 1/4 OF SECTION 3 AND THE SW 1/4 OF SECTION 2. 1958 BACIGALUPI COLLECTION FROM 4.8 MI N OF OGILBY, ON NW SLOPES OF CARGO MUCHACHO MTNS AND 1941 ALEXANDER & KELLOGG COLLECITON FROM 5 MI N OF OGILBY ALSO ATTRIBUTED TO THIS SITE.

Ecological:

OPEN ROCKY AREAS WITH SMALL DRAINAGES AND MICROPHYLL WOODLAND. FOUND WITH CREOSOTE BUSH, CHOLLA, WHITE BURSAGE, OCOTILLO, IRONWOOD, GALLETA, LUPINE, AND WHITE RATANY.

Threats:

THREATENED BY NORTH BAJA PIPELINE PROJECT. LITTER, DUMPING, AND ORV USE MAY ALSO THREATEN.

General:

91 PLANTS TOTAL OBSERVED IN 2001. GREATER THAN 30 PLANTS OBSERVED IN THE SE CORNER OF POLYGON IN 2013.

PLSS:	T15S, R20E, Sec. 02, SW (S)	**Accuracy:**	specific area	**Area (acres):**	72
UTM:	Zone-11 N3640268 E701986	**Latitude/Longitude:**	32.88196 / -114.84084	**Elevation (feet):**	560

County Summary:	**Quad Summary:**
Imperial	Hedges (3211487)

Sources:

ALE41S0025	ALEXANDER, A. & L. KELLOGG - ALEXANDER #1894 POM #211622, A #366147, DS #333554, SEINET #902097, ARIZ #34444 1941-03-04
AND01F0024	ANDERSON, B. & J. SCHEFFEL - FIELD SURVEY FORM FOR CALLIANDRA ERIOPHYLLA 2001-03-26
AND13S0001	ANDRE, J. - ANDRE #24103 RSA #806146 2013-03-04
BAC58S0014	BACIGALUPI, R. & P. HUTCHINSON - BACIGALUPI #6123 JEPS #22127 1958-02-17
BEL13U0002	BELL, D. - OBSERVATIONS OF RARE PLANT TAXA FROM DESERT CNPS RARE PLANT TREASURE HUNT SURVEYS, SPRING 2013 2013-03-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 62024
Key Quad: Hedges (3211487)
Occurrence Number: 17

EO Index: 62060
Element Code: PDFAB0N040
Occurrence Last Updated: 2005-07-19

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None

CNDDB Element Ranks: **Global:** G5
State: S3

Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

General Habitat:
SONORAN DESERT SCRUB.

Micro Habitat:
SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 2001-03-26
Last Survey Date: 2001-03-26
Owner/Manager: BLM
Presence: Presumed Extant

Occurrence Type: Natural/Native occurrence
Occurrence Rank: Fair
Trend: Unknown

Location:
1.3 MILES NORTHWEST OF HEDGES.

Detailed Location:
SOUTH EDGE OF SW 1/4 OF SW 1/4 OF SECTION 35.

Ecological:
FOUND WITH WHITE BURSAGE, OCOTILLO, AND CREOSOTE BUSH.

Threats:
THREATENED BY NORTH BAJA PIPELINE PROJECT. LITTER AND ORV USE MAY ALSO THREATEN.

General:
2 PLANTS SEEN IN 2001.

PLSS: T14S, R20E, Sec. 35, SW (S)
UTM: Zone-11 N3641836 E701852

Accuracy: 80 meters
Latitude/Longitude: 32.89612 / -114.84194

Area (acres): 0
Elevation (feet): 605

County Summary:
Imperial

Quad Summary:
Hedges (3211487)

Sources:
AND01F0024 ANDERSON, B. & J. SCHEFFEL - FIELD SURVEY FORM FOR CALLIANDRA ERIOPHYLLA 2001-03-26

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 62025
Key Quad: Hedges (3211487)
Occurrence Number: 18
EO Index: 62061
Element Code: PDFAB0N040
Occurrence Last Updated: 2008-09-05

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G5
State: S3
Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

General Habitat:
SONORAN DESERT SCRUB.

Micro Habitat:
SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 2001-03-26
Last Survey Date: 2001-03-26
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Fair
Trend: Unknown

Location:
1.8 AIR MILES NORTHEAST OF GOLD ROCK RANCH, NORTHWEST OF HEDGES.

Detailed Location:
NE 1/4 OF NW 1/4 OF SW 1/4 OF SECTION 35.

Ecological:
FOUND WITH CREOSOTE BUSH, WHITE BURSAGE, PALO VERDE, IRONWOOD.

Threats:
THREATENED BY NORTH BAJA PIPELINE PROJECT. LITTER AND ORV USE MAY ALSO THREATEN.

General:
5 PLANTS SEEN IN 2001. A 1932 PERISON COLLECTION FROM "6 MILES NORTH OF OGILBY" IS ALSO ATTRIBUTED TO THIS SITE.

PLSS: T14S, R20E, Sec. 35, SW (S)
UTM: Zone-11 N3642614 E701643
Accuracy: 80 meters
Latitude/Longitude: 32.90317 / -114.84399
Area (acres): 0
Elevation (feet): 615

County Summary:	Quad Summary:
Imperial	Hedges (3211487)

Sources:

AND01F0024	ANDERSON, B. & J. SCHEFFEL - FIELD SURVEY FORM FOR CALLIANDRA ERIOPHYLLA 2001-03-26
PEI32S0009	PEIRSON, F. - PEIRSON #9788 RSA #86977, DS #690508 1932-03-21

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 62028
Key Quad: Hedges (3211487)
Occurrence Number: 19
EO Index: 62064
Element Code: PDFAB0N040
Occurrence Last Updated: 2005-07-20

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G5
State: S3
Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

General Habitat:
SONORAN DESERT SCRUB.

Micro Habitat:
SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 2001-03-26
Last Survey Date: 2001-03-26
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Good
Trend: Unknown

Location:
SOUTH OF INDIAN WASH; ON WEST SIDE OF TRANSMISSION LINE, ABOUT 2.2 TO 3.3 AIR MILES NNW OF HEDGES.

Detailed Location:
EAST EDGE OF SECTION 27, THE SW 1/4 OF SW 1/4 OF SECTION 26, AND NW 1/4 OF NW 1/4 OF SECTION 35.

Ecological:
FOUND WITH CREOSOTE BUSH, OCOTILLO, WHITE BURSAGE, CHOLLA, PALO VERDE, IRONWOOD, AFRICAN MUSTARD, ENCELIA, WHITE RATANY, MEDITERRANEAN GRASS, AND BOX THORN.

Threats:
THREATENED BY NORTH BAJA PIPELINE PROJECT. LITTER AND ORV USE MAY ALSO THREATEN.

General:
56 PLANTS TOTAL (FOR 11 COLONIES) OBSERVED IN 2001.

PLSS: T14S, R20E, Sec. 27, E (S)
Accuracy: specific area
Area (acres): 75
UTM: Zone-11 N3644485 E701088
Latitude/Longitude: 32.92013 / -114.84952
Elevation (feet):

County Summary:	Quad Summary:
Imperial	Hedges (3211487)

Sources:
AND01F0024 ANDERSON, B. & J. SCHEFFEL - FIELD SURVEY FORM FOR CALLIANDRA ERIOPHYLLA 2001-03-26

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 62030
Key Quad: Hedges (3211487)
Occurrence Number: 20
EO Index: 62066
Element Code: PDFAB0N040
Occurrence Last Updated: 2005-07-20

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G5
State: S3
Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

General Habitat:
SONORAN DESERT SCRUB.

Micro Habitat:
SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 2001-03-26
Last Survey Date: 2001-03-26
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Fair
Trend: Unknown

Location:
NORTH OF INDIAN WASH; ON WEST SIDE OF TRANSMISSION LINE, 5.4 AIR MILES NNW OF HEDGES.

Detailed Location:
IN THE SE 1/4 OF THE SW 1/4 OF SECTION 10.

Ecological:
FOUND WITH WHITE BURSAGE, CREOSOTE BUSH, OCOTILLO, AND ENCELIA.

Threats:
THREATENED BY NORTH BAJA PIPELINE PROJECT. LITTER AND ORV USE MAY ALSO THREATEN.

General:
5 PLANTS OBSERVED IN 2001.

PLSS: T14S, R20E, Sec. 10, SW (S)
UTM: Zone-11 N3648284 E700188
Accuracy: 80 meters
Latitude/Longitude: 32.95455 / -114.85831
Area (acres): 0
Elevation (feet): 650

County Summary:	Quad Summary:
Imperial	Hedges (3211487)

Sources:
AND01F0024 ANDERSON, B. & J. SCHEFFEL - FIELD SURVEY FORM FOR CALLIANDRA ERIOPHYLLA 2001-03-26

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 62032
Key Quad: Hedges (3211487)
Occurrence Number: 21
EO Index: 62068
Element Code: PDFAB0N040
Occurrence Last Updated: 2005-07-20

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G5
State: S3
Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

General Habitat:
SONORAN DESERT SCRUB.

Micro Habitat:
SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 2001-03-26
Last Survey Date: 2001-03-26
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Excellent
Trend: Unknown

Location:
6.3 AIR MILES SW OF INDIAN PASS; ABOUT 2 AIR MILES NW OF INDIAN WASH, NW OF HEDGES.

Detailed Location:
NW 1/4 OF SECTION 10, AND INTO SW 1/4 OF SW 1/4 OF SECTION 3.

Ecological:
FOUND WITH WHITE BURSAGE, IRONWOOD, GALLETA, BOX THORN, WHITE RATANY, AFRICAN MUSTARD, CREOSOTE BUSH, OCOTILLO, MEDITERRANEAN GRASS, AND ENCELIA.

Threats:
THREATENED BY NORTH BAJA PIPELINE PROJECT. LITTER AND ORV USE MAY ALSO THREATEN.

General:
304 PLANTS TOTAL (FOR 6 COLONIES) OBSERVED IN 2001.

PLSS: T14S, R20E, Sec. 10, NW (S)
Accuracy: specific area
Area (acres): 40
UTM: Zone-11 N3649280 E699895
Latitude/Longitude: 32.96358 / -114.86123
Elevation (feet): 690

County Summary:
Imperial

Quad Summary:
Hedges (3211487)

Sources:
AND01F0024 ANDERSON, B. & J. SCHEFFEL - FIELD SURVEY FORM FOR CALLIANDRA ERIOPHYLLA 2001-03-26

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 62091
EO Index: 62127
Key Quad: Hedges (3211487)
Element Code: PDFAB0N040
Occurrence Number: 30
Occurrence Last Updated: 2005-07-22

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None
Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

CNDDB Element Ranks: **Global:** G5
State: S3

General Habitat:
SONORAN DESERT SCRUB.

Micro Habitat:
SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 2001-03-26
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2001-03-26
Occurrence Rank: Fair
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:
ALONG WEST SIDE OF TRANSMISSION LINE, 3.1 MILES NORTHWEST OF INDIAN WASH.

Detailed Location:
IN THE SE 1/4 OF THE NE 1/4 OF SECTION 4, AND INTO SW 1/4 OF THE NW 1/4 OF SECTION 3.

Ecological:
STRINGER WASH FOUND WITH IRONWOOD, CREOSOTE BUSH, ENCELIA, AND WHITE BURSAGE.

Threats:
THREATENED BY NORTH BAJA PIPELINE PROJECT. LITTER AND ORV USE MAY ALSO BE THREATS.

General:
15 PLANTS OBSERVED IN 2001.

PLSS: T14S, R20E, Sec. 04, NE (S)
Accuracy: specific area
Area (acres): 8
UTM: Zone-11 N3650791 E699529
Latitude/Longitude: 32.97726 / -114.86482
Elevation (feet): 710

County Summary:	Quad Summary:
Imperial	Hedges (3211487)

Sources:
AND01F0024 ANDERSON, B. & J. SCHEFFEL - FIELD SURVEY FORM FOR CALLIANDRA ERIOPHYLLA 2001-03-26

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 62098
EO Index: 62134
Key Quad: Ogilby (3211477)
Element Code: PDFAB0N040
Occurrence Number: 31
Occurrence Last Updated: 2014-08-25

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None
Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

CNDDB Element Ranks: **Global:** G5
State: S3

General Habitat:
SONORAN DESERT SCRUB.

Micro Habitat:
SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 1978-04-30
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2013-03-10
Occurrence Rank: Unknown
Owner/Manager: UNKNOWN
Trend: Unknown
Presence: Presumed Extant

Location:
IN WASH ON ROAD S34 (OGILBY ROAD) NORTH OF I-8.

Detailed Location:
EXACT LOCATION UNKNOWN. MAPPED AS BEST GUESS BY CNDDB ALONG S34 NEAR AMERICAN GIRL WASH NORTH OF OGILBY.

Ecological:
WASH WOODLAND WITH OLNEYA, CERCIDIUM FLORIDUM, KRAMERIA GRAYI, LARREA, ETC. OPEN ROCKY AREAS WITH SMALL DRAINAGES AND MICROPHYLL WOODLAND.

Threats:

General:
1978 LATTING COLLECTION IS THE MAIN SOURCE OF INFORMATION FOR THIS SITE. BELL SURVEYED THIS AREA IN 2013, BUT NO PLANTS WERE FOUND.

PLSS: T15S, R20E, Sec. 26, W (S)
Accuracy: non-specific area
Area (acres): 112
UTM: Zone-11 N3634801 E702396
Latitude/Longitude: 32.83260 / -114.83766
Elevation (feet): 400

County Summary:	Quad Summary:
Imperial	Ogilby (3211477)

Sources:

BEL13U0002	BELL, D. - OBSERVATIONS OF RARE PLANT TAXA FROM DESERT CNPS RARE PLANT TREASURE HUNT SURVEYS, SPRING 2013 2013-03-XX
LAT78S0002	LATTING, J. - LATTING SN UCR #137366 1978-04-30

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 72157
Key Quad: Ogilby (3211477)
Occurrence Number: 35
EO Index: 73122
Element Code: PDFAB0N040
Occurrence Last Updated: 2008-09-05

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G5
State: S3
Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

General Habitat:
SONORAN DESERT SCRUB.

Micro Habitat:
SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 1970-04-06
Last Survey Date: 1970-04-06
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
3 MILES EAST OF OGILBY, ON DIRT ROAD WEST OF CARGO MUCHACHO MOUNTAINS.

Detailed Location:
EXACT LOCATION UNKNOWN. MAPPED BY CNDDB AS A BEST GUESS.

Ecological:
LOW DESERT SCRUB, SANDY SOIL.

Threats:

General:
ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1970 COLLECTION BY NIILUS. NEEDS FIELDWORK.

PLSS: T15S, R21E, Sec. 31 (S)
UTM: Zone-11 N3633145 E706984
Accuracy: 1 mile
Latitude/Longitude: 32.81682 / -114.78905
Area (acres): 0
Elevation (feet): 360

County Summary:
Imperial

Quad Summary:
Ogilby (3211477)

Sources:
NII70S0001 NILUS, T. - NIILUS #173 RSA #658024 1970-04-06

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 72161
Key Quad: Hedges (3211487)
Occurrence Number: 38
EO Index: 73127
Element Code: PDFAB0N040
Occurrence Last Updated: 2014-08-27

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G5
State: S3
Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

General Habitat:
SONORAN DESERT SCRUB.

Micro Habitat:
SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 2013-03-04
Last Survey Date: 2013-03-04
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
ON BLM RD 664, 0.5 MILE EAST OF OGILBY RD, CARGO MUCHACO MOUNTAINS.

Detailed Location:
MAPPED ACCORDING TO COORDINATES PROVIDED ON A 2013 ANDRE COLLECTION, IN THE NW 1/4 OF THE SE 1/4 OF SECTION 26.

Ecological:
SPARSELY VEGETATED GRAVELLY TO ROCKY VOLCANIC HILLS AND PAVEMENTS. ASSOCIATED WITH ENCELIA FARINOSA, FOUQUIERIA, AMBROSIA DUMOSA, ERIOGONUM THOMASII, LARREA TRIDENTATA, AND FAGONIA PACHYACANTHA.

Threats:

General:
MAIN SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 2013 ANDRE COLLECTION; DESCRIBED AS "OCCASIONAL". A 2001 COLLECTION BY PITZER & BALLMER FROM "VICINITY OF INDIAN WASH, 13.9 MILES SOUTH OF HIGHWAY 78 ON OGILBY RD" IS ALSO ATTRIBUTED HERE.

PLSS: T14S, R20E, Sec. 26, SE (S)
Accuracy: 80 meters
Area (acres): 0
UTM: Zone-11 N3644031 E702274
Latitude/Longitude: 32.91583 / -114.83695
Elevation (feet): 640

County Summary:	Quad Summary:
Imperial	Hedges (3211487)

Sources:

AND13S0002	ANDRE, J. - ANDRE #24139 RSA #806150 2013-03-04
PIT01S0001	PITZER, B. & G. BALLMER - PITZER #4264 UCR #163763 2001-03-17

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 79366
Key Quad: Hedges (3211487)
Occurrence Number: 42
EO Index: 80349
Element Code: PDFAB0N040
Occurrence Last Updated: 2010-07-09

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G5
State: S3
Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

General Habitat:
SONORAN DESERT SCRUB.

Micro Habitat:
SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 1998-03-22
Last Survey Date: 1998-03-22
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
APPROXIMATELY 1 MILE EAST OF OGILBY ROAD AND SOUTH OF INDIAN PASS ROAD, NORTH END OF CARGO MUCHACHO MOUNTAINS.

Detailed Location:
MAPPED BY CNDDB AS BEST GUESS BASED ON COORDINATES ON COLLECTION LABEL; COORDINATES ARE FROM 1998 WITH NO DATUM SPECIFIED.

Ecological:
VOLCANIC SUBSTRATES WITH LARREA TRIDENTATA, OLNEYA TESOTA, AND FOUQUIERIA SPLENDENS.

Threats:

General:
ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1998 REBMAN COLLECTION.

PLSS: T14S, R20E, Sec. 25, NW (S)
Accuracy: 1/10 mile
Area (acres): 0
UTM: Zone-11 N3644635 E703112
Latitude/Longitude: 32.92112 / -114.82786
Elevation (feet): 787

County Summary:
Imperial

Quad Summary:
Hedges (3211487)

Sources:
REB98S0001 REBMAN, J. ET AL. - REBMAN #4946 UCR #112167, SD #144883, RSA #643389 1998-03-22

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 86962
Key Quad: Hedges (3211487)
Occurrence Number: 49
EO Index: 87923
Element Code: PDFAB0N040
Occurrence Last Updated: 2012-10-16

Scientific Name: *Calliandra eriophylla*
Common Name: pink fairy-duster

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G5
State: S3
Rare Plant Rank: 2B.3
Other Lists: SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

General Habitat:
SONORAN DESERT SCRUB.

Micro Habitat:
SANDY OR ROCKY SITES IN THE DESERT. 105-1015 M.

Last Date Observed: 1985-03-09
Last Survey Date: 1985-03-09
Owner/Manager: UNKNOWN
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
ENTRENCHED WASH NORTH END OF CARGO MUCHACHO MOUNTAINS.

Detailed Location:
MAPPED ALONG WASH NEAR COORDINATES PROVIDED ON HERBARIUM PRINTOUT FOR 1985 MCLAUGHLIN COLLECTION. SOURCE OF COORDINATES IS UNKNOWN; COORDINATES ARE LOCATED ON A SLOPE ON THE SOUTH SIDE OF THE WASH.

Ecological:
ASSOCIATED WITH ASCLEPIAS ALBICANS.

Threats:

General:
ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1985 MCLAUGHLIN COLLECTION. NEEDS FIELDWORK.

PLSS: T14S, R20E, Sec. 36 (S)
Accuracy: non-specific area
Area (acres): 73
UTM: Zone-11 N3642459 E704203
Latitude/Longitude: 32.90129 / -114.81668
Elevation (feet): 800

County Summary:
Imperial

Quad Summary:
Hedges (3211487)

Sources:
MCL85S0005 MCLAUGHLIN, S. & J. BOWERS - MCLAUGHLIN #2931, SEINET #902093, ARIZ #257518 1985-03-09

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 46437
EO Index: 46437
Key Quad: Glamis (3211581)
Element Code: PDLNN02020
Occurrence Number: 2
Occurrence Last Updated: 2019-01-03

Scientific Name: *Pholisma sonorae*
Common Name: sand food

Listing Status: **Federal:** None
State: None
Rare Plant Rank: 1B.2
Other Lists: BLM_S-Sensitive
SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

CNDDB Element Ranks: **Global:** G2
State: S2

General Habitat:

DESERT DUNES, SONORAN DESERT SCRUB.

Micro Habitat:

LOOSE, DEEP SAND DUNES, USUALLY ON THE MORE STABLE, WINDWARD FACE. 0-125 M.

Last Date Observed: 2018-04-22
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2018-04-22
Occurrence Rank: Good
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

ALGODONES DUNES.

Detailed Location:

MAPPED BY CNDDB TO ENCOMPASS VARIOUS SOURCES OF MAP INFORMATION. INCLUDES FORMER EO #S 3-11, 13-25, 28-41, 43-45, 47-49, 51, 52. IN 2013, THE 4 PLANTS OBSERVED N OF HWY 78 WERE THE ONLY INDIVIDUALS SEEN OVER A LARGE AREA.

Ecological:

MOST COMMONLY FOUND IN SHELTERED STABILIZED SAND DUNES BUT IT MAY OCCUR IN LOOSE DEEP SAND ON THE WINDWARD FACES OF SAND DUNES. ROOT PARASITE ON COLDENIA PLICATA, ERIOGONUM DESERTICOLA, AND COLDENIA PALMERI.

Threats:

ORV ACTIVITY, BORDER PATROL USE.

General:

SEEN IN 1977 THROUGHOUT DUNES. POPULATION NUMBERS FOR PARTS OF OCC: 571 IN 1994, ~486 FLOWER HEADS IN '98, 385 IN '99, 1576 IN '00, 3740 IN '01, 3317 IN '02, 78,417 IN '04, 4 IN '13, 24 IN '17, 94 IN '18.

PLSS: T14S, R18E, Sec. 57, N (S)
Accuracy: specific area
Area (acres): 78,858
UTM: Zone-11 N3640419 E682852
Latitude/Longitude: 32.88668 / -115.04526
Elevation (feet): 300

County Summary:

Imperial

Quad Summary:

Grays Well NE (3211467), Grays Well (3211468), Ogilby (3211477), Cactus (3211478), Clyde (3211488), Glamis SE (3211571), Glamis (3211581), Glamis NW (3211582), East of Acolita (3311511), Acolita (3311512), Amos (3311513), Tortuga (3311523)

Sources:

ANO36S0002	ANONYMOUS - ANONYMOUS SN SD #15582 1936-05-XX
AUB59S0001	AUBREY, F. - AUBREY SN UCR #16469 1959-04-25
BAR66S0001	BARR, R. - BARR #66-36 US ARIZ #161673 (AS CITED IN WAR87R0001) 1966-05-30
BEL13U0002	BELL, D. - OBSERVATIONS OF RARE PLANT TAXA FROM DESERT CNPS RARE PLANT TREASURE HUNT SURVEYS, SPRING 2013 2013-03-XX
BEN10I0002	BENNETT, A. - PHOTOS OF PHOLISMA SONORAE, CALPHOTOS ID #0000 0000 0510 2064-2072 2010-05-16
BEZ65S0001	BEZY, R. - BEZY SN UA #231779 (AS CITED IN WAR87R0001) 1965-05-28
BLM00R0001	BLM-BUREAU OF LAND MANAGEMENT - MONITORING OF SPECIAL STATUS PLANTS IN THE ALGODONES DUNES, IMPERIAL COUNTY, CALIFORNIA: RESULTS OF 1998 MONITORING AND COMPARISON WITH THE DATA FROM WESTECS 1977 MONITORING STUDY 2000-11-XX
BLM01R0001	BLM-BUREAU OF LAND MANAGEMENT - MONITORING OF SPECIAL STATUS PLANTS IN THE ALGODONES DUNES, IMPERIAL COUNTY, CALIFORNIA: 1977, 1998, 1999, AND 2000 2001-06-XX

BLM04R0002	BLM-BUREAU OF LAND MANAGEMENT - MONITORING OF SPECIAL STATUS PLANTS IN THE ALGODONES DUNES, IMPERIAL COUNTY, CALIFORNIA: 1977, 1998, 1999, 2000, 2001, AND 2002 2004-10-XX
BLM04R0003	BLM-BUREAU OF LAND MANAGEMENT - MONITORING OF SPECIAL STATUS PLANTS IN THE ALGODONES DUNES, IMPERIAL COUNTY, CALIFORNIA, RESULTS OF 2003 PILOT SAMPLING 2004-01-05
BLM05R0001	BLM-BUREAU OF LAND MANAGEMENT - 2004 MONITORING OF SPECIAL STATUS PLANTS IN THE ALGODONES DUNES, IMPERIAL COUNTY, CALIFORNIA 2005-03-24
BLM80M0001	BUREAU OF LAND MANAGEMENT - CALIFORNIA DESERT CONSERVATION AREA - MAP OF RARE, THREATENED, AND ENDANGERED PLANT SPECIES 1980-XX-XX
BLM86R0002	BLM-BUREAU OF LAND MANAGEMENT - PROPOSED 1985 PLAN AMENDMENTS VOL. 2 1986-01-XX
BRU17F0017	BRUNER, C. (U.S. BUREAU OF LAND MANAGEMENT) - FIELD SURVEY FORM FOR PHOLISMA SONORAE 2017-04-05
BRU17F0020	BRUNER, C. (U.S. BUREAU OF LAND MANAGEMENT) - FIELD SURVEY FORM FOR PHOLISMA SONORAE 2017-04-06
BRU17F0021	BRUNER, C. (U.S. BUREAU OF LAND MANAGEMENT) - FIELD SURVEY FORM FOR PHOLISMA SONORAE 2017-04-06
BRU17F0022	BRUNER, C. (U.S. BUREAU OF LAND MANAGEMENT) - FIELD SURVEY FORM FOR PHOLISMA SONORAE 2017-04-05
BRU18F0021	BRUNER, C. ET AL. (U.S. BUREAU OF LAND MANAGEMENT) - FIELD SURVEY FORM FOR PHOLISMA SONORAE 2018-03-27
BRU18F0035	BRUNER, C. ET AL. (U.S. BUREAU OF LAND MANAGEMENT) - FIELD SURVEY FORM FOR PHOLISMA SONORAE 2018-03-29
BRU18F0040	BRUNER, C. ET AL. (U.S. BUREAU OF LAND MANAGEMENT) - FIELD SURVEY FORM FOR PHOLISMA SONORAE 2018-03-29
BRU18F0045	BRUNER, C. ET AL. (U.S. BUREAU OF LAND MANAGEMENT) - FIELD SURVEY FORM FOR PHOLISMA SONORAE 2018-04-22
CAR73S0005	CARLQUIST, S. & WALLACE - CARLQUIST #4365 RSA #239048, SD #90614, NY #37805, CAS #577823, MO #100679897, SEINET #10847674, CAS-BOT-BC #230596 1973-05-14
CHA08I0001	CHARTERS, M. - PHOTOS OF PHOLISMA SONORAE, CALPHOTOS ID #0000 0000 0508 0614-0620 2008-05-05
CHM00R0001	CH2M HILL - IMPERIAL IRRIGATION DISTRICT (IID)/SAN DIEGO COUNTY WATER AUTHORITY (SDCWA) WATER CONSERVATION AND TRANSFER PROJECT EIR/EIS, SCOPING SUMMARY REPORT 2000-03-10
COO36S0001	COOK, L. - COOK SN UCR #95847 SD #16026 1936-06-13
COT67S0001	COTHRUN, D. - COTHRUN SN ASU #37347 (AS CITED IN WAR87R0001) 1967-07-07
COX63S0001	COX, G. - COX SN SDSU #7874 1963-04-28
DAV79F0001	DAVIDSON, C. ET AL. - FIELD SURVEY FORM FOR ASTRAGALUS MAGDALENAE VAR. PEIRSONII & PHOLISMA SONORAE 1979-04-28
DAV79S0010	DAVIDSON, C. ET AL. - DAVIDSON #7759 RSA #446408 1979-04-28
DAV79S0011	DAVIDSON, C. ET AL. - DAVIDSON #7793 RSA #446407, HSC #82769 1979-04-28
DEF34S0001	DEFOREST, H. - DE FOREST #18614 RSA #446409 1934-03-29
DICNDU0001	DICE, J. - LOCATION OF PHOLISMA SONORAE IN COMMENTS OF SKI95F0013. XXXX-XX-XX
DIR03S0001	DIRIDONI, G. - DIRIDONI SN SD #243934 2003-01-21
ENG79S0001	ENGARD, R. - ENGARD #1132 DBG (AS CITED IN WAR87R0001) 1979-04-14
FIL18F0005	FILLIPI, D. - FIELD SURVEY FORM FOR PHOLISMA SONORAE 2018-04-18
GIL28S0005	GILMAN, M. - GILMAN SN POM #145275 & #145276, SBBG #59874, CAS #154857, DS #171324, CAS-BOT-BC #230598 & #230595 1928-04-25
GUI08S0006	GUILLIAMS, C. & J. MARSHALL - GUILLIAMS #634 (A-D) SDSU #18394, #18388, #18364, & #18358 2008-04-23
GUS83S0013	GUSTAFSON, R. & KEELEY - GUSTAFSON #2571 RSA #446405 1983-05-06
HAR65S0004	HARWOOD, R. - HARWOOD SN SDSU #7880 1965-05-09
HEN64S0001	HENRICKSON, J. & RUTHERFORD - HENRICKSON #1836 RSA #182256, GH #376183 1964-05-16
HIL01S0005	HILL, S. & K. KRAMER - HILL #33499 UCR #123800, ILLS #211703, SEINET #7048030 2001-04-27
HOW64S0006	HOWE, D. - HOWE #3761 SDSU #8108 1964-04-12
HOW64S0007	HOWE, D. - HOWE #10193 RSA #172241 & #446406 1964-05-13
KOL46S0001	KOLUVEK, P. - KOLUVEK SN UC #775203, NY #37804, DS #342223, MO #100679895, SEINET #10946708, CAS-BOT-BC #230599 1946-06-11
LUC83R0001	LUCKENBACH, R. A. & R. B. BURY - EFFECTS OF OFF-ROAD VEHICLES ON THE BIOTA OF THE ALGODONES DUNES, IMPERIAL COUNTY, CALIFORNIA; JOURNAL OF APPLIED ECOLOGY (1983); 20; PG. 265-286 1983-XX-XX
MCC93R0003	MCCALVIN, C. (U.S. FISH AND WILDLIFE SERVICE) - SURVEYS FOR SEVEN RARE PLANT SPECIES, THE FLAT-TAILED HORNED LIZARD, AND THE COLORADO DESERT FRINGED-TOED LIZARD, ALL-AMERICAN CANAL LINING PROJECT, IMPERIAL COUNTY, CALIFORNIA 1993-08-XX
MOR81U0007	MOREY, S. - MAPS OF BOUNDED AREAS REPRESENTATIVE OF DATA POINTS FROM WES77R0004. 1981-04-24

OESNDF0001	OESTERREIC, W. - BLM FIELD SURVEY FORM FOR PHOLISMA SONORAE XXXX-07-19
PEI32S0013	PEIRSON, M. - PEIRSON #9781 RSA #77813 1932-03-21
POR03S0028	PORTER, J. - PORTER #13491 RSA #0084082 2003-04-08
REC79R0001	U.S. BUREAU OF RECLAMATION - REPORT ON RARE PLANT POPULATIONS ALONG THE ALL AMERICAN CANAL 1979-XX-XX
ROM79R0001	ROMSPERT, A. & J. BURK - ALGODONES DUNES SENSITIVE PLANT PROJECT - C.S.U. FULLERTON PREPARED FOR BLM 1979-XX-XX
ROO49S0046	ROOS, J. - ROOS #4984 RSA #89981 1949-04-07
RYA69S0007	RYAN, J. - RYAN #50 RSA #209611 1969-04-11
SDNNDU0003	SAN DIEGO NATURAL HISTORY MUSEUM - NOTES ON GENERAL LOCATIONS OF (AMMOBROMA) PHOLISMA SONORAE. XXXX-XX-XX
SKI95F0013	SKINNER, M. - FIELD SURVEY FORM FOR PHOLISMA SONORAE 1995-04-08
SPJ80S0003	SPJUT, R. & J. ADAMS - SPJUT #6153 HSC #66961 1980-04-30
THO78S0030	THORNE, R. - THORNE #52167 RSA #336093 1978-05-30
THO84S0003	THORNE, R. ET AL. - THORNE #58267 RSA #331172 & #0109169, NY #37806 1984-04-27
WAL73S0004	WALLACE, G. & CARLQUIST - WALLACE #1193 RSA #257643, CAS #763732, CAS-BOT-BC #293705 1973-05-14
WAL98F0006	WALL, M. - FIELD SURVEY FORM FOR PHOLISMA SONORAE 1998-06-08
WAL98F0007	WALL, M. - FIELD SURVEY FORM FOR PHOLISMA SONORAE 1998-06-08
WAL98F0008	WALL, M. - FIELD SURVEY FORM FOR PHOLISMA SONORAE 1998-06-08
WAR87R0001	WARREN, P. & A. LAURENZI - RARE PLANTS SURVEY OF THE YUMA DISTRICT. 1987-08-XX
WED66S0002	WEDBERG, H. - WEDBERG #1234 SDSU #8102 1966-05-02
WES77R0003	WESTEC SERVICES, INC. - SURVEY OF SENSITIVE PLANTS OF THE ALGODONES DUNES - PREPARED FOR BLM. 1977-08-XX
WES77R0004	WESTEC SERVICES, INC. - SURVEY OF SENSITIVE PLANTS OF THE ALGODONES DUNES - PREPARED FOR BLM BY WESTEC. 1977-XX-XX
WIE03A0001	WIESENBORN, W. - INSECTS ON PHOLISMA SONORAE FLOWERS AND THEIR CONSPECIFIC POLLEN LOADS, MADRONO VOL. 50, NO. 2, PP. 110-114, 2003 2003-XX-XX
WIL66S0003	WILGUS, J. - WILGUS SN ARIZ #159492 (AS CITED IN WAR87R0001) 1966-05-15
YAT80S0001	YATSKIEVYCH, G. - YATSKIEVYCH #80-129 ARIZ #221475, MO #100654470, SEINET #10743474 (ALSO CITED IN WAR87R0001) 1980-04-26

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 06550
Key Quad: Ogilby (3211477)
Occurrence Number: 12
EO Index: 46458
Element Code: PDLNN02020
Occurrence Last Updated: 2001-11-09

Scientific Name: *Pholisma sonorae*
Common Name: sand food

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G2
State: S2
Rare Plant Rank: 1B.2
Other Lists: BLM_S-Sensitive
SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

General Habitat:
DESERT DUNES, SONORAN DESERT SCRUB.

Micro Habitat:
LOOSE, DEEP SAND DUNES, USUALLY ON THE MORE STABLE, WINDWARD FACE. 0-125 M.

Last Date Observed: 1902-05-XX
Last Survey Date: 1902-05-XX
Owner/Manager: UNKNOWN
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
OGILBY, NEAR HEDGES MINES.

Detailed Location:
EXACT LOCATION UNKNOWN, MAPPED AS BEST GUESS BY CNDDB AT OGILBY.

Ecological:

Threats:

General:
SITE BASED ON A 1902 COLLECTION BY STOCKTON. NEEDS FIELDWORK.

PLSS: T15S, R20E, Sec. 35, N (S)
Accuracy: 1 mile
Area (acres): 0
UTM: Zone-11 N3633124 E702138
Latitude/Longitude: 32.81754 / -114.84079
Elevation (feet): 400

County Summary:	Quad Summary:
Imperial	Ogilby (3211477)

Sources:

SDNNDU0003	SAN DIEGO NATURAL HISTORY MUSEUM - NOTES ON GENERAL LOCATIONS OF (AMMOBROMA) PHOLISMA SONORAE. XXXX-XX-XX
STO02S0001	STOCKTON, A. - STOCKTON SN UC #105882 1902-05-XX

												desert scrub, Sonoran thorn woodland, Upper montane coniferous forest, Valley & foothill grassland
Croton wigginsii	Wiggins' croton	Dicots	PDEUP0H140	12	1	None	Rare	G2G3	S2	2B.2	BLM_S-Sensitive, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Desert dunes, Sonoran desert scrub
Cyclocephala wandae	Wandae dune beetle	Insects	IICOL33020	1	1	None	None	G1G2	S1S2	null	null	Desert dunes
Ditaxis claryana	glandular ditaxis	Dicots	PDEUP080L0	26	1	None	None	G3G4	S2	2B.2	null	Desert wash, Mojavean desert scrub, Sonoran desert scrub
Efferia macroxipha	Glamis robberfly	Insects	IIDIP07040	1	1	None	None	G1G2	S1S2	null	null	Desert dunes
Eumops perotis californicus	western mastiff bat	Mammals	AMACD02011	296	4	None	None	G5T4	S3S4	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, WBWG_H-High Priority	Chaparral, Cismontane woodland, Coastal scrub, Valley & foothill grassland
Euparagia unidentata	Algodones euparagia	Insects	IIHYMBC010	3	1	None	None	G1G2	S1S2	null	null	Desert dunes
Gopherus agassizii	desert tortoise	Reptiles	ARAAF01012	970	13	Threatened	Threatened	G3	S2S3	null	IUCN_VU-Vulnerable	Joshua tree woodland, Mojavean desert scrub, Sonoran desert scrub
Macrotus californicus	California leaf-nosed bat	Mammals	AMACB01010	46	11	None	None	G4	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, WBWG_H-High Priority	Riparian scrub, Sonoran desert scrub
Melanerpes uropygialis	Gila woodpecker	Birds	ABNYF04150	62	1	None	Endangered	G5	S1	null	BLM_S-Sensitive, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Riparian forest, Riparian woodland
Microbembex elegans	Algodones elegant sand wasp	Insects	IIHYM90010	1	1	None	None	G1G2	S1S2	null	null	Desert dunes
Myotis velifer	cave myotis	Mammals	AMACC01050	9	1	None	None	G5	S1	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, WBWG_M-Medium Priority	Riparian scrub, Sonoran desert scrub
Nyctinomops femorosaccus	pocketed free-tailed bat	Mammals	AMACD04010	90	1	None	None	G4	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, WBWG_M-Medium Priority	Joshua tree woodland, Pinon & juniper woodlands, Riparian scrub, Sonoran desert scrub
Palafoxia arida var. gigantea	giant spanish-needle	Dicots	PDAST6T012	6	2	None	None	G5T3?	S2	1B.3	BLM_S-Sensitive, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Desert dunes
Perdita	Algodones	Insects	IIHYM01130	1	1	None	None	G1G2	S1S2	null	null	Desert

algodones	perdita											dunes
Perdita frontalis	Imperial Perdita	Insects	IIHYM01140	2	1	None	None	G1G2	S1S2	null	null	Desert dunes
Perdita stephanomeriae	a miner bee	Insects	IIHYM01840	3	1	None	None	GNR	S1S2	null	null	Desert dunes
Pholisma sonorae	sand food	Dicots	PDLNN02020	14	2	None	None	G2	S2	1B.2	BLM_S-Sensitive, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Desert dunes, Sonoran desert scrub
Phrynosoma mcallii	flat-tailed horned lizard	Reptiles	ARACF12040	340	6	None	None	G3	S2	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened	Desert dunes, Mojavean desert scrub, Sonoran desert scrub
Polioptila melanura	black-tailed gnatcatcher	Birds	ABPBJ08030	34	1	None	None	G5	S3S4	null	CDFW_WL-Watch List, IUCN_LC-Least Concern	Mojavean desert scrub, Sonoran desert scrub
Pseudocotalpa andrewsi	Andrew's dune scarab beetle	Insects	IICOL37020	29	1	None	None	G1	S1	null	null	Desert dunes, Sonoran desert scrub
Toxostoma crissale	Crissal thrasher	Birds	ABPBK06090	67	1	None	None	G5	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Riparian woodland
Toxostoma lecontei	Le Conte's thrasher	Birds	ABPBK06100	238	2	None	None	G4	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, NABCI_RWL-Red Watch List, USFWS_BCC-Birds of Conservation Concern	Desert wash, Mojavean desert scrub, Sonoran desert scrub

APPENDIX E

Photo pages

Photo 1.
Representative photo of the *Brassica (nigra) and other mustards semi-natural stands* CNPS vegetation category.

Photo 2.
Representative photo of the *Larrea tridentata Encelia farinosa alliance* CNPS vegetation category.

Photo 3.
Representative photo of the *Parkinsonia florida—Olneya tesota alliance* CNPS vegetation category.

Photo 4.
Example Observation point during raptor surveys.

Photo 5.
Example Observation point used during raptor surveys.

Photo 6.
Example Observation point used during raptor surveys.

Photo 7.
Example Observation point used during raptor surveys.

Photo 8.
Active eyrie for prairie falcon observed during raptor surveys.

Photo 9.
Active eyrie for prairie falcon observed during raptor surveys.

Photo 10.
Red-tailed hawk roost detected.

Photo 11.
Potentially suitable western burrowing owl habitat within the Analysis Area.

Photo 12.
Potentially suitable western burrowing owl habitat within the Analysis Area.

Photo 13.
Habitat assessed for Colorado desert fringe-toed lizard. Sandy area was assessed for potential habitat for the lizard.

Photo 14.
Habitat assessed for Colorado desert fringe-toed lizard.

Photo 15.
Abandoned underground mine assessed for bat use. There is a bat compatible closure (angle-iron gate) in the mine portal.

Photo 16.
Abandoned underground mine assessed for bat use.

Photo 17.
Location of Gila woodpecker historical detection location outside of Analysis Area.

Photo 18.
Representative small wash assessed for Gila woodpecker habitat within the Analysis Area.

Photo 19.
Active desert tortoise burrow observed.

APPENDIX F

BLM Sensitive Species 'Non' List

Appendix F. BLM Sensitive Species for the El Centro Field Office with a Potential to Occur of "None".

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur	Effects Determination
AMPHIBIANS					
Lithobates yavapaiensis Lowland leopard frog	Occurs in a variety of perennial to near perennial waters in desert grasslands to pinyon juniper biotic communities (AGFD 2006). Inhabits large rivers, streams, canals, cienegas, cattle tanks or other aquatic features (Rorabaugh 2008). Can survive in semi-permanent aquatic systems by retreating into deep mud cracks, mammal burrows, or rock fissures, but large pools are required for adult survival and reproductive efforts (Bureau of Reclamation 2016). Elevation: In California, from near sea level to 5,961 ft (CDFW 2018).	Historic range included Arizona, California, Nevada, New Mexico, U.S. and extreme northeastern Baja California, northern Sonora, and possibly northwestern Chihuahua, Mexico (AGFD 2006, Bureau of Reclamation 2016). Current range is restricted to southern Arizona and adjacent portions of Sonora (Bureau of Reclamation 2016).	Assumed to be extirpated from California, otherwise extremely rare (CDFW 2018). Historically inhabited San Bernardino, Riverside and Imperial counties, along the Colorado River Valley and Imperial Valley (CDFW 2018).	**None.** There is no perennial water in the Analysis Area and this species is considered extirpated from California.	
BIRDS					
Agelaius tricolor Tricolored blackbird	Occupies areas near fresh water, preferably in emergent wetland with tall, dense cattails or tules, but also in thickets of willow, blackberry, wild rose, tall herbs (CDWF 2008c). Feeds in grasslands and cropland habitats. Seeks cover in emergent wetland vegetation and also in trees and shrubs (CDWF 2008c).	Historically the ranged throughout most of lower-elevation California, with smaller nesting colonies known from Baja California, Nevada, and Oregon (USFWS 2019). The majority of the breeding population was found in the Central Valley, along the California coast, in the Sierra Nevada foothills, and in southern California (USFWS 2019).	Common locally throughout Central Valley and in coastal districts from Sonoma County (CDWF 2008c). More widespread in winter along the central coast and San Francisco Bay area and in portions of the Colorado Desert (CDWF 2008c).	**None.** The Analysis Area does not contain appropriate habitat for this species are no occurrence records for this species within the California Natural Diversity Database in these quadrangles (CDFW 2020).	
Charadrius montanus Mountain plover	Utilizes short grasslands, plowed fields with little vegetation, and open sagebrush areas. Avoids areas with dense cover. Nests in open areas in high-elevation grassland, often blue gramma and buffalo grass patches (CDFW 2008a). Does not nest in California (CDFW 2008a). Elevation: In California, below 3,200 ft in winter (CDFW 2008a).	Breeds in western Great Plains and Rocky Mountains States from the Canadian border to Northern Mexico (USFWS 2021). In the U.S., breeding occurs in Colorado, Montana, Nebraska, New Mexico and Wyoming and less frequently in Kansas, Oklahoma, Texas, and Utah (USFWS 2021).	In California, winter resident September through March in Central Valley from Sutler and Yuba counties southward. Also in foothills west of San Joaquin Valley, Imperial Valley, Los Angeles County, and San Bernardino County and along the central Colorado river valley (CDFW 2008a, b). Extralimital records along the northern coast (CDFW 2008a).	**None.** This species is only known to winter in California and is outside the known range. There are no records for this species within the California Natural Diversity Database in these quadrangles (CDFW 2020).	

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur	Effects Determination
Colaptes chrysoides Gilded flicker	This species is most common in riparian areas, desert washes, and other habitats with Joshua trees or saguaro cacti (CDFW 1997). Typically avoids urban and rural neighborhoods, even when saguaros are present (CDFW 1997, Corman and Wise-Gervais 2005). This species hybridizes with the Northern Flicker (Wiebe and Moore 2017). Hybrids are typically found in riparian woodlands at the upper end of the species' elevational range (Corman 2005b). This species is non-migratory and uses similar habitats year-round (Moore, Pyle, and Wiebe 2017). Nest in soft wood of a snag or dead branches of live cottonwood, willow, Joshua tree, or saguaro cacti (CDFW 1997). Elevation: In Arizona, typically 200–3,200 ft but occasionally up to 4,600 ft in riparian areas (Corman 2005b).	This species is non-migratory (Moore, Pyle, and Wiebe 2017). Occurs in Arizona, California and Nevada, U.S. and the Mexican states of Baja California, Baja California Sur, Sinaloa and Sonora (Moore, Pyle, and Wiebe 2017).	Considered nearly extirpated in California (CDFW 1997).	**None.** This species is considered extirpated, the Analysis Area lacks appropriate habitat, and there are no records for this species within the California Natural Diversity Database in these quadrangles (CDFW 2020).	
Laterallus jamaicensis coturniculus California black rail	This species breeds in tidal marshes, shallow freshwater marshes, wet meadows, flooded grassy areas and wetlands fed by irrigation with persistent emergent vegetation (Eddleman, Flores, and Legare 1994, Richmond et al. 2010). Uses areas with water depths of roughly one inch or less (Dodge 2019). The *coturniculus* subspecies is non-migratory, although juveniles disperse erratically from their natal sites (Eddleman, Flores, and Legare 1994). Uses similar habitat year-round (Eddleman, Flores, and Legare 1994). Along the Colorado River they prefer dense bulrush stands, shallow water, and gently sloping shorelines (CDFW 1990b). Elevation: In Arizona, 150–600 ft (AGFD 2002a, Corman 2005a).	The *coturniculus* subspecies occurs in Arizona and California, U.S. and Baja California and Sonora, Mexico (Eddleman, Flores, and Legare 1994, Hinojosa-Huerta et al. 2013).	Scarce, yearlong resident of saline, brackish, and fresh emergent wetlands in the San Francisco Bay area, Sacramento-San Joaquin Delta, coastal southern California at Morro Bay and a few other locations, the Salton Sea, and lower Colorado River area (CDFW 1990b). Formerly a local resident in coastal wetlands from Santa Barbara County to San Diego County (CDFW 1990b).	**None.** The Analysis Area lacks appropriate habitat and is outside the known ranged, and there are no records for this species within the California Natural Diversity Database in these quadrangles (CDFW 2020).	

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur	Effects Determination
Micrathene whitneyi Elf owl	Occupies desert riparian habitat of moderate to open canopy, often with a moderate to sparse shrub understory, and typically bordering desert wash, desert scrub, or grassland habitats (CDFW 1990c). Taller trees with a shrub understory may be required. Utilizes moderately tall trees and snags, including cottonwood, sycamore, willow, mesquite, and saguaros often using cavities made by other birds (CDFW 1990c). Nested in cottonwood and saguaro in California but also nests in willow, sycamore, and mesquite trees or snags of moderate height (CDFW 1990c). In the Sonoran Desert regions they are found mainly in riparian habitats or in areas with numerous saguaro (Wise-Gervais 2005). Elevation: up to 7,000 ft (CDFW 1990c).	Found from the southwest U.S. to central Mexico and Baja California. Northern populations winter in central Mexico and on the Pacific slope north to Sinaloa, Mexico (Wise-Gervais 2005).	Rarely seen spring and summer resident of the Colorado River Valley. Records at Cottonwood Springs and Corn Springs in Riverside County (CDFW 1990c). Now nearly extirpated along the length of Colorado River. Reported only north of Needles, San Bernadino County, roughly 22 miles north of Blythe, Riverside County, and at Corn Springs since 1970 (CDFW 1990c).	**None.** This Analysis Area lacks appropriate habitat and there are no records for this species within the California Natural Diversity Database in these quadrangles (CDFW 2020)	
Pelecanus occidentalis Brown pelican	Inhabits estuarine, marine subtidal, and marine pelagic waters along the coasts (CDFW 1990b). Usually rests on water or inaccessible rocks, but uses mudflats, sandy beaches, wharfs, and jetties. Nests on rocky or low and brushy slopes of undisturbed islands, usually on the ground, but less often in bushes. Requires undisturbed lands adjacent to good marine fishing areas.	Found along the Atlantic, Pacific, and Gulf coasts of North and South America (USFWS 2009). Can also be found from Nova Scotia to Venezuela and on the Pacific Coast from British Columbia to south-central Chile and the Galapagos Islands (USFWS 2009). On the Gulf Coast they occur in Florida, Alabama, Louisiana, Texas, Mississippi, and Mexico. Can use the Salton Seas in California, lakes in Florida, and bodies of water in southeast Arizona (USFWS 2009).	Breeds on the Channel Islands, Anacapa in Santa Barbara and Santa Cruz counties (CDFW 1990b). Rare to uncommon on the Salton Sea and Colorado River reservoirs (CDFW 1990b).	**None.** The analysis area occurs outside of this species range and no suitable aquatic habitat exists within the Analysis Area.	

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur	Effects Determination
Strix occidentalis occidentalis California spotted owl	Inhabits forests and woodlands with large old trees and snags, high basal areas of trees and snags, dense canopies, multiple canopy layers, and downed woody debris (Shuford and Garadali 2008). In southern California, occupies montane hardwood and montane hardwood-conifer forests, especially with Canyon Live Oak and Bigcone Douglas fir and mid to high elevations. Uses coastal oak woodland, valley foothill riparian, and redwood forests at low elevations (Shuford and Garadali 2008).. Elevation: seal level in San Diego County to 6,600 ft in Tulare County (Shuford and Garadali 2008)..	Includes three resident subspecies: the Northern Spotted Owl *(S. o. caturina*) in the mountains of the Pacific coast from southwestern British Columbia south through western Washington and Oregon to San Francisco Bay, California; the Mexican Spotted Owl (*S. o. lucida*) in forested mountains from southern Utah and Colorado south to Michoacan Mexico; and the California Spotted Owl of northern California south along the western slope of Sierra Nevada and in mountains of central and southern Califronia nearly to the Mexican border with three sight records from the Sierra San Pedro Matir in northern Baja California (Shuford and Garadali 2008).	In the southern California mountains, they are known to occur in the southern Coast ranges from Monterey County south through the Traverse and Peninsular ranges to southern San Diego County (Shuford and Garadali 2008). Detected in the Santa Cruz Mountains of San Mateo and Santa Cruz counties. Also observed in the San Bernardino Mountains (Shuford and Garadali 2008).	**None.** The analysis occurs outside this species range and no suitable forested habitat occurs within the Analysis Area.	
Vireo bellii arizonae Arizona bell's vireo	Inhabits low, dense riparian growth along water or intermittent streams. Typically associated with willow, cottonwood, baccharis, wild blackberry or mesquite in desert localities (CDFW 1990a). Utilizes thickets of willow and other low shrubs. Usually found near water (CDFW 1990a). Elevations: In California, summers below 2,000 ft (CDFW 1990a).	Primarily occurs throughout Arizona, Utah, Nevada, and Sonora Mexico and in California along the lower Colorado River (CDFW 1990a).	Rare summer resident along the Colorado River from Needles in San Bernardino County south to Blythe in Riverside County (CDFW 1990a). Also found at Picacho State Recreation Area and near Laguna Dam in Imperial County (CDFW 1990a).	**None.** No suitable riparian a habitat occurs within the analysis Area.	
Vireo bellii pusillus Least bell's vireo	Inhabits low, dense riparian growth along water or intermittent streams. Typically associated with willow, cottonwood, baccharis, wild blackberry or mesquite in desert localities (CDFW 1990a). Utilizes thickets of willow and other low shrubs. Usually found near water (CDFW 1990a). Elevations: In California, summers below 2,000 ft (CDFW 1990a).	Endemic to California and northern Baja California (CDFW 1990a).	Summer resident mostly in San Benito and Monterey counties, in coastal southern California from Santa Barbara County south, and along the western edge of the deserts in desert riparian habitat (CDFW 1990a).	**None.** No suitable riparian a habitat occurs within the analysis Area.	

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur	Effects Determination
MAMMALS					
Myotis evotis Long-eared myotis	Inhabits nearly all brush, woodland and forest habitats but coniferous woodlands and forests seem to be preferred. Roosts in buildings, crevices, under bark, and in snags(CDFW 1990g). Occurs in semiarid shrublands, sage, chaparral, and agricultural areas, but usually associated with coniferous forests (WBWG 2018). Elevation: sea level to at least 9,000 ft (CDFW 1990g).	Found across western North American from southwestern Canada (British Columbia, Alberta, and Saskatchewan) to Baja California and eastward in the U.S. to the western Great Plains (WBWG 2018).	Widespread in California but believed to be uncommon in most of its range. Avoids arid Central Valley and hot deserts, occurring along the entire coast and in the Sierra Nevada, Cascades, and Great Basin from the Oregon border south through the Tehachapi Mountains to the Coast Ranges (CDFW 1990g).	**None.** No suitable forest or woodland habitats occur within the analysis Area.	
Myotis thysanodes Fringed myotis	Utilizes a wide variety of habitats including pinyon-juniper, valley foothill hardwood and hardwood-conifer forests (CDFW 1990f). Roosts in crevices in buildings, mines, rocks, rock faces, bridges, and in large decadent trees or snags (WBWG 2018). Elevation: sea level to 9,350 ft but most common between 4,000 and 7,000 ft (WBWG 2018).	Throughout much of western North American from southern British Columbia, Canada, south the Chiapas, Mexico from Santa Cruz Island in California, east to the Black Hills of South Dakota (WBWG 2018).	Widespread in California occurring in all but the Central Valley and Colorado and Mojave deserts. Abundance appears to be irregular (CDFW 1990f).	**None.** No suitable forest or woodland habitats occur within the analysis Area.	
Perognathus longimembris bangsi Palm Springs little pocket mouse	Known from various vegetation communities including creosote scrub, desert scrub, and grasslands, generally occurring on loosely packed or sandy soils with sparse to moderately dense cover (Bolster 1998).	Historically known from the San Gorgonino Pass area east to southern Joshua Tree National Park and Shaver's Valley, south through the Coachella Valley to Ocotillo (Bolster 1998).	Currently found in the northern and western regions of Coachella Valley north of Interstate 10 (Nature Serve 2021).	**None.** The analysis Area occurs outside the known range of this species.	
PLANTS					
Ambronia umbellate* var. *aurita chaparral sand-verbena	Annual herb that blooms March through September. Inhabits chaparral, coastal scrub, and desert dunes (CNPS 2021c). Elevation: 250 to 5,250 ft (CNPS 2021c).	Known from California, Arizona, and Baja California (CNPS 2021c).	Imperial, Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura counties (CNPS 2021c). One location in Anza-Borrego does not appear to be naturally occurring.	**None.** No suitable desert dunes of chaparral habitat occur within the Analysis Area.	

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur	Effects Determination
Astragalus magdalenae* var. *peirsonii Peirson's milk-vetch	Perennial herb that blooms December through April. Inhabits desert dunes (CNPS 2021m). Elevation: 200 to 750 ft (CNPS 2021m).	Occurs in California, Arizona, Baja California, and Sonora Mexico (CNPS 2021m).	Imperial County and presumed extirpated if once present in San Diego County (CNPS 2021m).	**None.** No suitable desert dune habitat occurs within the analysis Area.	
Choenactis glabriuscula* var. *orcuttiana Orcutt's pincushion	Annual herb that blooms January through August. Inhabits sandy substrates including coastal bluff scrub in coastal dunes (CNPS 2021k). Elevation: sea level to 325 ft (CNPS 2021k).	Occurs in California and Baja California (CNPS 2021k).	Found in Los Angeles, San Diego, Venture counties and presume extirpated in Orange County (CNPS 2021k).	**None.** The analysis Area occurs outside of the range of this species and no suitable costal dunes occur within the analysis Area.	
Chorizanthe polygonoides* var. *longispina Long-spined spineflower	Annual herb that blooms April through July. Inhabits clay substrates in chaparral, coastal scrub, meadows, seeps, valley, foothill grassland, and vernal pools (CNPS 2021f). Elevations: 100 to 5,000 ft (CNPS 2021f).	Occurs in California and Baja California (CNPS 2021f).	Found in Orange, Riverside, Santa Barbara, and San Diego counties (CNPS 2021f).	**None.** The analysis Area occurs outside of the range of this species and no suitable costal dunes occur within the analysis Area.	
Cylindropuntia fosbergii Pink teddy-bear cholla	Perennial stem succulent that blooms March through May. Inhabits Sonoran desert scrub habitats (CNPS 2021n). Elevation: 280 to 2,790 ft (CNPS 2021n).	Endemic to California (CNPS 2021n).	Occurs in San Diego County (CNPS 2021n).	**None.** The Analysis Area occurs outside of the known range of this species.	
Dieteria asteroids* var. *lagunensis Mt. Laguna aster	Perennial herb that blooms July through August. Utilizes cismontane woodland and lower montane coniferous forest (CNPS 2021i). Elevation: 2,600 to 7,900 ft (CNPS 2021i).	Located in California and Baja California (CNPS 2021i).	Found in San Diego County (CNPS 2021i).	**None.** The Analysis Area is outside the known range of this species.	
Fremontodendron mexicanum Mexican flannelbush	Perennial evergreen shrub that blooms March through June. Inhabits gabbroic, metavocalnic, or serpentine substrates within closed-cone coniferous forest, chaparral, and cismontane woodlands (CNPS 2021g). Elevation: 30 to 2,350 ft (CNPS 2021g).	Known from California and Baja California (CNPS 2021g).	Found in San Diego County (CNPS 2021g).	**None.** Outside known range and no occurrence records.	

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur	Effects Determination
Grindelia hallii San Diego gumplant	Perennial herb that blooms May through October. Utilizes chaparral, lower montane coniferous forest, meadow, seeps, valley and foothill grassland (CNPS 2021q). Elevation: 280 to 5,725 ft (CNPS 2021q).	Endemic to California (CNPS 2021q).	Found in San Diego County (CNPS 2021q).	**None.** Outside known range and no occurrence records.	
Helianthus niveus* subsp. *tephrodes Algodones Dunes sunflower	Perennial herb that blooms September to May. Lives on desert dunes (CNPS 2021a). Elevation: 165 to 330 ft (CNPS 2021a).	Found in California, Arizona, and Sonora Mexico (CNPS 2021a).	Occurs in Imperial and San Diego counties (CNPS 2021a).	**None.** No suitable dune habitats exist within the Analysis Area and no records of the species occur within the Analysis Area.	
Hulsea californica San Diego sunflower	Perennial herb that blooms April through June. Inhabits openings and burned areas in chaparral, lower montane coniferous forest, and upper montane coniferous forests (CNPS 2021r). Elevation: 3,000 to 9,565 ft (CNPS 2021r).	Endemic to California (CNPS 2021r).	Found in Riverside and San Diego counties (CNPS 2021r).	**None.** Outside known range and no occurrence records.	
Lepidium flavum var. felipense Borrego Valley peppergrass	Annual herb that blooms March through May. Inhabits sandy areas in pinyon and juniper woodland and Sonoran desert scrub (CNPS 2021b). Elevation: 1,495 to 2,755 ft (CNPS 2021b).	Occurs in California and Baja California (CNPS 2021b).	Found in San Diego County (CNPS 2021b).	**None.** Outside known range and no occurrence records.	
Monardella nana* subsp. *leptosiphon San Felipe monardella	Perennial rhizomatous herb that blooms June through July. Inhabits chaparral and lower montane coniferous forest (CNPS 2021s). Elevation: 3,940 to 6,085 ft (CNPS 2021s).	Occurs in California and Baja California (CNPS 2021s).	Found in Riverside and San Diego counties (CNPS 2021s). Note: Known mostly from Hot Springs Mountains. Most of the plants from the Palomar Mountains are mis-identified. May not warrant taxonomic recognition due to problems with type specimen and its distribution and a lot of intermediacy between current subtaxa, and evident integradations (CNPS 2021s).	**None.** No suitable chaparral, or forest habitats occur within the Analysis Area.	

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur	Effects Determination
Palafoxia arida* var. *gigantea Giant Spanish needle	Annual/perennial herb that blooms January through May. Inhabits desert dunes (CNPS 2021e). Elevation: 50 to 330 ft (CNPS 2021e).	Occurs in California and Sonora Mexico (CNPS 2021e).	Known only from Imperial County (CNPS 2021e).	**None.** No suitable dune habitats exist within the Analysis Area and no records of the species occur within the Analysis Area.	
Streptanthus campestris Southern jewel-flower	Perennial herb that blooms May through July. Inhabits rocky areas in chaparral, lower montane coniferous forest, and pinyon juniper woodland (CNPS 2021u). Elevation: 2,950 to 7,545 ft (CNPS 2021u).	Found in California and Baja California (CNPS 2021u).	Occurs in Imperial, Los Angeles, Riverside, Santa Barbara, San Bernardino, San Diego, and Ventura counties (CNPS 2021u).	**None.** No suitable chaparral, woodlands or forest habitats occur within the Analysis Area.	
Symphotrichum defoliatum San Bernardino aster	Perennial rhizomatous herb that blooms July through November. Inhabits areas near ditches, streams and springs in cistomontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, and valley and foothill grasslands that are vernally mesic (CNPS 2021p). Elevation: 0.6 to 620 ft (CNPS 2021p).	Endemic to California (CNPS 2021p).	Found in Imperial, Kern, Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, San Diego, and possibly in San Luis Obispo counties(CNPS 2021p).	**None.** No suitable aquatic habitat occurs within the analysis Area.	
Thermopsis californica var. semota Velvety false lupine	Perennial rhizomatous herb that blooms March through June. Inhabits cismontane woodland, lower montane coniferous forest, meadows and seeps, and valley and foothill grasslands (CNPS 2021v). Elevation: 305 to 570 ft (CNPS 2021v).	Endemic to California (CNPS 2021v).	Found in San Diego County (CNPS 2021v).	**None.** Outside known range and no occurrence records.	
Thysanocarpus rigidus rigid fringepod	Annual herb that blooms February through May. Inhabits dry rocky slopes in pinyon and juniper woodland (CNPS 2021o). Elevation: 185 to 70 ft (CNPS 2021o).	Occurs in California and Baja California (CNPS 2021o).	Found in Los Angeles, Riverside, San Bernardino, and San Diego counties (CNPS 2021o).	**None.** Outside the known range and no occurrence records.	

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur	Effects Determination
REPTILES					
Actinemys marmorata pallida Southwestern pond turtle	Inhabit ponds, lakes, rivers, streams, creek, marshes, and irrigation ditches with abundant vegetation and either rocky or muddy bottoms in woodland, forests, grassland (CHS 2021f). Prefers shallower area in pools with logs, rocks, cattail mats, and exposed banks required for basking. May enter brackish water and seawater (CHS 2021f). Elevation: sea level to 6.696 ft but mostly below 4,890 ft (CHS 2021f).	Occurs in California and Baja California (CHS 2021f).	Found south, east, and west of the San Francisco Bay area with eastern boundary along the edge of the South Coast Ranges with an isolated, relict population along the Mojave River at Campy Cody and at Afton Canyon (CHS 2021f).	**None.** The analysis Area occurs outside the known range of this species.	
Coleonyx switaki Barefoot banded gecko	Inhabits rocky areas at the heads of canyons. Restricted to areas dominated by massive rock formations (CDFW 1990j). In flatlands, canyons, thornscrub and in where vegetation is sparse (CHS 2021e). Elevation: near sea level to over 2,000 ft (CHS 2021e).	Occurs in California and Baja California (CDFW 1990j).	Found on the east face of the Peninsular Ranges with unsubstantiated reports near Anza Borrego Desert in San Diego County(CDFW 1990j). Isolated population of subspecies *C.s. switaki* is known from Coyote Mountains of Imperial County (CHS 1990j).	**None.** The analysis Area occurs outside the known range of this species.	
Phrynosoma mcallii Flat-tailed horned lizard	Inhabits hard packed sandy flats and low dunes in Lower Colorado River desertscrub community, particularly in areas with creosote-white bursage vegetation (USFWS Brennan 2008, 2011). Restricted to areas of fine sand and sparse vegetation in desert washes and flats (CDFW 2000a). Most common in areas with high density of harvester ants and fine windblow sand but rarely occurs on dunes (CHS 2021b). Elevation: Below 820 ft (AGFD 2010b, CHS 2021b).	Occurs in Arizona and California, U.S. and the Mexican states of Baja California and Sonora (USFWS 2011).	Found in central Riverside, eastern San Diego and Imperial counties (CDFW 2000a). Throughout most of the Colorado desert from Coachella Valley south through the Imperial Valley and west into the Anza-Borrego desert, south to Baja California, southwestern Arizona, and northwestern Sonora (CHS 2021b).	**None.** No suitable hard packed sandy flats or low dunes occur within the Analysis Area. No records for this species occur within the Analysis Area.	***Phrynosoma mcallii*** Flat-tailed horned lizard

Species Name	Known Suitable Habitat	Total Range	Distribution in California	Potential to Occur	Effects Determination
Phrynosoma blainvilli Coast horned lizard	Inhabits valley-foothill hardwood, conifer and riparian habitats, pine-cypress, juniper, and annual grassland habitats (CDFW 2000a). Occurs in open areas of sandy soil and low vegetation in valleys, foothills, semiarid mountains and along dirt roads or near ant hills (CHS 2021a). Elevation: Sea level to 6,000 ft (CDFW 2000a) or 8,000 ft (CHS 2021a).	Endemic to California (CHS 2021a).	Historically found along the Pacific coast from the Bay Area to Baja California border and west the Sierra Nevada Mountains (CHS 2021a).	**None.** The analysis Area occurs outside the known range of this species.	
Thamnophis hammondii Two-striped gartersnake	Inhabit vegetated areas associated with permanent or semi-permanent bodies of water (CDFW 2000). Associated vegetation includes oak woodland, willow, coastal sage scrub, scrub oak, sparce pine, chaparral, and brushland (CHS 2021g). Elevation: sea level to 8,000 ft (CDFW 2000).	Occurs in California and Baja California (CHS 2021g)	Found on the southeastern slope of the Diablo Range and the Salinas Valley south along the South Coast and Traverse ranges to the Mexican border and on Santa Catalina Island (CDFW 2000).	**None.** The analysis Area occurs outside the known range of this species.	

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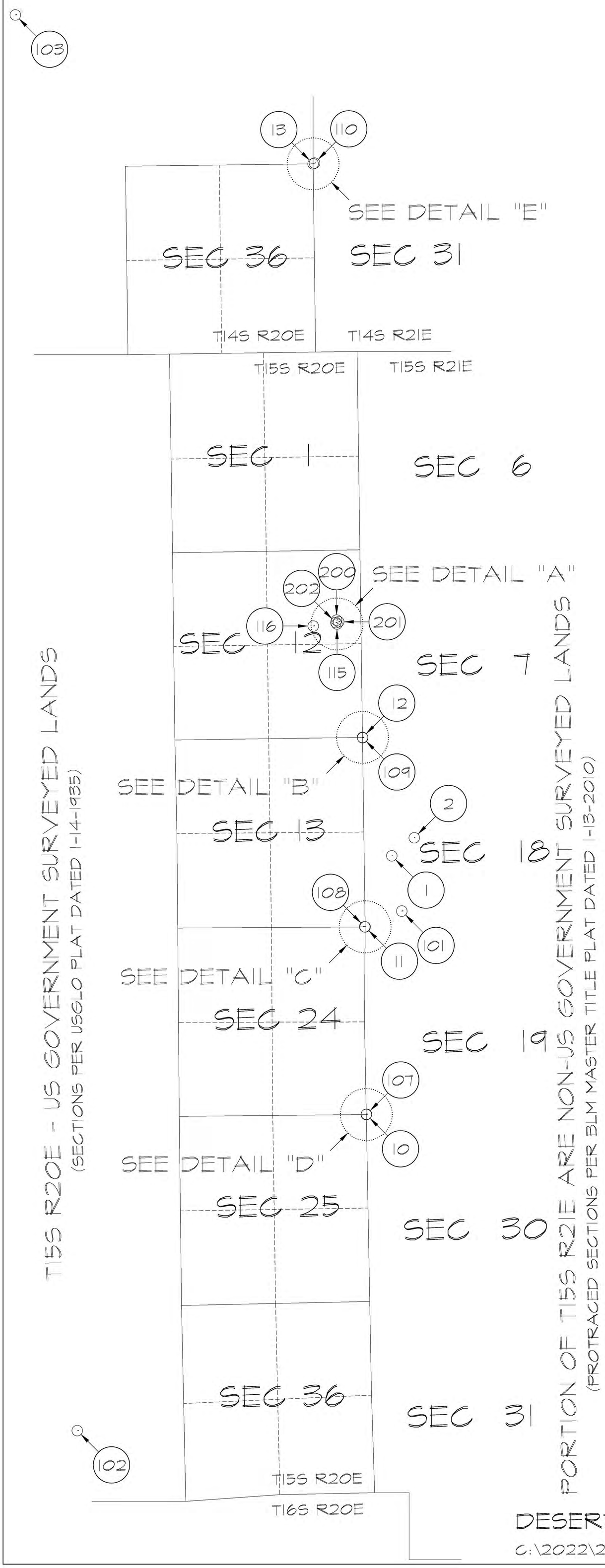
APPENDIX C

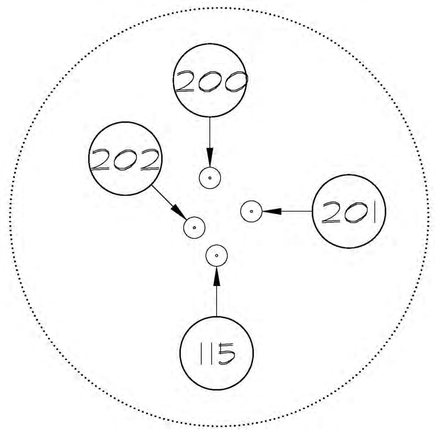
Surveyor Exhibit & Legal Descriptions – Oro Cruz Mining Claims
(Desert Surveying & Engineering, Inc., 2022) **/** (Imperial County, 1981 - 2010)

CONTROL SURVEY

IN AN UNINCORPORATED AREA OF THE COUNTY OF IMPERIAL, STATE OF CALIFORNIA



DETAIL "A"
NOT TO SCALE



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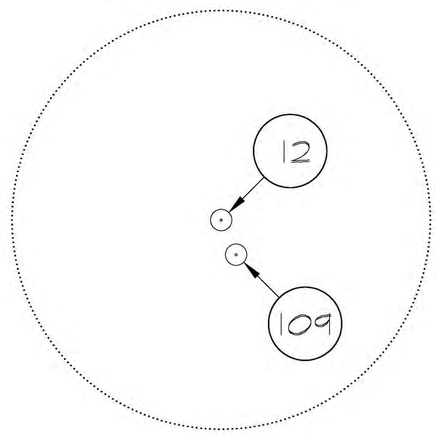

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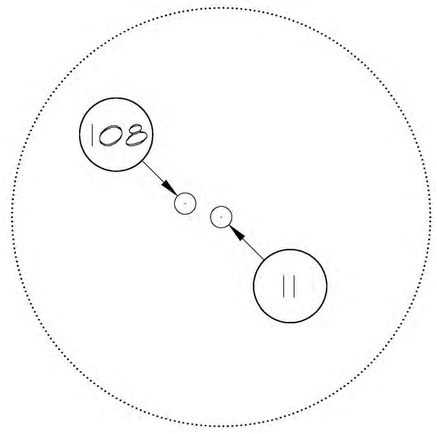

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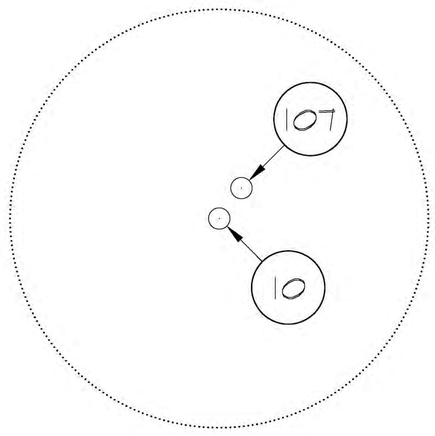

DETAIL "E"
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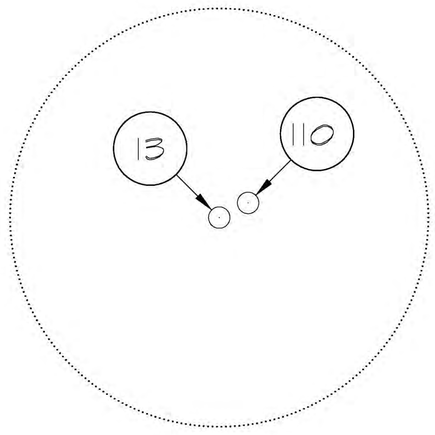


104

105

106

CONTROL & TARGET DATA:

NO.	NORTHING	EASTING	ELEV	DESCRIPTION
1	1894646.60	7004752.86	568.81	R1226 (H&V CONTROL)
2	1895155.0276	7005386.27	575.38	T1226
10	1887368.68	7004035.37	471.93	GLO BC NE SEC 25
11	1892650.78	7004002.89	543.55	GLO BC NE SEC 24
12	1897980.99	7003928.53	619.09	GLO BC NE SEC 13
13	1914121.46	7002536.89	865.21	GLO BC NE SEC 36
101	1893093.58	7005035.06	552.28	TGT 1
102	1878475.47	6995896.05	349.13	TGT 2
103	1918313.07	6994152.44	665.42	TGT 3
104	1916028.17	7016055.25	859.97	TGT 4
105	1895182.43	7017077.39	773.28	TGT 5
106	1881717.80	7013827.18	508.91	TGT 6
107	1887377.20	7004041.58	471.62	TGT NE COR SEC 25
108	1892655.50	7003990.30	543.07	TGT NE COR SEC 24
109	1897971.32	7003932.70	618.01	TGT NE COR SEC 13
110	1914141.95	7002577.22	859.47	TGT NE COR SEC 36
115	1901173.14	7003209.22	770.09	1/2" REBAR- DDGEO CONT
116	1901115.68	7002541.00	855.17	1/2" REBAR- DDGEO CONT
200	1901281.69	7003199.86	770.18	Dundas TGT A
201	1901235.03	7003257.76	771.21	Dundas TGT B
202	1901212.23	7003178.10	769.73	Dundas TGT C

N

SCALE: 1"= 1000'

1000' 0' 1000' 3000'

GRAPHIC SCALE

PROFESSIONAL LAND SURVEYOR
GORDON O OLSON
No. 7107
Exp. 12-31-22
STATE OF CALIFORNIA

GORDON O. OLSON, P.L.S. 7,107 DATE
LICENSE EXPIRATION DATE: 12/31/2022

DESERT SURVEYING & ENGINEERING, INC SHEET 1 OF 1

C:\2022\22058.01.dwg 09-12-22 PROJECT NO. 22058.01

88-06124 BOOK 1601 PAGE 917

DOLORES PROVENCIO
COUNTY RECORDER

RECORDING REQUESTED BY:

Texasgulf Minerals and Metals, Inc.

AND WHEN RECORDED MAIL TO:

Von Porter
Texasgulf Minerals and Metals, Inc.
5932 McIntyre Street
Golden, Colorado 80403

APR 14 4 07 PM '88

REG	$ 4
RIF	$ 2
MC	$ 1
NIL	$ -
TOTAL	$ 7

OFFICIAL RECORDS
IMPERIAL COUNTY, CALIF
BOOK 1601 PAGE 917

AMENDED NOTICE OF LOCATION
and Notice of Location
(California - Lode)

Texasgulf Minerals and Metals, Inc., a Delaware corporation authorized to do business in the State of California, the current office and mailing address of which is 5932 McIntyre Street, Golden, Colorado 80403, being the lessee from and agent for Michael G. Tornabene, whose current residence and/or mailing address is 285 Oak Neck Lane, West Islip, New York 11795, the locator and/or owner (hereinafter "owner" whether one or more) of the mining claim hereinafter described, by right of discovery and location and desiring to amend the claim under and pursuant to the laws thereto applicable, has amended the Hercules No. 6 lode mining claim which was located the 23rd day of January, 1981, and recorded in the Imperial County, California, records at Book 1463, Page 1542, and filed with the Bureau of Land Management under Serial No. CAMC 79794.

This Amended Notice of Location and Notice of Location (hereinafter "Notice") is made to correct any defects, errors, and omissions in the location and/or the record thereof. Neither this Notice nor the record thereof shall preclude owner from proving any such title as owner held under previous locations. If, and to the extent, the original location is invalid, this Amended Notice of Location and Notice of Location shall be deemed to be the original Notice of Location. This Notice was posted on the ground located on the date of this Notice.

The date of this notice is the 24 day of January, 1988.

The number of linear feet claimed in length along the course of the vein, each way from the point of discovery is 1450 feet in an easterly direction and 50 feet in a westerly direction, together with 300 feet on each side of the center of the claim. The general course of the lode or vein is east/west.

This lode mining claim is located in the Southeast Quarter of Section 12, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

From the discovery monument, the Northeast corner of Section 13, T. 15 S., R. 20 E., San Bernardino Base and Meridian, bears South 36° 12' 58" East a distance of 2,454.16 feet.

This lode mining claim is described by metes and bounds as follows:

Beginning at Corner No. 1, the Northwest corner,
Thence East a distance of 1500 feet to Corner No. 2;
Thence South a distance of 300 feet to the East End Center;
Thence South a distance of 300 feet to Corner No. 3;
Thence West a distance of 1500 feet to Corner No. 4;
Thence North a distance of 300 feet to the West End Center;
Thence North a distance of 300 feet to Corner No. 1;

the place of beginning.

This lode mining claim is contiguous to and is bounded by the following claims:

Hercules No. 7 on the North
Hercules No. 35 on the West
Hercules No. 5 on the South

TEXASGULF MINERALS AND METALS, INC., a Delaware corporation

By: William H. Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
OWNER

STATEMENT OF THE MARKING OF THE BOUNDARIES
(California - Lode Mining Claim)

Name of Lode Mining Claim: Hercules No. 6

The boundaries of this claim have been marked by monuments marked as follows:

Corner No. 1 is a 4"x4" wooden post, 4' long with metal tag marked "H-6 Corner 1"

Corner No. 2 is a 4"x4" wooden post, 4' long with metal tag marked "H-6 Corner 2"

The East End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-6 East End Center"

Corner No. 3 is a 4"x4" wooden post, 4' long with metal tag marked "H-6 Corner 3"

Corner No. 4 is a 4"x4" wooden post, 4' long with metal tag marked "H-6 Corner 4"

The West End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-6 West End Center"

This claim is located in Section 12, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

The date of marking was the 24 day of January, 1987.

TEXASGULF MINERALS AND METALS, INC., a Delaware corporation

By: William H Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
OWNER

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:

SEP 13 2022

By _____ Deputy

BOOK 1601 PAGE 919

88-06125

DOLORES PROVENCIO
COUNTY RECORDER

RECORDING REQUESTED BY:

Texasgulf Minerals and Metals, Inc.

APR 14 4 07 PM '88

AND WHEN RECORDED MAIL TO:

REG	$ 4
RIF	$ 2
MC	$ 1
NIL	$ -
TOTAL	$ 7

OFFICIAL RECORDS
IMPERIAL COUNTY, CALIF
BOOK 1601 PAGE 919

Von Porter
Texasgulf Minerals and Metals, Inc.
5932 McIntyre Street
Golden, Colorado 80403

AMENDED NOTICE OF LOCATION
and Notice of Location
(California - Lode)

Texasgulf Minerals and Metals, Inc., a Delaware corporation authorized to do business in the State of California, the current office and mailing address of which is 5932 McIntyre Street, Golden, Colorado 80403, being the lessee from and agent for Michael G. Tornabene, whose current residence and/or mailing address is 285 Oak Neck Lane, West Islip, New York 11795, the locator and/or owner (hereinafter "owner" whether one or more) of the mining claim hereinafter described, by right of discovery and location and desiring to amend the claim under and pursuant to the laws thereto applicable, has amended the Hercules No. 7 lode mining claim which was located the 23rd day of January, 1981, and recorded in the Imperial County, California, records at Book 1463, Page 1495, and filed with the Bureau of Land Management under Serial No. CAMC 79795.

This Amended Notice of Location and Notice of Location (hereinafter "Notice") is made to correct any defects, errors, and omissions in the location and/or the record thereof. Neither this Notice nor the record thereof shall preclude owner from proving any such title as owner held under previous locations. If, and to the extent, the original location is invalid, this Amended Notice of Location and Notice of Location shall be deemed to be the original Notice of Location. This Notice was posted on the ground located on the date of this Notice.

The date of this notice is the 24 day of January, 1988.

The number of linear feet claimed in length along the course of the vein, each way from the point of discovery is 1450 feet in an easterly direction and 50 feet in a westerly direction, together with 300 feet on each side of the center of the claim. The general course of the lode or vein is east/west.

This lode mining claim is located in the Northeast and Southeast Quarters of Section 12, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

From the discovery monument, the Northeast corner of Section 12, T. 15 S., R. 20 E., San Bernardino Base and Meridian, bears North 28° 14' 14" East a distance of 3,064.72 feet.

This lode mining claim is described by metes and bounds as follows:

Beginning at Corner No. 1, the Northwest corner,
Thence East a distance of 1500 feet to Corner No. 2;
Thence South a distance of 300 feet to the East End Center;
Thence South a distance of 300 feet to Corner No. 3;
Thence West a distance of 1500 feet to Corner No. 4;
Thence North a distance of 300 feet to the West End Center;
Thence North a distance of 300 feet to Corner No. 1;

the place of beginning.

This lode mining claim is contiguous to and is bounded by the following claims:

Hercules No. 8 on the North
Hercules No. 34 on the West
Hercules No. 6 on the South

TEXASGULF MINERALS AND METALS, INC., a Delaware corporation

By: William H Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
OWNER

STATEMENT OF THE MARKING OF THE BOUNDARIES
(California - Lode Mining Claim)

Name of Lode Mining Claim: Hercules No. 7

The boundaries of this claim have been marked by monuments marked as follows:

Corner No. 1 is a 4"x4" wooden post, 4' long with metal tag marked "H-7 Corner 1"

Corner No. 2 is a 4"x4" wooden post, 4' long with metal tag marked "H-7 Corner 2"

The East End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-7 East End Center"

Corner No. 3 is a 4"x4" wooden post, 4' long with metal tag marked "H-7 Corner 3"

Corner No. 4 is a 4"x4" wooden post, 4' long with metal tag marked "H-7 Corner 4"

The West End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-7 West End Center"

This claim is located in Section 12, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

The date of marking was the 24 day of January, 1988.

TEXASGULF MINERALS AND METALS, INC., a Delaware corporation

By: William H Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
OWNER

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:

SEP 13 2022

By _____ Deputy

88-06126

DOLORES PROVENCIO
COUNTY RECORDER

RECORDING REQUESTED BY:

Texasgulf Minerals and Metals, Inc.

APR 14 4 07 PM '88

AND WHEN RECORDED MAIL TO:

REG	$ 4
RIF	$ 2
MC	$ 1
NIL	$ -
TOTAL	$ 7

OFFICIAL RECORDS
IMPERIAL COUNTY, CALIF

BOOK 1601 PAGE 921

Von Porter
Texasgulf Minerals and Metals, Inc.
5932 McIntyre Street
Golden, Colorado 80403

AMENDED NOTICE OF LOCATION
and Notice of Location
(California - Lode)

Texasgulf Minerals and Metals, Inc., a Delaware corporation authorized to do business in the State of California, the current office and mailing address of which is 5932 McIntyre Street, Golden, Colorado 80403, being the lessee from and agent for Michael G. Tornabene, whose current residence and/or mailing address is 285 Oak Neck Lane, West Islip, New York 11795, the locator and/or owner (hereinafter "owner" whether one or more) of the mining claim hereinafter described, by right of discovery and location and desiring to amend the claim under and pursuant to the laws thereto applicable, has amended the Hercules No. 8 lode mining claim which was located the 23rd day of January, 1981, and recorded in the Imperial County, California, records at Book 1463, Page 1496, and filed with the Bureau of Land Management under Serial No. CAMC 79796.

This Amended Notice of Location and Notice of Location (hereinafter "Notice") is made to correct any defects, errors, and omissions in the location and/or the record thereof. Neither this Notice nor the record thereof shall preclude owner from proving any such title as owner held under previous locations. If, and to the extent, the original location is invalid, this Amended Notice of Location and Notice of Location shall be deemed to be the original Notice of Location. This Notice was posted on the ground located on the date of this Notice.

The date of this notice is the 24 day of January, 1988.

The number of linear feet claimed in length along the course of the vein, each way from the point of discovery is 1450 feet in an easterly direction and 50 feet in a westerly direction, together with 300 feet on each side of the center of the claim. The general course of the lode or vein is east/west.

This lode mining claim is located in the Northeast Quarter of Section 12, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

From the discovery monument, the Northeast corner of Section 12, T. 15 S., R. 20 E., San Bernardino Base and Meridian, bears North 34° 37' 26" East a distance of 2,551.96 feet.

This lode mining claim is described by metes and bounds as follows:

Beginning at Corner No. 1, the Northwest corner,
Thence East a distance of 1500 feet to Corner No. 2;
Thence South a distance of 300 feet to the East End Center;
Thence South a distance of 300 feet to Corner No. 3;
Thence West a distance of 1500 feet to Corner No. 4;
Thence North a distance of 300 feet to the West End Center;
Thence North a distance of 300 feet to Corner No. 1;

the place of beginning.

This lode mining claim is contiguous to and is bounded by the following claims:

Hercules No. 9 on the North
Hercules No. 33 on the West
Hercules No. 7 on the South

TEXASGULF MINERALS AND METALS, INC., a Delaware corporation

By: William H. Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
OWNER

STATEMENT OF THE MARKING OF THE BOUNDARIES
(California - Lode Mining Claim)

Name of Lode Mining Claim: Hercules No. 8

The boundaries of this claim have been marked by monuments marked as follows:

Corner No. 1 is a 4"x4" wooden post, 4' long with metal tag marked "H-8 Corner 1"

Corner No. 2 is a 4"x4" wooden post, 4' long with metal tag marked "H-8 Corner 2"

The East End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-8 East End Center"

Corner No. 3 is a 4"x4" wooden post, 4' long with metal tag marked "H-8 Corner 3"

Corner No. 4 is a 4"x4" wooden post, 4' long with metal tag marked "H-8 Corner 4"

The West End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-8 West End Center"

This claim is located in Section 12, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

The date of marking was the 24 day of January, 1983.

TEXASGULF MINERALS AND METALS, INC., a Delaware corporation

By: William H. Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
OWNER

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:

SEP 13 2022

By _____ Deputy

88-06127

DOLORES PROVENCIO
COUNTY RECORDER

RECORDING REQUESTED BY:

Texasgulf Minerals and Metals, Inc.

APR 14 4 07 PM '88

AND WHEN RECORDED MAIL TO:

Von Porter
Texasgulf Minerals and Metals, Inc.
5932 McIntyre Street
Golden, Colorado 80403

REG	$ 4
RIF	$ 2
MC	$ 1
NIL	$ -
TOTAL	$ 7

OFFICIAL RECORDS
IMPERIAL COUNTY, CALIF
BOOK 1601 PAGE 923

AMENDED NOTICE OF LOCATION
and Notice of Location
(California - Lode)

Texasgulf Minerals and Metals, Inc., a Delaware corporation authorized to do business in the State of California, the current office and mailing address of which is 5932 McIntyre Street, Golden, Colorado 80403, being the lessee from and agent for Michael G. Tornabene, whose current residence and/or mailing address is 285 Oak Neck Lane, West Islip, New York 11795, the locator and/or owner (hereinafter "owner" whether one or more) of the mining claim hereinafter described, by right of discovery and location and desiring to amend the claim under and pursuant to the laws thereto applicable, has amended the Hercules No. 9 lode mining claim which was located the 23rd day of January, 1981, and recorded in the Imperial County, California, records at Book 1463, Page 1497, and filed with the Bureau of Land Management under Serial No. CAMC 79797. The most recent amendment of the location is recorded in Book 1535, Page 723, of the Imperial County, California, records.

This Amended Notice of Location and Notice of Location (hereinafter "Notice") is made to correct any defects, errors, and omissions in the location and/or the record thereof. Neither this Notice nor the record thereof shall preclude owner from proving any such title as owner held under previous locations. If, and to the extent, the original location is invalid, this Amended Notice of Location and Notice of Location shall be deemed to be the original Notice of Location. This Notice was posted on the ground located on the date of this Notice.

The date of this notice is the 24 day of January, 1988.

The number of linear feet claimed in length along the course of the vein, each way from the point of discovery is 1450 feet in an easterly direction and 50 feet in a westerly direction, together with 300 feet on each side of the center of the claim. The general course of the lode or vein is east/west.

This lode mining claim is located in the Northeast Quarter of Section 12, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

From the discovery monument, the Northeast corner of Section 12, T. 15 S., R. 20 E., San Bernardino Base and Meridian, bears North 44° 01' 44" East a distance of 2,086.26 feet.

This lode mining claim is described by metes and bounds as follows:

Beginning at Corner No. 1, the Northwest corner,
Thence East a distance of 1500 feet to Corner No. 2;
Thence South a distance of 300 feet to the East End Center;
Thence South a distance of 300 feet to Corner No. 3;
Thence West a distance of 1500 feet to Corner No. 4;
Thence North a distance of 300 feet to the West End Center;
Thence North a distance of 300 feet to Corner No. 1;

the place of beginning.

This lode mining claim is contiguous to and is bounded by the following claims:

Hercules No. 10 on the North
Hercules No. 32 on the West
Hercules No. 8 on the South

TEXASGULF MINERALS AND METALS, INC., a Delaware corporation

By: William H. Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
OWNER

STATEMENT OF THE MARKING OF THE BOUNDARIES
(California - Lode Mining Claim)

Name of Lode Mining Claim: Hercules No. 9

The boundaries of this claim have been marked by monuments marked as follows:

Corner No. 1 is a 4"x4" wooden post, 4' long with metal tag marked "H-9 Corner 1"

Corner No. 2 is a 4"x4" wooden post, 4' long with metal tag marked "H-9 Corner 2"

The East End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-9 East End Center"

Corner No. 3 is a 4"x4" wooden post, 4' long with metal tag marked "H-9 Corner 3"

Corner No. 4 is a 4"x4" wooden post, 4' long with metal tag marked "H-9 Corner 4"

The West End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-9 West End Center"

This claim is located in Section 12, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

The date of marking was the 24 day of January, 198[illegible].

TEXASGULF MINERALS AND METALS, INC., a Delaware corporation

By: William H. Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
OWNER

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date issued:
SEP 13 2022

By _____
Deputy

88-06128 BOOK 1601 PAGE 925

DOLORES PROVENCIO
COUNTY RECORDER

RECORDING REQUESTED BY:

Texasgulf Minerals and Metals, Inc.

APR 14 4 07 PM '88

AND WHEN RECORDED MAIL TO:

Von Porter
Texasgulf Minerals and Metals, Inc.
5932 McIntyre Street
Golden, Colorado 80403

REG	$ 4
RIF	$ 2
MC	$ 1
NIL	$ -
TOTAL	$ 7

OFFICIAL RECORDS
IMPERIAL COUNTY, CALIF
BOOK 1601 PAGE 925

AMENDED NOTICE OF LOCATION
and Notice of Location
(California - Lode)

Texasgulf Minerals and Metals, Inc., a Delaware corporation authorized to do business in the State of California, the current office and mailing address of which is 5932 McIntyre Street, Golden, Colorado 80403, being the lessee from and agent for Michael G. Tornabene, whose current residence and/or mailing address is 285 Oak Neck Lane, West Islip, New York 11795, the locator and/or owner (hereinafter "owner" whether one or more) of the mining claim hereinafter described, by right of discovery and location and desiring to amend the claim under and pursuant to the laws thereto applicable, has amended the Hercules No. 10 lode mining claim which was located the 23rd day of January, 1981, and recorded in the Imperial County, California, records at Book 1463, Page 1498, and filed with the Bureau of Land Management under Serial No. CAMC 79798. The most recent amendment of the location is recorded in Book 1535, Page 722, of the Imperial County, California, records.

This Amended Notice of Location and Notice of Location (hereinafter "Notice") is made to correct any defects, errors, and omissions in the location and/or the record thereof. Neither this Notice nor the record thereof shall preclude owner from proving any such title as owner held under previous locations. If, and to the extent, the original location is invalid, this Amended Notice of Location and Notice of Location shall be deemed to be the original Notice of Location. This Notice was posted on the ground located on the date of this Notice.

The date of this notice is the 24 day of January, 1988.

The number of linear feet claimed in length along the course of the vein, each way from the point of discovery is 1450 feet in an easterly direction and 50 feet in a westerly direction, together with 300 feet on each side of the center of the claim. The general course of the lode or vein is east/west.

This lode mining claim is located in the Northeast Quarter of Section 12, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

From the discovery monument, the Northeast corner of Section 12, T. 15 S., R. 20 E., San Bernardino Base and Meridian, bears North 58° 10' 21" East a distance of 1,706.60 feet.

This lode mining claim is described by metes and bounds as follows:

Beginning at Corner No. 1, the Northwest corner,
Thence East a distance of 1500 feet to Corner No. 2;
Thence South a distance of 300 feet to the East End Center;
Thence South a distance of 300 feet to Corner No. 3;
Thence West a distance of 1500 feet to Corner No. 4;
Thence North a distance of 300 feet to the West End Center;
Thence North a distance of 300 feet to Corner No. 1;

the place of beginning.

This lode mining claim is contiguous to and is bounded by the following claims:

Hercules No. 11 on the North
Hercules No. 31 on the West
Hercules No. 9 on the South

TEXASGULF MINERALS AND METALS, INC., a Delaware corporation

By: William H. Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
OWNER

STATEMENT OF THE MARKING OF THE BOUNDARIES
(California - Lode Mining Claim)

Name of Lode Mining Claim: Hercules No. 10

The boundaries of this claim have been marked by monuments marked as follows:

Corner No. 1 is a 4"x4" wooden post, 4' long with metal tag marked "H-10 Corner 1"

Corner No. 2 is a 4"x4" wooden post, 4' long with metal tag marked "H-10 Corner 2"

The East End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-10 East End Center"

Corner No. 3 is a 4"x4" wooden post, 4' long with metal tag marked "H-10 Corner 3"

Corner No. 4 is a 4"x4" wooden post, 4' long with metal tag marked "H-10 Corner 4"

The West End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-10 West End Center"

This claim is located in Section 12, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

The date of marking was the 24 day of January, 1987.

TEXASGULF MINERALS AND METALS, INC., a Delaware corporation

By: William H. Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
OWNER

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued: SEP 13 2022

By _____ Deputy

88-06129 BOOK 1601 PAGE 927

DOLORES PROVENCIO
COUNTY RECORDER

RECORDING REQUESTED BY:

Texasgulf Minerals and Metals, Inc.

APR 14 4 07 PM '88

AND WHEN RECORDED MAIL TO:

REG	$ 4
RIF	$ 2
MC	$ 1
NIL	$ -
TOTAL	$ 7

OFFICIAL RECORDS
IMPERIAL COUNTY, CALIF

BOOK 1601 PAGE 927

Von Porter
Texasgulf Minerals and Metals, Inc.
5932 McIntyre Street
Golden, Colorado 80403

AMENDED NOTICE OF LOCATION
and Notice of Location
(California - Lode)

Texasgulf Minerals and Metals, Inc., a Delaware corporation authorized to do business in the State of California, the current office and mailing address of which is 5932 McIntyre Street, Golden, Colorado 80403, being the lessee from and agent for Michael G. Tornabene, whose current residence and/or mailing address is 285 Oak Neck Lane, West Islip, New York 11795, the locator and/or owner (hereinafter "owner" whether one or more) of the mining claim hereinafter described, by right of discovery and location and desiring to amend the claim under and pursuant to the laws thereto applicable, has amended the Hercules No. 11 lode mining claim which was located the 23rd day of January, 1981, and recorded in the Imperial County, California, records at Book 1463, Page 1499, and filed with the Bureau of Land Management under Serial No. CAMC 79799. The most recent amendment of the location is recorded in Book 1535, Page 721, of the Imperial County, California, records.

This Amended Notice of Location and Notice of Location (hereinafter "Notice") is made to correct any defects, errors, and omissions in the location and/or the record thereof. Neither this Notice nor the record thereof shall preclude owner from proving any such title as owner held under previous locations. If, and to the extent, the original location is invalid, this Amended Notice of Location and Notice of Location shall be deemed to be the original Notice of Location. This Notice was posted on the ground located on the date of this Notice.

The date of this notice is the 24 day of January, 1988.

The number of linear feet claimed in length along the course of the vein, each way from the point of discovery is 1450 feet in an easterly direction and 50 feet in a westerly direction, together with 300 feet on each side of the center of the claim. The general course of the lode or vein is east/west.

This lode mining claim is located in the Northeast Quarter of Section 12, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

From the discovery monument, the Northeast corner of Section 12, T. 15 S., R. 20 E., San Bernardino Base and Meridian, bears North 78° 18' 38" East a distance of 1,480.71 feet.

This lode mining claim is described by metes and bounds as follows:

Beginning at Corner No. 1, the Northwest corner,
Thence East a distance of 1500 feet to Corner No. 2;
Thence South a distance of 300 feet to the East End Center;
Thence South a distance of 300 feet to Corner No. 3;
Thence West a distance of 1500 feet to Corner No. 4;
Thence North a distance of 300 feet to the West End Center;
Thence North a distance of 300 feet to Corner No. 1;

the place of beginning.

This lode mining claim is contiguous to and is bounded by the following claims:

Hercules No. 12 on the North
Hercules No. 30 on the West
Hercules No. 10 on the South

TEXASGULF MINERALS AND METALS, INC., a Delaware corporation

By: William H. Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
OWNER

STATEMENT OF THE MARKING OF THE BOUNDARIES
(California - Lode Mining Claim)

Name of Lode Mining Claim: Hercules No. 11

The boundaries of this claim have been marked by monuments marked as follows:

Corner No. 1 is a 4"x4" wooden post, 4' long with metal tag marked "H-11 Corner 1"

Corner No. 2 is a 4"x4" wooden post, 4' long with metal tag marked "H-11 Corner 2"

The East End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-11 East End Center"

Corner No. 3 is a 4"x4" wooden post, 4' long with metal tag marked "H-11 Corner 3"

Corner No. 4 is a 4"x4" wooden post, 4' long with metal tag marked "H-11 Corner 4"

The West End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-11 West End Center"

This claim is located in Section 12, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

The date of marking was the 24 day of January, 1988.

TEXASGULF MINERALS AND METALS, INC., a Delaware corporation

By: William H. Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
OWNER

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued: SEP 13 2022

By _____ Deputy

88-06130 BOOK 1601 PAGE 929

DOLORES PROVENCIO
COUNTY RECORDER

APR 14 4 07 PM '88

OFFICIAL RECORDS
IMPERIAL COUNTY, CALIF
BOOK 1601 PAGE 929

RECORDING REQUESTED BY:

Texasgulf Minerals and Metals, Inc.

AND WHEN RECORDED MAIL TO:

Von Porter
Texasgulf Minerals and Metals, Inc.
5932 McIntyre Street
Golden, Colorado 80403

REG	$ 4
RIF	$ 2
MC	$ 1
NIL	$ -
TOTAL	$ 7

AMENDED NOTICE OF LOCATION
and Notice of Location
(California - Lode)

Texasgulf Minerals and Metals, Inc., a Delaware corporation authorized to do business in the State of California, the current office and mailing address of which is 5932 McIntyre Street, Golden, Colorado 80403, being the lessee from and agent for Michael G. Tornabene, whose current residence and/or mailing address is 285 Oak Neck Lane, West Islip, New York 11795, the locator and/or owner (hereinafter "owner" whether one or more) of the mining claim hereinafter described, by right of discovery and location and desiring to amend the claim under and pursuant to the laws thereto applicable, has amended the Hercules No. 12 lode mining claim which was located the 23rd day of January, 1981, and recorded in the Imperial County, California, records at Book 1463, Page 1500, and filed with the Bureau of Land Management under Serial No. CAMC 79800. The most recent amendment of the location is recorded in Book 1535, Page 720, of the Imperial County, California, records.

This Amended Notice of Location and Notice of Location (hereinafter "Notice") is made to correct any defects, errors, and omissions in the location and/or the record thereof. Neither this Notice nor the record thereof shall preclude owner from proving any such title as owner held under previous locations. If, and to the extent, the original location is invalid, this Amended Notice of Location and Notice of Location shall be deemed to be the original Notice of Location. This Notice was posted on the ground located on the date of this Notice.

The date of this notice is the 24 day of January, 1988.

The number of linear feet claimed in length along the course of the vein, each way from the point of discovery is 1450 feet in an easterly direction and 50 feet in a westerly direction, together with 300 feet on each side of the center of the claim. The general course of the lode or vein is east/west.

This lode mining claim is located in the Southeast Quarter of Section 1, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

From the discovery monument, the Northeast corner of Section 12, T. 15 S., R. 20 E., San Bernardino Base and Meridian, bears South 78° 18' 38" East a distance of 1,480.71 feet.

This lode mining claim is described by metes and bounds as follows:

Beginning at Corner No. 1, the Northwest corner,
Thence East a distance of 1500 feet to Corner No. 2;
Thence South a distance of 300 feet to the East End Center;
Thence South a distance of 300 feet to Corner No. 3;
Thence West a distance of 1500 feet to Corner No. 4;
Thence North a distance of 300 feet to the West End Center;
Thence North a distance of 300 feet to Corner No. 1;

the place of beginning.

This lode mining claim is contiguous to and is bounded by the following claims:

Hercules No. 13 on the North
Hercules No. 29 on the West
Hercules No. 11 on the South

TEXASGULF MINERALS AND METALS, INC., a Delaware corporation

By: William H. Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
OWNER

STATEMENT OF THE MARKING OF THE BOUNDARIES
(California - Lode Mining Claim)

Name of Lode Mining Claim: Hercules No. 12

The boundaries of this claim have been marked by monuments marked as follows:

Corner No. 1 is a 4"x4" wooden post, 4' long with metal tag marked "H-12 Corner 1"

Corner No. 2 is a 4"x4" wooden post, 4' long with metal tag marked "H-12 Corner 2"

The East End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-12 East End Center"

Corner No. 3 is a 4"x4" wooden post, 4' long with metal tag marked "H-12 Corner 3"

Corner No. 4 is a 4"x4" wooden post, 4' long with metal tag marked "H-12 Corner 4"

The West End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-12 West End Center"

This claim is located in Section 1, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

The date of marking was the 24 day of January, 1987.

TEXASGULF MINERALS AND METALS, INC., a Delaware corporation

By: William H. Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
OWNER

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:
SEP 13 2022

By _____
Deputy

88-06144 BOOK 1601 PAGE 957

DOLORES PROVENCIO
COUNTY RECORDER

RECORDING REQUESTED BY:

Texasgulf Minerals and Metals, Inc.

APR 14 4 08 PM '88

AND WHEN RECORDED MAIL TO:

OFFICIAL RECORDS
IMPERIAL COUNTY, CALIF.
BOOK 1601 PAGE 957

REG	$ 4
RIF	$ 2
MC	$ 1
NIL	$ -
TOTAL	$ 7

Von Porter
Texasgulf Minerals and Metals, Inc.
5932 McIntyre Street
Golden, Colorado 80403

AMENDED NOTICE OF LOCATION
and Notice of Location
(California - Lode)

Texasgulf Minerals and Metals, Inc., a Delaware corporation authorized to do business in the State of California, the current office and mailing address of which is 5932 McIntyre Street, Golden, Colorado 80403, being the lessee from and agent for Michael G. Tornabene, whose current residence and/or mailing address is 285 Oak Neck Lane, West Islip, New York 11795, the locator and/or owner (hereinafter "owner" whether one or more) of the mining claim hereinafter described, by right of discovery and location and desiring to amend the claim under and pursuant to the laws thereto applicable, has amended the Hercules No. 26 lode mining claim which was located the 23rd day of January, 1981, and recorded in the Imperial County, California, records at Book 1463, Page 1631, and filed with the Bureau of Land Management under Serial No. CAMC 79814.

This Amended Notice of Location and Notice of Location (hereinafter "Notice") is made to correct any defects, errors, and omissions in the location and/or the record thereof. Neither this Notice nor the record thereof shall preclude owner from proving any such title as owner held under previous locations. If, and to the extent, the original location is invalid, this Amended Notice of Location and Notice of Location shall be deemed to be the original Notice of Location. This Notice was posted on the ground located on the date of this Notice.

The date of this notice is the 24 day of January, 1988.

The number of linear feet claimed in length along the course of the vein, each way from the point of discovery is 50 feet in an easterly direction and 1450 feet in a westerly direction, together with 300 feet on each side of the center of the claim. The general course of the lode or vein is east/west.

This lode mining claim is located in the Southwest and Southeast Quarters of Section 1, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

From the discovery monument, the Northeast corner of Section 12, T. 15 S., R. 20 E., San Bernardino Base and Meridian, bears South 36° 25' 51" East a distance of 2,610.08 feet.

This lode mining claim is described by metes and bounds as follows:

Beginning at Corner No. 1, the Southeast corner,
Thence West a distance of 1500 feet to Corner No. 2;
Thence North a distance of 300 feet to the West End Center;
Thence North a distance of 300 feet to Corner No. 3;
Thence East a distance of 1500 feet to Corner No. 4;
Thence South a distance of 300 feet to the East End Center;
Thence South a distance of 300 feet to Corner No. 1;

the place of beginning.

This lode mining claim is contiguous to and is bounded by the following claims:

Hercules No. 25 on the North
Hercules No. 55 on the West
Hercules No. 27 on the South
Hercules No. 15 on the East

TEXASGULF MINERALS AND METALS, INC., a
Delaware corporation

By: William H Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
OWNER

STATEMENT OF THE MARKING OF THE BOUNDARIES
(California - Lode Mining Claim)

Name of Lode Mining Claim: Hercules No. 26

The boundaries of this claim have been marked by monuments marked as follows:

Corner No. 1 is a 4"x4" wooden post, 4' long with metal tag marked "H-26 Corner 1"

Corner No. 2 is a 4"x4" wooden post, 4' long with metal tag marked "H-26 Corner 2"

The East End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-26 East End Center"

Corner No. 3 is a 4"x4" wooden post, 4' long with metal tag marked "H-26 Corner 3"

Corner No. 4 is a 4"x4" wooden post, 4' long with metal tag marked "H-26 Corner 4"

The West End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-26 West End Center"

This claim is located in Section 1, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

The date of marking was the 24 day of January, 1987.

TEXASGULF MINERALS AND METALS, INC., a
Delaware corporation

By: William H Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
OWNER

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:

SEP 13 2022

By _____ Deputy

88-06145 BOOK 1601 PAGE 959

DOLORES PROVENCIO
COUNTY RECORDER

RECORDING REQUESTED BY:

Texasgulf Minerals and Metals, Inc.

APR 14 4 09 PM '88

AND WHEN RECORDED MAIL TO:

OFFICIAL RECORDS
IMPERIAL COUNTY, CALIF

REG	$ 4
RIF	$ 2
MC	$ 1
NIL	$ -
TOTAL	$ 7

BOOK 1601 PAGE 959

Von Porter
Texasgulf Minerals and Metals, Inc.
5932 McIntyre Street
Golden, Colorado 80403

AMENDED NOTICE OF LOCATION
and Notice of Location
(California - Lode)

Texasgulf Minerals and Metals, Inc., a Delaware corporation authorized to do business in the State of California, the current office and mailing address of which is 5932 McIntyre Street, Golden, Colorado 80403, being the lessee from and agent for Michael G. Tornabene, whose current residence and/or mailing address is 285 Oak Neck Lane, West Islip, New York 11795, the locator and/or owner (hereinafter "owner" whether one or more) of the mining claim hereinafter described, by right of discovery and location and desiring to amend the claim under and pursuant to the laws thereto applicable, has amended the Hercules No. 27 lode mining claim which was located the 23rd day of January, 1981, and recorded in the Imperial County, California, records at Book 1463, Page 1553, and filed with the Bureau of Land Management under Serial No. CAMC 79815.

This Amended Notice of Location and Notice of Location (hereinafter "Notice") is made to correct any defects, errors, and omissions in the location and/or the record thereof. Neither this Notice nor the record thereof shall preclude owner from proving any such title as owner held under previous locations. If, and to the extent, the original location is invalid, this Amended Notice of Location and Notice of Location shall be deemed to be the original Notice of Location. This Notice was posted on the ground located on the date of this Notice.

The date of this notice is the 24 day of January, 1988.

The number of linear feet claimed in length along the course of the vein, each way from the point of discovery is 50 feet in an easterly direction and 1450 feet in a westerly direction, together with 300 feet on each side of the center of the claim. The general course of the lode or vein is east/west.

This lode mining claim is located in the Southwest and Southeast Quarters of Section 1, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

From the discovery monument, the Northeast corner of Section 12, T. 15 S., R. 20 E., San Bernardino Base and Meridian, bears South 45° 56' 21" East a distance of 2,156.97 feet.

This lode mining claim is described by metes and bounds as follows:

Beginning at Corner No. 1, the Southeast corner,
Thence West a distance of 1500 feet to Corner No. 2;
Thence North a distance of 300 feet to the West End Center;
Thence North a distance of 300 feet to Corner No. 3;
Thence East a distance of 1500 feet to Corner No. 4;
Thence South a distance of 300 feet to the East End Center;
Thence South a distance of 300 feet to Corner No. 1;

the place of beginning.

This lode mining claim is contiguous to and is bounded by the following claims:

Hercules No. 26 on the North
Hercules No. 54 on the West
Hercules No. 28 on the South
Hercules No. 14 on the East

TEXASGULF MINERALS AND METALS, INC., a Delaware corporation

By: William H Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
OWNER

STATEMENT OF THE MARKING OF THE BOUNDARIES
(California - Lode Mining Claim)

Name of Lode Mining Claim: Hercules No. 27

The boundaries of this claim have been marked by monuments marked as follows:

Corner No. 1 is a 4"x4" wooden post, 4' long with metal tag marked "H-27 Corner 1"

Corner No. 2 is a 4"x4" wooden post, 4' long with metal tag marked "H-27 Corner 2"

The East End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-27 East End Center"

Corner No. 3 is a 4"x4" wooden post, 4' long with metal tag marked "H-27 Corner 3"

Corner No. 4 is a 4"x4" wooden post, 4' long with metal tag marked "H-27 Corner 4"

The West End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-27 West End Center"

This claim is located in Section 1, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

The date of marking was the 24 day of January, 1987.

TEXASGULF MINERALS AND METALS, INC., a Delaware corporation

By: William H Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
OWNER

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date issued:
SEP 13 2022

By _____ Deputy

88-06146 BOOK 1601 PAGE 961

DOLORES PROVENCIO
COUNTY RECORDER

APR 14 4 09 PM '88

OFFICIAL RECORDS
IMPERIAL COUNTY, CALIF
BOOK 1601 PAGE 961

RECORDING REQUESTED BY:

Texasgulf Minerals and Metals, Inc.

AND WHEN RECORDED MAIL TO:

Von Porter
Texasgulf Minerals and Metals, Inc.
5932 McIntyre Street
Golden, Colorado 80403

REG	$ 4
RIF	$ 2
MC	$ 1
NIL	$ -
TOTAL	$ 7

AMENDED NOTICE OF LOCATION
and Notice of Location
(California - Lode)

Texasgulf Minerals and Metals, Inc., a Delaware corporation authorized to do business in the State of California, the current office and mailing address of which is 5932 McIntyre Street, Golden, Colorado 80403, being the lessee from and agent for Michael G. Tornabene, whose current residence and/or mailing address is 285 Oak Neck Lane, West Islip, New York 11795, the locator and/or owner (hereinafter "owner" whether one or more) of the mining claim hereinafter described, by right of discovery and location and desiring to amend the claim under and pursuant to the laws thereto applicable, has amended the Hercules No. 28 lode mining claim which was located the 23rd day of January, 1981, and recorded in the Imperial County, California, records at Book 1463, Page 1502, and filed with the Bureau of Land Management under Serial No. CAMC 79816.

This Amended Notice of Location and Notice of Location (hereinafter "Notice") is made to correct any defects, errors, and omissions in the location and/or the record thereof. Neither this Notice nor the record thereof shall preclude owner from proving any such title as owner held under previous locations. If, and to the extent, the original location is invalid, this Amended Notice of Location and Notice of Location shall be deemed to be the original Notice of Location. This Notice was posted on the ground located on the date of this Notice.

The date of this notice is the 24 day of January, 1988.

The number of linear feet claimed in length along the course of the vein, each way from the point of discovery is 50 feet in an easterly direction and 1450 feet in a westerly direction, together with 300 feet on each side of the center of the claim. The general course of the lode or vein is east/west.

This lode mining claim is located in the Southwest and Southeast Quarters of Section 1, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

From the discovery monument, the Northeast corner of Section 12, T. 15 S., R. 20 E., San Bernardino Base and Meridian, bears South 59° 51' 31" East a distance of 1,792.34 feet.

This lode mining claim is described by metes and bounds as follows:

Beginning at Corner No. 1, the Southeast corner,
Thence West a distance of 1500 feet to Corner No. 2;
Thence North a distance of 300 feet to the West End Center;
Thence North a distance of 300 feet to Corner No. 3;
Thence East a distance of 1500 feet to Corner No. 4;
Thence South a distance of 300 feet to the East End Center;
Thence South a distance of 300 feet to Corner No. 1;

the place of beginning.

This lode mining claim is contiguous to and is bounded by the following claims:

Hercules No. 27 on the North
Hercules No. 53 on the West
Hercules No. 29 on the South
Hercules No. 13 on the East

TEXASGULF MINERALS AND METALS, INC., a Delaware corporation

By: William H. Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
OWNER

STATEMENT OF THE MARKING OF THE BOUNDARIES
(California - Lode Mining Claim)

Name of Lode Mining Claim: Hercules No. 28

The boundaries of this claim have been marked by monuments marked as follows:

Corner No. 1 is a 4"x4" wooden post, 4' long with metal tag marked "H-28 Corner 1"

Corner No. 2 is a 4"x4" wooden post, 4' long with metal tag marked "H-28 Corner 2"

The East End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-28 East End Center"

Corner No. 3 is a 4"x4" wooden post, 4' long with metal tag marked "H-28 Corner 3"

Corner No. 4 is a 4"x4" wooden post, 4' long with metal tag marked "H-28 Corner 4"

The West End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-28 West End Center"

This claim is located in Section 1, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

The date of marking was the 24 day of January, 1987.

TEXASGULF MINERALS AND METALS, INC., a Delaware corporation

By: William H. Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
OWNER

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:

SEP 13 2022

By _____ Deputy

88-06147 BOOK 1601 PAGE 963

DOLORES PROVENCIO
COUNTY RECORDER

RECORDING REQUESTED BY:

Texasgulf Minerals and Metals, Inc.

APR 14 4 09 PM '88

AND WHEN RECORDED MAIL TO:

REG	$ 4
RIF	$ 2
MC	$ 1
NIL	$ -
TOTAL	$ 7

OFFICIAL RECORDS
IMPERIAL COUNTY, CALIF
BOOK 1601 PAGE 963

Von Porter
Texasgulf Minerals and Metals, Inc.
5932 McIntyre Street
Golden, Colorado 80403

AMENDED NOTICE OF LOCATION
and Notice of Location
(California - Lode)

Texasgulf Minerals and Metals, Inc., a Delaware corporation authorized to do business in the State of California, the current office and mailing address of which is 5932 McIntyre Street, Golden, Colorado 80403, being the lessee from and agent for Michael G. Tornabene, whose current residence and/or mailing address is 285 Oak Neck Lane, West Islip, New York 11795, the locator and/or owner (hereinafter "owner" whether one or more) of the mining claim hereinafter described, by right of discovery and location and desiring to amend the claim under and pursuant to the laws thereto applicable, has amended the Hercules No. 29 lode mining claim which was located the 23rd day of January, 1981, and recorded in the Imperial County, California, records at Book 1463, Page 1503, and filed with the Bureau of Land Management under Serial No. CAMC 79817. The most recent amendment of the location is recorded in Book 1535, Page 725, of the Imperial County, California, records.

This Amended Notice of Location and Notice of Location (hereinafter "Notice") is made to correct any defects, errors, and omissions in the location and/or the record thereof. Neither this Notice nor the record thereof shall preclude owner from proving any such title as owner held under previous locations. If, and to the extent, the original location is invalid, this Amended Notice of Location and Notice of Location shall be deemed to be the original Notice of Location. This Notice was posted on the ground located on the date of this Notice.

The date of this notice is the 24 day of January, 1988.

The number of linear feet claimed in length along the course of the vein, each way from the point of discovery is 50 feet in an easterly direction and 1450 feet in a westerly direction, together with 300 feet on each side of the center of the claim. The general course of the lode or vein is east/west.

This lode mining claim is located in the Southwest and Southeast Quarters of Section 1, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

From the discovery monument, the Northeast corner of Section 12, T. 15 S., R. 20 E., San Bernardino Base and Meridian, bears South 79° 02' 45" East a distance of 1,578.77 feet.

This lode mining claim is described by metes and bounds as follows:

Beginning at Corner No. 1, the Southeast corner,
Thence West a distance of 1500 feet to Corner No. 2;
Thence North a distance of 300 feet to the West End Center;
Thence North a distance of 300 feet to Corner No. 3;
Thence East a distance of 1500 feet to Corner No. 4;
Thence South a distance of 300 feet to the East End Center;
Thence South a distance of 300 feet to Corner No. 1;

the place of beginning.

This lode mining claim is contiguous to and is bounded by the following claims:

Hercules No. 28 on the North
Hercules No. 52 on the West
Hercules No. 30 on the South
Hercules No. 12 on the East

TEXASGULF MINERALS AND METALS, INC., a Delaware corporation

By: William H. Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
OWNER

STATEMENT OF THE MARKING OF THE BOUNDARIES
(California - Lode Mining Claim)

Name of Lode Mining Claim: Hercules No. 29

The boundaries of this claim have been marked by monuments marked as follows:

Corner No. 1 is a 4"x4" wooden post, 4' long with metal tag marked "H-29 Corner 1"

Corner No. 2 is a 4"x4" wooden post, 4' long with metal tag marked "H-29 Corner 2"

The East End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-29 East End Center"

Corner No. 3 is a 4"x4" wooden post, 4' long with metal tag marked "H-29 Corner 3"

Corner No. 4 is a 4"x4" wooden post, 4' long with metal tag marked "H-29 Corner 4"

The West End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-29 West End Center"

This claim is located in Section 1, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

The date of marking was the 24 day of January, 1983.

TEXASGULF MINERALS AND METALS, INC., a Delaware corporation

By: William H. Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
OWNER

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:

SEP 13 2022

By _____ Deputy

88-06148 BOOK 1601 PAGE 965

DOLORES PROVENCIO
COUNTY RECORDER

RECORDING REQUESTED BY:

Texasgulf Minerals and Metals, Inc.

APR 14 4 09 PM '88

AND WHEN RECORDED MAIL TO:

REG	$ 4
RIF	$ 2
MC	$ 1
NIL	$ -
TOTAL	$ 7

OFFICIAL RECORDS
IMPERIAL COUNTY, CALIF
BOOK 1601 PAGE 965

Von Porter
Texasgulf Minerals and Metals, Inc.
5932 McIntyre Street
Golden, Colorado 80403

AMENDED NOTICE OF LOCATION
and Notice of Location
(California - Lode)

Texasgulf Minerals and Metals, Inc., a Delaware corporation authorized to do business in the State of California, the current office and mailing address of which is 5932 McIntyre Street, Golden, Colorado 80403, being the lessee from and agent for Michael G. Tornabene, whose current residence and/or mailing address is 285 Oak Neck Lane, West Islip, New York 11795, the locator and/or owner (hereinafter "owner" whether one or more) of the mining claim hereinafter described, by right of discovery and location and desiring to amend the claim under and pursuant to the laws thereto applicable, has amended the Hercules No. 30 lode mining claim which was located the 23rd day of January, 1981, and recorded in the Imperial County, California, records at Book 1463, Page 1504, and filed with the Bureau of Land Management under Serial No. CAMC 79818. The most recent amendment of the location is recorded in Book 1535, Page 726, of the Imperial County, California, records.

This Amended Notice of Location and Notice of Location (hereinafter "Notice") is made to correct any defects, errors, and omissions in the location and/or the record thereof. Neither this Notice nor the record thereof shall preclude owner from proving any such title as owner held under previous locations. If, and to the extent, the original location is invalid, this Amended Notice of Location and Notice of Location shall be deemed to be the original Notice of Location. This Notice was posted on the ground located on the date of this Notice.

The date of this notice is the 24 day of January, 1988.

The number of linear feet claimed in length along the course of the vein, each way from the point of discovery is 50 feet in an easterly direction and 1450 feet in a westerly direction, together with 300 feet on each side of the center of the claim. The general course of the lode or vein is east/west.

This lode mining claim is located in the Northwest and Northeast Quarters of Section 12, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

From the discovery monument, the Northeast corner of Section 12, T. 15 S., R. 20 E., San Bernardino Base and Meridian, bears North 79° 02' 45" East a distance of 1,578.77 feet.

This lode mining claim is described by metes and bounds as follows:

Beginning at Corner No. 1, the Southeast corner,
Thence West a distance of 1500 feet to Corner No. 2;
Thence North a distance of 300 feet to the West End Center;
Thence North a distance of 300 feet to Corner No. 3;
Thence East a distance of 1500 feet to Corner No. 4;
Thence South a distance of 300 feet to the East End Center;
Thence South a distance of 300 feet to Corner No. 1;

the place of beginning.

This lode mining claim is contiguous to and is bounded by the following claims:

Hercules No. 29 on the North
Hercules No. 51 on the West
Hercules No. 31 on the South
Hercules No. 11 on the East

TEXASGULF MINERALS AND METALS, INC., a
Delaware corporation

By: William H. Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
OWNER

STATEMENT OF THE MARKING OF THE BOUNDARIES
(California - Lode Mining Claim)

Name of Lode Mining Claim: Hercules No. 30

The boundaries of this claim have been marked by monuments marked as follows:

Corner No. 1 is a 4"x4" wooden post, 4' long with metal tag marked "H-30 Corner 1"

Corner No. 2 is a 4"x4" wooden post, 4' long with metal tag marked "H-30 Corner 2"

The East End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-30 East End Center"

Corner No. 3 is a 4"x4" wooden post, 4' long with metal tag marked "H-30 Corner 3"

Corner No. 4 is a 4"x4" wooden post, 4' long with metal tag marked "H-30 Corner 4"

The West End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-30 West End Center"

This claim is located in Section 12, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

The date of marking was the 24 day of January, 1989.

TEXASGULF MINERALS AND METALS, INC., a
Delaware corporation

By: William H. Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
OWNER

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:

SEP 13 2022

By _____ Deputy

88-06149

BOOK 1601 PAGE 967

DOLORES PROVENCIO
COUNTY RECORDER

APR 14 4 09 PM '88

OFFICIAL RECORDS
IMPERIAL COUNTY, CALIF

BOOK 1601 PAGE 967

REG	$ 4
RIF	$ 2
MC	$ 1
NIL	$ -
TOTAL	$ 7

RECORDING REQUESTED BY:

Texasgulf Minerals and Metals, Inc.

AND WHEN RECORDED MAIL TO:

Von Porter
Texasgulf Minerals and Metals, Inc.
5932 McIntyre Street
Golden, Colorado 80403

AMENDED NOTICE OF LOCATION
and Notice of Location
(California - Lode)

Texasgulf Minerals and Metals, Inc., a Delaware corporation authorized to do business in the State of California, the current office and mailing address of which is 5932 McIntyre Street, Golden, Colorado 80403, being the lessee from and agent for Michael G. Tornabene, whose current residence and/or mailing address is 285 Oak Neck Lane, West Islip, New York 11795, and Brigham Young University, the current mailing address of which is 387A ASB Administration Building, Provo, Utah 84602, the locators and/or owners (hereinafter "owner" whether one or more) of the mining claim hereinafter described, by right of discovery and location and desiring to amend the claim under and pursuant to the laws thereto applicable, has amended the Hercules No. 31 lode mining claim which was located the 23rd day of January, 1981, and recorded in the Imperial County, California, records at Book 1463, Page 1506, and filed with the Bureau of Land Management under Serial No. CAMC 79819. The most recent amendment of the location is recorded in Book 1535, Page 724, of the Imperial County, California, records.

This Amended Notice of Location and Notice of Location (hereinafter "Notice") is made to correct any defects, errors, and omissions in the location and/or the record thereof. Neither this Notice nor the record thereof shall preclude owner from proving any such title as owner held under previous locations. If, and to the extent, the original location is invalid, this Amended Notice of Location and Notice of Location shall be deemed to be the original Notice of Location. This Notice was posted on the ground located on the date of this Notice.

The date of this notice is the 24 day of January, 1988.

The number of linear feet claimed in length along the course of the vein, each way from the point of discovery is 50 feet in an easterly direction and 1450 feet in a westerly direction, together with 300 feet on each side of the center of the claim. The general course of the lode or vein is east/west.

This lode mining claim is located in the Northwest and Northeast Quarters of Section 12, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

From the discovery monument, the Northeast corner of Section 12, T. 15 S., R. 20 E., San Bernardino Base and Meridian, bears North 59° 51' 31" East a distance of 1,792.34 feet.

This lode mining claim is described by metes and bounds as follows:

Beginning at Corner No. 1, the Southeast corner,
Thence West a distance of 1500 feet to Corner No. 2;
Thence North a distance of 300 feet to the West End Center;
Thence North a distance of 300 feet to Corner No. 3;
Thence East a distance of 1500 feet to Corner No. 4;
Thence South a distance of 300 feet to the East End Center;
Thence South a distance of 300 feet to Corner No. 1;

the place of beginning.

This lode mining claim is contiguous to and is bounded by the following claims:

Hercules No. 30 on the North
Hercules No. 50 on the West
Hercules No. 32 on the South
Hercules No. 10 on the East

TEXASGULF MINERALS AND METALS, INC., a Delaware corporation

By: William H. Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
Brigham Young University
OWNER

STATEMENT OF THE MARKING OF THE BOUNDARIES
(California - Lode Mining Claim)

Name of Lode Mining Claim: Hercules No. 31

The boundaries of this claim have been marked by monuments marked as follows:

Corner No. 1 is a 4"x4" wooden post, 4' long with metal tag marked "H-31 Corner 1"

Corner No. 2 is a 4"x4" wooden post, 4' long with metal tag marked "H-31 Corner 2"

The East End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-31 East End Center"

Corner No. 3 is a 4"x4" wooden post, 4' long with metal tag marked "H-31 Corner 3"

Corner No. 4 is a 4"x4" wooden post, 4' long with metal tag marked "H-31 Corner 4"

The West End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-31 West End Center"

This claim is located in Section 12, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

The date of marking was the 24 day of January, 1987.

TEXASGULF MINERALS AND METALS, INC., a Delaware corporation

By: William H Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
Brigham Young University
OWNER

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:

SEP 13 2022

By _____ Deputy

88-06150 BOOK 1601 PAGE 969

DOLORES PROVENCIO
COUNTY RECORDER

RECORDING REQUESTED BY:

Texasgulf Minerals and Metals, Inc.

APR 14 4 09 PM '88

AND WHEN RECORDED MAIL TO:

REG	$ 4
RIF	$ 2
MC	$ 1
NIL	$ -
TOTAL	$ 7

OFFICIAL RECORDS
IMPERIAL COUNTY, CALIF
BOOK 1601 PAGE 969

Von Porter
Texasgulf Minerals and Metals, Inc.
5932 McIntyre Street
Golden, Colorado 80403

AMENDED NOTICE OF LOCATION
and Notice of Location
(California - Lode)

Texasgulf Minerals and Metals, Inc., a Delaware corporation authorized to do business in the State of California, the current office and mailing address of which is 5932 McIntyre Street, Golden, Colorado 80403, being the lessee from and agent for Michael G. Tornabene, whose current residence and/or mailing address is 285 Oak Neck Lane, West Islip, New York 11795, and Brigham Young University, the current mailing address of which is 387A ASB Administration Building, Provo, Utah 84602, the locators and/or owners (hereinafter "owner" whether one or more) of the mining claim hereinafter described, by right of discovery and location and desiring to amend the claim under and pursuant to the laws thereto applicable, has amended the Hercules No. 32 lode mining claim which was located the 23rd day of January, 1981, and recorded in the Imperial County, California, records at Book 1463, Page 1508, and filed with the Bureau of Land Management under Serial No. CAMC 79820. The most recent amendment of the location is recorded in Book 1535, Page 719, of the Imperial County, California, records.

This Amended Notice of Location and Notice of Location (hereinafter "Notice") is made to correct any defects, errors, and omissions in the location and/or the record thereof. Neither this Notice nor the record thereof shall preclude owner from proving any such title as owner held under previous locations. If, and to the extent, the original location is invalid, this Amended Notice of Location and Notice of Location shall be deemed to be the original Notice of Location. This Notice was posted on the ground located on the date of this Notice.

The date of this notice is the 24 day of January, 1988.

The number of linear feet claimed in length along the course of the vein, each way from the point of discovery is 50 feet in an easterly direction and 1450 feet in a westerly direction, together with 300 feet on each side of the center of the claim. The general course of the lode or vein is east/west.

This lode mining claim is located in the Northwest and Northeast Quarters of Section 12, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

From the discovery monument, the Northeast corner of Section 12, T. 15 S., R. 20 E., San Bernardino Base and Meridian, bears North 45° 56' 21" East a distance of 2,156.97 feet.

This lode mining claim is described by metes and bounds as follows:

Beginning at Corner No. 1, the Southeast corner,
Thence West a distance of 1500 feet to Corner No. 2;
Thence North a distance of 300 feet to the West End Center;
Thence North a distance of 300 feet to Corner No. 3;
Thence East a distance of 1500 feet to Corner No. 4;
Thence South a distance of 300 feet to the East End Center;
Thence South a distance of 300 feet to Corner No. 1;

the place of beginning.

This lode mining claim is contiguous to and is bounded by the following claims:

Hercules No. 31 on the North
Hercules No. 49 on the West
Hercules No. 33 on the South
Hercules No. 9 on the East

TEXASGULF MINERALS AND METALS, INC., a Delaware corporation

By: William H. Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
Brigham Young University
OWNER

STATEMENT OF THE MARKING OF THE BOUNDARIES
(California - Lode Mining Claim)

Name of Lode Mining Claim: Hercules No. 32

The boundaries of this claim have been marked by monuments marked as follows:

Corner No. 1 is a 4"x4" wooden post, 4' long with metal tag marked "H-32 Corner 1"

Corner No. 2 is a 4"x4" wooden post, 4' long with metal tag marked "H-32 Corner 2"

The East End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-32 East End Center"

Corner No. 3 is a 4"x4" wooden post, 4' long with metal tag marked "H-32 Corner 3"

Corner No. 4 is a 4"x4" wooden post, 4' long with metal tag marked "H-32 Corner 4"

The West End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-32 West End Center"

This claim is located in Section 12, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

The date of marking was the 24 day of January, 1988.

TEXASGULF MINERALS AND METALS, INC., a Delaware corporation

By: William H. Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
Brigham Young University
OWNER

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:
SEP 13 2022 By
D. Daly

88-06151 BOOK 1601 PAGE 971

DOLORES PROVENCIO
COUNTY RECORDER

RECORDING REQUESTED BY:

Texasgulf Minerals and Metals, Inc.

APR 14 4 09 PM '88

AND WHEN RECORDED MAIL TO:

OFFICIAL RECORDS
IMPERIAL COUNTY, CALIF
BOOK 1601 PAGE 971

REG	$ 4
RIF	$ 2
MC	$ 1
NIL	$ -
TOTAL	$ 7

Von Porter
Texasgulf Minerals and Metals, Inc.
5932 McIntyre Street
Golden, Colorado 80403

AMENDED NOTICE OF LOCATION
and Notice of Location
(California - Lode)

Texasgulf Minerals and Metals, Inc., a Delaware corporation authorized to do business in the State of California, the current office and mailing address of which is 5932 McIntyre Street, Golden, Colorado 80403, being the lessee from and agent for Michael G. Tornabene, whose current residence and/or mailing address is 285 Oak Neck Lane, West Islip, New York 11795, the locator and/or owner (hereinafter "owner" whether one or more) of the mining claim hereinafter described, by right of discovery and location and desiring to amend the claim under and pursuant to the laws thereto applicable, has amended the Hercules No. 33 lode mining claim which was located the 23rd day of January, 1981, and recorded in the Imperial County, California, records at Book 1463, Page 1509, and filed with the Bureau of Land Management under Serial No. CAMC 79821.

This Amended Notice of Location and Notice of Location (hereinafter "Notice") is made to correct any defects, errors, and omissions in the location and/or the record thereof. Neither this Notice nor the record thereof shall preclude owner from proving any such title as owner held under previous locations. If, and to the extent, the original location is invalid, this Amended Notice of Location and Notice of Location shall be deemed to be the original Notice of Location. This Notice was posted on the ground located on the date of this Notice.

The date of this notice is the 24 day of January, 1988.

The number of linear feet claimed in length along the course of the vein, each way from the point of discovery is 50 feet in an easterly direction and 1450 feet in a westerly direction, together with 300 feet on each side of the center of the claim. The general course of the lode or vein is east/west.

This lode mining claim is located in the Northwest and Northeast Quarters of Section 12, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

From the discovery monument, the Northeast corner of Section 12, T. 15 S., R. 20 E., San Bernardino Base and Meridian, bears North 36° 25' 51" East a distance of 2,610.08 feet.

This lode mining claim is described by metes and bounds as follows:

Beginning at Corner No. 1, the Southeast corner,
Thence West a distance of 1500 feet to Corner No. 2;
Thence North a distance of 300 feet to the West End Center;
Thence North a distance of 300 feet to Corner No. 3;
Thence East a distance of 1500 feet to Corner No. 4;
Thence South a distance of 300 feet to the East End Center;
Thence South a distance of 300 feet to Corner No. 1;

the place of beginning.

This lode mining claim is contiguous to and is bounded by the following claims:

Hercules No. 32 on the North
Hercules No. 48 on the West
Hercules No. 34 on the South
Hercules No. 8 on the East

TEXASGULF MINERALS AND METALS, INC., a Delaware corporation

By: William H. Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
OWNER

STATEMENT OF THE MARKING OF THE BOUNDARIES
(California - Lode Mining Claim)

Name of Lode Mining Claim: Hercules No. 33

The boundaries of this claim have been marked by monuments marked as follows:

Corner No. 1 is a 4"x4" wooden post, 4' long with metal tag marked "H-33 Corner 1"

Corner No. 2 is a 4"x4" wooden post, 4' long with metal tag marked "H-33 Corner 2"

The East End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-33 East End Center"

Corner No. 3 is a 4"x4" wooden post, 4' long with metal tag marked "H-33 Corner 3"

Corner No. 4 is a 4"x4" wooden post, 4' long with metal tag marked "H-33 Corner 4"

The West End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-33 West End Center"

This claim is located in Section 12, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

The date of marking was the 24 day of January, 1985.

TEXASGULF MINERALS AND METALS, INC., a Delaware corporation

By: William H Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
OWNER

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:

SEP 13 2022

By _____
Deputy

88-06171 BOOK 1601 PAGE 1011

DOLORES PROVENCIO
COUNTY RECORDER

RECORDING REQUESTED BY:

Texasgulf Minerals and Metals, Inc.

APR 14 4 10 PM '88

AND WHEN RECORDED MAIL TO:

REG	$ 4
RIF	$ 2
MC	$ 1
NIL	$ -
TOTAL	$ 7

OFFICIAL RECORDS
IMPERIAL COUNTY, CALIF
BOOK 1601 PAGE 1011

Von Porter
Texasgulf Minerals and Metals, Inc.
5932 McIntyre Street
Golden, Colorado 80403

AMENDED NOTICE OF LOCATION
and Notice of Location
(California - Lode)

Texasgulf Minerals and Metals, Inc., a Delaware corporation authorized to do business in the State of California, the current office and mailing address of which is 5932 McIntyre Street, Golden, Colorado 80403, being the lessee from and agent for Michael G. Tornabene, whose current residence and/or mailing address is 285 Oak Neck Lane, West Islip, New York 11795, the locator and/or owner (hereinafter "owner" whether one or more) of the mining claim hereinafter described, by right of discovery and location and desiring to amend the claim under and pursuant to the laws thereto applicable, has amended the Hercules No. 53 lode mining claim which was located the 23rd day of January, 1981, and recorded in the Imperial County, California, records at Book 1463, Page 1520, and filed with the Bureau of Land Management under Serial No. CAMC 79841.

This Amended Notice of Location and Notice of Location (hereinafter "Notice") is made to correct any defects, errors, and omissions in the location and/or the record thereof. Neither this Notice nor the record thereof shall preclude owner from proving any such title as owner held under previous locations. If, and to the extent, the original location is invalid, this Amended Notice of Location and Notice of Location shall be deemed to be the original Notice of Location. This Notice was posted on the ground located on the date of this Notice.

The date of this notice is the 25 day of January, 198¶.

The number of linear feet claimed in length along the course of the vein, each way from the point of discovery is 1450 feet in an easterly direction and 50 feet in a westerly direction, together with 300 feet on each side of the center of the claim. The general course of the lode or vein is east/west.

This lode mining claim is located in the Southwest Quarter of Section 1, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

From the discovery monument, the Northeast corner of Section 11, T. 15 S., R. 20 E., San Bernardino Base and Meridian, bears South 42° 04' 23" West a distance of 1,224.86 feet.

This lode mining claim is described by metes and bounds as follows:

Beginning at Corner No. 1, the Northwest corner,
Thence East a distance of 1500 feet to Corner No. 2;
Thence South a distance of 300 feet to the East End Center;
Thence South a distance of 300 feet to Corner No. 3;
Thence West a distance of 1500 feet to Corner No. 4;
Thence North a distance of 300 feet to the West End Center;
Thence North a distance of 300 feet to Corner No. 1;

the place of beginning.

This lode mining claim is contiguous to and is bounded by the following claims:

Hercules No. 54 on the North
Hercules No. 68 on the West
Hercules No. 52 on the South
Hercules No. 28 on the East

TEXASGULF MINERALS AND METALS, INC., a Delaware corporation

By: William H. Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
OWNER

STATEMENT OF THE MARKING OF THE BOUNDARIES
(California - Lode Mining Claim)

Name of Lode Mining Claim: Hercules No. 53

The boundaries of this claim have been marked by monuments marked as follows:

Corner No. 1 is a 4"x4" wooden post, 4' long with metal tag marked "H-53 Corner 1"

Corner No. 2 is a 4"x4" wooden post, 4' long with metal tag marked "H-53 Corner 2"

The East End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-53 East End Center"

Corner No. 3 is a 4"x4" wooden post, 4' long with metal tag marked "H-53 Corner 3"

Corner No. 4 is a 4"x4" wooden post, 4' long with metal tag marked "H-53 Corner 4"

The West End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-53 West End Center"

This claim is located in Section 1, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

The date of marking was the 25 day of January, 1988.

TEXASGULF MINERALS AND METALS, INC., a Delaware corporation

By: William H. Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
OWNER

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:

SEP 13 2022

By _____ Deputy

88-06172 BOOK 1601 PAGE 1013

DOLORES PROVENCIO
COUNTY RECORDER

RECORDING REQUESTED BY:

Texasgulf Minerals and Metals, Inc.

APR 14 4 10 PM '88

AND WHEN RECORDED MAIL TO:

REG	$ 4
RIF	$ 2
MC	$ 1
NIL	$ -
TOTAL	$ 7

OFFICIAL RECORDS
IMPERIAL COUNTY, CALIF
BOOK 1601 PAGE 1013

Von Porter
Texasgulf Minerals and Metals, Inc.
5932 McIntyre Street
Golden, Colorado 80403

AMENDED NOTICE OF LOCATION
and Notice of Location
(California - Lode)

Texasgulf Minerals and Metals, Inc., a Delaware corporation authorized to do business in the State of California, the current office and mailing address of which is 5932 McIntyre Street, Golden, Colorado 80403, being the lessee from and agent for Michael G. Tornabene, whose current residence and/or mailing address is 285 Oak Neck Lane, West Islip, New York 11795, the locator and/or owner (hereinafter "owner" whether one or more) of the mining claim hereinafter described, by right of discovery and location and desiring to amend the claim under and pursuant to the laws thereto applicable, has amended the Hercules No. 54 lode mining claim which was located the 23rd day of January, 1981, and recorded in the Imperial County, California, records at Book 1463, Page 1521, and filed with the Bureau of Land Management under Serial No. CAMC 79842.

This Amended Notice of Location and Notice of Location (hereinafter "Notice") is made to correct any defects, errors, and omissions in the location and/or the record thereof. Neither this Notice nor the record thereof shall preclude owner from proving any such title as owner held under previous locations. If, and to the extent, the original location is invalid, this Amended Notice of Location and Notice of Location shall be deemed to be the original Notice of Location. This Notice was posted on the ground located on the date of this Notice.

The date of this notice is the 25 day of January, 1988.

The number of linear feet claimed in length along the course of the vein, each way from the point of discovery is 1450 feet in an easterly direction and 50 feet in a westerly direction, together with 300 feet on each side of the center of the claim. The general course of the lode or vein is east/west.

This lode mining claim is located in the Southwest Quarter of Section 1, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

From the discovery monument, the Northeast corner of Section 11, T. 15 S., R. 20 E., San Bernardino Base and Meridian, bears South 28° 32' 19" West a distance of 1,717.94 feet.

This lode mining claim is described by metes and bounds as follows:

Beginning at Corner No. 1, the Northwest corner,
Thence East a distance of 1500 feet to Corner No. 2;
Thence South a distance of 300 feet to the East End Center;
Thence South a distance of 300 feet to Corner No. 3;
Thence West a distance of 1500 feet to Corner No. 4;
Thence North a distance of 300 feet to the West End Center;
Thence North a distance of 300 feet to Corner No. 1;

the place of beginning.

This lode mining claim is contiguous to and is bounded by the following claims:

Hercules No. 55 on the North
Hercules No. 67 on the West
Hercules No. 53 on the South
Hercules No. 27 on the East

TEXASGULF MINERALS AND METALS, INC., a Delaware corporation

By: William H. Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
OWNER

STATEMENT OF THE MARKING OF THE BOUNDARIES
(California - Lode Mining Claim)

Name of Lode Mining Claim: Hercules No. 54

The boundaries of this claim have been marked by monuments marked as follows:

Corner No. 1 is a 4"x4" wooden post, 4' long with metal tag marked "H-54 Corner 1"

Corner No. 2 is a 4"x4" wooden post, 4' long with metal tag marked "H-54 Corner 2"

The East End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-54 East End Center"

Corner No. 3 is a 4"x4" wooden post, 4' long with metal tag marked "H-54 Corner 3"

Corner No. 4 is a 4"x4" wooden post, 4' long with metal tag marked "H-54 Corner 4"

The West End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-54 West End Center"

This claim is located in Section 1, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

The date of marking was the 25 day of January, 1988.

TEXASGULF MINERALS AND METALS, INC., a Delaware corporation

By: William H. Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
OWNER

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:
SEP 13 2022 By _____ Deputy

88-06173 BOOK 1601 PAGE 1015

DOLORES PROVENCIO
COUNTY RECORDER

APR 14 4 10 PM '88

OFFICIAL RECORDS
IMPERIAL COUNTY, CALIF

BOOK 1601 PAGE 1015

RECORDING REQUESTED BY:

Texasgulf Minerals and Metals, Inc.

AND WHEN RECORDED MAIL TO:

Von Porter
Texasgulf Minerals and Metals, Inc.
5932 McIntyre Street
Golden, Colorado 80403

REG	$ 4
RIF	$ 2
MC	$ 1
NIL	$ -
TOTAL	$ 7

AMENDED NOTICE OF LOCATION
and Notice of Location
(California - Lode)

Texasgulf Minerals and Metals, Inc., a Delaware corporation authorized to do business in the State of California, the current office and mailing address of which is 5932 McIntyre Street, Golden, Colorado 80403, being the lessee from and agent for Michael G. Tornabene, whose current residence and/or mailing address is 285 Oak Neck Lane, West Islip, New York 11795, the locator and/or owner (hereinafter "owner" whether one or more) of the mining claim hereinafter described, by right of discovery and location and desiring to amend the claim under and pursuant to the laws thereto applicable, has amended the Hercules No. 55 lode mining claim which was located the 23rd day of January, 1981, and recorded in the Imperial County, California, records at Book 1463, Page 1536, and filed with the Bureau of Land Management under Serial No. CAMC 79843.

This Amended Notice of Location and Notice of Location (hereinafter "Notice") is made to correct any defects, errors, and omissions in the location and/or the record thereof. Neither this Notice nor the record thereof shall preclude owner from proving any such title as owner held under previous locations. If, and to the extent, the original location is invalid, this Amended Notice of Location and Notice of Location shall be deemed to be the original Notice of Location. This Notice was posted on the ground located on the date of this Notice.

The date of this notice is the 25 day of January, 1988.

The number of linear feet claimed in length along the course of the vein, each way from the point of discovery is 1450 feet in an easterly direction and 50 feet in a westerly direction, together with 300 feet on each side of the center of the claim. The general course of the lode or vein is east/west.

This lode mining claim is located in the Southwest Quarter of Section 1, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

From the discovery monument, the Northeast corner of Section 11, T. 15 S., R. 20 E., San Bernardino Base and Meridian, bears South 21° 15' 44" West a distance of 2,263.26 feet.

This lode mining claim is described by metes and bounds as follows:

Beginning at Corner No. 1, the Northwest corner,
Thence East a distance of 1500 feet to Corner No. 2;
Thence South a distance of 300 feet to the East End Center;
Thence South a distance of 300 feet to Corner No. 3;
Thence West a distance of 1500 feet to Corner No. 4;
Thence North a distance of 300 feet to the West End Center;
Thence North a distance of 300 feet to Corner No. 1;

the place of beginning.

This lode mining claim is contiguous to and is bounded by the following claims:

Hercules No. 56 on the North
Hercules No. 66 on the West
Hercules No. 54 on the South
Hercules No. 26 on the East

TEXASGULF MINERALS AND METALS, INC., a Delaware corporation

By: William H. Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
OWNER

STATEMENT OF THE MARKING OF THE BOUNDARIES
(California - Lode Mining Claim)

Name of Lode Mining Claim: Hercules No. 55

The boundaries of this claim have been marked by monuments marked as follows:

Corner No. 1 is a 4"x4" wooden post, 4' long with metal tag marked "H-55 Corner 1"

Corner No. 2 is a 4"x4" wooden post, 4' long with metal tag marked "H-55 Corner 2"

The East End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-55 East End Center"

Corner No. 3 is a 4"x4" wooden post, 4' long with metal tag marked "H-55 Corner 3"

Corner No. 4 is a 4"x4" wooden post, 4' long with metal tag marked "H-55 Corner 4"

The West End Center is a 4"x4" wooden post, 4' long with metal tag marked "H-55 West End Center"

This claim is located in Section 1, T. 15 S., R. 20 E., San Bernardino Base and Meridian, Imperial County, California.

The date of marking was the 25 day of January, 1988.

TEXASGULF MINERALS AND METALS, INC., a Delaware corporation

By: William H. Strait
William H. Strait, Vice President
AUTHORIZED AGENT

FOR: Michael G. Tornabene
OWNER

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued: SEP 13 2022

By _____ Deputy

BOOK 1954 PAGE 59

98 26757

IMPERIAL COUNTY RECORDER

NOV 17 11 53 AM '98

OFFICIAL RECORDS
IMPERIAL COUNTY, CALIF.

BOOK 1954 PAGE 59

TLS	9
RG	3
RF	1
MC	1
IX	1
TF	
NL	
PY	3
PR	

RECORDING REQUESTED BY

AND WHEN RECORDED MAIL TO

NAME: MICHAEL G. TORNABENE
STREET ADDRESS: 1523 SW Troon Circle
CITY & STATE: Palm City, Florida 34990

(SPACE ABOVE THIS LINE FOR RECORDER'S USE)

LODE MINING CLAIM — LOCATION NOTICE

TO WHOM IT MAY CONCERN: Please take notice that:

1. The name of this claim is HERCULES 132, a lode mining claim.
2. This claim is situated in Section 7, Township 15S, Range 21E, SAN BERNARDINO Meridian, in the CARGO MUCHACHO Mining District (if known), County of IMPERIAL, State of California.
3. The date of this location is the 23rd day of OCTOBER, 1998 on which date the notice of location was posted on the claim.
4. The locator [redacted] of this claim [redacted] IS.

Name(s)	Current Mailing or Residence Address
MICHAEL G. TORNABENE	1523 SW Troon Circle Palm City, Florida 34990

5. Each locator is a citizen of the United States, or has declared intention to become such.
6. The locator[redacted] do(es) hereby locate and claim 1500 linear feet of this vein or lode, together with surface ground extending (not to exceed 1500)
   300 feet in width on each side of the middle of the vein or lode and more particularly described as follows: (not to exceed 300)
   Commencing at the monument where this notice is posted, which monument is at the point of discovery on said vein or lode and on the center line of this location, I [redacted] hereby claim 1490 feet extending in a NORTH direction along the course of the vein from the discovery monument and 10 feet in a SOUTH direction from the discovery monument, along the course of the vein. The general course of the vein is in a NORTH erly and SOUTH erly direction.
7. The discovery monument is situated about 1570 FEET NORTH AND 300 FEET EAST (Distance from natural object or permanent monument and give direction as accurately as possible, to identify the claim located.)
   FROM THE NE COR. OF SECTION 12 T15S, R20E S.B.M.
8. All dips, variations, spurs, angles and all veins, ledges, or deposits* within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the laws of this State or of the United States are hereby claimed.
   *including but not limited to mineral and surface ground

LOCATORS

STATEMENT OF THE MARKINGS OF THE BOUNDARIES AND OF PERFORMANCE OF LOCATION WORK

NOTICE IS HEREBY GIVEN by the undersigned locator that in accordance with the provisions of the Mining Law:

1. The boundaries of the claim have been defined so that they can be readily traced on the ground. There has been erected at the discovery point, at each corner and at the center of each end line of the claim A WOOD POST, 1½" BY 1¾" IN SIZE (Here describe the monuments, giving type and size.)
   3 FEET ABOVE GROUND AND 1 FOOT IN GROUND
   Each corner monument bears or contains markings to designate the corner and name of the claim.
2. The claim is situated in Section 7, SOUTH QUARTER, Township 15S, Range 21E, SAN BERNARDINO Meridian.

DATED OCTOBER 23, 1998

LOCATOR [redacted]

SEE REVERSE SIDE

NOTICE OF LOCATION—LODE
WOLCOTT'S FORM NO. 1134—REV. 3-75

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:
SEP 13 2022 By _____ Deputy

BOOK 1954 PAGE 60

98 26758
DOLORES PROVENCIO
COUNTY RECORDER
Nov 17 11 53 AM '98
OFFICIAL RECORDS
SAN BERNARDINO COUNTY, CALIF.
BOOK 1954 PAGE 60

FLS	9
RG	3
RF	1
MC	1
IX	1
TF	
NL	
PY	3
PR	

RECORDING REQUESTED BY

AND WHEN RECORDED MAIL TO

NAME / STREET ADDRESS / CITY & STATE
MICHAEL G. TORNABENE
1523 SW Troon Circle
Palm City, Florida
34990

(SPACE ABOVE THIS LINE FOR RECORDER'S USE)

LODE MINING CLAIM – LOCATION NOTICE

TO WHOM IT MAY CONCERN: Please take notice that:

1. The name of this claim is HERCULES 133, a lode mining claim.
2. This claim is situated in Section 7 & 6, Township 1S S, Range 21E, SAN BERNARDINO Meridian, in the Cajon Mining District (if known), County of _____, State of California.
3. The date of this location is the 23rd day of OCTOBER, 1998 on which date the notice of location was posted on the claim.
4. The locator [redacted] of this claim [redacted] IS.

Name(s)	Current Mailing or Residence Address
MICHAEL G. TORNABENE	1523 SW Troon Circle Palm City, Florida 34990

5. Each locator is a citizen of the United States, or has declared intention to become such.
6. The locator[redacted] do(es) hereby locate and claim 1500 linear feet of this vein or lode, together with surface ground extending (not to exceed 1500)
300 feet in width on each side of the middle of the vein or lode and more particularly described as follows: (not to exceed 300)

Commencing at the monument where this notice is posted, which monument is at the point of discovery on said vein or lode and on the center line of this location, I [redacted] hereby claim 10 feet extending in a NORTH direction along the course of the vein from the discovery monument and 1490 feet in a SOUTH direction from the discovery monument, along the course of the vein. The general course of the vein is in a NORTH erly and SOUTH erly direction.

7. The discovery monument is situated about 4490 FEET NORTH AND 300 FEET EAST (Distance from natural object or permanent monument and give direction as accurately as possible, to identify the claim located.)
OF THE SE CORNER OF SECTION 12 [redacted] AND THE NE COR. OF SECTION 13, T1S R20E, S.B.M.

8. All dips, variations, spurs, angles and all veins, ledges, or deposits within the lines of this claim, together with all water and timber and any other rights appurtenant, allowed by the laws of this State or of the United States are hereby claimed.
*including but not limited to mineral and surface ground

LOCATORS

STATEMENT OF THE MARKINGS OF THE BOUNDARIES AND OF PERFORMANCE OF LOCATION WORK

NOTICE IS HEREBY GIVEN by the undersigned locator that in accordance with the provisions of the Mining Law:

1. The boundaries of the claim have been defined so that they can be readily traced on the ground. There has been erected at the discovery point, at each corner and at the center of each end line of the claim 4 WOOD POST 1½" BY 1¾" IN SIZE (Here describe the monuments, giving type and size.)
3 FEET ABOVE GROUND AND 1 FOOT IN GROUND
Each corner monument bears or contains markings to designate the corner and name of the claim.
2. The claim is situated in Section 7 NW QUARTER of SW QUARTER SECTION 6, Township 1S S, Range 21 E, SAN BERNARDINO Meridian.

DATED OCTOBER 23, 1998 LOCATOR [redacted]

SEE REVERSE SIDE

NOTICE OF LOCATION—LODE
WOLCOTTS FORM NO. 1134—REV. 3-75

1 of 1

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:
SEP 13 2022 By _____ Deputy

Certified Copy of document number 2010003173

THIS IS A TRUE CERTIFIED COPY OF THE RECORD, IF IT BEARS THE SEAL AND SIGNATURE OF THE IMPERIAL COUNTY CLERK-RECORDER

DATE: 9/13/2022

CERTIFICATION FEE: 3.50

COUNTY CLERK-RECORDER

IMPERIAL COUNTY
STATE OF CALIFORNIA

RECORDING REQUESTED BY AND MAIL TO:

Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89703

Recorded in Official Records, Imperial County

Dolores Provencio
County Clerk / Recorder

P Public

2/02/2010
9:58 AM
IV

Doc#: **2010–003173**

Titles: 1 Pages: 2

Fees	10.00
Taxes	0.00
Other	1.50
PAID	$11.50

Space above for Recorder's Use

NOTICE OF LOCATION LODE MINING CLAIM
Amended for Imperial County - Document No. 2010001614
To correct a typographical error in the Meridian to S.B.B.&M.

Notice is hereby given that the Undersigned, as agent for Lincoln Gold US Corp. hereby locates and claims the following described mineral bearing ground as a lode claim:

This claim shall be known as the OC 1 Lode Mining Claim in the following quarter section(s):

¼	Section	Township	Range	Meridian
NW	1	15 South	20 East	S.B.B.&M.

From this point of discovery (monument of location) 10 feet in a East direction and 1490 feet in a West direction, and 300 feet on each side of the centerline of the claim. The claim is approximately 1500 feet long and 600 feet wide and the general course of the lode or vein is from the East to the West direction. The discovery and corner monuments are 1 ½" x 1 ½" x 4' wood posts.

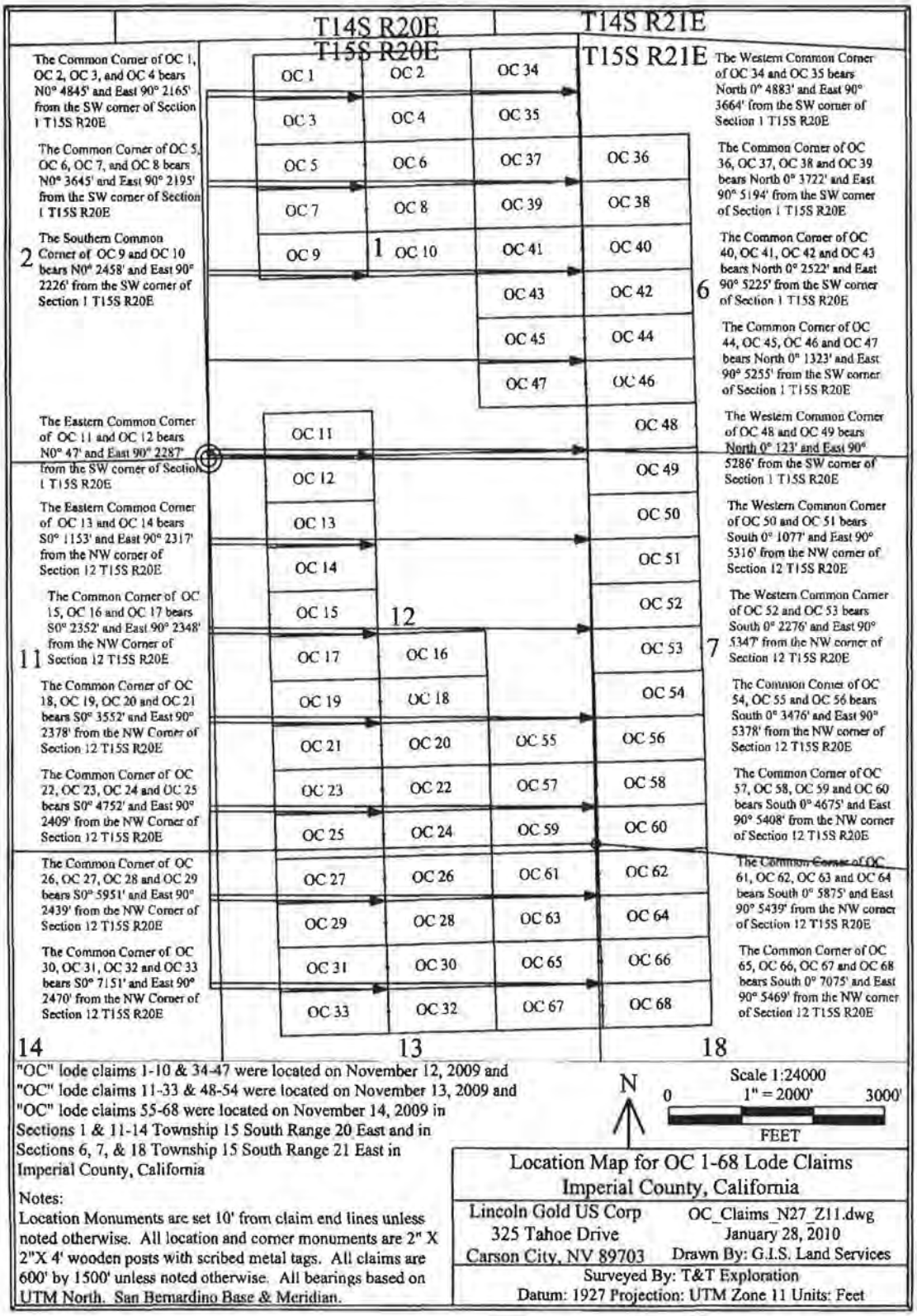
The SE corner of this claim bears NORTH and 4845 feet and bears East and 2165 feet from the SW Corner of Section 1, Township 15 South, Range 20 East, S.B.B.&M., and is in Mesquite Mining District, Imperial County, California.
Located this 12th day of November, 2009.

Locator: Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89702

STATEMENT OF THE BOUNDARIES:
Notice is hereby given by locator that in accordance with the requirements of the California Public Resources Code.
1. The above Notice of Location is a true and correct copy of said notice.
2. The locator has defined the boundaries of this claim by erecting at each corner of the claim, or the nearest accessible points thereto, a conspicuous and substantial monument, and each corner monument so erected contains markings sufficient to appropriately designate the corner of the mining claim to which it pertains and the name of the claim. The date of marking is 12/10/2009, and the description of monument are: 1 ½" x 1 ½" x 4' wood monument with scribed metal tag.

Lincoln Gold US Corp.

By: _____
H. H. Tonking, Agent



"OC" lode claims 1-10 & 34-47 were located on November 12, 2009 and "OC" lode claims 11-33 & 48-54 were located on November 13, 2009 and "OC" lode claims 55-68 were located on November 14, 2009 in Sections 1 & 11-14 Township 15 South Range 20 East and in Sections 6, 7, & 18 Township 15 South Range 21 East in Imperial County, California

Notes:
Location Monuments are set 10' from claim end lines unless noted otherwise. All location and corner monuments are 2" X 2"X 4' wooden posts with scribed metal tags. All claims are 600' by 1500' unless noted otherwise. All bearings based on UTM North. San Bernardino Base & Meridian.

Location Map for OC 1-68 Lode Claims
Imperial County, California

Lincoln Gold US Corp	OC_Claims_N27_Z11.dwg
325 Tahoe Drive	January 28, 2010
Carson City, NV 89703	Drawn By: G.I.S. Land Services

Surveyed By: T&T Exploration
Datum: 1927 Projection: UTM Zone 11 Units: Feet

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:

SEP 13 2022

By _____ Deputy

Certified Copy of Document number 2010003174

THIS IS A TRUE CERTIFIED COPY OF THE
RECORD, IF IT BEARS THE SEAL AND SIGNATURE
OF THE IMPERIAL COUNTY CLERK-RECORDER

DATE: 9/13/2022

CERTIFICATION FEE: 3.50

COUNTY CLERK-RECORDER

IMPERIAL COUNTY
STATE OF CALIFORNIA

RECORDING REQUESTED BY AND MAIL TO:

Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89703

Recorded in Official Records, Imperial County

Dolores Provencio
County Clerk / Recorder

P Public

2/02/2010
9:58 AM
IV

Doc#: 2010–003174

Titles: 1 **Pages: 2**

Fees	10.00
Taxes	0.00
Other	1.50
PAID	$11.50

Space above for Recorder's Use

NOTICE OF LOCATION LODE MINING CLAIM

Amended for Imperial County - Document No. 2010001615
To correct a typographical error in the Meridian to S.B.B.&M.

Notice is hereby given that the Undersigned, as agent for Lincoln Gold US Corp. hereby locates and claims the following described mineral bearing ground as a lode claim:

This claim shall be known as the OC 2 Lode Mining Claim in the following quarter section(s):

¼	Section	Township	Range	Meridian
NW	1	15 South	20 East	S.B.B.&M.
NE	1	15 South	20 East	S.B.B.&M.

From this point of discovery (monument of location) 1490 feet in a East direction and 10 feet in a West direction, and 300 feet on each side of the centerline of the claim. The claim is approximately 1500 feet long and 600 feet wide and the general course of the lode or vein is from the East to the West direction. The discovery and corner monuments are 1 ½" x 1 ½" x 4' wood posts.

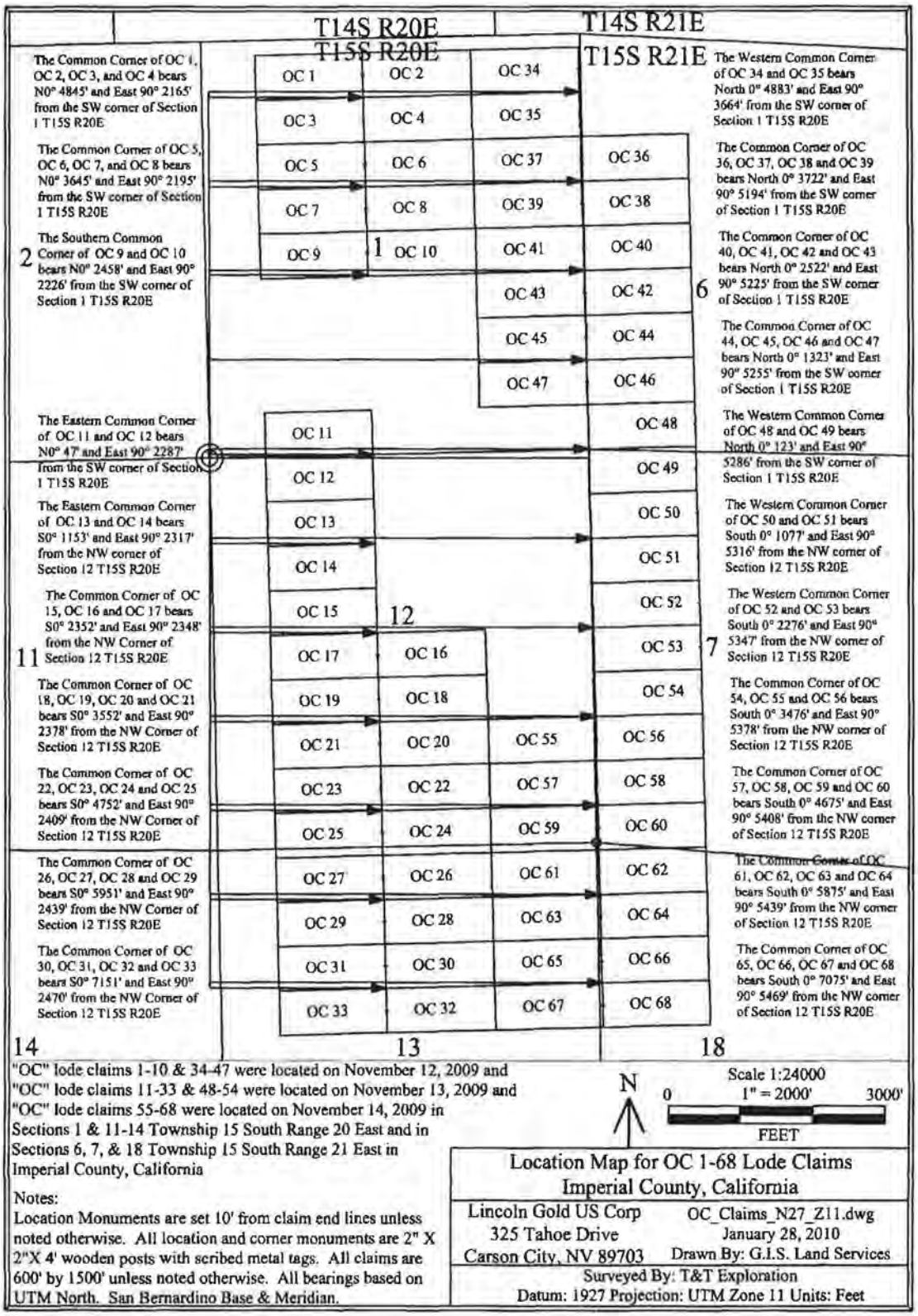
The SW corner of this claim bears NORTH and 4845 feet and bears East and 2165 feet from the SW Corner of Section 1, Township 15 South, Range 20 East, S.B.B.&M., and is in Mesquite Mining District, Imperial County, California.
Located this 12th day of November, 2009.

Locator: Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89702

STATEMENT OF THE BOUNDARIES:
Notice is hereby given by locator that in accordance with the requirements of the California Public Resources Code.
1. The above Notice of Location is a true and correct copy of said notice.
2. The locator has defined the boundaries of this claim by erecting at each corner of the claim, or the nearest accessible points thereto, a conspicuous and substantial monument, and each corner monument so erected contains markings sufficient to appropriately designate the corner of the mining claim to which it pertains and the name of the claim. The date of marking is 12/10/2009, and the description of monument are: 1 ½" x 1 ½" x 4' wood monument with scribed metal tag.

Lincoln Gold US Corp.

By: _____
H. H. Tonking, Agent


T14S R20E
T15S R20E
T14S R21E
T15S R21E
The Common Corner of OC 1, OC 2, OC 3, and OC 4 bears N0° 4845' and East 90° 2165' from the SW corner of Section 1 T15S R20E
The Common Corner of OC 5, OC 6, OC 7, and OC 8 bears N0° 3645' and East 90° 2195' from the SW corner of Section 1 T15S R20E
The Southern Common Corner of OC 9 and OC 10 bears N0° 2458' and East 90° 2226' from the SW corner of Section 1 T15S R20E
The Eastern Common Corner of OC 11 and OC 12 bears N0° 47' and East 90° 2287' from the SW corner of Section 1 T15S R20E
The Eastern Common Corner of OC 13 and OC 14 bears S0° 1153' and East 90° 2317' from the NW corner of Section 12 T15S R20E
The Common Corner of OC 15, OC 16 and OC 17 bears S0° 2352' and East 90° 2348' from the NW Corner of Section 12 T15S R20E
The Common Corner of OC 18, OC 19, OC 20 and OC 21 bears S0° 3552' and East 90° 2378' from the NW Corner of Section 12 T15S R20E
The Common Corner of OC 22, OC 23, OC 24 and OC 25 bears S0° 4752' and East 90° 2409' from the NW Corner of Section 12 T15S R20E
The Common Corner of OC 26, OC 27, OC 28 and OC 29 bears S0° 5951' and East 90° 2439' from the NW Corner of Section 12 T15S R20E
The Common Corner of OC 30, OC 31, OC 32 and OC 33 bears S0° 7151' and East 90° 2470' from the NW Corner of Section 12 T15S R20E
The Western Common Corner of OC 34 and OC 35 bears North 0° 4883' and East 90° 3664' from the SW corner of Section 1 T15S R20E
The Common Corner of OC 36, OC 37, OC 38 and OC 39 bears North 0° 3722' and East 90° 5194' from the SW corner of Section 1 T15S R20E
The Common Corner of OC 40, OC 41, OC 42 and OC 43 bears North 0° 2522' and East 90° 5225' from the SW corner of Section 1 T15S R20E
The Common Corner of OC 44, OC 45, OC 46 and OC 47 bears North 0° 1323' and East 90° 5255' from the SW corner of Section 1 T15S R20E
The Western Common Corner of OC 48 and OC 49 bears North 0° 123' and East 90° 5286' from the SW corner of Section 1 T15S R20E
The Western Common Corner of OC 50 and OC 51 bears South 0° 1077' and East 90° 5316' from the NW corner of Section 12 T15S R20E
The Western Common Corner of OC 52 and OC 53 bears South 0° 2276' and East 90° 5347' from the NW corner of Section 12 T15S R20E
The Common Corner of OC 54, OC 55 and OC 56 bears South 0° 3476' and East 90° 5378' from the NW corner of Section 12 T15S R20E
The Common Corner of OC 57, OC 58, OC 59 and OC 60 bears South 0° 4675' and East 90° 5408' from the NW corner of Section 12 T15S R20E
The Common Corner of OC 61, OC 62, OC 63 and OC 64 bears South 0° 5875' and East 90° 5439' from the NW corner of Section 12 T15S R20E
The Common Corner of OC 65, OC 66, OC 67 and OC 68 bears South 0° 7075' and East 90° 5469' from the NW corner of Section 12 T15S R20E
OC 1
OC 2
OC 3
OC 4
OC 5
OC 6
OC 7
OC 8
OC 9
OC 10
OC 11
OC 12
OC 13
OC 14
OC 15
OC 16
OC 17
OC 18
OC 19
OC 20
OC 21
OC 22
OC 23
OC 24
OC 25
OC 26
OC 27
OC 28
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OC 53
OC 54
OC 55
OC 56
OC 57
OC 58
OC 59
OC 60
OC 61
OC 62
OC 63
OC 64
OC 65
OC 66
OC 67
OC 68
1
2
6
7
11
12
13
14
18
"OC" lode claims 1-10 & 34-47 were located on November 12, 2009 and "OC" lode claims 11-33 & 48-54 were located on November 13, 2009 and "OC" lode claims 55-68 were located on November 14, 2009 in Sections 1 & 11-14 Township 15 South Range 20 East and in Sections 6, 7, & 18 Township 15 South Range 21 East in Imperial County, California
Notes:
Location Monuments are set 10' from claim end lines unless noted otherwise. All location and corner monuments are 2" X 2"X 4' wooden posts with scribed metal tags. All claims are 600' by 1500' unless noted otherwise. All bearings based on UTM North. San Bernardino Base & Meridian.
N
Scale 1:24000
0
1" = 2000'
3000'
FEET
Location Map for OC 1-68 Lode Claims
Imperial County, California
Lincoln Gold US Corp
325 Tahoe Drive
Carson City, NV 89703
OC_Claims_N27_Z11.dwg
January 28, 2010
Drawn By: G.I.S. Land Services
Surveyed By: T&T Exploration
Datum: 1927 Projection: UTM Zone 11 Units: Feet

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California

Date Issued:
SEP 13 2022 By _____
Deputy

Certified Copy of document number 2010003175

THIS IS A TRUE CERTIFIED COPY OF THE RECORD, IF IT BEARS THE SEAL AND SIGNATURE OF THE IMPERIAL COUNTY CLERK-RECORDER

DATE: 9/13/2022

CERTIFICATION FEE: 3.50

COUNTY CLERK-RECORDER

IMPERIAL COUNTY
STATE OF CALIFORNIA

RECORDING REQUESTED BY AND MAIL TO:

Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89703

Recorded in Official Records, Imperial County
Dolores Provencio
County Clerk / Recorder

2/02/2010
9:58 AM
IV

P Public

Doc#: **2010–003175**

Titles: 1 Pages: 2

Fees	10.00
Taxes	0.00
Other	1.50
PAID	$11.50

Space above for Recorder's Use

NOTICE OF LOCATION LODE MINING CLAIM
Amended for Imperial County - Document No. 2010001616
To correct a typographical error in the Meridian to S.B.B.&M.

Notice is hereby given that the Undersigned, as agent for Lincoln Gold US Corp. hereby locates and claims the following described mineral bearing ground as a lode claim:

This claim shall be known as the OC 3 Lode Mining Claim in the following quarter section(s):

¼	Section	Township	Range	Meridian
NW	1	15 South	20 East	S.B.B.&M.

From this point of discovery (monument of location) 10 feet in a East direction and 1490 feet in a West direction, and 300 feet on each side of the centerline of the claim. The claim is approximately 1500 feet long and 600 feet wide and the general course of the lode or vein is from the East to the West direction. The discovery and corner monuments are 1 ½" x 1 ½" x 4' wood posts.

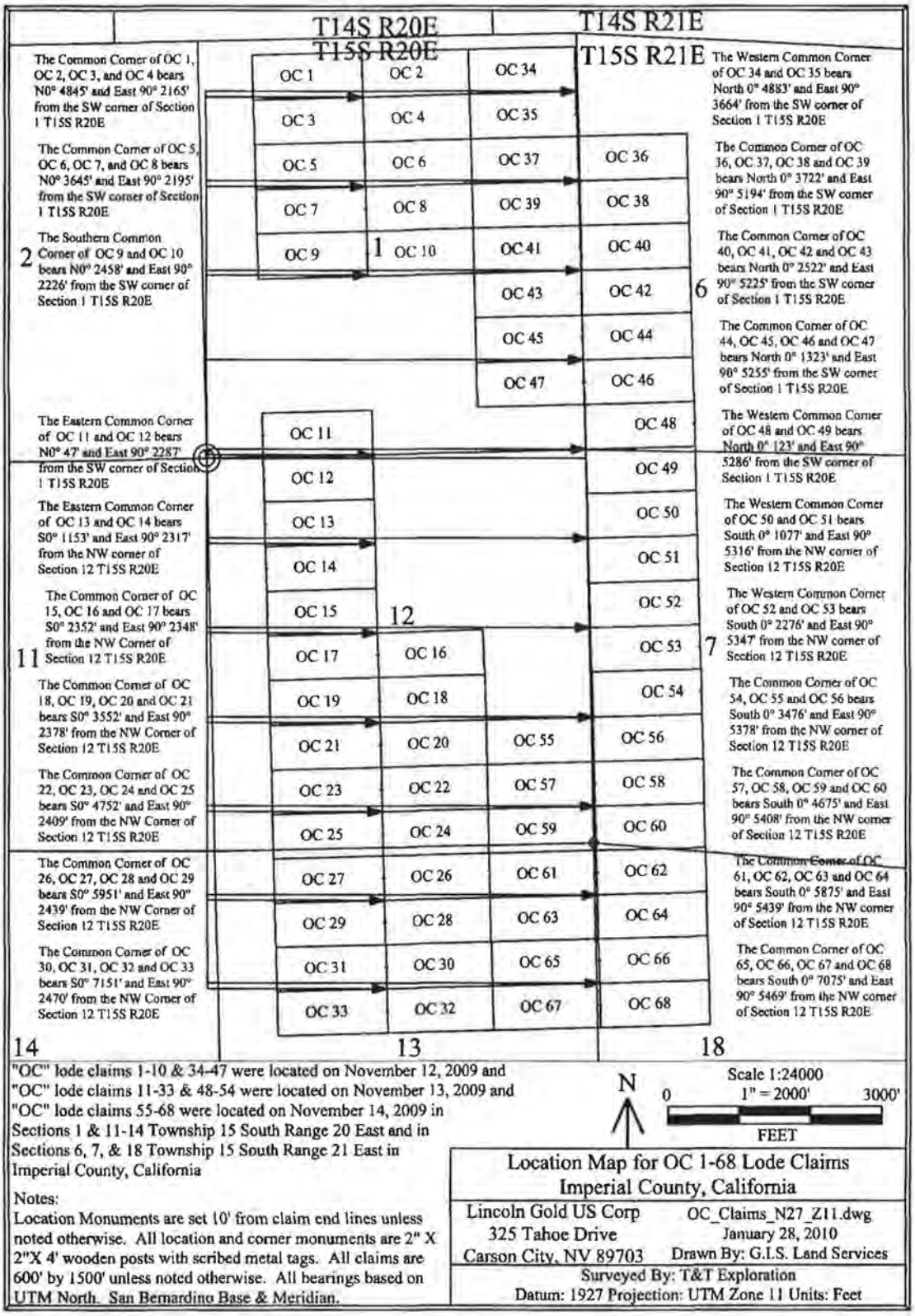
The NE corner of this claim bears NORTH and 4845 feet and bears East and 2165 feet from the SW Corner of Section 1, Township 15 South, Range 20 East, S.B.B.&M., and is in Mesquite Mining District, Imperial County, California.
Located this 12th day of November, 2009.

Locator: Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89702

STATEMENT OF THE BOUNDARIES:
Notice is hereby given by locator that in accordance with the requirements of the California Public Resources Code.
1. The above Notice of Location is a true and correct copy of said notice.
2. The locator has defined the boundaries of this claim by erecting at each corner of the claim, or the nearest accessible points thereto, a conspicuous and substantial monument, and each corner monument so erected contains markings sufficient to appropriately designate the corner of the mining claim to which it pertains and the name of the claim. The date of marking is 12/10/2009, and the description of monument are: 1 ½" x 1 ½" x 4' wood monument with scribed metal tag.

Lincoln Gold US Corp.

By: _____
H. H. Tonking, Agent



"OC" lode claims 1-10 & 34-47 were located on November 12, 2009 and "OC" lode claims 11-33 & 48-54 were located on November 13, 2009 and "OC" lode claims 55-68 were located on November 14, 2009 in Sections 1 & 11-14 Township 15 South Range 20 East and in Sections 6, 7, & 18 Township 15 South Range 21 East in Imperial County, California

Notes:
Location Monuments are set 10' from claim end lines unless noted otherwise. All location and corner monuments are 2" X 2"X 4' wooden posts with scribed metal tags. All claims are 600' by 1500' unless noted otherwise. All bearings based on UTM North. San Bernardino Base & Meridian.

Location Map for OC 1-68 Lode Claims
Imperial County, California

Lincoln Gold US Corp	OC_Claims_N27_Z11.dwg
325 Tahoe Drive	January 28, 2010
Carson City, NV 89703	Drawn By: G.I.S. Land Services

Surveyed By: T&T Exploration
Datum: 1927 Projection: UTM Zone 11 Units: Feet

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:
SEP 13 2022

By _____ Deputy

Certified Copy of Document number 2010003176

THIS IS A TRUE CERTIFIED COPY OF THE RECORD, IF IT BEARS THE SEAL AND SIGNATURE OF THE IMPERIAL COUNTY CLERK-RECORDER

DATE: 9/13/2022

CERTIFICATION FEE: 3.50

COUNTY CLERK-RECORDER

IMPERIAL COUNTY
STATE OF CALIFORNIA

RECORDING REQUESTED BY AND MAIL TO:

Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89703

Recorded in Official Records, Imperial County

Dolores Provencio
County Clerk / Recorder

P Public

2/02/2010
9:58 AM
IV

Doc#: **2010–003176**

Titles: 1 Pages: 2

Fees	10.00
Taxes	0.00
Other	1.50
PAID	$11.50

NOTICE OF LOCATION LODE MINING CLAIM

Amended for Imperial County - Document No. 2010001617
To correct a typographical error in the Meridian to S.B.B.&M.

Notice is hereby given that the Undersigned, as agent for Lincoln Gold US Corp. hereby locates and claims the following described mineral bearing ground as a lode claim:

This claim shall be known as the OC 4 Lode Mining Claim in the following quarter section(s):

¼	Section	Township	Range	Meridian
NW	1	15 South	20 East	S.B.B.&M.
NE	1	15 South	20 East	S.B.B.&M.

From this point of discovery (monument of location) 1490 feet in a East direction and 10 feet in a West direction, and 300 feet on each side of the centerline of the claim. The claim is approximately 1500 feet long and 600 feet wide and the general course of the lode or vein is from the East to the West direction. The discovery and corner monuments are 1 ½" x 1 ½" x 4' wood posts.

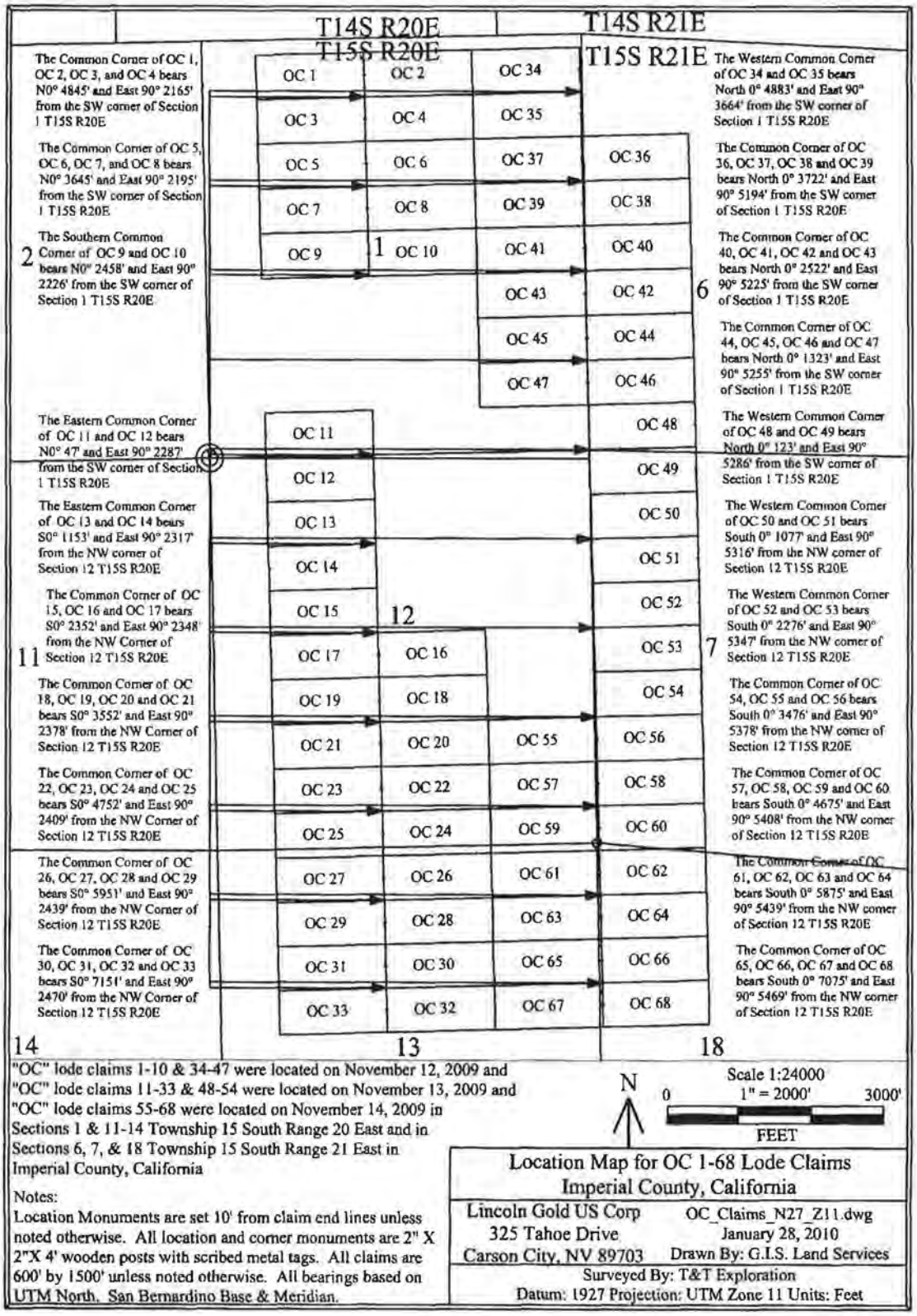
The NW corner of this claim bears NORTH and 4845 feet and bears East and 2165 feet from the SW Corner of Section 1, Township 15 South, Range 20 East, S.B.B.&M., and is in Mesquite Mining District, Imperial County, California.
Located this 12th day of November, 2009.

Locator: Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89702

STATEMENT OF THE BOUNDARIES:
Notice is hereby given by locator that in accordance with the requirements of the California Public Resources Code.
1. The above Notice of Location is a true and correct copy of said notice.
2. The locator has defined the boundaries of this claim by erecting at each corner of the claim, or the nearest accessible points thereto, a conspicuous and substantial monument, and each corner monument so erected contains markings sufficient to appropriately designate the corner of the mining claim to which it pertains and the name of the claim. The date of marking is 12/10/2009, and the description of monument are: 1 ½" x 1 ½" x 4' wood monument with scribed metal tag.

Lincoln Gold US Corp.

By: _____
H. H. Tonking, Agent



"OC" lode claims 1-10 & 34-47 were located on November 12, 2009 and "OC" lode claims 11-33 & 48-54 were located on November 13, 2009 and "OC" lode claims 55-68 were located on November 14, 2009 in Sections 1 & 11-14 Township 15 South Range 20 East and in Sections 6, 7, & 18 Township 15 South Range 21 East in Imperial County, California

Notes:
Location Monuments are set 10' from claim end lines unless noted otherwise. All location and corner monuments are 2" X 2"X 4' wooden posts with scribed metal tags. All claims are 600' by 1500' unless noted otherwise. All bearings based on UTM North, San Bernardino Base & Meridian.

Location Map for OC 1-68 Lode Claims
Imperial County, California

Lincoln Gold US Corp	OC_Claims_N27_Z11.dwg
325 Tahoe Drive	January 28, 2010
Carson City, NV 89703	Drawn By: G.I.S. Land Services

Surveyed By: T&T Exploration
Datum: 1927 Projection: UTM Zone 11 Units: Feet

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date issued:
SEP 13 2022 By _____ Deputy

Certified Copy of document number 2010003177

THIS IS A TRUE CERTIFIED COPY OF THE
RECORD, IF IT BEARS THE SEAL AND SIGNATURE
OF THE IMPERIAL COUNTY CLERK-RECORDER

DATE: 9/13/2022

CERTIFICATION FEE: 3.50

COUNTY CLERK-RECORDER

IMPERIAL COUNTY
STATE OF CALIFORNIA

RECORDING REQUESTED BY AND MAIL TO:

Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89703

Recorded in Official Records, Imperial County
Dolores Provencio
County Clerk / Recorder

2/02/2010
9:58 AM
IV

P Public

Doc#: 2010–003177

Titles: 1 Pages: 2

Fees	10.00
Taxes	0.00
Other	1.50
PAID	$11.50

NOTICE OF LOCATION LODE MINING CLAIM
Amended for Imperial County - Document No. 2010001618
To correct a typographical error in the Meridian to S.B.B.&M.

Notice is hereby given that the Undersigned, as agent for Lincoln Gold US Corp. hereby locates and claims the following described mineral bearing ground as a lode claim:

This claim shall be known as the OC 5 Lode Mining Claim in the following quarter section(s):

¼	Section	Township	Range	Meridian
NW	1	15 South	20 East	S.B.B.&M.

From this point of discovery (monument of location) 10 feet in a East direction and 1490 feet in a West direction, and 300 feet on each side of the centerline of the claim. The claim is approximately 1500 feet long and 600 feet wide and the general course of the lode or vein is from the East to the West direction. The discovery and corner monuments are 1 ½" x 1 ½" x 4' wood posts.

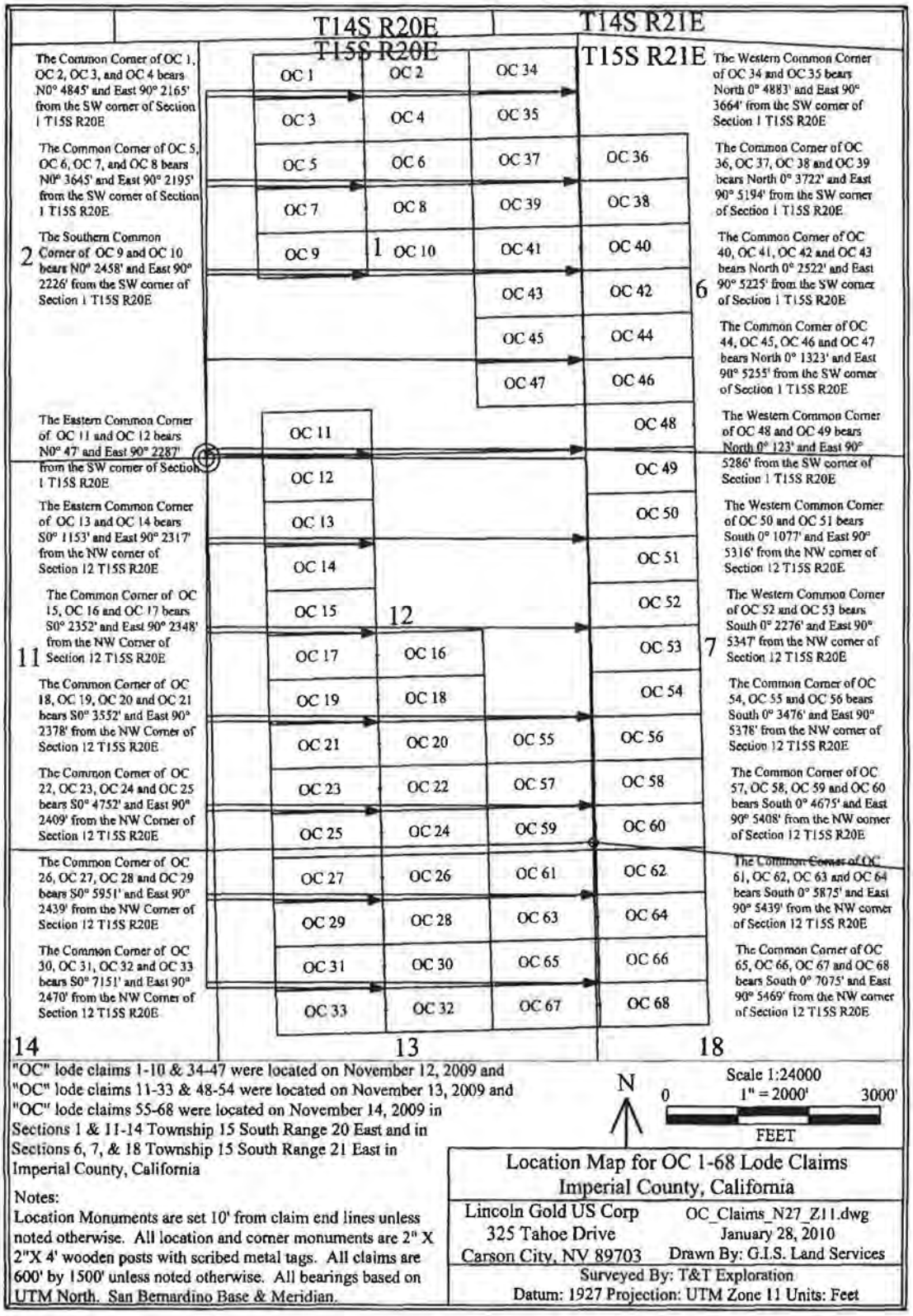
The SE corner of this claim bears NORTH and 3645 feet and bears East and 2195 feet from the SW Corner of Section 1, Township 15 South, Range 20 East, S.B.B.&M., and is in Mesquite Mining District, Imperial County, California.
Located this 12th day of November, 2009.

Locator: Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89702

STATEMENT OF THE BOUNDARIES:
Notice is hereby given by locator that in accordance with the requirements of the California Public Resources Code.
1. The above Notice of Location is a true and correct copy of said notice.
2. The locator has defined the boundaries of this claim by erecting at each corner of the claim, or the nearest accessible points thereto, a conspicuous and substantial monument, and each corner monument so erected contains markings sufficient to appropriately designate the corner of the mining claim to which it pertains and the name of the claim. The date of marking is 12/10/2009, and the description of monument are: 1 ½" x 1 ½" x 4' wood monument with scribed metal tag.

Lincoln Gold US Corp.

By: _____
H. H. Tonking, Agent



"OC" lode claims 1-10 & 34-47 were located on November 12, 2009 and "OC" lode claims 11-33 & 48-54 were located on November 13, 2009 and "OC" lode claims 55-68 were located on November 14, 2009 in Sections 1 & 11-14 Township 15 South Range 20 East and in Sections 6, 7, & 18 Township 15 South Range 21 East in Imperial County, California

Notes:
Location Monuments are set 10' from claim end lines unless noted otherwise. All location and corner monuments are 2" X 2"X 4' wooden posts with scribed metal tags. All claims are 600' by 1500' unless noted otherwise. All bearings based on UTM North. San Bernardino Base & Meridian.

Location Map for OC 1-68 Lode Claims
Imperial County, California

Lincoln Gold US Corp	OC_Claims_N27_Z11.dwg
325 Tahoe Drive	January 28, 2010
Carson City, NV 89703	Drawn By: G.I.S. Land Services

Surveyed By: T&T Exploration
Datum: 1927 Projection: UTM Zone 11 Units: Feet

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date issued:
SEP 13 2022

By _____ Deputy

Certified Copy of Document number 2010003178

THIS IS A TRUE CERTIFIED COPY OF THE RECORD, IF IT BEARS THE SEAL AND SIGNATURE OF THE IMPERIAL COUNTY CLERK-RECORDER

DATE: 9/13/2022

CERTIFICATION FEE: 3.50

COUNTY CLERK-RECORDER

IMPERIAL COUNTY
STATE OF CALIFORNIA

RECORDING REQUESTED BY AND MAIL TO:

Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89703

Recorded in Official Records, Imperial County

Dolores Provencio
County Clerk / Recorder

P Public

2/02/2010
9:58 AM
IV

Doc#: 2010–003178

Titles: 1 Pages: 2

Fees	10.00
Taxes	0.00
Other	1.50
PAID	$11.50

Space above for Recorder's Use

NOTICE OF LOCATION LODE MINING CLAIM
Amended for Imperial County - Document No. 2010001619
To correct a typographical error in the Meridian to S.B.B.&M.

Notice is hereby given that the Undersigned, as agent for Lincoln Gold US Corp. hereby locates and claims the following described mineral bearing ground as a lode claim:

This claim shall be known as the OC 6 Lode Mining Claim in the following quarter section(s):

¼	Section	Township	Range	Meridian
NW	1	15 South	20 East	S.B.B.&M.
NE	1	15 South	20 East	S.B.B.&M.

From this point of discovery (monument of location) 1490 feet in a East direction and 10 feet in a West direction, and 300 feet on each side of the centerline of the claim. The claim is approximately 1500 feet long and 600 feet wide and the general course of the lode or vein is from the East to the West direction. The discovery and corner monuments are 1 ½" x 1 ½" x 4' wood posts.

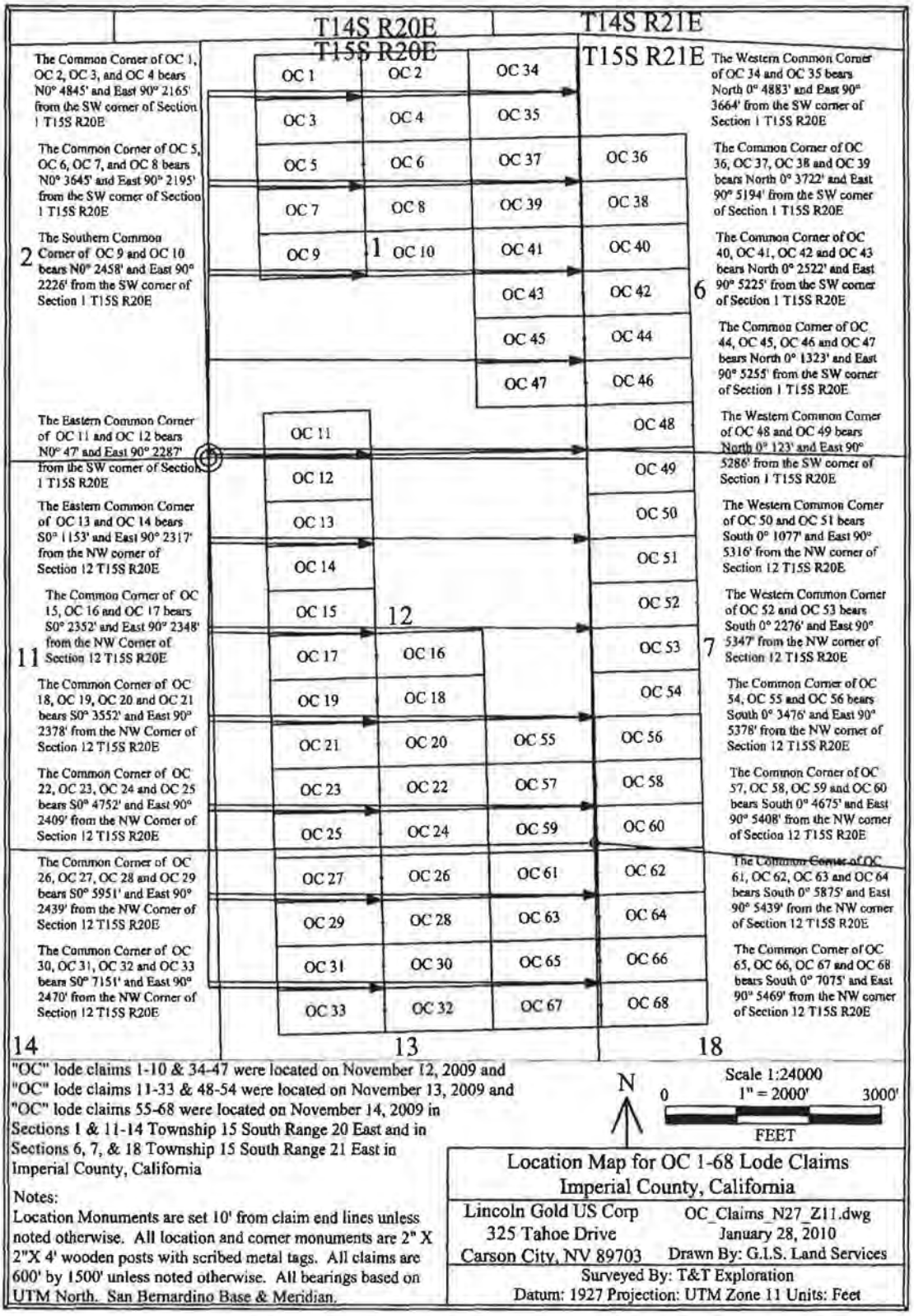
The SW corner of this claim bears NORTH and 3645 feet and bears East and 2195 feet from the SW Corner of Section 1, Township 15 South, Range 20 East, S.B.B.&M., and is in Mesquite Mining District, Imperial County, California.
Located this 12th day of November, 2009.

Locator: Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89702

STATEMENT OF THE BOUNDARIES:
Notice is hereby given by locator that in accordance with the requirements of the California Public Resources Code.
1. The above Notice of Location is a true and correct copy of said notice.
2. The locator has defined the boundaries of this claim by erecting at each corner of the claim, or the nearest accessible points thereto, a conspicuous and substantial monument, and each corner monument so erected contains markings sufficient to appropriately designate the corner of the mining claim to which it pertains and the name of the claim. The date of marking is 12/10/2009, and the description of monument are: 1 ½" x 1 ½" x 4' wood monument with scribed metal tag.

Lincoln Gold US Corp.

By: _____
H. H. Tonking, Agent



"OC" lode claims 1-10 & 34-47 were located on November 12, 2009 and "OC" lode claims 11-33 & 48-54 were located on November 13, 2009 and "OC" lode claims 55-68 were located on November 14, 2009 in Sections 1 & 11-14 Township 15 South Range 20 East and in Sections 6, 7, & 18 Township 15 South Range 21 East in Imperial County, California

Notes:
Location Monuments are set 10' from claim end lines unless noted otherwise. All location and corner monuments are 2" X 2"X 4' wooden posts with scribed metal tags. All claims are 600' by 1500' unless noted otherwise. All bearings based on UTM North. San Bernardino Base & Meridian.

Location Map for OC 1-68 Lode Claims
Imperial County, California

Lincoln Gold US Corp	OC_Claims_N27_Z11.dwg
325 Tahoe Drive	January 28, 2010
Carson City, NV 89703	Drawn By: G.I.S. Land Services

Surveyed By: T&T Exploration
Datum: 1927 Projection: UTM Zone 11 Units: Feet

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued: SEP 13 2022 By _____ Deputy

Certified Copy of Document number 2010003179

THIS IS A TRUE CERTIFIED COPY OF THE RECORD, IF IT BEARS THE SEAL AND SIGNATURE OF THE IMPERIAL COUNTY CLERK-RECORDER

DATE: 9/13/2022

CERTIFICATION FEE: 3.50

COUNTY CLERK-RECORDER

IMPERIAL COUNTY
STATE OF CALIFORNIA

RECORDING REQUESTED BY AND MAIL TO:

Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89703

Recorded in Official Records, Imperial County

Dolores Provencio
County Clerk / Recorder

2/02/2010
9:58 AM
IV

P Public

Doc#: **2010–003179**

Titles: 1 Pages: 2

Fees	10.00
Taxes	0.00
Other	1.50
PAID	$11.50

Space above for Recorder's Use

NOTICE OF LOCATION LODE MINING CLAIM
Amended for Imperial County - Document No. 2010001620
To correct a typographical error in the Meridian to S.B.B.&M.

Notice is hereby given that the Undersigned, as agent for Lincoln Gold US Corp. hereby locates and claims the following described mineral bearing ground as a lode claim:

This claim shall be known as the QC 7 Lode Mining Claim in the following quarter section(s):

¼	Section	Township	Range	Meridian
NW	1	15 South	20 East	S.B.B.&M.

From this point of discovery (monument of location) 10 feet in a East direction and 1490 feet in a West direction, and 300 feet on each side of the centerline of the claim. The claim is approximately 1500 feet long and 600 feet wide and the general course of the lode or vein is from the East to the West direction. The discovery and corner monuments are 1 ½" x 1 ½" x 4' wood posts.

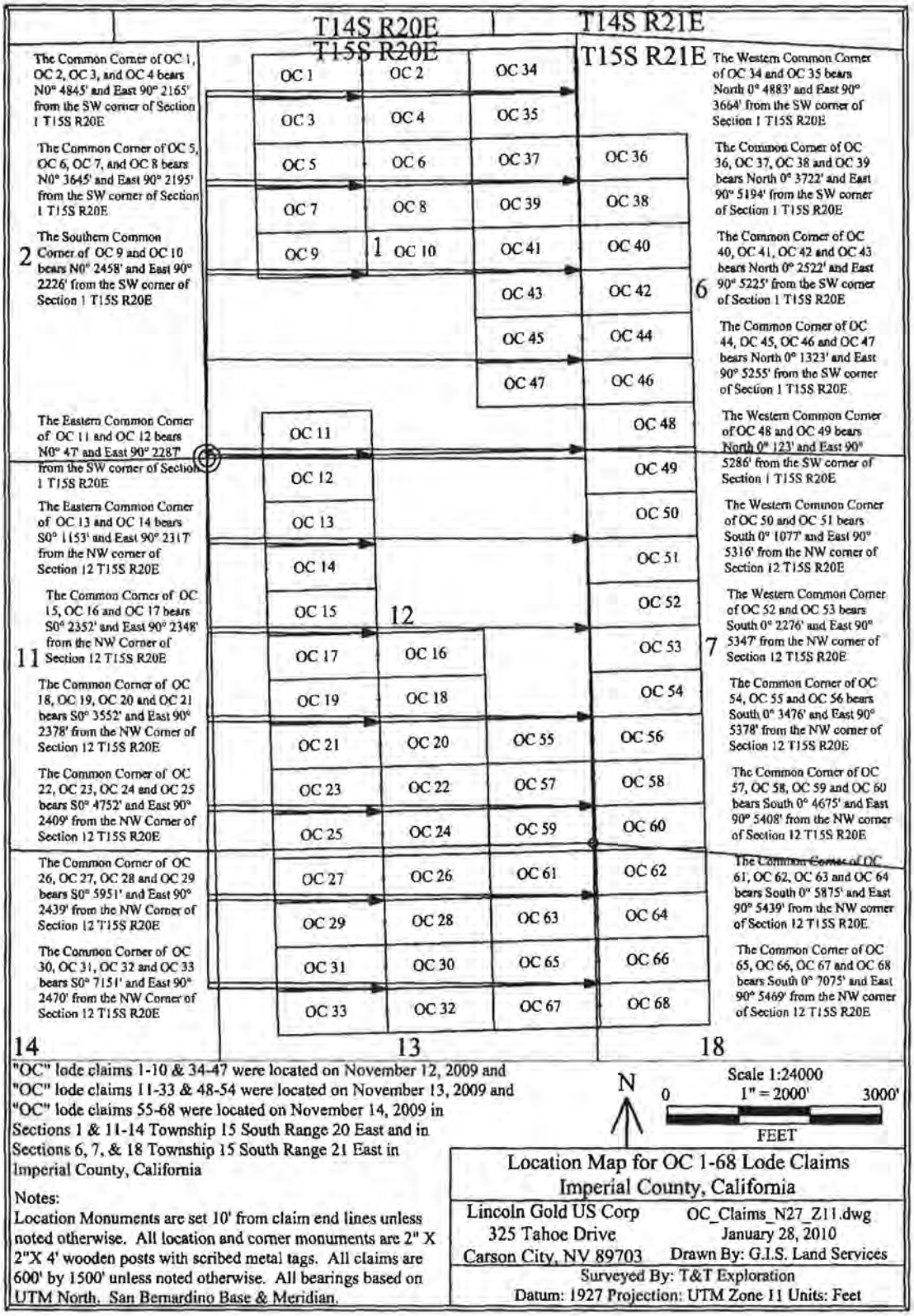
The NE corner of this claim bears NORTH and 3645 feet and bears East and 2195 feet from the SW Corner of Section 1, Township 15 South, Range 20 East, S.B.B.&M., and is in Mesquite Mining District, Imperial County, California.
Located this 12th day of November, 2009.

Locator: Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89702

STATEMENT OF THE BOUNDARIES:
Notice is hereby given by locator that in accordance with the requirements of the California Public Resources Code.
1. The above Notice of Location is a true and correct copy of said notice.
2. The locator has defined the boundaries of this claim by erecting at each corner of the claim, or the nearest accessible points thereto, a conspicuous and substantial monument, and each corner monument so erected contains markings sufficient to appropriately designate the corner of the mining claim to which it pertains and the name of the claim. The date of marking is 12/10/2009, and the description of monument are: 1 ½" x 1 ½" x 4' wood monument with scribed metal tag.

Lincoln Gold US Corp.

By: _____
H. H. Tonking, Agent



"OC" lode claims 1-10 & 34-47 were located on November 12, 2009 and "OC" lode claims 11-33 & 48-54 were located on November 13, 2009 and "OC" lode claims 55-68 were located on November 14, 2009 in Sections 1 & 11-14 Township 15 South Range 20 East and in Sections 6, 7, & 18 Township 15 South Range 21 East in Imperial County, California

Notes:
Location Monuments are set 10' from claim end lines unless noted otherwise. All location and corner monuments are 2" X 2"X 4' wooden posts with scribed metal tags. All claims are 600' by 1500' unless noted otherwise. All bearings based on UTM North. San Bernardino Base & Meridian.

Location Map for OC 1-68 Lode Claims
Imperial County, California

Lincoln Gold US Corp	OC_Claims_N27_Z11.dwg
325 Tahoe Drive	January 28, 2010
Carson City, NV 89703	Drawn By: G.I.S. Land Services

Surveyed By: T&T Exploration
Datum: 1927 Projection: UTM Zone 11 Units: Feet

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California

Date Issued: SEP 13 2022 By _____ Deputy

Certified Copy of Document number 2010003180

THIS IS A TRUE CERTIFIED COPY OF THE
RECORD, IF IT BEARS THE SEAL AND SIGNATURE
OF THE IMPERIAL COUNTY CLERK-RECORDER

DATE: 9/13/2022

CERTIFICATION FEE: 3.50

COUNTY CLERK-RECORDER

IMPERIAL COUNTY
STATE OF CALIFORNIA

RECORDING REQUESTED BY AND MAIL TO:

Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89703

Recorded in Official Records, Imperial County
Dolores Provencio
County Clerk / Recorder

2/02/2010
9:58 AM
IV

P Public

Doc#: **2010-003180**

Titles: 1 Pages: 2

Fees	10.00
Taxes	0.00
Other	1.50
PAID	$11.50

NOTICE OF LOCATION LODE MINING CLAIM
Amended for Imperial County - Document No. 2010001621
To correct a typographical error in the Meridian to S.B.B.&M.

Notice is hereby given that the Undersigned, as agent for Lincoln Gold US Corp. hereby locates and claims the following described mineral bearing ground as a lode claim:

This claim shall be known as the OC 8 Lode Mining Claim in the following quarter section(s):

¼	Section	Township	Range	Meridian
NW	1	15 South	20 East	S.B.B.&M.
NE	1	15 South	20 East	S.B.B.&M.

From this point of discovery (monument of location) 1490 feet in a East direction and 10 feet in a West direction, and 300 feet on each side of the centerline of the claim. The claim is approximately 1500 feet long and 600 feet wide and the general course of the lode or vein is from the East to the West direction. The discovery and corner monuments are 1 ½" x 1 ½" x 4' wood posts.

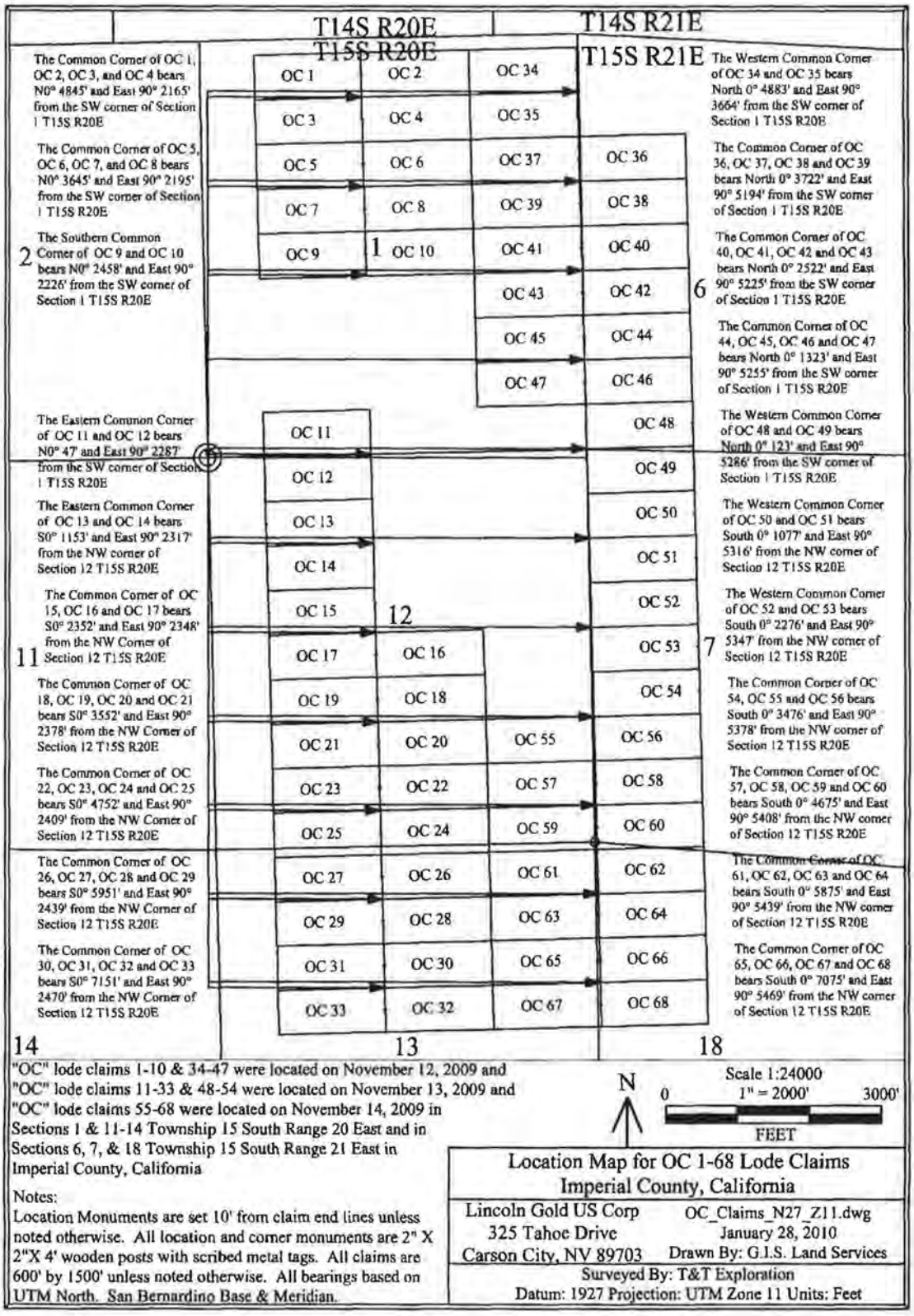
The NW corner of this claim bears NORTH and 3645 feet and bears East and 2195 feet from the SW Corner of Section 1, Township 15 South, Range 20 East, S.B.B.&M., and is in Mesquite Mining District, Imperial County, California.
Located this 12th day of November, 2009.

Locator: Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89702

STATEMENT OF THE BOUNDARIES:
Notice is hereby given by locator that in accordance with the requirements of the California Public Resources Code.
1. The above Notice of Location is a true and correct copy of said notice.
2. The locator has defined the boundaries of this claim by erecting at each corner of the claim, or the nearest accessible points thereto, a conspicuous and substantial monument, and each corner monument so erected contains markings sufficient to appropriately designate the corner of the mining claim to which it pertains and the name of the claim. The date of marking is 12/10/2009, and the description of monument are: 1 ½" x 1 ½" x 4' wood monument with scribed metal tag.

Lincoln Gold US Corp.

By: _____
H. H. Tonking, Agent



"OC" lode claims 1-10 & 34-47 were located on November 12, 2009 and "OC" lode claims 11-33 & 48-54 were located on November 13, 2009 and "OC" lode claims 55-68 were located on November 14, 2009 in Sections 1 & 11-14 Township 15 South Range 20 East and in Sections 6, 7, & 18 Township 15 South Range 21 East in Imperial County, California

Notes:
Location Monuments are set 10' from claim end lines unless noted otherwise. All location and corner monuments are 2" X 2"X 4' wooden posts with scribed metal tags. All claims are 600' by 1500' unless noted otherwise. All bearings based on UTM North. San Bernardino Base & Meridian.

Location Map for OC 1-68 Lode Claims
Imperial County, California

Lincoln Gold US Corp	OC_Claims_N27_Z11.dwg
325 Tahoe Drive	January 28, 2010
Carson City, NV 89703	Drawn By: G.I.S. Land Services

Surveyed By: T&T Exploration
Datum: 1927 Projection: UTM Zone 11 Units: Feet

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:
SEP 13 2022 By _____ Deputy

Certified Copy of document number 2010003181

THIS IS A TRUE CERTIFIED COPY OF THE
RECORD, IF IT BEARS THE SEAL AND SIGNATURE
OF THE IMPERIAL COUNTY CLERK-RECORDER

DATE: 9/13/2022

CERTIFICATION FEE: 3.50

COUNTY CLERK-RECORDER

IMPERIAL COUNTY
STATE OF CALIFORNIA

RECORDING REQUESTED BY AND MAIL TO:

Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89703

Recorded in Official Records, Imperial County
Dolores Provencio
County Clerk / Recorder
P Public
2/02/2010
9:58 AM
IV

Doc#: 2010–003181

Titles: 1 Pages: 2

Fees	10.00
Taxes	0.00
Other	1.50
PAID	$11.50

Space above for Recorder's Use

NOTICE OF LOCATION LODE MINING CLAIM
Amended for Imperial County - Document No. 2010001622
To correct a typographical error in the Meridian to S.B.B.&M.

Notice is hereby given that the Undersigned, as agent for Lincoln Gold US Corp. hereby locates and claims the following described mineral bearing ground as a lode claim:

This claim shall be known as the OC 9 Lode Mining Claim in the following quarter section(s):

¼	Section	Township	Range	Meridian
NW	1	15 South	20 East	S.B.B.&M.
SW	1	15 South	20 East	S.B.B.&M.

From this point of discovery (monument of location) 10 feet in a East direction and 1490 feet in a West direction, and 300 feet on each side of the centerline of the claim. The claim is approximately 1500 feet long and 600 feet wide and the general course of the lode or vein is from the East to the West direction. The discovery and corner monuments are 1 ½" x 1 ½" x 4' wood posts.

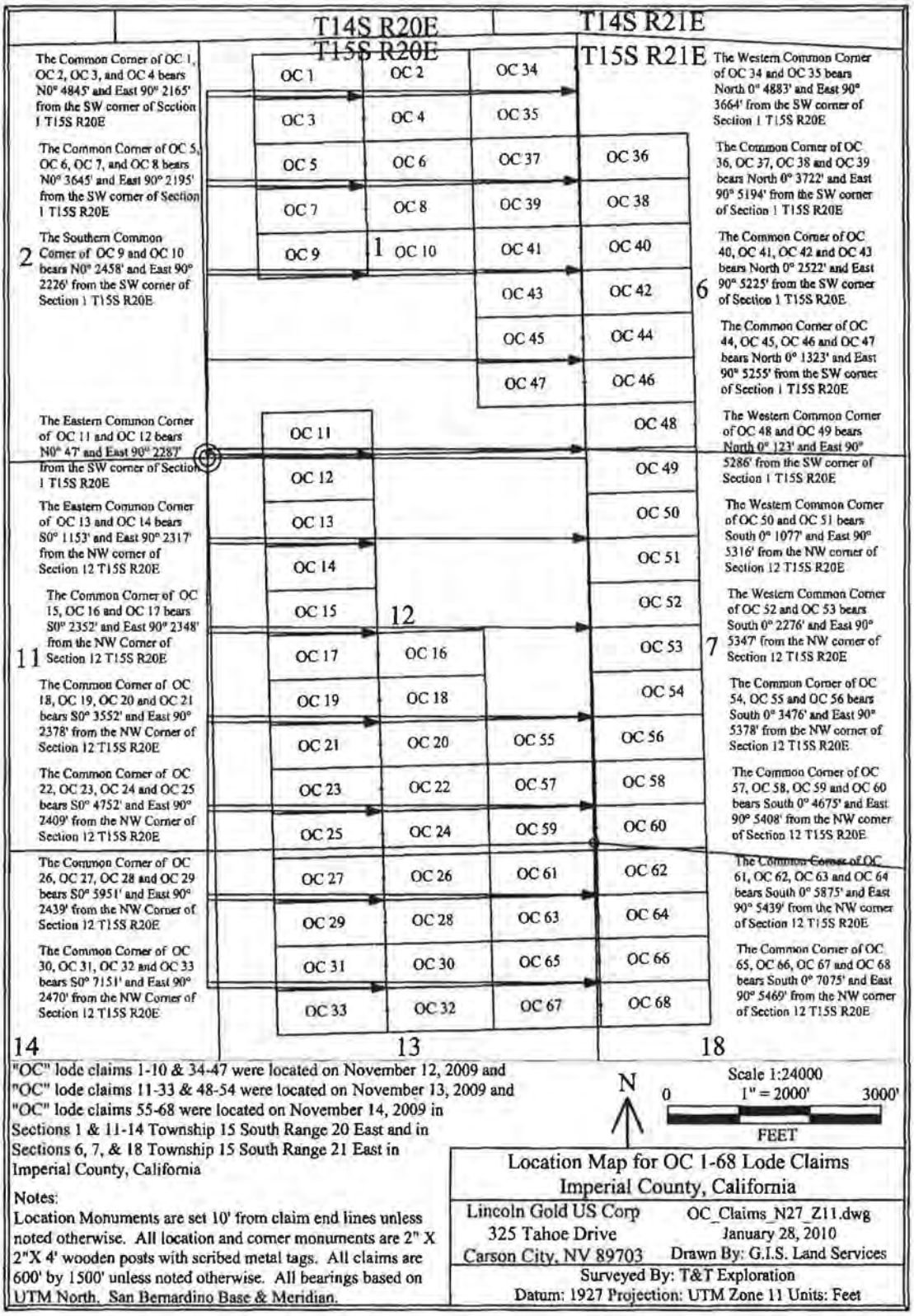
The SE corner of this claim bears NORTH and 2458 feet and bears East and 2226 feet from the SW Corner of Section 1, Township 15 South, Range 20 East, S.B.B.&M., and is in Mesquite Mining District, Imperial County, California.
Located this 12th day of November, 2009.

Locator: Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89702

STATEMENT OF THE BOUNDARIES:
Notice is hereby given by locator that in accordance with the requirements of the California Public Resources Code.
1. The above Notice of Location is a true and correct copy of said notice.
2. The locator has defined the boundaries of this claim by erecting at each corner of the claim, or the nearest accessible points thereto, a conspicuous and substantial monument, and each corner monument so erected contains markings sufficient to appropriately designate the corner of the mining claim to which it pertains and the name of the claim. The date of marking is 12/10/2009, and the description of monument are: 1 ½" x 1 ½" x 4' wood monument with scribed metal tag.

Lincoln Gold US Corp.

By: _____
H. H. Tonking, Agent



"OC" lode claims 1-10 & 34-47 were located on November 12, 2009 and "OC" lode claims 11-33 & 48-54 were located on November 13, 2009 and "OC" lode claims 55-68 were located on November 14, 2009 in Sections 1 & 11-14 Township 15 South Range 20 East and in Sections 6, 7, & 18 Township 15 South Range 21 East in Imperial County, California

Notes:
Location Monuments are set 10' from claim end lines unless noted otherwise. All location and corner monuments are 2" X 2"X 4' wooden posts with scribed metal tags. All claims are 600' by 1500' unless noted otherwise. All bearings based on UTM North, San Bernardino Base & Meridian.

Location Map for OC 1-68 Lode Claims
Imperial County, California

Lincoln Gold US Corp	OC_Claims_N27_Z11.dwg
325 Tahoe Drive	January 28, 2010
Carson City, NV 89703	Drawn By: G.I.S. Land Services

Surveyed By: T&T Exploration
Datum: 1927 Projection: UTM Zone 11 Units: Feet

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:
SEP 13 2022 By _____ Deputy

Certified Copy of Document number 2010003182

THIS IS A TRUE CERTIFIED COPY OF THE RECORD, IF IT BEARS THE SEAL AND SIGNATURE OF THE IMPERIAL COUNTY CLERK-RECORDER

DATE: 9/13/2022

CERTIFICATION FEE: 3.50

COUNTY CLERK-RECORDER

IMPERIAL COUNTY
STATE OF CALIFORNIA

RECORDING REQUESTED BY AND MAIL TO:

Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89703

Recorded in Official Records, Imperial County

Dolores Provencio
County Clerk / Recorder

2/02/2010
9:58 AM
IV

P Public

Doc#: **2010–003182**

Titles: 1 Pages: 2

Fees	10.00
Taxes	0.00
Other	1.50
PAID	$11.50

NOTICE OF LOCATION LODE MINING CLAIM

Amended for Imperial County - Document No. 2010001623
To correct a typographical error in the Meridian to S.B.B.&M.

Notice is hereby given that the Undersigned, as agent for Lincoln Gold US Corp. hereby locates and claims the following described mineral bearing ground as a lode claim:

This claim shall be known as the OC 10 Lode Mining Claim in the following quarter section(s):

¼	Section	Township	Range	Meridian
NW	1	15 South	20 East	S.B.B.&M.
NE	1	15 South	20 East	S.B.B.&M.
SW	1	15 South	20 East	S.B.B.&M.
SE	1	15 South	20 East	S.B.B.&M.

From this point of discovery (monument of location) 1490 feet in a East direction and 10 feet in a West direction, and 300 feet on each side of the centerline of the claim. The claim is approximately 1500 feet long and 600 feet wide and the general course of the lode or vein is from the East to the West direction. The discovery and corner monuments are 1 ½" x 1 ½" x 4' wood posts.

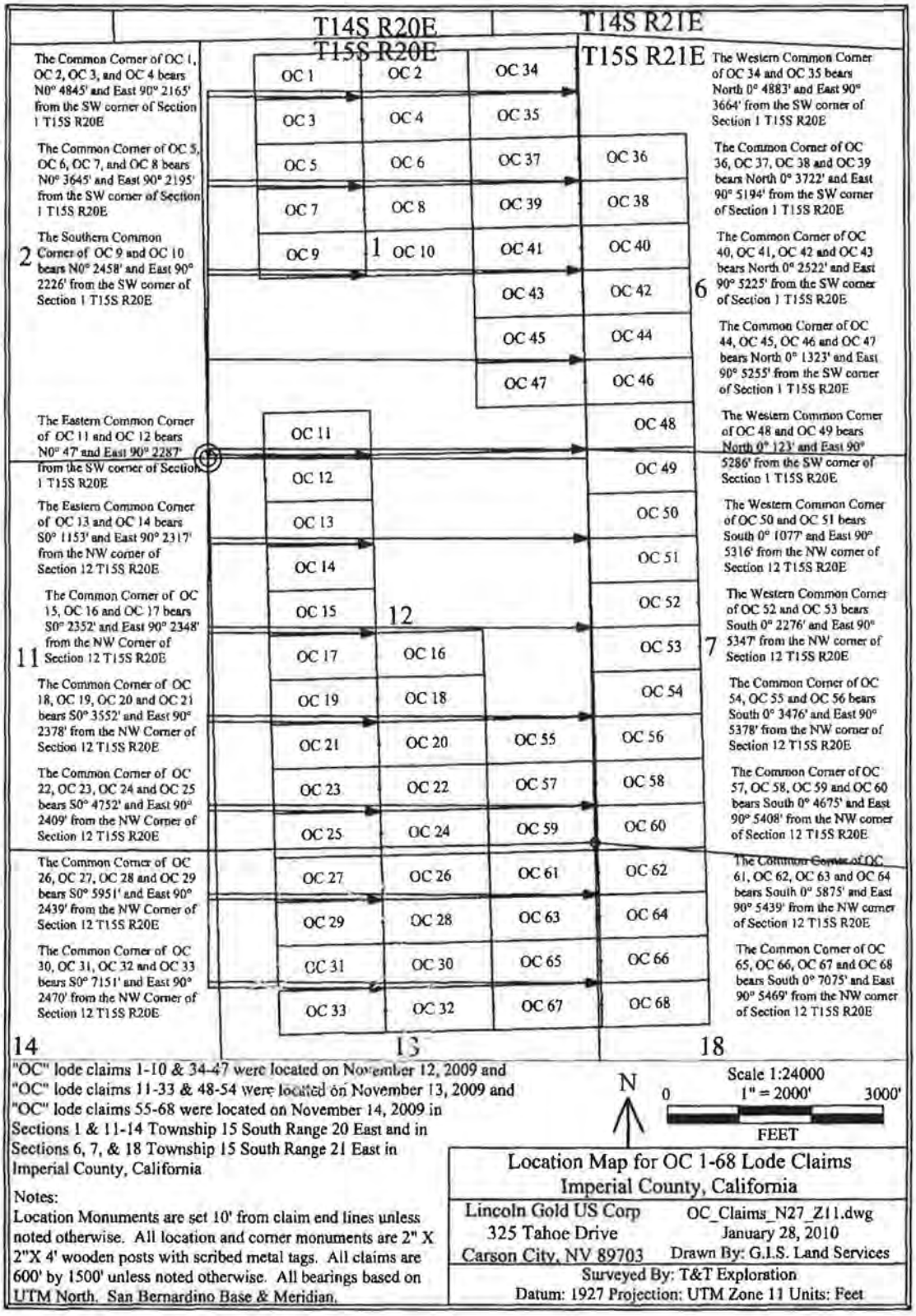
The SW corner of this claim bears NORTH and 2458 feet and bears East and 2226 feet from the SW Corner of Section 1, Township 15 South, Range 20 East, S.B.B.&M., and is in Mesquite Mining District, Imperial County, California.
Located this 12th day of November, 2009.

Locator: Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89702

STATEMENT OF THE BOUNDARIES:
Notice is hereby given by locator that in accordance with the requirements of the California Public Resources Code.
1. The above Notice of Location is a true and correct copy of said notice.
2. The locator has defined the boundaries of this claim by erecting at each corner of the claim, or the nearest accessible points thereto, a conspicuous and substantial monument, and each corner monument so erected contains markings sufficient to appropriately designate the corner of the mining claim to which it pertains and the name of the claim. The date of marking is 12/10/2009, and the description of monument are: 1 ½" x 1 ½" x 4' wood monument with scribed metal tag.

Lincoln Gold US Corp.

By: _____
H. H. Tonking, Agent



"OC" lode claims 1-10 & 34-47 were located on November 12, 2009 and "OC" lode claims 11-33 & 48-54 were located on November 13, 2009 and "OC" lode claims 55-68 were located on November 14, 2009 in Sections 1 & 11-14 Township 15 South Range 20 East and in Sections 6, 7, & 18 Township 15 South Range 21 East in Imperial County, California

Notes:
Location Monuments are set 10' from claim end lines unless noted otherwise. All location and corner monuments are 2" X 2"X 4' wooden posts with scribed metal tags. All claims are 600' by 1500' unless noted otherwise. All bearings based on UTM North. San Bernardino Base & Meridian.

Location Map for OC 1-68 Lode Claims
Imperial County, California

Lincoln Gold US Corp	OC_Claims_N27_Z11.dwg
325 Tahoe Drive	January 28, 2010
Carson City, NV 89703	Drawn By: G.I.S. Land Services

Surveyed By: T&T Exploration
Datum: 1927 Projection: UTM Zone 11 Units: Feet

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:
SEP 13 2022 By _____ Deputy

Certified Copy of document number 2010003183

THIS IS A TRUE CERTIFIED COPY OF THE RECORD, IF IT BEARS THE SEAL AND SIGNATURE OF THE IMPERIAL COUNTY CLERK-RECORDER

DATE: 9/13/2022

CERTIFICATION FEE: 3.50

COUNTY CLERK-RECORDER

IMPERIAL COUNTY
STATE OF CALIFORNIA

RECORDING REQUESTED BY AND MAIL TO:

Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89703

Recorded In Official Records, Imperial County

Dolores Provencio
County Clerk / Recorder

P Public

2/02/2010
9:58 AM
IV

Doc#: 2010–003183

Titles: 1 Pages: 2

Fees	10.00
Taxes	0.00
Other	1.50
PAID	$11.50

NOTICE OF LOCATION LODE MINING CLAIM

Amended for Imperial County - Document No. 2010001624
To correct a typographical error in the Meridian to S.B.B.&M.

Notice is hereby given that the Undersigned, as agent for Lincoln Gold US Corp. hereby locates and claims the following described mineral bearing ground as a lode claim:

This claim shall be known as the QC 11 Lode Mining Claim in the following quarter section(s):

¼	Section	Township	Range	Meridian
SW	1	15 South	20 East	S.B.B.&M.
NW	12	15 South	20 East	S.B.B.&M.

From this point of discovery (monument of location) 1490 feet in a East direction and 10 feet in a West direction, and 300 feet on each side of the centerline of the claim. The claim is approximately 1500 feet long and 600 feet wide and the general course of the lode or vein is from the East to the West direction. The discovery and corner monuments are 1 ½" x 1 ½" x 4' wood posts.

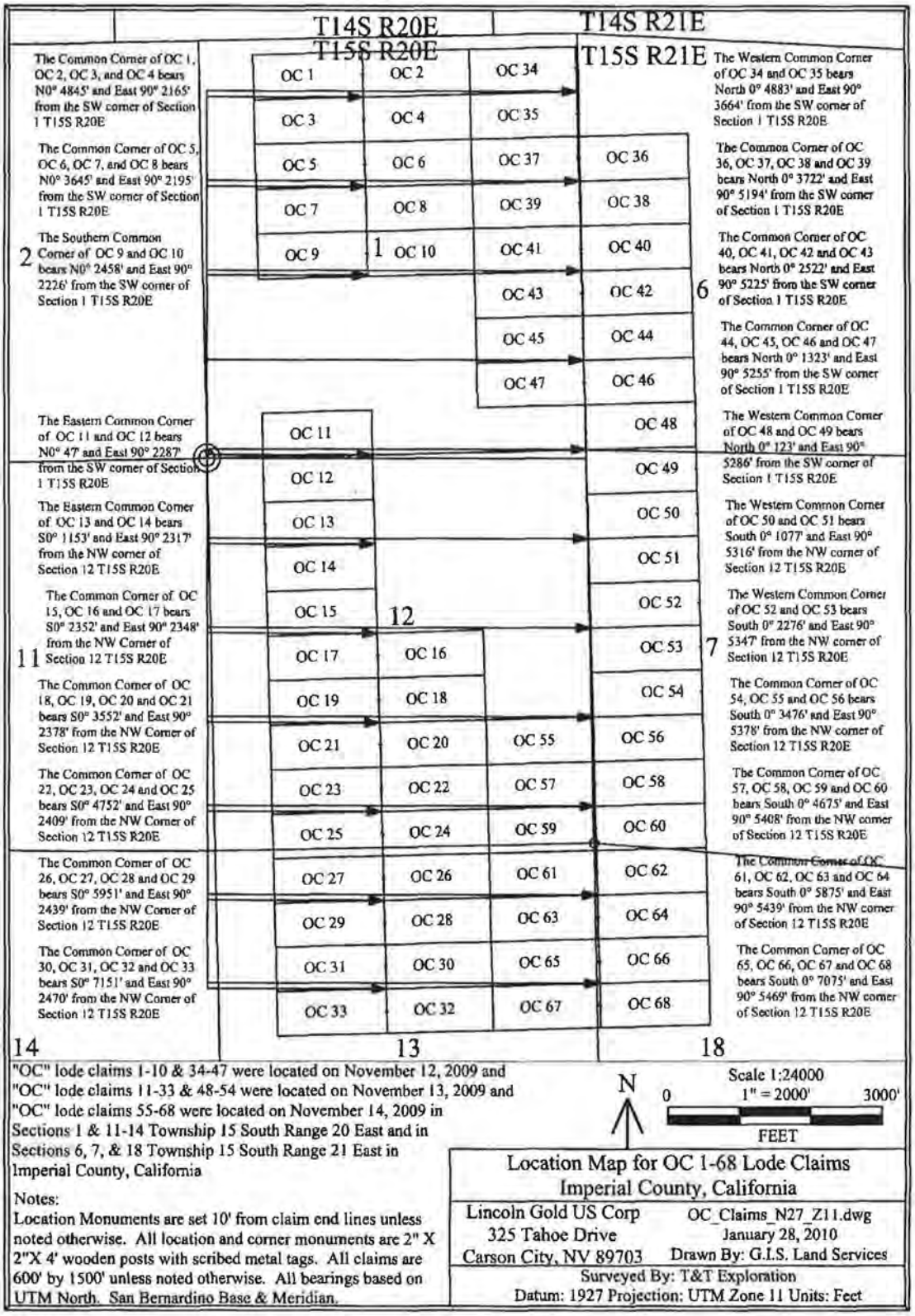
The SE corner of this claim bears NORTH and 47 feet and bears East and 2287 feet from the SW Corner of Section 1, Township 15 South, Range 20 East, S.B.B.&M., and is in Mesquite Mining District, Imperial County, California.
Located this 13th day of November, 2009.

Locator: Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89702

STATEMENT OF THE BOUNDARIES:
Notice is hereby given by locator that in accordance with the requirements of the California Public Resources Code.
1. The above Notice of Location is a true and correct copy of said notice.
2. The locator has defined the boundaries of this claim by erecting at each corner of the claim, or the nearest accessible points thereto, a conspicuous and substantial monument, and each corner monument so erected contains markings sufficient to appropriately designate the corner of the mining claim to which it pertains and the name of the claim. The date of marking is 12/10/2009, and the description of monument are: 1 ½" x 1 ½" x 4' wood monument with scribed metal tag.

Lincoln Gold US Corp.

By: _____
H. H. Tonking, Agent



"OC" lode claims 1-10 & 34-47 were located on November 12, 2009 and "OC" lode claims 11-33 & 48-54 were located on November 13, 2009 and "OC" lode claims 55-68 were located on November 14, 2009 in Sections 1 & 11-14 Township 15 South Range 20 East and in Sections 6, 7, & 18 Township 15 South Range 21 East in Imperial County, California

Notes:
Location Monuments are set 10' from claim end lines unless noted otherwise. All location and corner monuments are 2" X 2"X 4' wooden posts with scribed metal tags. All claims are 600' by 1500' unless noted otherwise. All bearings based on UTM North. San Bernardino Base & Meridian.

Location Map for OC 1-68 Lode Claims
Imperial County, California

Lincoln Gold US Corp	OC_Claims_N27_Z11.dwg
325 Tahoe Drive	January 28, 2010
Carson City, NV 89703	Drawn By: G.I.S. Land Services

Surveyed By: T&T Exploration
Datum: 1927 Projection: UTM Zone 11 Units: Feet

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:
SEP 13 2022

By _____
Deputy

Certified Copy of document number 2010003184

THIS IS A TRUE CERTIFIED COPY OF THE RECORD, IF IT BEARS THE SEAL AND SIGNATURE OF THE IMPERIAL COUNTY CLERK-RECORDER

DATE: 9/13/2022

CERTIFICATION FEE: 3.50

COUNTY CLERK-RECORDER

IMPERIAL COUNTY
STATE OF CALIFORNIA

RECORDING REQUESTED BY AND MAIL TO:

Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89703

Recorded in Official Records, Imperial County

Dolores Provencio
County Clerk / Recorder

2/02/2010
9:58 AM
IV

P Public

Doc#: **2010–003184**

Titles: 1 Pages: 2

Fees	10.00
Taxes	0.00
Other	1.50
PAID	$11.50

Space above for Recorder's Use

NOTICE OF LOCATION LODE MINING CLAIM
Amended for Imperial County - Document No. 2010001625
To correct a typographical error in the Meridian to S.B.B.&M.

Notice is hereby given that the Undersigned, as agent for Lincoln Gold US Corp. hereby locates and claims the following described mineral bearing ground as a lode claim:

This claim shall be known as the OC 12 Lode Mining Claim in the following quarter section(s):

¼	Section	Township	Range	Meridian
NW	12	15 South	20 East	S.B.B.&M.

From this point of discovery (monument of location) 1490 feet in a East direction and 10 feet in a West direction, and 300 feet on each side of the centerline of the claim. The claim is approximately 1500 feet long and 600 feet wide and the general course of the lode or vein is from the East to the West direction. The discovery and corner monuments are 1 ½" x 1 ½" x 4' wood posts.

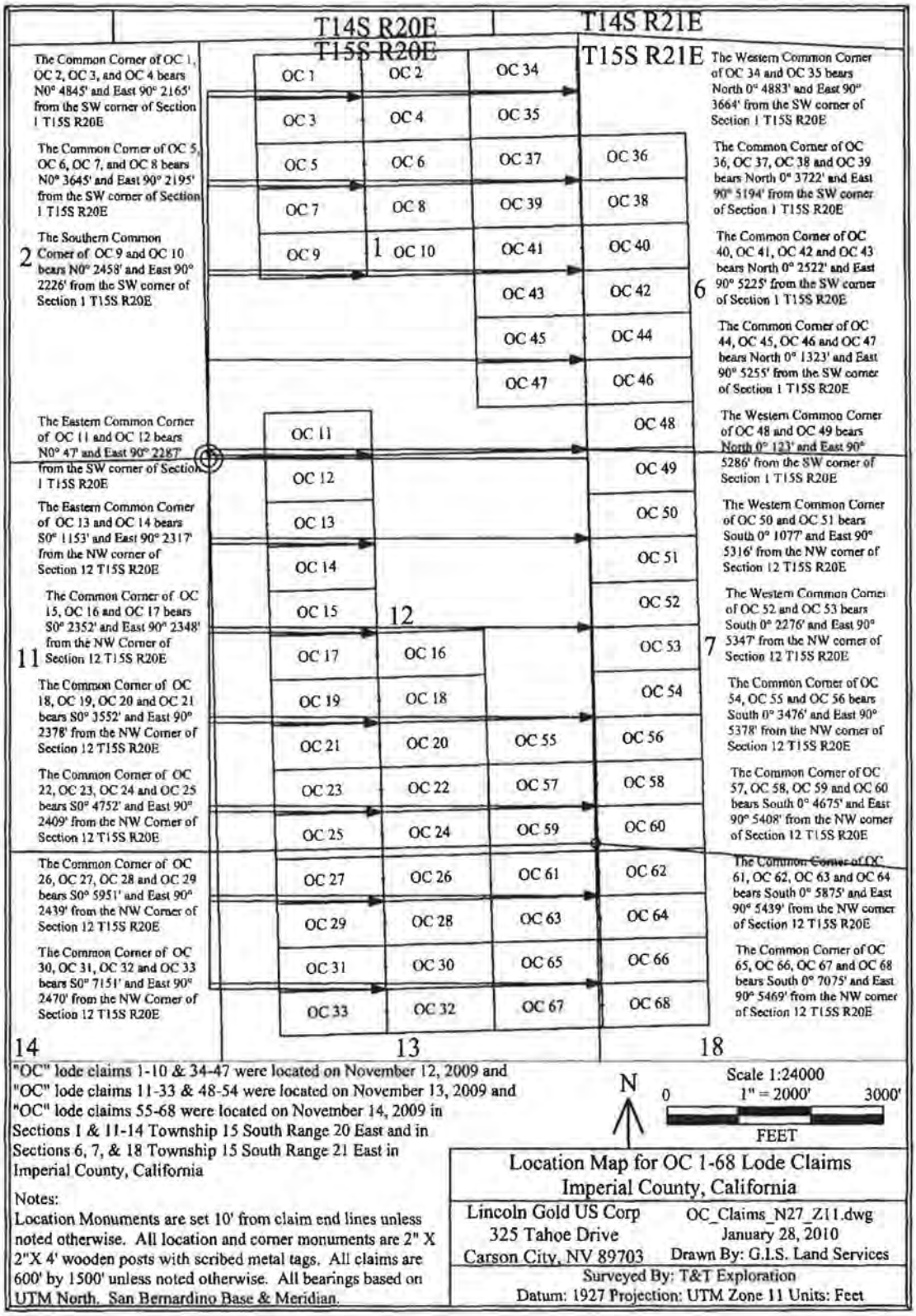
The NE corner of this claim bears NORTH and 47 feet and bears East and 2287 feet from the SW Corner of Section 1, Township 15 South, Range 20 East, S.B.B.&M., and is in Mesquite Mining District, Imperial County, California.
Located this 13th day of November, 2009.

Locator: Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89702

STATEMENT OF THE BOUNDARIES:
Notice is hereby given by locator that in accordance with the requirements of the California Public Resources Code.
1. The above Notice of Location is a true and correct copy of said notice.
2. The locator has defined the boundaries of this claim by erecting at each corner of the claim, or the nearest accessible points thereto, a conspicuous and substantial monument, and each corner monument so erected contains markings sufficient to appropriately designate the corner of the mining claim to which it pertains and the name of the claim. The date of marking is 12/10/2009, and the description of monument are: 1 ½" x 1 ½" x 4' wood monument with scribed metal tag.

Lincoln Gold US Corp.

By: _____
H. H. Tonking, Agent



"OC" lode claims 1-10 & 34-47 were located on November 12, 2009 and "OC" lode claims 11-33 & 48-54 were located on November 13, 2009 and "OC" lode claims 55-68 were located on November 14, 2009 in Sections 1 & 11-14 Township 15 South Range 20 East and in Sections 6, 7, & 18 Township 15 South Range 21 East in Imperial County, California

Notes:
Location Monuments are set 10' from claim end lines unless noted otherwise. All location and corner monuments are 2" X 2"X 4' wooden posts with scribed metal tags. All claims are 600' by 1500' unless noted otherwise. All bearings based on UTM North. San Bernardino Base & Meridian.

Location Map for OC 1-68 Lode Claims
Imperial County, California

Lincoln Gold US Corp	OC_Claims_N27_Z11.dwg
325 Tahoe Drive	January 28, 2010
Carson City, NV 89703	Drawn By: G.I.S. Land Services

Surveyed By: T&T Exploration
Datum: 1927 Projection: UTM Zone 11 Units: Feet

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:
SEP 13 2022

By _____ Deputy

Certified Copy of Document number 2010003185

THIS IS A TRUE CERTIFIED COPY OF THE RECORD, IF IT BEARS THE SEAL AND SIGNATURE OF THE IMPERIAL COUNTY CLERK-RECORDER

DATE: 9/13/2022

CERTIFICATION FEE: 3.50

COUNTY CLERK-RECORDER

IMPERIAL COUNTY
STATE OF CALIFORNIA

RECORDING REQUESTED BY AND MAIL TO:

Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89703

Recorded in Official Records, Imperial County

Dolores Provencio
County Clerk / Recorder

P Public

2/02/2010
9:58 AM
IV

Doc#: 2010–003185

Titles: 1 Pages: 2

Fees	10.00
Taxes	0.00
Other	1.50
PAID	$11.50

NOTICE OF LOCATION LODE MINING CLAIM

Amended for Imperial County - Document No. 2010001626
To correct a typographical error in the Meridian to S.B.B.&M.

Notice is hereby given that the Undersigned, as agent for Lincoln Gold US Corp. hereby locates and claims the following described mineral bearing ground as a lode claim:

This claim shall be known as the OC 13 Lode Mining Claim in the following quarter section(s):

¼	Section	Township	Range	Meridian
NW	12	15 South	20 East	S.B.B.&M.

From this point of discovery (monument of location) 1490 feet in a East direction and 10 feet in a West direction, and 300 feet on each side of the centerline of the claim. The claim is approximately 1500 feet long and 600 feet wide and the general course of the lode or vein is from the East to the West direction. The discovery and corner monuments are 1 ½" x 1 ½" x 4' wood posts.

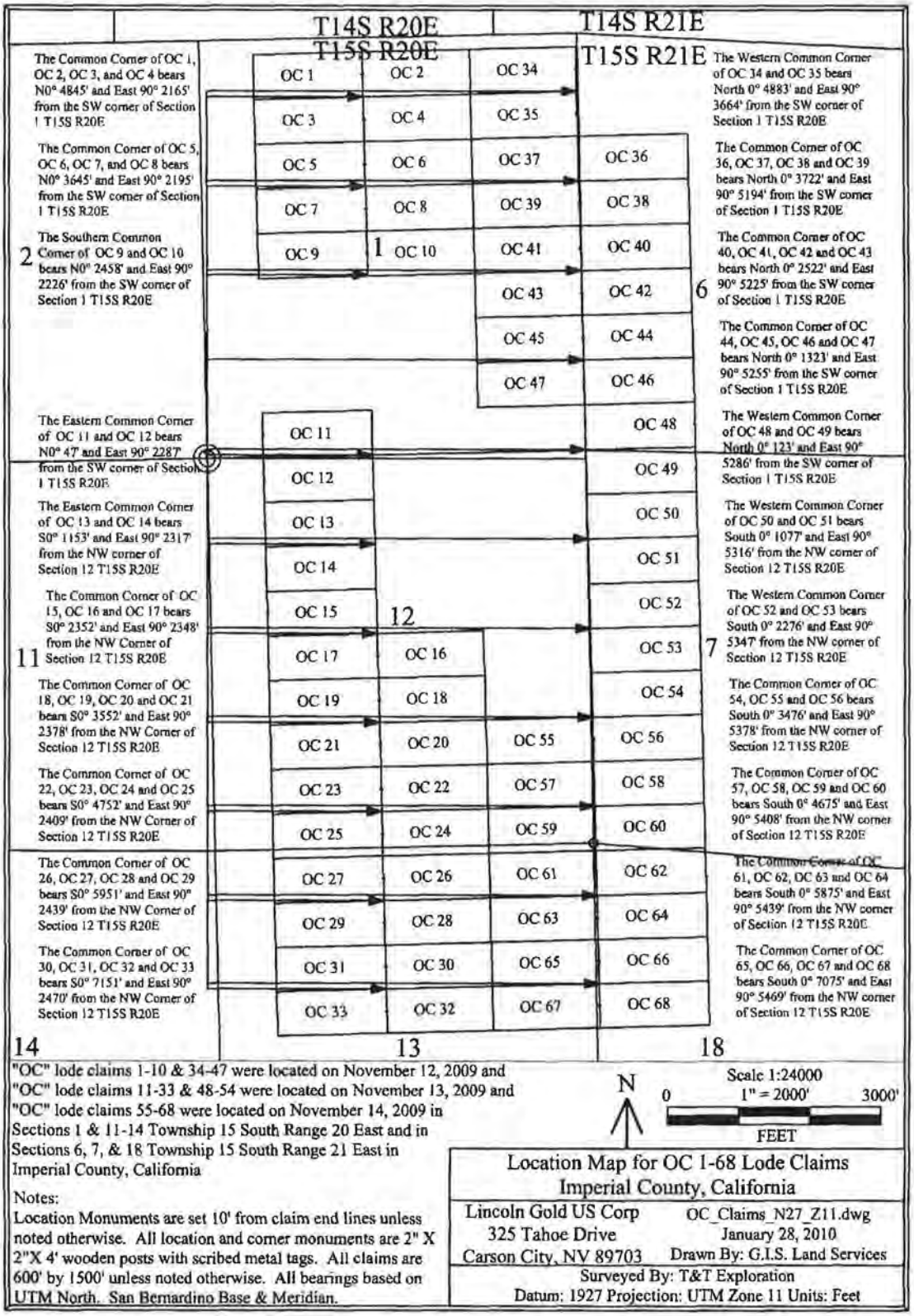
The SE corner of this claim bears SOUTH and 1153 feet and bears East and 2317 feet from the SW Corner of Section 1, Township 15 South, Range 20 East, S.B.B.&M., and is in Mesquite Mining District, Imperial County, California.
Located this 13th day of November, 2009.

Locator: Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89702

STATEMENT OF THE BOUNDARIES:
Notice is hereby given by locator that in accordance with the requirements of the California Public Resources Code.
1. The above Notice of Location is a true and correct copy of said notice.
2. The locator has defined the boundaries of this claim by erecting at each corner of the claim, or the nearest accessible points thereto, a conspicuous and substantial monument, and each corner monument so erected contains markings sufficient to appropriately designate the corner of the mining claim to which it pertains and the name of the claim. The date of marking is 12/10/2009, and the description of monument are: 1 ½" x 1 ½" x 4' wood monument with scribed metal tag.

Lincoln Gold US Corp.

By: _____
H. H. Tonking, Agent



"OC" lode claims 1-10 & 34-47 were located on November 12, 2009 and "OC" lode claims 11-33 & 48-54 were located on November 13, 2009 and "OC" lode claims 55-68 were located on November 14, 2009 in Sections 1 & 11-14 Township 15 South Range 20 East and in Sections 6, 7, & 18 Township 15 South Range 21 East in Imperial County, California

Notes:
Location Monuments are set 10' from claim end lines unless noted otherwise. All location and corner monuments are 2" X 2"X 4' wooden posts with scribed metal tags. All claims are 600' by 1500' unless noted otherwise. All bearings based on UTM North. San Bernardino Base & Meridian.

Scale 1:24000

Location Map for OC 1-68 Lode Claims
Imperial County, California

Lincoln Gold US Corp	OC_Claims_N27_Z11.dwg
325 Tahoe Drive	January 28, 2010
Carson City, NV 89703	Drawn By: G.I.S. Land Services

Surveyed By: T&T Exploration
Datum: 1927 Projection: UTM Zone 11 Units: Feet

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:
SEP 13 2022 By _____ Deputy

Certified Copy of Document number 2010003186

THIS IS A TRUE CERTIFIED COPY OF THE RECORD, IF IT BEARS THE SEAL AND SIGNATURE OF THE IMPERIAL COUNTY CLERK-RECORDER

DATE: 9/13/2022

CERTIFICATION FEE: 3.50

COUNTY CLERK-RECORDER

IMPERIAL COUNTY
STATE OF CALIFORNIA

RECORDING REQUESTED BY AND MAIL TO:

Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89703

Recorded in Official Records, Imperial County

Dolores Provencio
County Clerk / Recorder

P Public

2/02/2010
9:58 AM
IV

Doc#: **2010–003186**

Titles: 1 Pages: 2

Fees	10.00
Taxes	0.00
Other	1.50
PAID	$11.50

NOTICE OF LOCATION LODE MINING CLAIM

Amended for Imperial County - Document No. 2010001627
To correct a typographical error in the Meridian to S.B.B.&M.

Notice is hereby given that the Undersigned, as agent for Lincoln Gold US Corp. hereby locates and claims the following described mineral bearing ground as a lode claim:

This claim shall be known as the OC 14 Lode Mining Claim in the following quarter section(s):

¼	Section	Township	Range	Meridian
NW	12	15 South	20 East	S.B.B.&M.

From this point of discovery (monument of location) 1490 feet in a East direction and 10 feet in a West direction, and 300 feet on each side of the centerline of the claim. The claim is approximately 1500 feet long and 600 feet wide and the general course of the lode or vein is from the East to the West direction. The discovery and corner monuments are 1 ½" x 1 ½" x 4' wood posts.

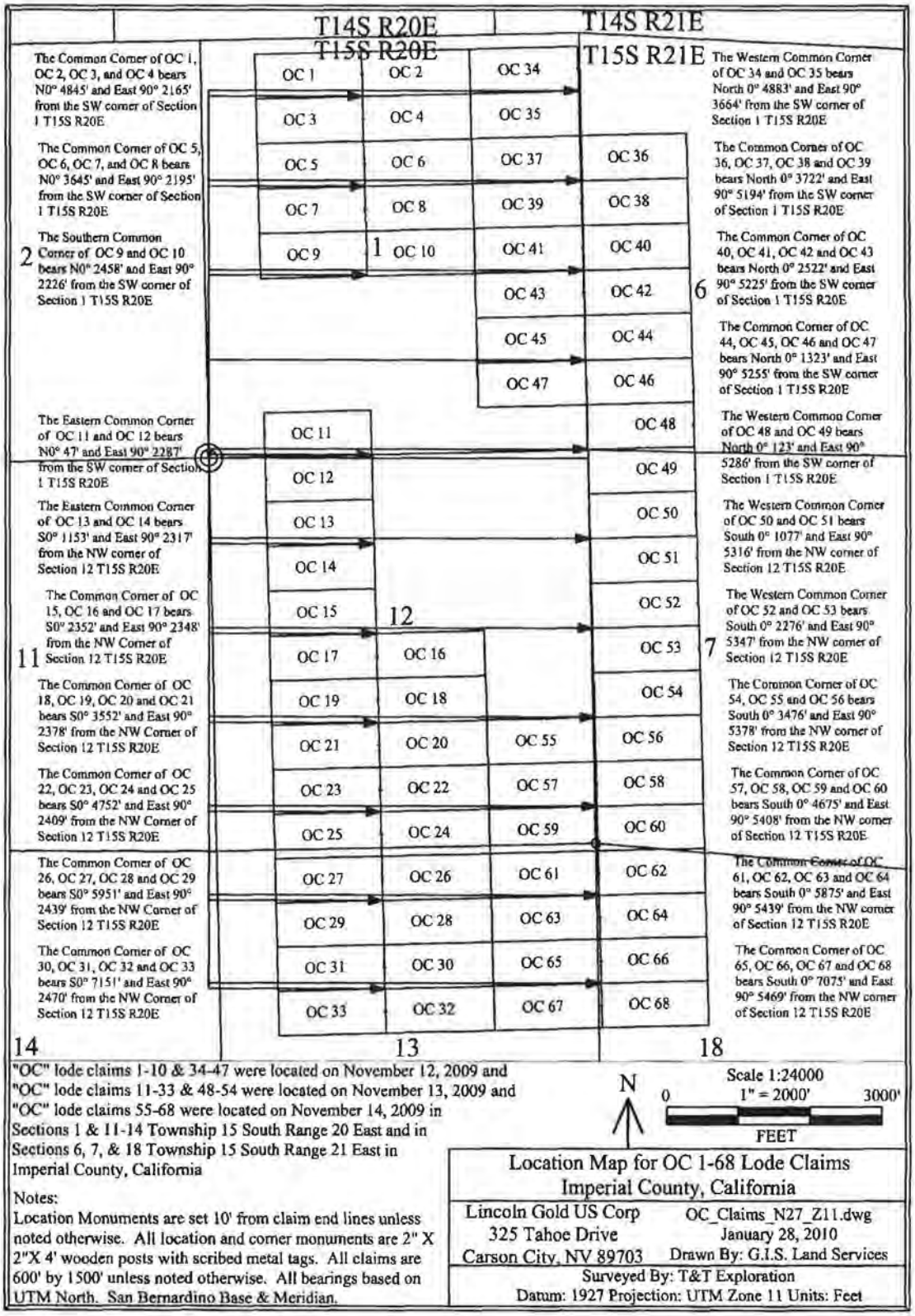
The NE corner of this claim bears SOUTH and 1153 feet and bears East and 2317 feet from the SW Corner of Section 1, Township 15 South, Range 20 East, S.B.B.&M., and is in Mesquite Mining District, Imperial County, California.
Located this 13th day of November, 2009.

Locator: Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89702

STATEMENT OF THE BOUNDARIES:
Notice is hereby given by locator that in accordance with the requirements of the California Public Resources Code.
1. The above Notice of Location is a true and correct copy of said notice.
2. The locator has defined the boundaries of this claim by erecting at each corner of the claim, or the nearest accessible points thereto, a conspicuous and substantial monument, and each corner monument so erected contains markings sufficient to appropriately designate the corner of the mining claim to which it pertains and the name of the claim. The date of marking is 12/10/2009, and the description of monument are: 1 ½" x 1 ½" x 4' wood monument with scribed metal tag.

Lincoln Gold US Corp.

By: _____
H. H. Tonking, Agent



"OC" lode claims 1-10 & 34-47 were located on November 12, 2009 and "OC" lode claims 11-33 & 48-54 were located on November 13, 2009 and "OC" lode claims 55-68 were located on November 14, 2009 in Sections 1 & 11-14 Township 15 South Range 20 East and in Sections 6, 7, & 18 Township 15 South Range 21 East in Imperial County, California

Notes:
Location Monuments are set 10' from claim end lines unless noted otherwise. All location and corner monuments are 2" X 2"X 4' wooden posts with scribed metal tags. All claims are 600' by 1500' unless noted otherwise. All bearings based on UTM North. San Bernardino Base & Meridian.

Location Map for OC 1-68 Lode Claims
Imperial County, California

Lincoln Gold US Corp	OC_Claims_N27_Z11.dwg
325 Tahoe Drive	January 28, 2010
Carson City, NV 89703	Drawn By: G.I.S. Land Services

Surveyed By: T&T Exploration
Datum: 1927 Projection: UTM Zone 11 Units: Feet

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:
SEP 13 2022 By
Deputy

Certified Copy of document number 2010003187

THIS IS A TRUE CERTIFIED COPY OF THE RECORD, IF IT BEARS THE SEAL AND SIGNATURE OF THE IMPERIAL COUNTY CLERK-RECORDER

DATE: 9/13/2022

CERTIFICATION FEE: 3.50

COUNTY CLERK-RECORDER

IMPERIAL COUNTY
STATE OF CALIFORNIA

RECORDING REQUESTED BY AND MAIL TO:

Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89703

Recorded in Official Records, Imperial County
Dolores Provencio
County Clerk / Recorder

2/02/2010
9:58 AM
IV

P Public

Doc#: **2010–003187**

Titles: 1 Pages: 2

Fees	10.00
Taxes	0.00
Other	1.50
PAID	$11.50

Space above for Recorder's use

NOTICE OF LOCATION LODE MINING CLAIM

Amended for Imperial County - Document No. 2010001628
To correct a typographical error in the Meridian to S.B.B.&M.

Notice is hereby given that the Undersigned, as agent for Lincoln Gold US Corp. hereby locates and claims the following described mineral bearing ground as a lode claim:

This claim shall be known as the OC 15 Lode Mining Claim in the following quarter section(s):

¼	Section	Township	Range	Meridian
NW	12	15 South	20 East	S.B.B.&M.

From this point of discovery (monument of location) 1490 feet in a East direction and 10 feet in a West direction, and 300 feet on each side of the centerline of the claim. The claim is approximately 1500 feet long and 600 feet wide and the general course of the lode or vein is from the East to the West direction. The discovery and corner monuments are 1 ½" x 1 ½" x 4' wood posts.

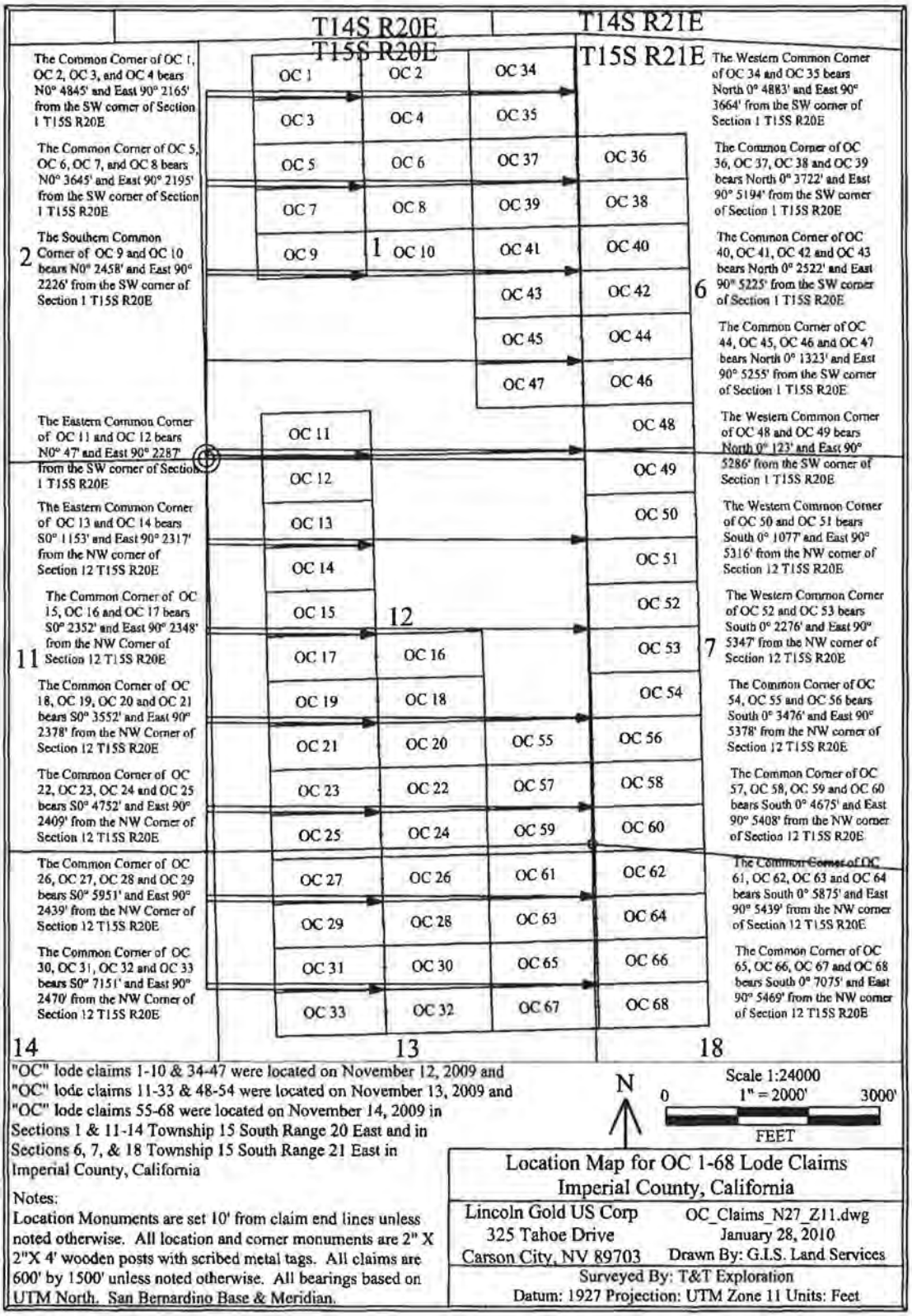
The SE corner of this claim bears SOUTH and 2352 feet and bears East and 2348 feet from the SW Corner of Section 1, Township 15 South, Range 20 East, S.B.B.&M., and is in Mesquite Mining District, Imperial County, California.
Located this 13th day of November, 2009.

Locator: Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89702

STATEMENT OF THE BOUNDARIES:
Notice is hereby given by locator that in accordance with the requirements of the California Public Resources Code.
1. The above Notice of Location is a true and correct copy of said notice.
2. The locator has defined the boundaries of this claim by erecting at each corner of the claim, or the nearest accessible points thereto, a conspicuous and substantial monument, and each corner monument so erected contains markings sufficient to appropriately designate the corner of the mining claim to which it pertains and the name of the claim. The date of marking is 12/10/2009, and the description of monument are: 1 ½" x 1 ½" x 4' wood monument with scribed metal tag.

Lincoln Gold US Corp.

By: _____
H. H. Tonking, Agent



"OC" lode claims 1-10 & 34-47 were located on November 12, 2009 and "OC" lode claims 11-33 & 48-54 were located on November 13, 2009 and "OC" lode claims 55-68 were located on November 14, 2009 in Sections 1 & 11-14 Township 15 South Range 20 East and in Sections 6, 7, & 18 Township 15 South Range 21 East in Imperial County, California

Notes:
Location Monuments are set 10' from claim end lines unless noted otherwise. All location and corner monuments are 2" X 2"X 4' wooden posts with scribed metal tags. All claims are 600' by 1500' unless noted otherwise. All bearings based on UTM North. San Bernardino Base & Meridian.

Location Map for OC 1-68 Lode Claims
Imperial County, California

Lincoln Gold US Corp	OC_Claims_N27_Z11.dwg
325 Tahoe Drive	January 28, 2010
Carson City, NV 89703	Drawn By: G.I.S. Land Services

Surveyed By: T&T Exploration
Datum: 1927 Projection: UTM Zone 11 Units: Feet

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:

SEP 13 2022

By _____ Deputy

Certified Copy of document number 2010003188

THIS IS A TRUE CERTIFIED COPY OF THE RECORD, IF IT BEARS THE SEAL AND SIGNATURE OF THE IMPERIAL COUNTY CLERK-RECORDER

DATE: 9/13/2022

CERTIFICATION FEE: 3.50

COUNTY CLERK-RECORDER

IMPERIAL COUNTY
STATE OF CALIFORNIA

RECORDING REQUESTED BY AND MAIL TO:

Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89703

Recorded in Official Records, Imperial County

Dolores Provencio
County Clerk / Recorder

2/02/2010
9:58 AM
IV

P Public

Doc#: 2010-003188

Titles: 1 Pages: 2

Fees	10.00
Taxes	0.00
Other	1.50
PAID	$11.50

Space above for ...

NOTICE OF LOCATION LODE MINING CLAIM
Amended for Imperial County - Document No. 2010001629
To correct a typographical error in the Meridian to S.B.B.&M.

Notice is hereby given that the Undersigned, as agent for Lincoln Gold US Corp. hereby locates and claims the following described mineral bearing ground as a lode claim:

This claim shall be known as the OC 16 Lode Mining Claim in the following quarter section(s):

¼	Section	Township	Range	Meridian
NW	12	15 South	20 East	S.B.B.&M.
NE	12	15 South	20 East	S.B.B.&M.
SW	12	15 South	20 East	S.B.B.&M.
SE	12	15 South	20 East	S.B.B.&M.

From this point of discovery (monument of location) 1490 feet in a East direction and 10 feet in a West direction, and 300 feet on each side of the centerline of the claim. The claim is approximately 1500 feet long and 600 feet wide and the general course of the lode or vein is from the East to the West direction. The discovery and corner monuments are 1 ½" x 1 ½" x 4' wood posts.

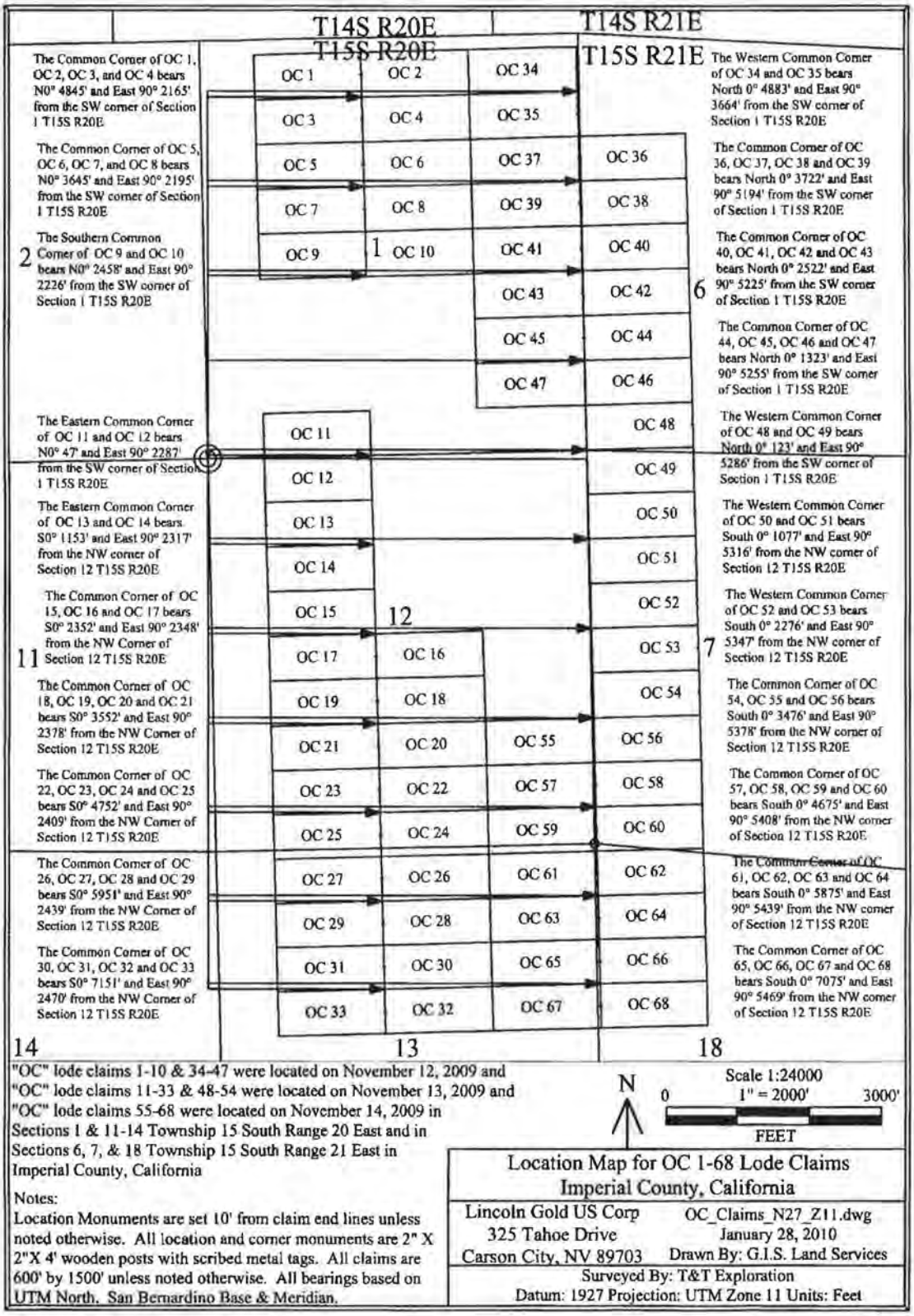
The NW corner of this claim bears SOUTH and 2352 feet and bears East and 2348 feet from the SW Corner of Section 1, Township 15 South, Range 20 East, S.B.B.&M., and is in Mesquite Mining District, Imperial County, California.
Located this 13th day of November, 2009.

Locator: Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89702

STATEMENT OF THE BOUNDARIES:
Notice is hereby given by locator that in accordance with the requirements of the California Public Resources Code.
1. The above Notice of Location is a true and correct copy of said notice.
2. The locator has defined the boundaries of this claim by erecting at each corner of the claim, or the nearest accessible points thereto, a conspicuous and substantial monument, and each corner monument so erected contains markings sufficient to appropriately designate the corner of the mining claim to which it pertains and the name of the claim. The date of marking is 12/10/2009, and the description of monument are: 1 ½" x 1 ½" x 4' wood monument with scribed metal tag.

Lincoln Gold US Corp.

By: _____
H. H. Tonking, Agent



"OC" lode claims 1-10 & 34-47 were located on November 12, 2009 and "OC" lode claims 11-33 & 48-54 were located on November 13, 2009 and "OC" lode claims 55-68 were located on November 14, 2009 in Sections 1 & 11-14 Township 15 South Range 20 East and in Sections 6, 7, & 18 Township 15 South Range 21 East in Imperial County, California

Notes:
Location Monuments are set 10' from claim end lines unless noted otherwise. All location and corner monuments are 2" X 2"X 4' wooden posts with scribed metal tags. All claims are 600' by 1500' unless noted otherwise. All bearings based on UTM North, San Bernardino Base & Meridian.

Location Map for OC 1-68 Lode Claims
Imperial County, California

Lincoln Gold US Corp	OC_Claims_N27_Z11.dwg
325 Tahoe Drive	January 28, 2010
Carson City, NV 89703	Drawn By: G.I.S. Land Services

Surveyed By: T&T Exploration
Datum: 1927 Projection: UTM Zone 11 Units: Feet

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:
SEP 13 2022

By _____ Deputy

Certified Copy of Document number 2010003189

THIS IS A TRUE CERTIFIED COPY OF THE RECORD, IF IT BEARS THE SEAL AND SIGNATURE OF THE IMPERIAL COUNTY CLERK-RECORDER

DATE: 9/13/2022

CERTIFICATION FEE: 3.50

COUNTY CLERK-RECORDER

IMPERIAL COUNTY
STATE OF CALIFORNIA

RECORDING REQUESTED BY AND MAIL TO:

Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89703

Recorded in Official Records, Imperial County
Dolores Provencio
County Clerk / Recorder

2/02/2010
9:58 AM
IV

P Public

Doc#: 2010–003189

Titles: 1 Pages: 2

Fees	10.00
Taxes	0.00
Other	1.50
PAID	$11.50

NOTICE OF LOCATION LODE MINING CLAIM
Amended for Imperial County - Document No. 2010001630
To correct a typographical error in the Meridian to S.B.B.&M.

Notice is hereby given that the Undersigned, as agent for Lincoln Gold US Corp. hereby locates and claims the following described mineral bearing ground as a lode claim:

This claim shall be known as the OC 17 Lode Mining Claim in the following quarter section(s):

¼	Section	Township	Range	Meridian
NW	12	15 South	20 East	S.B.B.&M.
SW	12	15 South	20 East	S.B.B.&M.

From this point of discovery (monument of location) 10 feet in a East direction and 1490 feet in a West direction, and 300 feet on each side of the centerline of the claim. The claim is approximately 1500 feet long and 600 feet wide and the general course of the lode or vein is from the East to the West direction. The discovery and corner monuments are 1 ½" x 1 ½" x 4' wood posts.

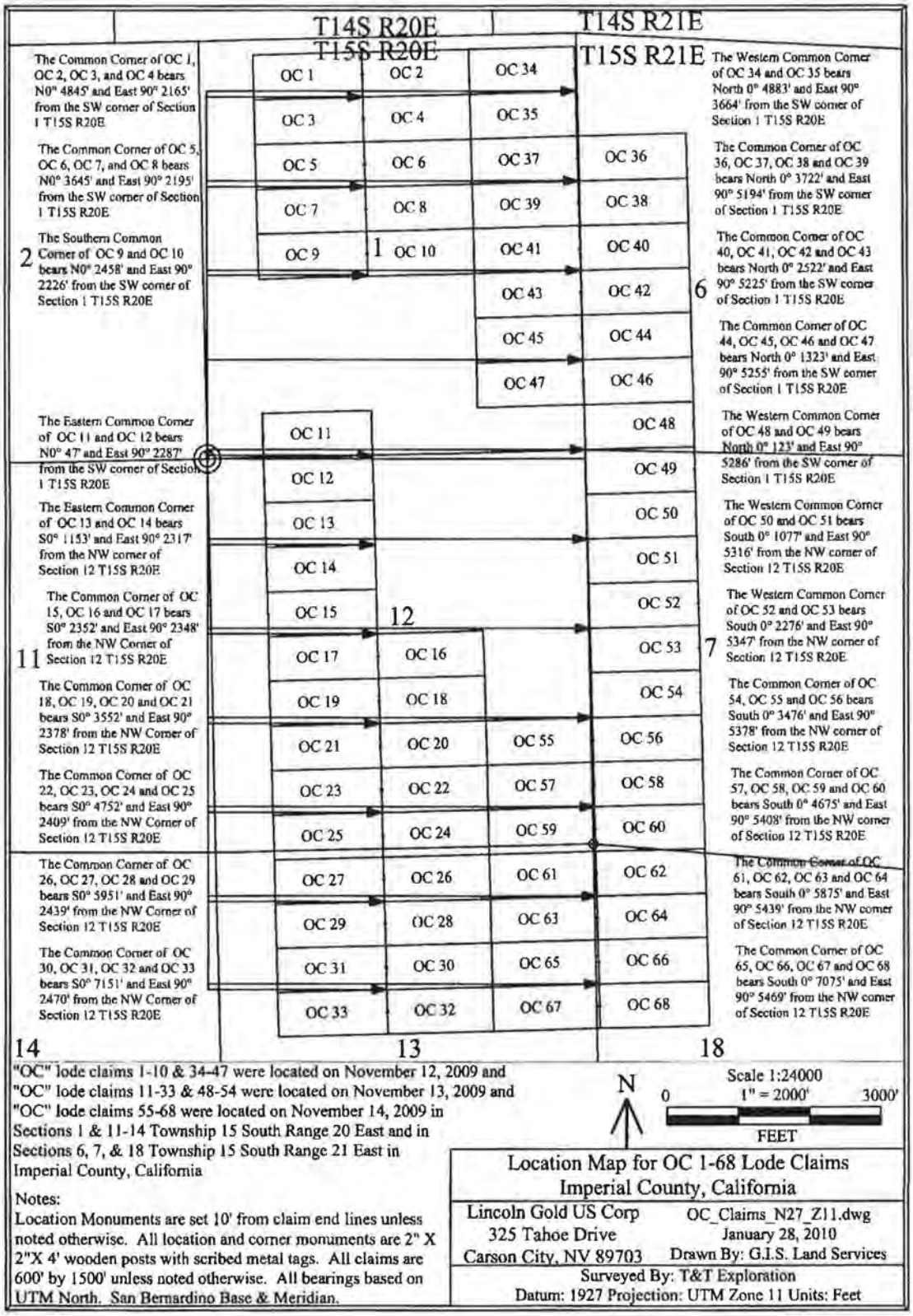
The NE corner of this claim bears SOUTH and 2352 feet and bears East and 2348 feet from the SW Corner of Section 1, Township 15 South, Range 20 East, S.B.B.&M., and is in Mesquite Mining District, Imperial County, California.
Located this 13th day of November, 2009.

Locator: Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89702

STATEMENT OF THE BOUNDARIES:
Notice is hereby given by locator that in accordance with the requirements of the California Public Resources Code.
1. The above Notice of Location is a true and correct copy of said notice.
2. The locator has defined the boundaries of this claim by erecting at each corner of the claim, or the nearest accessible points thereto, a conspicuous and substantial monument, and each corner monument so erected contains markings sufficient to appropriately designate the corner of the mining claim to which it pertains and the name of the claim. The date of marking is 12/10/2009, and the description of monument are: 1 ½" x 1 ½" x 4' wood monument with scribed metal tag.

Lincoln Gold US Corp.

By: _____
H. H. Tonking, Agent



"OC" lode claims 1-10 & 34-47 were located on November 12, 2009 and "OC" lode claims 11-33 & 48-54 were located on November 13, 2009 and "OC" lode claims 55-68 were located on November 14, 2009 in Sections 1 & 11-14 Township 15 South Range 20 East and in Sections 6, 7, & 18 Township 15 South Range 21 East in Imperial County, California

Notes:
Location Monuments are set 10' from claim end lines unless noted otherwise. All location and corner monuments are 2" X 2"X 4' wooden posts with scribed metal tags. All claims are 600' by 1500' unless noted otherwise. All bearings based on UTM North. San Bernardino Base & Meridian.

Location Map for OC 1-68 Lode Claims
Imperial County, California

Lincoln Gold US Corp	OC_Claims_N27_Z11.dwg
325 Tahoe Drive	January 28, 2010
Carson City, NV 89703	Drawn By: G.I.S. Land Services

Surveyed By: T&T Exploration
Datum: 1927 Projection: UTM Zone 11 Units: Feet

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:
SEP 13 2022

By _____
Deputy

Certified Copy of Document number 2010003190

THIS IS A TRUE CERTIFIED COPY OF THE
RECORD, IF IT BEARS THE SEAL AND SIGNATURE
OF THE IMPERIAL COUNTY CLERK-RECORDER

DATE: 9/13/2022

CERTIFICATION FEE: 3.50

COUNTY CLERK-RECORDER

IMPERIAL COUNTY
STATE OF CALIFORNIA

RECORDING REQUESTED BY AND MAIL TO:

Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89703

Recorded in Official Records, Imperial County
Dolores Provencio
County Clerk / Recorder
P Public
Doc#: 2010–003190
Titles: 1 Pages: 2

Fees	10.00
Taxes	0.00
Other	1.50
PAID	$11.50

2/02/2010
9:58 AM
IV

NOTICE OF LOCATION LODE MINING CLAIM
Amended for Imperial County - Document No. 2010001631
To correct a typographical error in the Meridian to S.B.B.&M.

Notice is hereby given that the Undersigned, as agent for Lincoln Gold US Corp. hereby locates and claims the following described mineral bearing ground as a lode claim:

This claim shall be known as the QC 18 Lode Mining Claim in the following quarter section(s):

¼	Section	Township	Range	Meridian
SW	12	15 South	20 East	S.B.B.&M.
SE	12	15 South	20 East	S.B.B.&M.

From this point of discovery (monument of location) 1490 feet in a East direction and 10 feet in a West direction, and 300 feet on each side of the centerline of the claim. The claim is approximately 1500 feet long and 600 feet wide and the general course of the lode or vein is from the East to the West direction. The discovery and corner monuments are 1 ½" x 1 ½" x 4' wood posts.

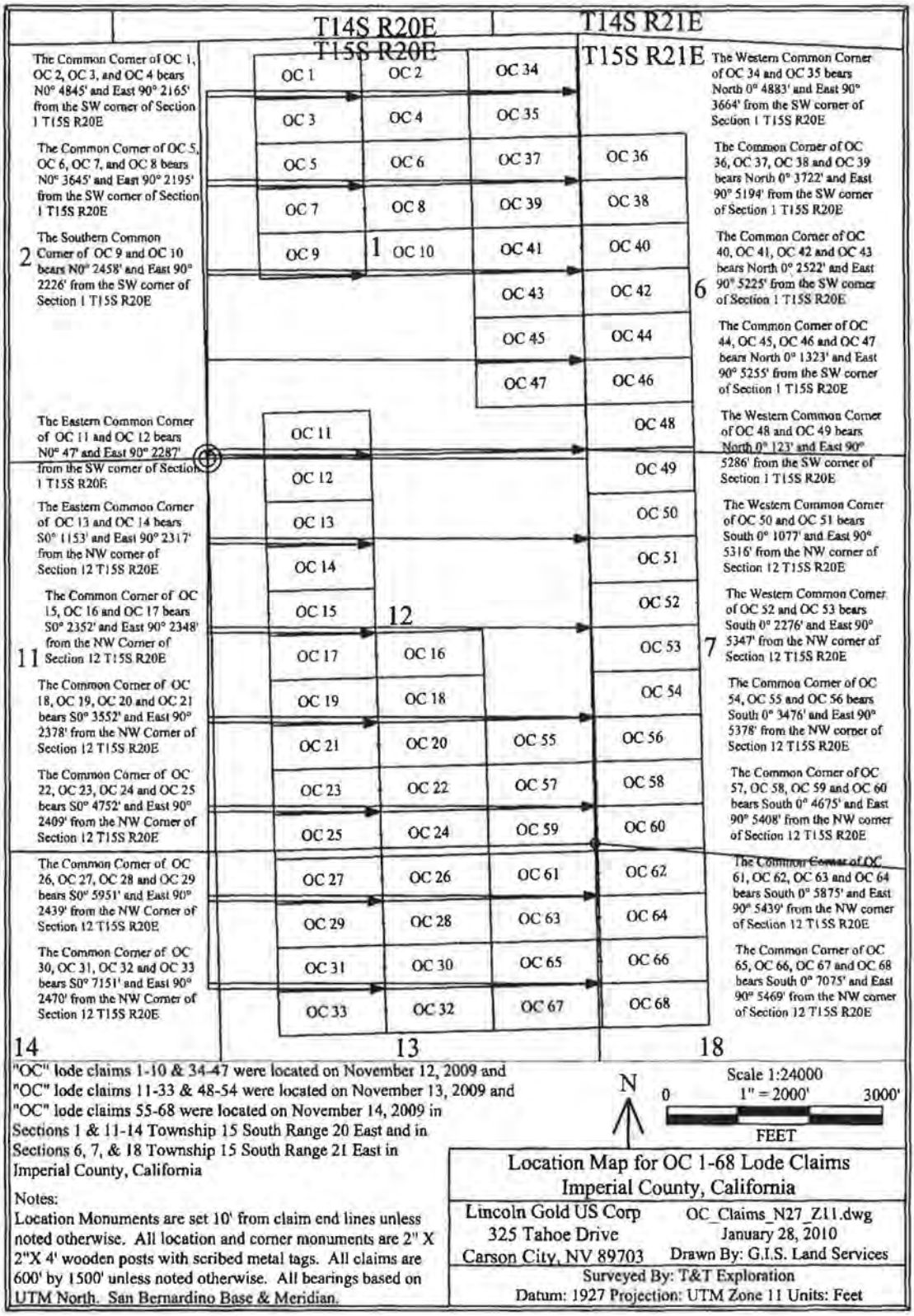
The SW corner of this claim bears SOUTH and 3552 feet and bears East and 2378 feet from the SW Corner of Section 1, Township 15 South, Range 20 East, S.B.B.&M., and is in Mesquite Mining District, Imperial County, California.
Located this 13th day of November, 2009.

Locator: Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89702

STATEMENT OF THE BOUNDARIES:
Notice is hereby given by locator that in accordance with the requirements of the California Public Resources Code.
1. The above Notice of Location is a true and correct copy of said notice.
2. The locator has defined the boundaries of this claim by erecting at each corner of the claim, or the nearest accessible points thereto, a conspicuous and substantial monument, and each corner monument so erected contains markings sufficient to appropriately designate the corner of the mining claim to which it pertains and the name of the claim. The date of marking is 12/10/2009, and the description of monument are: 1 ½" x 1 ½" x 4' wood monument with scribed metal tag.

Lincoln Gold US Corp.

By: _____
H. H. Tonking, Agent



"OC" lode claims 1-10 & 34-47 were located on November 12, 2009 and "OC" lode claims 11-33 & 48-54 were located on November 13, 2009 and "OC" lode claims 55-68 were located on November 14, 2009 in Sections 1 & 11-14 Township 15 South Range 20 East and in Sections 6, 7, & 18 Township 15 South Range 21 East in Imperial County, California

Notes:
Location Monuments are set 10' from claim end lines unless noted otherwise. All location and corner monuments are 2" X 2"X 4' wooden posts with scribed metal tags. All claims are 600' by 1500' unless noted otherwise. All bearings based on UTM North. San Bernardino Base & Meridian.

Location Map for OC 1-68 Lode Claims
Imperial County, California

Lincoln Gold US Corp	OC_Claims_N27_Z11.dwg
325 Tahoe Drive	January 28, 2010
Carson City, NV 89703	Drawn By: G.I.S. Land Services

Surveyed By: T&T Exploration
Datum: 1927 Projection: UTM Zone 11 Units: Feet

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:
SEP 13 2022 By _____ Deputy

Certified Copy of document number 2010003191

THIS IS A TRUE CERTIFIED COPY OF THE RECORD, IF IT BEARS THE SEAL AND SIGNATURE OF THE IMPERIAL COUNTY CLERK-RECORDER

DATE: 9/13/2022

CERTIFICATION FEE: 3.50

COUNTY CLERK-RECORDER

IMPERIAL COUNTY
STATE OF CALIFORNIA

RECORDING REQUESTED BY AND MAIL TO:

Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89703

Recorded in Official Records, Imperial County

Dolores Provencio
County Clerk / Recorder

P Public

2/02/2010
9:58 AM
IV

Doc#: 2010–003191

Titles: 1 Pages: 2

Fees	10.00
Taxes	0.00
Other	1.50
PAID	$11.50

NOTICE OF LOCATION LODE MINING CLAIM

Amended for Imperial County - Document No. 2010001632
To correct a typographical error in the Meridian to S.B.B.&M.

Notice is hereby given that the Undersigned, as agent for Lincoln Gold US Corp. hereby locates and claims the following described mineral bearing ground as a lode claim:

This claim shall be known as the OC 19 Lode Mining Claim in the following quarter section(s):

¼	Section	Township	Range	Meridian
SW	12	15 South	20 East	S.B.B.&M.

From this point of discovery (monument of location) 10 feet in a East direction and 1490 feet in a West direction, and 300 feet on each side of the centerline of the claim. The claim is approximately 1500 feet long and 600 feet wide and the general course of the lode or vein is from the East to the West direction. The discovery and corner monuments are 1 ½" x 1 ½" x 4' wood posts.

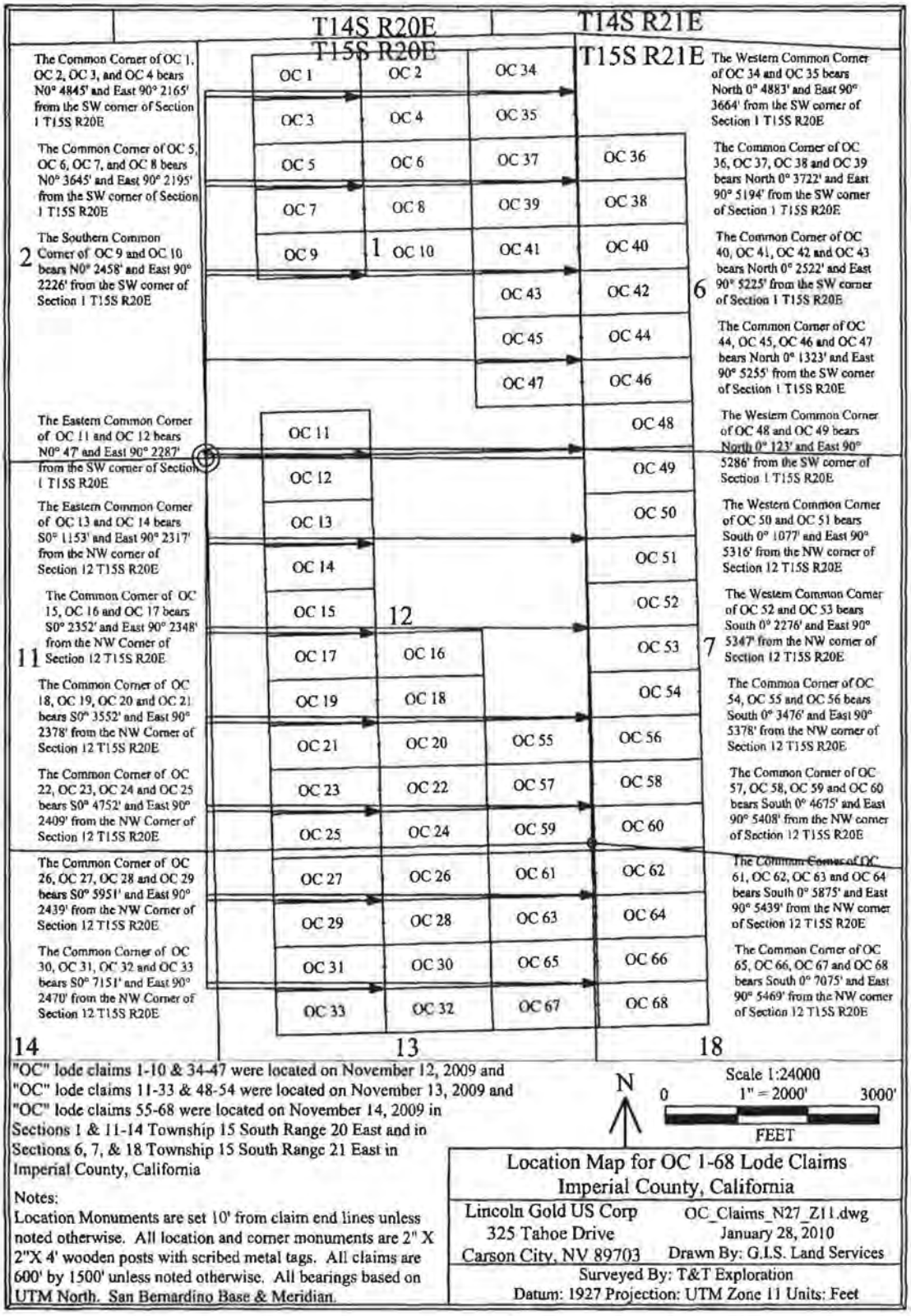
The SE corner of this claim bears SOUTH and 3552 feet and bears East and 2378 feet from the SW Corner of Section 1, Township 15 South, Range 20 East, S.B.B.&M., and is in Mesquite Mining District, Imperial County, California.
Located this 13th day of November, 2009.

Locator: Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89702

STATEMENT OF THE BOUNDARIES:
Notice is hereby given by locator that in accordance with the requirements of the California Public Resources Code.
1. The above Notice of Location is a true and correct copy of said notice.
2. The locator has defined the boundaries of this claim by erecting at each corner of the claim, or the nearest accessible points thereto, a conspicuous and substantial monument, and each corner monument so erected contains markings sufficient to appropriately designate the corner of the mining claim to which it pertains and the name of the claim. The date of marking is 12/10/2009, and the description of monument are: 1 ½" x 1 ½" x 4' wood monument with scribed metal tag.

Lincoln Gold US Corp.

By: _____
H. H. Tonking, Agent



"OC" lode claims 1-10 & 34-47 were located on November 12, 2009 and "OC" lode claims 11-33 & 48-54 were located on November 13, 2009 and "OC" lode claims 55-68 were located on November 14, 2009 in Sections 1 & 11-14 Township 15 South Range 20 East and in Sections 6, 7, & 18 Township 15 South Range 21 East in Imperial County, California

Notes:
Location Monuments are set 10' from claim end lines unless noted otherwise. All location and corner monuments are 2" X 2"X 4' wooden posts with scribed metal tags. All claims are 600' by 1500' unless noted otherwise. All bearings based on UTM North. San Bernardino Base & Meridian.

Location Map for OC 1-68 Lode Claims
Imperial County, California

Lincoln Gold US Corp	OC_Claims_N27_Z11.dwg
325 Tahoe Drive	January 28, 2010
Carson City, NV 89703	Drawn By: G.I.S. Land Services

Surveyed By: T&T Exploration
Datum: 1927 Projection: UTM Zone 11 Units: Feet

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:

By _____ Deputy

SEP 13 2022

Certified Copy of Document number 2010003192

THIS IS A TRUE CERTIFIED COPY OF THE RECORD, IF IT BEARS THE SEAL AND SIGNATURE OF THE IMPERIAL COUNTY CLERK-RECORDER

DATE: 9/13/2022

CERTIFICATION FEE: 3.50

COUNTY CLERK-RECORDER

IMPERIAL COUNTY
STATE OF CALIFORNIA

RECORDING REQUESTED BY AND MAIL TO:

Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89703

Recorded in Official Records, Imperial County

Dolores Provencio
County Clerk / Recorder

P Public

2/02/2010
9:58 AM
IV

Doc#: **2010–003192**

Titles: 1 Pages: 2

Fees	10.00
Taxes	0.00
Other	1.50
PAID	$11.50

NOTICE OF LOCATION LODE MINING CLAIM

Amended for Imperial County - Document No. 2010001633
To correct a typographical error in the Meridian to S.B.B.&M.

Notice is hereby given that the Undersigned, as agent for Lincoln Gold US Corp. hereby locates and claims the following described mineral bearing ground as a lode claim:

This claim shall be known as the OC 20 Lode Mining Claim in the following quarter section(s):

¼	Section	Township	Range	Meridian
SW	12	15 South	20 East	S.B.B.&M.
SE	12	15 South	20 East	S.B.B.&M.

From this point of discovery (monument of location) 1490 feet in a East direction and 10 feet in a West direction, and 300 feet on each side of the centerline of the claim. The claim is approximately 1500 feet long and 600 feet wide and the general course of the lode or vein is from the East to the West direction. The discovery and corner monuments are 1 ½" x 1 ½" x 4' wood posts.

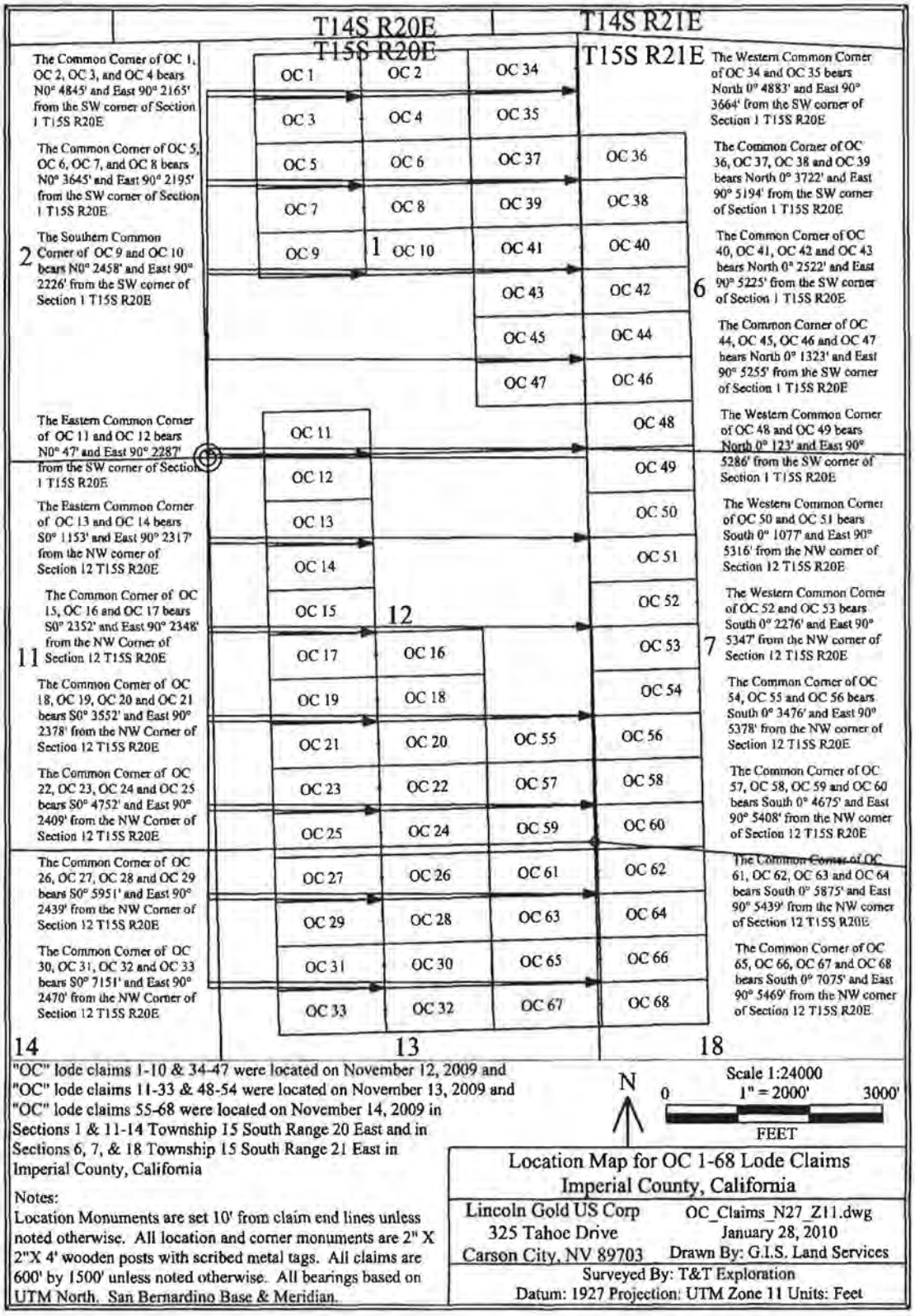
The NW corner of this claim bears SOUTH and 3552 feet and bears East and 2378 feet from the SW Corner of Section 1, Township 15 South, Range 20 East, S.B.B.&M., and is in Mesquite Mining District, Imperial County, California.
Located this 13th day of November, 2009.

Locator: Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89702

STATEMENT OF THE BOUNDARIES:
Notice is hereby given by locator that in accordance with the requirements of the California Public Resources Code.
1. The above Notice of Location is a true and correct copy of said notice.
2. The locator has defined the boundaries of this claim by erecting at each corner of the claim, or the nearest accessible points thereto, a conspicuous and substantial monument, and each corner monument so erected contains markings sufficient to appropriately designate the corner of the mining claim to which it pertains and the name of the claim. The date of marking is 12/10/2009, and the description of monument are: 1 ½" x 1 ½" x 4' wood monument with scribed metal tag.

Lincoln Gold US Corp.

By: _____
H. H. Tonking, Agent



"OC" lode claims 1-10 & 34-47 were located on November 12, 2009 and "OC" lode claims 11-33 & 48-54 were located on November 13, 2009 and "OC" lode claims 55-68 were located on November 14, 2009 in Sections 1 & 11-14 Township 15 South Range 20 East and in Sections 6, 7, & 18 Township 15 South Range 21 East in Imperial County, California

Notes:
Location Monuments are set 10' from claim end lines unless noted otherwise. All location and corner monuments are 2" X 2"X 4' wooden posts with scribed metal tags. All claims are 600' by 1500' unless noted otherwise. All bearings based on UTM North. San Bernardino Base & Meridian.

Location Map for OC 1-68 Lode Claims
Imperial County, California

Lincoln Gold US Corp	OC_Claims_N27_Z11.dwg
325 Tahoe Drive	January 28, 2010
Carson City, NV 89703	Drawn By: G.I.S. Land Services

Surveyed By: T&T Exploration
Datum: 1927 Projection: UTM Zone 11 Units: Feet

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:
SEP 13 2022 By _____
Deputy

Certified Copy of document number 2010003193

THIS IS A TRUE CERTIFIED COPY OF THE RECORD, IF IT BEARS THE SEAL AND SIGNATURE OF THE IMPERIAL COUNTY CLERK-RECORDER

DATE: 9/13/2022

CERTIFICATION FEE: 3.50

COUNTY CLERK-RECORDER

IMPERIAL COUNTY
STATE OF CALIFORNIA

RECORDING REQUESTED BY AND MAIL TO:

Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89703

Recorded in Official Records, Imperial County

Dolores Provencio
County Clerk / Recorder

2/02/2010
9:58 AM
IV

P Public

Doc#: **2010-003193**

Titles: 1 Pages: 2

Fees	10.00
Taxes	0.00
Other	1.50
PAID	$11.50

NOTICE OF LOCATION LODE MINING CLAIM

Amended for Imperial County - Document No. 2010001634
To correct a typographical error in the Meridian to S.B.B.&M.

Notice is hereby given that the Undersigned, as agent for Lincoln Gold US Corp. hereby locates and claims the following described mineral bearing ground as a lode claim:

This claim shall be known as the OC 21 Lode Mining Claim in the following quarter section(s):

¼	Section	Township	Range	Meridian
SW	12	15 South	20 East	S.B.B.&M.

From this point of discovery (monument of location) 10 feet in a East direction and 1490 feet in a West direction, and 300 feet on each side of the centerline of the claim. The claim is approximately 1500 feet long and 600 feet wide and the general course of the lode or vein is from the East to the West direction. The discovery and corner monuments are 1 ½" x 1 ½" x 4' wood posts.

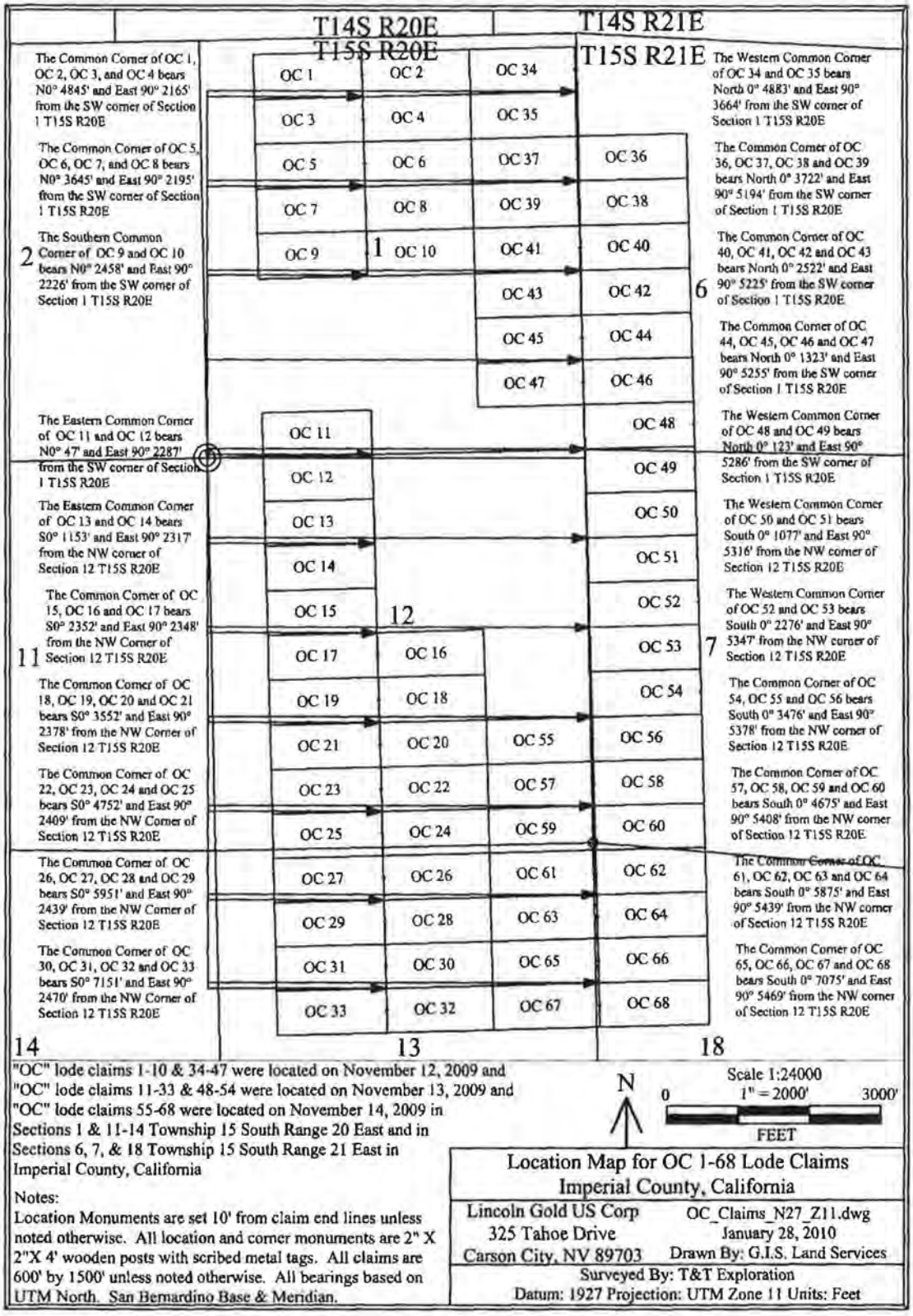
The NE corner of this claim bears SOUTH and 3552 feet and bears East and 2378 feet from the SW Corner of Section 1, Township 15 South, Range 20 East, S.B.B.&M., and is in Mesquite Mining District, Imperial County, California.
Located this 13th day of November, 2009.

Locator: Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89702

STATEMENT OF THE BOUNDARIES:
Notice is hereby given by locator that in accordance with the requirements of the California Public Resources Code.
1. The above Notice of Location is a true and correct copy of said notice.
2. The locator has defined the boundaries of this claim by erecting at each corner of the claim, or the nearest accessible points thereto, a conspicuous and substantial monument, and each corner monument so erected contains markings sufficient to appropriately designate the corner of the mining claim to which it pertains and the name of the claim. The date of marking is 12/10/2009, and the description of monument are: 1 ½" x 1 ½" x 4' wood monument with scribed metal tag.

Lincoln Gold US Corp.

By: _____
H. H. Tonking, Agent



"OC" lode claims 1-10 & 34-47 were located on November 12, 2009 and "OC" lode claims 11-33 & 48-54 were located on November 13, 2009 and "OC" lode claims 55-68 were located on November 14, 2009 in Sections 1 & 11-14 Township 15 South Range 20 East and in Sections 6, 7, & 18 Township 15 South Range 21 East in Imperial County, California

Notes:
Location Monuments are set 10' from claim end lines unless noted otherwise. All location and corner monuments are 2" X 2"X 4' wooden posts with scribed metal tags. All claims are 600' by 1500' unless noted otherwise. All bearings based on UTM North. San Bernardino Base & Meridian.

Location Map for OC 1-68 Lode Claims
Imperial County, California

Lincoln Gold US Corp	OC_Claims_N27_Z11.dwg
325 Tahoe Drive	January 28, 2010
Carson City, NV 89703	Drawn By: G.I.S. Land Services

Surveyed By: T&T Exploration
Datum: 1927 Projection: UTM Zone 11 Units: Feet

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:
SEP 13 2022 By _____
Deputy

Certified Copy of document number 2010003194

THIS IS A TRUE CERTIFIED COPY OF THE RECORD, IF IT BEARS THE SEAL AND SIGNATURE OF THE IMPERIAL COUNTY CLERK-RECORDER

DATE: 9/13/2022

CERTIFICATION FEE: 3.50

COUNTY CLERK-RECORDER

IMPERIAL COUNTY
STATE OF CALIFORNIA

RECORDING REQUESTED BY AND MAIL TO:

Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89703

Recorded in Official Records, Imperial County

Dolores Provencio
County Clerk / Recorder

P Public

2/02/2010
9:58 AM
IV

Doc#: 2010–003194

Titles: 1 **Pages: 2**

Fees	10.00
Taxes	0.00
Other	1.50
PAID	$11.50

NOTICE OF LOCATION LODE MINING CLAIM

Amended for Imperial County - Document No. 2010001635
To correct a typographical error in the Meridian to S.B.B.&M.

Notice is hereby given that the Undersigned, as agent for Lincoln Gold US Corp. hereby locates and claims the following described mineral bearing ground as a lode claim:

This claim shall be known as the OC 22 Lode Mining Claim in the following quarter section(s):

¼	Section	Township	Range	Meridian
SW	12	15 South	20 East	S.B.B.&M.
SE	12	15 South	20 East	S.B.B.&M.

From this point of discovery (monument of location) 1490 feet in a East direction and 10 feet in a West direction, and 300 feet on each side of the centerline of the claim. The claim is approximately 1500 feet long and 600 feet wide and the general course of the lode or vein is from the East to the West direction. The discovery and corner monuments are 1 ½" x 1 ½" x 4' wood posts.

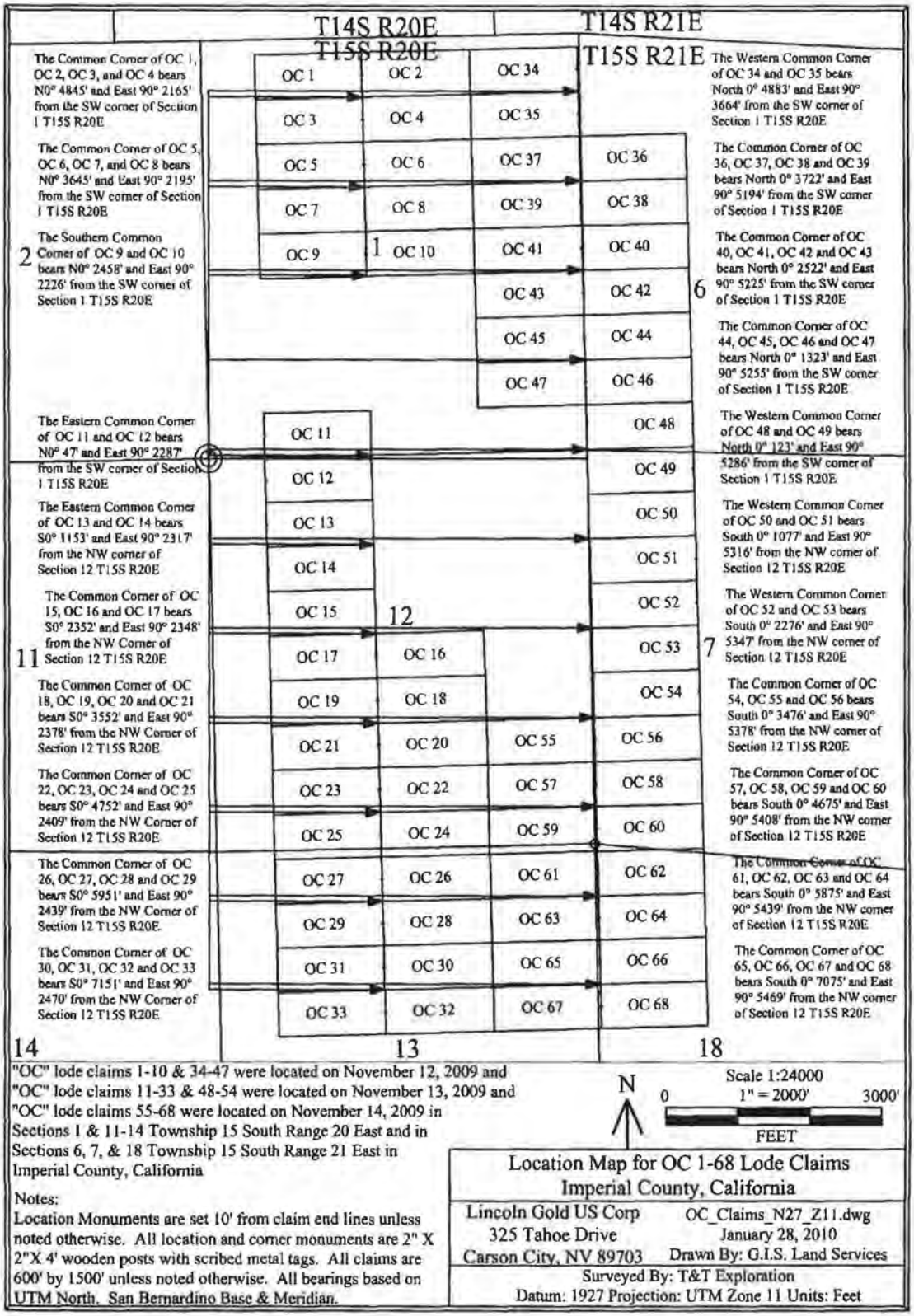
The SW corner of this claim bears SOUTH and 4752 feet and bears East and 2409 feet from the SW Corner of Section 1, Township 15 South, Range 20 East, S.B.B.&M., and is in Mesquite Mining District, Imperial County, California.
Located this 13th day of November, 2009.

Locator: Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89702

STATEMENT OF THE BOUNDARIES:
Notice is hereby given by locator that in accordance with the requirements of the California Public Resources Code.
1. The above Notice of Location is a true and correct copy of said notice.
2. The locator has defined the boundaries of this claim by erecting at each corner of the claim, or the nearest accessible points thereto, a conspicuous and substantial monument, and each corner monument so erected contains markings sufficient to appropriately designate the corner of the mining claim to which it pertains and the name of the claim. The date of marking is 12/10/2009, and the description of monument are: 1 ½" x 1 ½" x 4' wood monument with scribed metal tag.

Lincoln Gold US Corp.

By: _____
H. H. Tonking, Agent



"OC" lode claims 1-10 & 34-47 were located on November 12, 2009 and "OC" lode claims 11-33 & 48-54 were located on November 13, 2009 and "OC" lode claims 55-68 were located on November 14, 2009 in Sections 1 & 11-14 Township 15 South Range 20 East and in Sections 6, 7, & 18 Township 15 South Range 21 East in Imperial County, California

Notes:
Location Monuments are set 10' from claim end lines unless noted otherwise. All location and corner monuments are 2" X 2"X 4' wooden posts with scribed metal tags. All claims are 600' by 1500' unless noted otherwise. All bearings based on UTM North. San Bernardino Base & Meridian.

Scale 1:24000

Location Map for OC 1-68 Lode Claims
Imperial County, California

Lincoln Gold US Corp	OC_Claims_N27_Z11.dwg
325 Tahoe Drive	January 28, 2010
Carson City, NV 89703	Drawn By: G.I.S. Land Services

Surveyed By: T&T Exploration
Datum: 1927 Projection: UTM Zone 11 Units: Feet

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:
SEP 13 2022 By _____ Deputy

Certified Copy of document number 2010003195

THIS IS A TRUE CERTIFIED COPY OF THE RECORD, IF IT BEARS THE SEAL AND SIGNATURE OF THE IMPERIAL COUNTY CLERK-RECORDER

DATE: 9/13/2022

CERTIFICATION FEE: 3.50

COUNTY CLERK-RECORDER

IMPERIAL COUNTY
STATE OF CALIFORNIA

RECORDING REQUESTED BY AND MAIL TO:

Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89703

Recorded in Official Records, Imperial County

Dolores Provencio
County Clerk / Recorder

P Public

2/02/2010
9:58 AM
IV

Doc#: 2010-003195

Titles: 1 Pages: 2

Fees	10.00
Taxes	0.00
Other	1.50
PAID	$11.50

NOTICE OF LOCATION LODE MINING CLAIM

Amended for Imperial County - Document No. 2010001636
To correct a typographical error in the Meridian to S.B.B.&M.

Notice is hereby given that the Undersigned, as agent for Lincoln Gold US Corp. hereby locates and claims the following described mineral bearing ground as a lode claim:

This claim shall be known as the OC 23 Lode Mining Claim in the following quarter section(s):

¼	Section	Township	Range	Meridian
SW	12	15 South	20 East	S.B.B.&M.

From this point of discovery (monument of location) 10 feet in a East direction and 1490 feet in a West direction, and 300 feet on each side of the centerline of the claim. The claim is approximately 1500 feet long and 600 feet wide and the general course of the lode or vein is from the East to the West direction. The discovery and corner monuments are 1 ½" x 1 ½" x 4' wood posts.

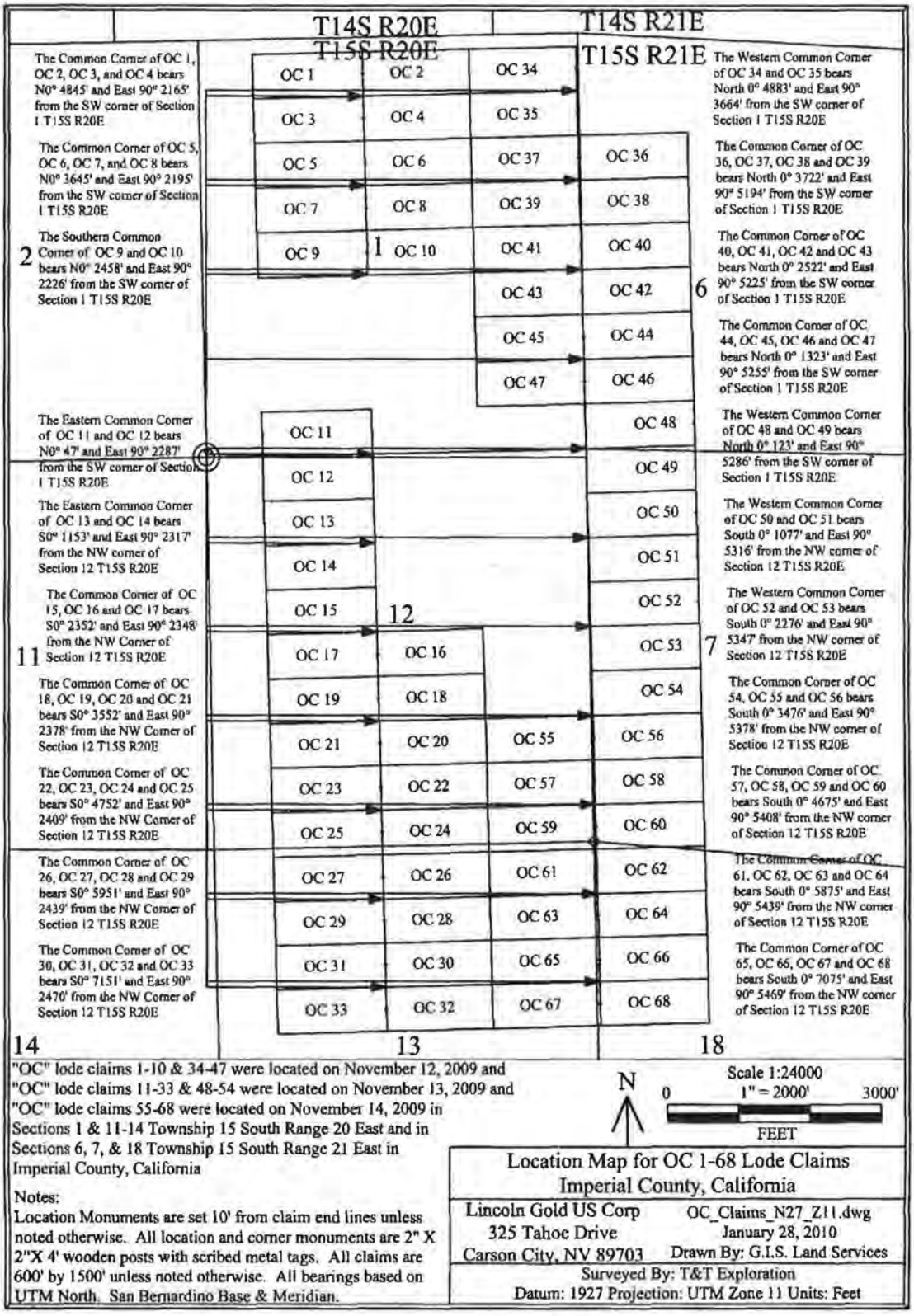
The SE corner of this claim bears SOUTH and 4752 feet and bears East and 2409 feet from the SW Corner of Section 1, Township 15 South, Range 20 East, S.B.B.&M., and is in Mesquite Mining District, Imperial County, California.
Located this 13th day of November, 2009.

Locator: Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89702

STATEMENT OF THE BOUNDARIES:
Notice is hereby given by locator that in accordance with the requirements of the California Public Resources Code.
1. The above Notice of Location is a true and correct copy of said notice.
2. The locator has defined the boundaries of this claim by erecting at each corner of the claim, or the nearest accessible points thereto, a conspicuous and substantial monument, and each corner monument so erected contains markings sufficient to appropriately designate the corner of the mining claim to which it pertains and the name of the claim. The date of marking is 12/10/2009, and the description of monument are: 1 ½" x 1 ½" x 4' wood monument with scribed metal tag.

Lincoln Gold US Corp.

By: _____
H. H. Tonking, Agent



"OC" lode claims 1-10 & 34-47 were located on November 12, 2009 and "OC" lode claims 11-33 & 48-54 were located on November 13, 2009 and "OC" lode claims 55-68 were located on November 14, 2009 in Sections 1 & 11-14 Township 15 South Range 20 East and in Sections 6, 7, & 18 Township 15 South Range 21 East in Imperial County, California

Notes:
Location Monuments are set 10' from claim end lines unless noted otherwise. All location and corner monuments are 2" X 2"X 4' wooden posts with scribed metal tags. All claims are 600' by 1500' unless noted otherwise. All bearings based on UTM North, San Bernardino Base & Meridian.

Location Map for OC 1-68 Lode Claims
Imperial County, California

Lincoln Gold US Corp	OC_Claims_N27_Z11.dwg
325 Tahoe Drive	January 28, 2010
Carson City, NV 89703	Drawn By: G.I.S. Land Services

Surveyed By: T&T Exploration
Datum: 1927 Projection: UTM Zone 11 Units: Feet

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:
SEP 13 2022 By _____ Deputy

Certified Copy of document number 2010003196

THIS IS A TRUE CERTIFIED COPY OF THE
RECORD, IF IT BEARS THE SEAL AND SIGNATURE
OF THE IMPERIAL COUNTY CLERK-RECORDER

DATE: 9/13/2022

CERTIFICATION FEE: 3.50

COUNTY CLERK-RECORDER

IMPERIAL COUNTY
STATE OF CALIFORNIA

RECORDING REQUESTED BY AND MAIL TO:

Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89703

Recorded in Official Records, Imperial County

Dolores Provencio
County Clerk / Recorder

P Public

2/02/2010
9:58 AM
IV

Doc#: **2010–003196**

Titles: 1 Pages: 2

Fees	10.00
Taxes	0.00
Other	1.50
PAID	$11.50

Space above for Recorder's Use

NOTICE OF LOCATION LODE MINING CLAIM
Amended for Imperial County - Document No. 2010001637
To correct a typographical error in the Meridian to S.B.B.&M.

Notice is hereby given that the Undersigned, as agent for Lincoln Gold US Corp. hereby locates and claims the following described mineral bearing ground as a lode claim:

This claim shall be known as the OC 24 Lode Mining Claim in the following quarter section(s):

¼	Section	Township	Range	Meridian
SW	12	15 South	20 East	S.B.B.&M.
NW	13	15 South	20 East	S.B.B.&M.
SE	12	15 South	20 East	S.B.B.&M.
~~SW~~ NE	13	15 South	20 East	S.B.B.&M.

From this point of discovery (monument of location) 1490 feet in a East direction and 10 feet in a West direction, and 300 feet on each side of the centerline of the claim. The claim is approximately 1500 feet long and 600 feet wide and the general course of the lode or vein is from the East to the West direction. The discovery and corner monuments are 1 ½" x 1 ½" x 4' wood posts.

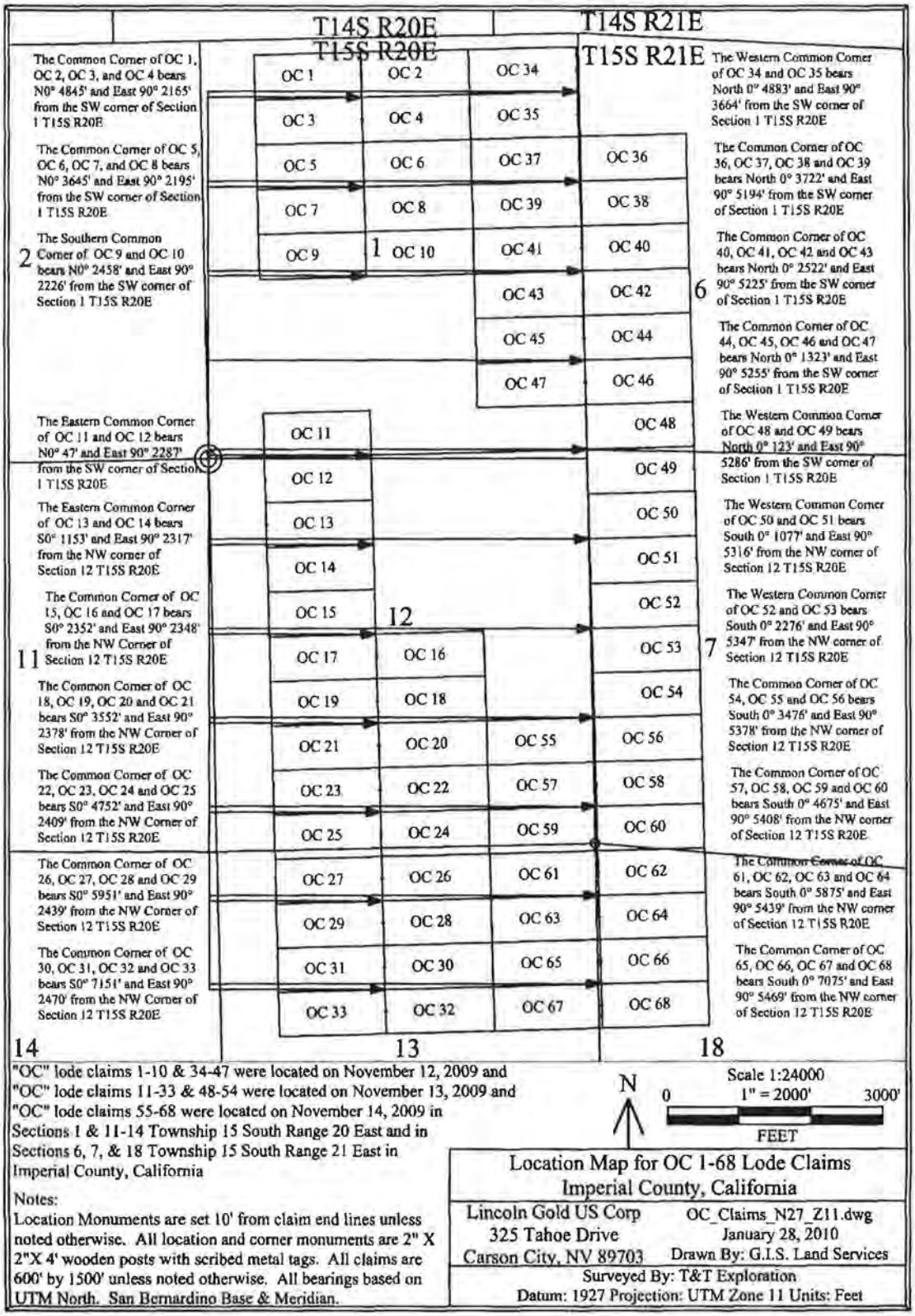
The NW corner of this claim bears SOUTH and 4752 feet and bears East and 2409 feet from the SW Corner of Section 1, Township 15 South, Range 20 East, S.B.B.&M., and is in Mesquite Mining District, Imperial County, California.
Located this 13th day of November, 2009.

Locator: Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89702

STATEMENT OF THE BOUNDARIES:
Notice is hereby given by locator that in accordance with the requirements of the California Public Resources Code.
1. The above Notice of Location is a true and correct copy of said notice.
2. The locator has defined the boundaries of this claim by erecting at each corner of the claim, or the nearest accessible points thereto, a conspicuous and substantial monument, and each corner monument so erected contains markings sufficient to appropriately designate the corner of the mining claim to which it pertains and the name of the claim. The date of marking is 12/10/2009, and the description of monument are: 1 ½" x 1 ½" x 4' wood monument with scribed metal tag.

Lincoln Gold US Corp.

By: _____
H. H. Tonking, Agent


T14S R20E
T15S R20E
T14S R21E
T15S R21E
The Common Corner of OC 1, OC 2, OC 3, and OC 4 bears N0° 4845' and East 90° 2165' from the SW corner of Section 1 T15S R20E
The Common Corner of OC 5, OC 6, OC 7, and OC 8 bears N0° 3645' and East 90° 2195' from the SW corner of Section 1 T15S R20E
The Southern Common Corner of OC 9 and OC 10 bears N0° 2458' and East 90° 2226' from the SW corner of Section 1 T15S R20E
2
The Eastern Common Corner of OC 11 and OC 12 bears N0° 47' and East 90° 2287' from the SW corner of Section 1 T15S R20E
The Eastern Common Corner of OC 13 and OC 14 bears S0° 1153' and East 90° 2317' from the NW corner of Section 12 T15S R20E
The Common Corner of OC 15, OC 16 and OC 17 bears S0° 2352' and East 90° 2348' from the NW Corner of Section 12 T15S R20E
11
The Common Corner of OC 18, OC 19, OC 20 and OC 21 bears S0° 3552' and East 90° 2378' from the NW Corner of Section 12 T15S R20E
The Common Corner of OC 22, OC 23, OC 24 and OC 25 bears S0° 4752' and East 90° 2409' from the NW Corner of Section 12 T15S R20E
The Common Corner of OC 26, OC 27, OC 28 and OC 29 bears S0° 5951' and East 90° 2439' from the NW Corner of Section 12 T15S R20E
The Common Corner of OC 30, OC 31, OC 32 and OC 33 bears S0° 7151' and East 90° 2470' from the NW Corner of Section 12 T15S R20E
14
OC 1
OC 2
OC 34
OC 3
OC 4
OC 35
OC 5
OC 6
OC 37
OC 36
OC 7
OC 8
OC 39
OC 38
OC 9
1
OC 10
OC 41
OC 40
OC 43
OC 42
6
OC 45
OC 44
OC 47
OC 46
OC 11
OC 48
OC 12
OC 49
OC 13
OC 50
OC 14
OC 51
OC 15
12
OC 52
OC 17
OC 16
OC 53
7
OC 19
OC 18
OC 54
OC 21
OC 20
OC 55
OC 56
OC 23
OC 22
OC 57
OC 58
OC 25
OC 24
OC 59
OC 60
OC 27
OC 26
OC 61
OC 62
OC 29
OC 28
OC 63
OC 64
OC 31
OC 30
OC 65
OC 66
OC 33
OC 32
OC 67
OC 68
13
18
The Western Common Corner of OC 34 and OC 35 bears North 0° 4883' and East 90° 3664' from the SW corner of Section 1 T15S R20E
The Common Corner of OC 36, OC 37, OC 38 and OC 39 bears North 0° 3722' and East 90° 5194' from the SW corner of Section 1 T15S R20E
The Common Corner of OC 40, OC 41, OC 42 and OC 43 bears North 0° 2522' and East 90° 5225' from the SW corner of Section 1 T15S R20E
The Common Corner of OC 44, OC 45, OC 46 and OC 47 bears North 0° 1323' and East 90° 5255' from the SW corner of Section 1 T15S R20E
The Western Common Corner of OC 48 and OC 49 bears North 0° 123' and East 90° 5286' from the SW corner of Section 1 T15S R20E
The Western Common Corner of OC 50 and OC 51 bears South 0° 1077' and East 90° 5316' from the NW corner of Section 12 T15S R20E
The Western Common Corner of OC 52 and OC 53 bears South 0° 2276' and East 90° 5347' from the NW corner of Section 12 T15S R20E
The Common Corner of OC 54, OC 55 and OC 56 bears South 0° 3476' and East 90° 5378' from the NW corner of Section 12 T15S R20E
The Common Corner of OC 57, OC 58, OC 59 and OC 60 bears South 0° 4675' and East 90° 5408' from the NW corner of Section 12 T15S R20E
The Common Corner of OC 61, OC 62, OC 63 and OC 64 bears South 0° 5875' and East 90° 5439' from the NW corner of Section 12 T15S R20E
The Common Corner of OC 65, OC 66, OC 67 and OC 68 bears South 0° 7075' and East 90° 5469' from the NW corner of Section 12 T15S R20E
"OC" lode claims 1-10 & 34-47 were located on November 12, 2009 and "OC" lode claims 11-33 & 48-54 were located on November 13, 2009 and "OC" lode claims 55-68 were located on November 14, 2009 in Sections 1 & 11-14 Township 15 South Range 20 East and in Sections 6, 7, & 18 Township 15 South Range 21 East in Imperial County, California
Notes:
Location Monuments are set 10' from claim end lines unless noted otherwise. All location and corner monuments are 2" X 2"X 4' wooden posts with scribed metal tags. All claims are 600' by 1500' unless noted otherwise. All bearings based on UTM North. San Bernardino Base & Meridian.
N
Scale 1:24000
0
1" = 2000'
3000'
FEET
Location Map for OC 1-68 Lode Claims
Imperial County, California
Lincoln Gold US Corp
325 Tahoe Drive
Carson City, NV 89703
OC_Claims_N27_Z11.dwg
January 28, 2010
Drawn By: G.I.S. Land Services
Surveyed By: T&T Exploration
Datum: 1927 Projection: UTM Zone 11 Units: Feet

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued: SEP 13 2022

By _____ Deputy

Certified Copy of Document number 2010003197

THIS IS A TRUE CERTIFIED COPY OF THE
RECORD, IF IT BEARS THE SEAL AND SIGNATURE
OF THE IMPERIAL COUNTY CLERK-RECORDER

DATE: 9/13/2022

CERTIFICATION FEE: 3.50

COUNTY CLERK-RECORDER

IMPERIAL COUNTY
STATE OF CALIFORNIA

RECORDING REQUESTED BY AND MAIL TO:

Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89703

Recorded in Official Records, Imperial County

Dolores Provencio
County Clerk / Recorder

P Public

2/02/2010
9:58 AM
IV

Doc#: **2010–003197**

Titles: 1 Pages: 2

Fees	10.00
Taxes	0.00
Other	1.50
PAID	$11.50

Space above for Recorder's Use

NOTICE OF LOCATION LODE MINING CLAIM
Amended for Imperial County - Document No. 2010001638
To correct a typographical error in the Meridian to S.B.B.&M.

Notice is hereby given that the Undersigned, as agent for Lincoln Gold US Corp. hereby locates and claims the following described mineral bearing ground as a lode claim:

This claim shall be known as the OC 25 Lode Mining Claim in the following quarter section(s):

¼	Section	Township	Range	Meridian
SW	12	15 South	20 East	S.B.B.&M.
NW	13	15 South	20 East	S.B.B.&M.

From this point of discovery (monument of location) 10 feet in a East direction and 1490 feet in a West direction, and 300 feet on each side of the centerline of the claim. The claim is approximately 1500 feet long and 600 feet wide and the general course of the lode or vein is from the East to the West direction. The discovery and corner monuments are 1 ½" x 1 ½" x 4' wood posts.

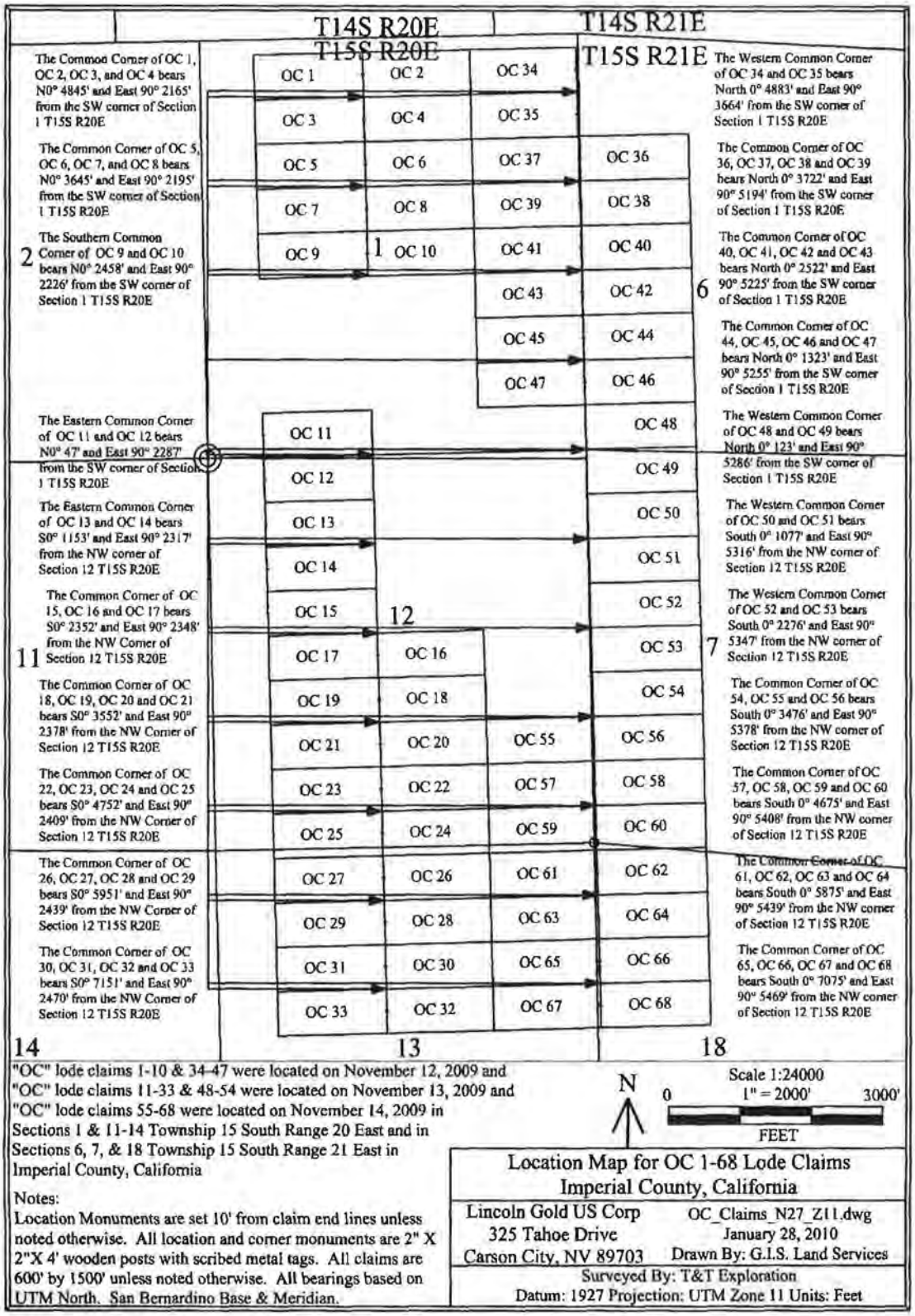
The NE corner of this claim bears SOUTH and 4752 feet and bears East and 2409 feet from the SW Corner of Section 1, Township 15 South, Range 20 East, S.B.B.&M., and is in Mesquite Mining District, Imperial County, California.
Located this 13th day of November, 2009.

Locator: Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89702

STATEMENT OF THE BOUNDARIES:
Notice is hereby given by locator that in accordance with the requirements of the California Public Resources Code.
1. The above Notice of Location is a true and correct copy of said notice.
2. The locator has defined the boundaries of this claim by erecting at each corner of the claim, or the nearest accessible points thereto, a conspicuous and substantial monument, and each corner monument so erected contains markings sufficient to appropriately designate the corner of the mining claim to which it pertains and the name of the claim. The date of marking is 12/10/2009, and the description of monument are: 1 ½" x 1 ½" x 4' wood monument with scribed metal tag.

Lincoln Gold US Corp.

By: _____
H. H. Tonking, Agent



"OC" lode claims 1-10 & 34-47 were located on November 12, 2009 and "OC" lode claims 11-33 & 48-54 were located on November 13, 2009 and "OC" lode claims 55-68 were located on November 14, 2009 in Sections 1 & 11-14 Township 15 South Range 20 East and in Sections 6, 7, & 18 Township 15 South Range 21 East in Imperial County, California

Notes:
Location Monuments are set 10' from claim end lines unless noted otherwise. All location and corner monuments are 2" X 2"X 4' wooden posts with scribed metal tags. All claims are 600' by 1500' unless noted otherwise. All bearings based on UTM North. San Bernardino Base & Meridian.

Location Map for OC 1-68 Lode Claims
Imperial County, California

Lincoln Gold US Corp	OC_Claims_N27_Z11.dwg
325 Tahoe Drive	January 28, 2010
Carson City, NV 89703	Drawn By: G.I.S. Land Services

Surveyed By: T&T Exploration
Datum: 1927 Projection: UTM Zone 11 Units: Feet

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:
SEP 13 2022

By _____ Deputy

Certified Copy of Document number 2010003198

THIS IS A TRUE CERTIFIED COPY OF THE RECORD, IF IT BEARS THE SEAL AND SIGNATURE OF THE IMPERIAL COUNTY CLERK-RECORDER

DATE: 9/13/2022

CERTIFICATION FEE: 3.50

COUNTY CLERK-RECORDER

IMPERIAL COUNTY
STATE OF CALIFORNIA

RECORDING REQUESTED BY AND MAIL TO:

Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89703

Recorded in Official Records, Imperial County

Dolores Provencio
County Clerk / Recorder

P Public

2/02/2010
9:58 AM
IV

Doc#: **2010 – 003198**

Titles: 1 Pages: 2

Fees	10.00
Taxes	0.00
Other	1.50
PAID	$11.50

NOTICE OF LOCATION LODE MINING CLAIM
Amended for Imperial County - Document No. 2010001639
To correct a typographical error in the Meridian to S.B.B.&M.

Notice is hereby given that the Undersigned, as agent for Lincoln Gold US Corp. hereby locates and claims the following described mineral bearing ground as a lode claim:

This claim shall be known as the OC 26 Lode Mining Claim in the following quarter section(s):

¼	Section	Township	Range	Meridian
NW	13	15 South	20 East	S.B.B.&M.
NE	13	15 South	20 East	S.B.B.&M.

From this point of discovery (monument of location) 1490 feet in a East direction and 10 feet in a West direction, and 300 feet on each side of the centerline of the claim. The claim is approximately 1500 feet long and 600 feet wide and the general course of the lode or vein is from the East to the West direction. The discovery and corner monuments are 1 ½" x 1 ½" x 4' wood posts.

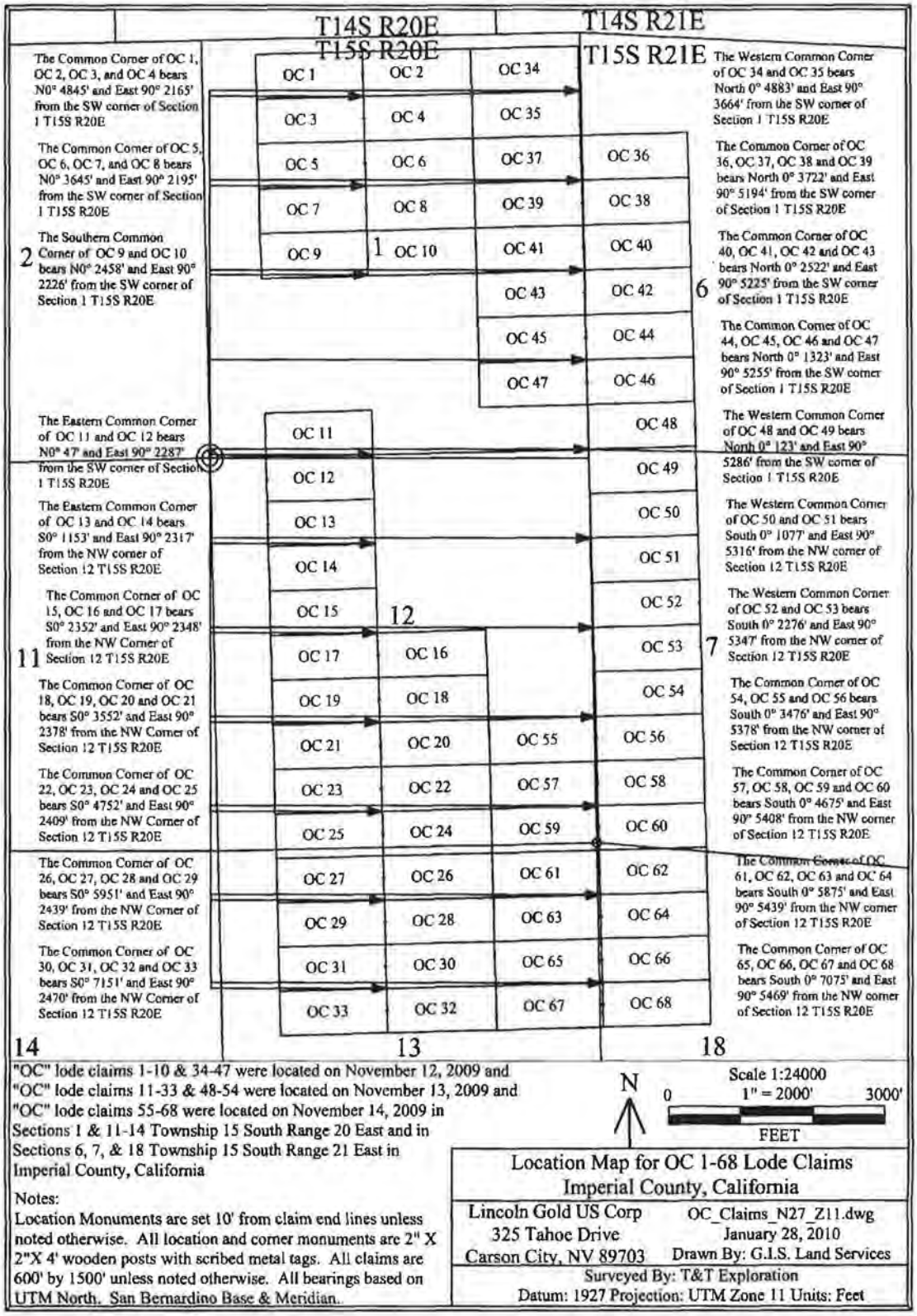
The SW corner of this claim bears SOUTH and 5951 feet and bears East and 2439 feet from the SW Corner of Section 1, Township 15 South, Range 20 East, S.B.B.&M., and is in Mesquite Mining District, Imperial County, California.
Located this 13th day of November, 2009.

Locator: Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89702

STATEMENT OF THE BOUNDARIES:
Notice is hereby given by locator that in accordance with the requirements of the California Public Resources Code.
1. The above Notice of Location is a true and correct copy of said notice.
2. The locator has defined the boundaries of this claim by erecting at each corner of the claim, or the nearest accessible points thereto, a conspicuous and substantial monument, and each corner monument so erected contains markings sufficient to appropriately designate the corner of the mining claim to which it pertains and the name of the claim. The date of marking is 12/10/2009, and the description of monument are: 1 ½" x 1 ½" x 4' wood monument with scribed metal tag.

Lincoln Gold US Corp.

By: _____
H. H. Tonking, Agent



"OC" lode claims 1-10 & 34-47 were located on November 12, 2009 and "OC" lode claims 11-33 & 48-54 were located on November 13, 2009 and "OC" lode claims 55-68 were located on November 14, 2009 in Sections 1 & 11-14 Township 15 South Range 20 East and in Sections 6, 7, & 18 Township 15 South Range 21 East in Imperial County, California

Notes:
Location Monuments are set 10' from claim end lines unless noted otherwise. All location and corner monuments are 2" X 2"X 4' wooden posts with scribed metal tags. All claims are 600' by 1500' unless noted otherwise. All bearings based on UTM North. San Bernardino Base & Meridian.

Location Map for OC 1-68 Lode Claims
Imperial County, California

Lincoln Gold US Corp	OC_Claims_N27_Z11.dwg
325 Tahoe Drive	January 28, 2010
Carson City, NV 89703	Drawn By: G.I.S. Land Services

Surveyed By: T&T Exploration
Datum: 1927 Projection: UTM Zone 11 Units: Feet

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:
SEP 13 2022 By _____ Deputy

Certified Copy of Document number 2010003199

THIS IS A TRUE CERTIFIED COPY OF THE RECORD, IF IT BEARS THE SEAL AND SIGNATURE OF THE IMPERIAL COUNTY CLERK-RECORDER

DATE: 9/13/2022

CERTIFICATION FEE: 3.50

COUNTY CLERK-RECORDER

IMPERIAL COUNTY
STATE OF CALIFORNIA

RECORDING REQUESTED BY AND MAIL TO:

Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89703

Recorded In Official Records, Imperial County

Dolores Provencio
County Clerk / Recorder

P Public

2/02/2010
9:58 AM
IV

Doc#: **2010–003199**

Titles: 1 Pages: 2

Fees	10.00
Taxes	0.00
Other	1.50
PAID	$11.50

Space above for Recorder's Use

NOTICE OF LOCATION LODE MINING CLAIM
Amended for Imperial County - Document No. 2010001640
To correct a typographical error in the Meridian to S.B.B.&M.

Notice is hereby given that the Undersigned, as agent for Lincoln Gold US Corp. hereby locates and claims the following described mineral bearing ground as a lode claim:

This claim shall be known as the OC 27 Lode Mining Claim in the following quarter section(s):

¼	Section	Township	Range	Meridian
NW	13	15 South	20 East	S.B.B.&M.

From this point of discovery (monument of location) 10 feet in a East direction and 1490 feet in a West direction, and 300 feet on each side of the centerline of the claim. The claim is approximately 1500 feet long and 600 feet wide and the general course of the lode or vein is from the East to the West direction. The discovery and corner monuments are 1 ½" x 1 ½" x 4' wood posts.

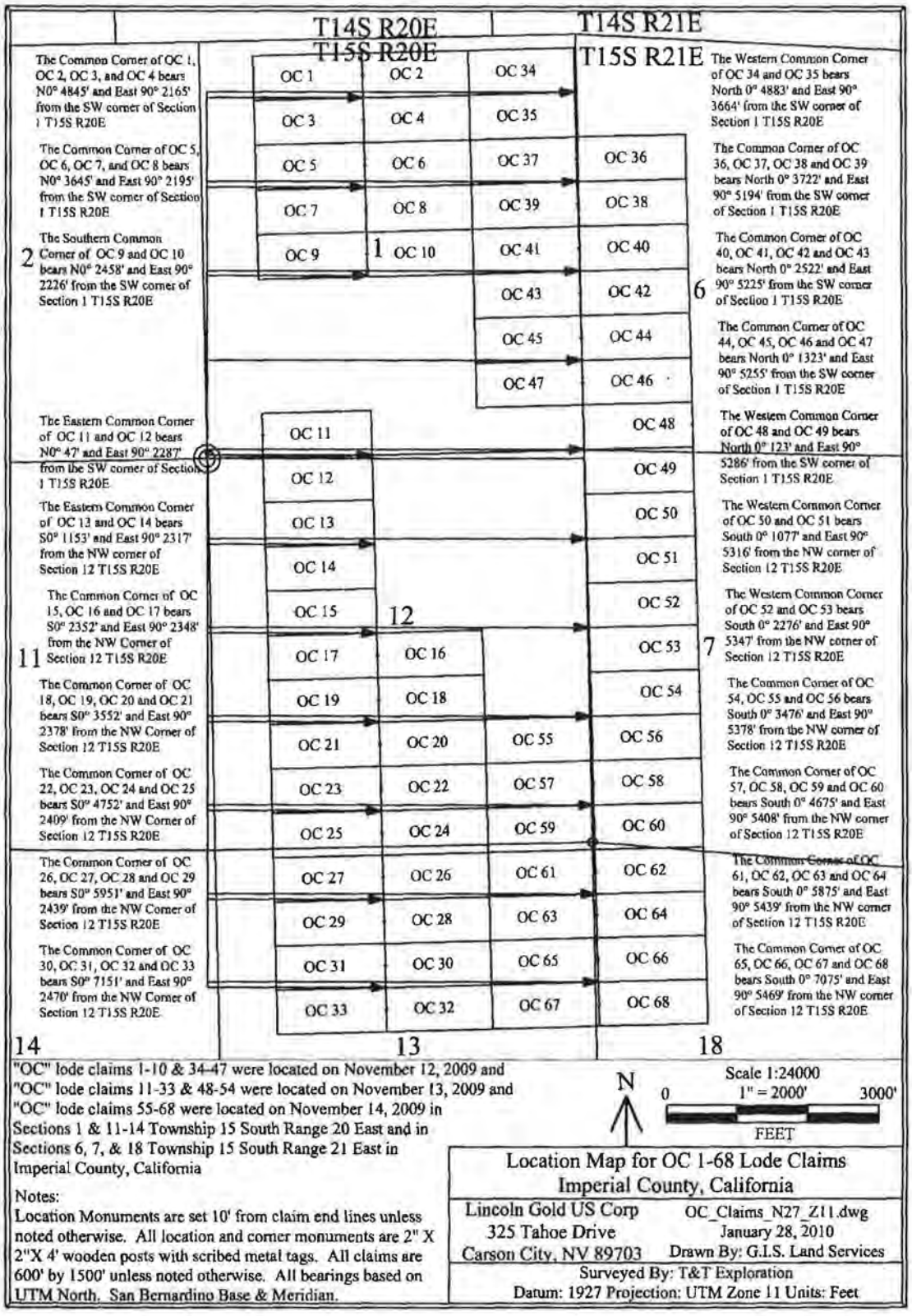
The SE corner of this claim bears SOUTH and 5951 feet and bears East and 2439 feet from the SW Corner of Section 1, Township 15 South, Range 20 East, S.B.B.&M., and is in Mesquite Mining District, Imperial County, California.
Located this 13th day of November, 2009.

Locator: Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89702

STATEMENT OF THE BOUNDARIES:
Notice is hereby given by locator that in accordance with the requirements of the California Public Resources Code.
1. The above Notice of Location is a true and correct copy of said notice.
2. The locator has defined the boundaries of this claim by erecting at each corner of the claim, or the nearest accessible points thereto, a conspicuous and substantial monument, and each corner monument so erected contains markings sufficient to appropriately designate the corner of the mining claim to which it pertains and the name of the claim. The date of marking is 12/10/2009, and the description of monument are: 1 ½" x 1 ½" x 4' wood monument with scribed metal tag.

Lincoln Gold US Corp.

By: _____
H. H. Tonking, Agent



"OC" lode claims 1-10 & 34-47 were located on November 12, 2009 and "OC" lode claims 11-33 & 48-54 were located on November 13, 2009 and "OC" lode claims 55-68 were located on November 14, 2009 in Sections 1 & 11-14 Township 15 South Range 20 East and in Sections 6, 7, & 18 Township 15 South Range 21 East in Imperial County, California

Notes:
Location Monuments are set 10' from claim end lines unless noted otherwise. All location and corner monuments are 2" X 2"X 4' wooden posts with scribed metal tags. All claims are 600' by 1500' unless noted otherwise. All bearings based on UTM North. San Bernardino Base & Meridian.

Location Map for OC 1-68 Lode Claims
Imperial County, California

Lincoln Gold US Corp	OC_Claims_N27_Z11.dwg
325 Tahoe Drive	January 28, 2010
Carson City, NV 89703	Drawn By: G.I.S. Land Services

Surveyed By: T&T Exploration
Datum: 1927 Projection: UTM Zone 11 Units: Feet

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date issued:
SEP 13 2022 By _____ Deputy

Certified Copy of Document number 2010003200

THIS IS A TRUE CERTIFIED COPY OF THE RECORD, IF IT BEARS THE SEAL AND SIGNATURE OF THE IMPERIAL COUNTY CLERK-RECORDER

DATE: 9/13/2022

CERTIFICATION FEE: 3.50

COUNTY CLERK-RECORDER

IMPERIAL COUNTY
STATE OF CALIFORNIA

RECORDING REQUESTED BY AND MAIL TO:

Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89703

Recorded in Official Records, Imperial County

Dolores Provencio
County Clerk / Recorder

2/02/2010
9:58 AM
IV

P Public

Doc#: 2010 – 003200

Titles: 1 Pages: 2

Fees	10.00
Taxes	0.00
Other	1.50
PAID	$11.50

Space above for Recorder's Use

NOTICE OF LOCATION LODE MINING CLAIM

Amended for Imperial County - Document No. 2010001641
To correct a typographical error in the Meridian to S.B.B.&M.

Notice is hereby given that the Undersigned, as agent for Lincoln Gold US Corp. hereby locates and claims the following described mineral bearing ground as a lode claim:

This claim shall be known as the OC 28 Lode Mining Claim in the following quarter section(s):

¼	Section	Township	Range	Meridian
NW	13	15 South	20 East	S.B.B.&M.
NE	13	15 South	20 East	S.B.B.&M.

From this point of discovery (monument of location) 1490 feet in a East direction and 10 feet in a West direction, and 300 feet on each side of the centerline of the claim. The claim is approximately 1500 feet long and 600 feet wide and the general course of the lode or vein is from the East to the West direction. The discovery and corner monuments are 1 ½" x 1 ½" x 4' wood posts.

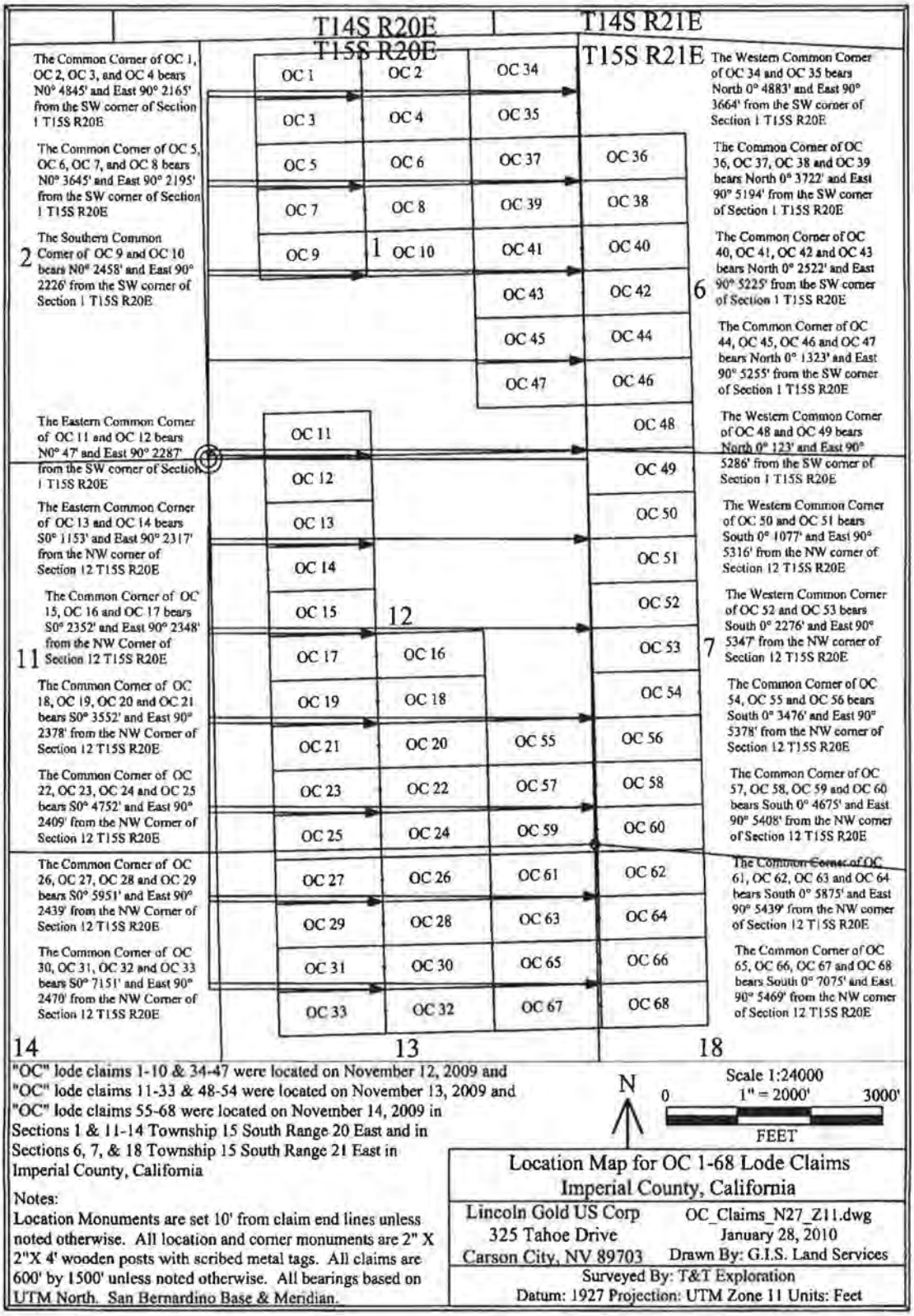
The NW corner of this claim bears SOUTH and 5951 feet and bears East and 2439 feet from the SW Corner of Section 1, Township 15 South, Range 20 East, S.B.B.&M., and is in Mesquite Mining District, Imperial County, California.
Located this 13th day of November, 2009.

Locator: Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89702

STATEMENT OF THE BOUNDARIES:
Notice is hereby given by locator that in accordance with the requirements of the California Public Resources Code.
1. The above Notice of Location is a true and correct copy of said notice.
2. The locator has defined the boundaries of this claim by erecting at each corner of the claim, or the nearest accessible points thereto, a conspicuous and substantial monument, and each corner monument so erected contains markings sufficient to appropriately designate the corner of the mining claim to which it pertains and the name of the claim. The date of marking is 12/10/2009, and the description of monument are: 1 ½" x 1 ½" x 4' wood monument with scribed metal tag.

Lincoln Gold US Corp.

By: _____
H. H. Tonking, Agent


T14S R20E
T15S R20E
T14S R21E
T15S R21E
The Common Corner of OC 1, OC 2, OC 3, and OC 4 bears N0° 4845' and East 90° 2165' from the SW corner of Section 1 T15S R20E
The Common Corner of OC 5, OC 6, OC 7, and OC 8 bears N0° 3645' and East 90° 2195' from the SW corner of Section 1 T15S R20E
The Southern Common Corner of OC 9 and OC 10 bears N0° 2458' and East 90° 2226' from the SW corner of Section 1 T15S R20E
2
The Eastern Common Corner of OC 11 and OC 12 bears N0° 47' and East 90° 2287' from the SW corner of Section 1 T15S R20E
The Eastern Common Corner of OC 13 and OC 14 bears S0° 1153' and East 90° 2317' from the NW corner of Section 12 T15S R20E
The Common Corner of OC 15, OC 16 and OC 17 bears S0° 2352' and East 90° 2348' from the NW Corner of Section 12 T15S R20E
11
The Common Corner of OC 18, OC 19, OC 20 and OC 21 bears S0° 3552' and East 90° 2378' from the NW Corner of Section 12 T15S R20E
The Common Corner of OC 22, OC 23, OC 24 and OC 25 bears S0° 4752' and East 90° 2409' from the NW Corner of Section 12 T15S R20E
The Common Corner of OC 26, OC 27, OC 28 and OC 29 bears S0° 5951' and East 90° 2439' from the NW Corner of Section 12 T15S R20E
The Common Corner of OC 30, OC 31, OC 32 and OC 33 bears S0° 7151' and East 90° 2470' from the NW Corner of Section 12 T15S R20E
14
OC 1
OC 2
OC 34
OC 3
OC 4
OC 35
OC 5
OC 6
OC 37
OC 36
OC 7
OC 8
OC 39
OC 38
OC 9
1
OC 10
OC 41
OC 40
OC 43
OC 42
OC 45
OC 44
OC 47
OC 46
OC 11
OC 48
OC 12
OC 49
OC 13
OC 50
OC 14
OC 51
OC 15
12
OC 52
OC 17
OC 16
OC 53
OC 19
OC 18
OC 54
OC 21
OC 20
OC 55
OC 56
OC 23
OC 22
OC 57
OC 58
OC 25
OC 24
OC 59
OC 60
OC 27
OC 26
OC 61
OC 62
OC 29
OC 28
OC 63
OC 64
OC 31
OC 30
OC 65
OC 66
OC 33
OC 32
OC 67
OC 68
13
18
The Western Common Corner of OC 34 and OC 35 bears North 0° 4883' and East 90° 3664' from the SW corner of Section 1 T15S R20E
The Common Corner of OC 36, OC 37, OC 38 and OC 39 bears North 0° 3722' and East 90° 5194' from the SW corner of Section 1 T15S R20E
The Common Corner of OC 40, OC 41, OC 42 and OC 43 bears North 0° 2522' and East 90° 5225' from the SW corner of Section 1 T15S R20E
6
The Common Corner of OC 44, OC 45, OC 46 and OC 47 bears North 0° 1323' and East 90° 5255' from the SW corner of Section 1 T15S R20E
The Western Common Corner of OC 48 and OC 49 bears North 0° 123' and East 90° 5286' from the SW corner of Section 1 T15S R20E
The Western Common Corner of OC 50 and OC 51 bears South 0° 1077' and East 90° 5316' from the NW corner of Section 12 T15S R20E
The Western Common Corner of OC 52 and OC 53 bears South 0° 2276' and East 90° 5347' from the NW corner of Section 12 T15S R20E
7
The Common Corner of OC 54, OC 55 and OC 56 bears South 0° 3476' and East 90° 5378' from the NW corner of Section 12 T15S R20E
The Common Corner of OC 57, OC 58, OC 59 and OC 60 bears South 0° 4675' and East 90° 5408' from the NW corner of Section 12 T15S R20E
The Common Corner of OC 61, OC 62, OC 63 and OC 64 bears South 0° 5875' and East 90° 5439' from the NW corner of Section 12 T15S R20E
The Common Corner of OC 65, OC 66, OC 67 and OC 68 bears South 0° 7075' and East 90° 5469' from the NW corner of Section 12 T15S R20E
"OC" lode claims 1-10 & 34-47 were located on November 12, 2009 and "OC" lode claims 11-33 & 48-54 were located on November 13, 2009 and "OC" lode claims 55-68 were located on November 14, 2009 in Sections 1 & 11-14 Township 15 South Range 20 East and in Sections 6, 7, & 18 Township 15 South Range 21 East in Imperial County, California
Notes:
Location Monuments are set 10' from claim end lines unless noted otherwise. All location and corner monuments are 2" X 2"X 4' wooden posts with scribed metal tags. All claims are 600' by 1500' unless noted otherwise. All bearings based on UTM North. San Bernardino Base & Meridian.
N
Scale 1:24000
0
1" = 2000'
3000'
FEET
Location Map for OC 1-68 Lode Claims
Imperial County, California
Lincoln Gold US Corp
325 Tahoe Drive
Carson City, NV 89703
OC_Claims_N27_Z11.dwg
January 28, 2010
Drawn By: G.I.S. Land Services
Surveyed By: T&T Exploration
Datum: 1927 Projection: UTM Zone 11 Units: Feet

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:
SEP 13 2022

By _____ Deputy

Certified Copy of document number 2010003201

THIS IS A TRUE CERTIFIED COPY OF THE RECORD, IF IT BEARS THE SEAL AND SIGNATURE OF THE IMPERIAL COUNTY CLERK-RECORDER

DATE: 9/13/2022

CERTIFICATION FEE: 3.50

COUNTY CLERK-RECORDER

IMPERIAL COUNTY
STATE OF CALIFORNIA

RECORDING REQUESTED BY AND MAIL TO:

Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89703

Recorded in Official Records, Imperial County

Dolores Provencio
County Clerk / Recorder

2/02/2010
9:58 AM
IV

P Public

Doc#: 2010–003201

Titles: 1 Pages: 2

Fees	10.00
Taxes	0.00
Other	1.50
PAID	$11.50

Space above for...

NOTICE OF LOCATION LODE MINING CLAIM

Amended for Imperial County - Document No. 2010001642
To correct a typographical error in the Meridian to S.B.B.&M.

Notice is hereby given that the Undersigned, as agent for Lincoln Gold US Corp. hereby locates and claims the following described mineral bearing ground as a lode claim:

This claim shall be known as the OC 29 Lode Mining Claim in the following quarter section(s):

¼	Section	Township	Range	Meridian
NW	13	15 South	20 East	S.B.B.&M.

From this point of discovery (monument of location) 10 feet in a East direction and 1490 feet in a West direction, and 300 feet on each side of the centerline of the claim. The claim is approximately 1500 feet long and 600 feet wide and the general course of the lode or vein is from the East to the West direction. The discovery and corner monuments are 1 ½" x 1 ½" x 4' wood posts.

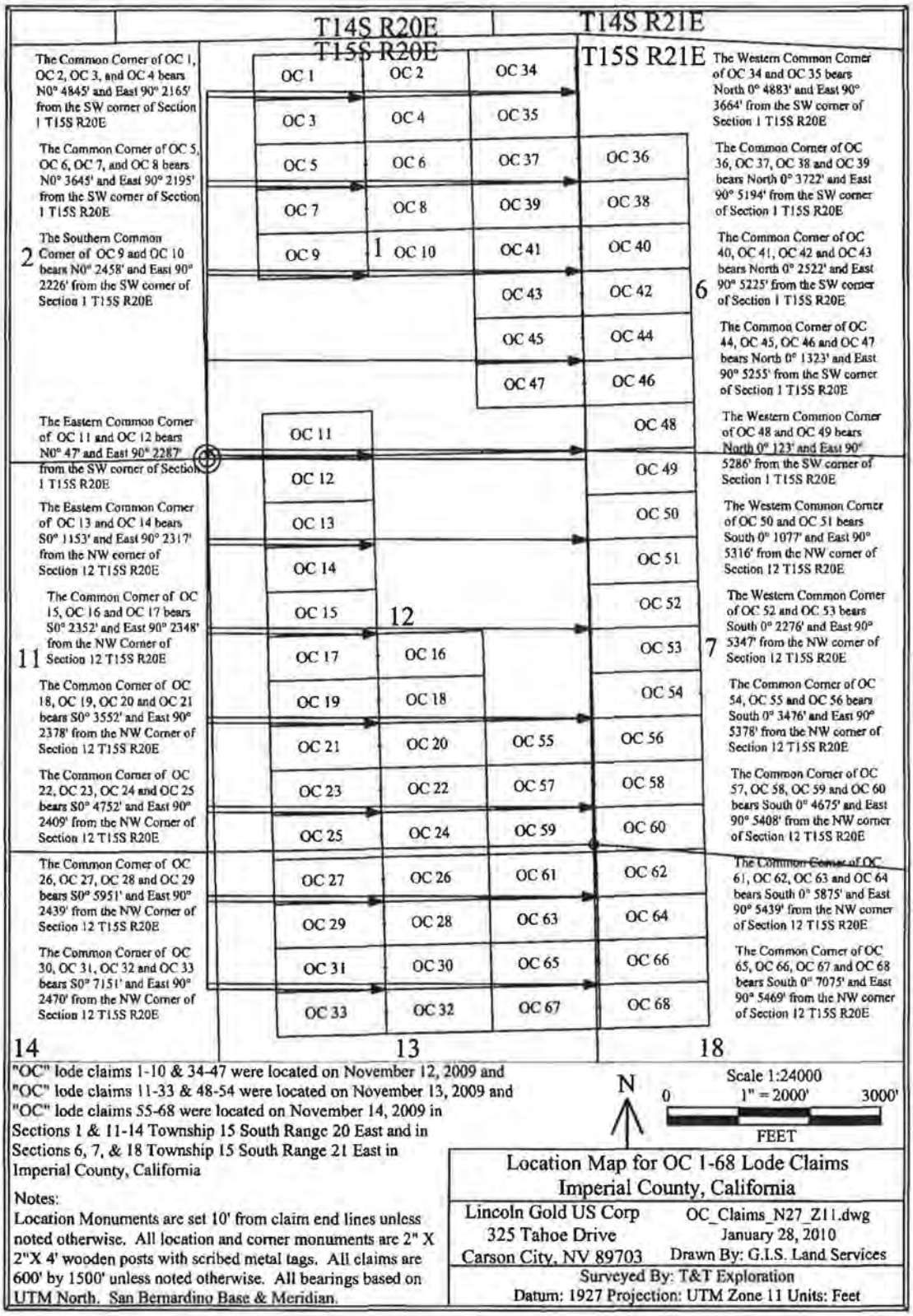
The NE corner of this claim bears SOUTH and 5951 feet and bears East and 2439 feet from the SW Corner of Section 1, Township 15 South, Range 20 East, S.B.B.&M., and is in Mesquite Mining District, Imperial County, California.
Located this 13th day of November, 2009.

Locator: Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89702

STATEMENT OF THE BOUNDARIES:
Notice is hereby given by locator that in accordance with the requirements of the California Public Resources Code.
1. The above Notice of Location is a true and correct copy of said notice.
2. The locator has defined the boundaries of this claim by erecting at each corner of the claim, or the nearest accessible points thereto, a conspicuous and substantial monument, and each corner monument so erected contains markings sufficient to appropriately designate the corner of the mining claim to which it pertains and the name of the claim. The date of marking is 12/10/2009, and the description of monument are: 1 ½" x 1 ½" x 4' wood monument with scribed metal tag.

Lincoln Gold US Corp.

By: _____
H. H. Tonking, Agent



"OC" lode claims 1-10 & 34-47 were located on November 12, 2009 and "OC" lode claims 11-33 & 48-54 were located on November 13, 2009 and "OC" lode claims 55-68 were located on November 14, 2009 in Sections 1 & 11-14 Township 15 South Range 20 East and in Sections 6, 7, & 18 Township 15 South Range 21 East in Imperial County, California

Notes:
Location Monuments are set 10' from claim end lines unless noted otherwise. All location and corner monuments are 2" X 2"X 4' wooden posts with scribed metal tags. All claims are 600' by 1500' unless noted otherwise. All bearings based on UTM North. San Bernardino Base & Meridian.

Location Map for OC 1-68 Lode Claims
Imperial County, California

Lincoln Gold US Corp	OC_Claims_N27_Z11.dwg
325 Tahoe Drive	January 28, 2010
Carson City, NV 89703	Drawn By: G.I.S. Land Services

Surveyed By: T&T Exploration
Datum: 1927 Projection: UTM Zone 11 Units: Feet

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date issued:
SEP 13 2022

By _____
Deputy

Certified Copy of document number 2010003202

THIS IS A TRUE CERTIFIED COPY OF THE RECORD, IF IT BEARS THE SEAL AND SIGNATURE OF THE IMPERIAL COUNTY CLERK-RECORDER

DATE: 9/13/2022

CERTIFICATION FEE: 3.50

COUNTY CLERK-RECORDER

IMPERIAL COUNTY
STATE OF CALIFORNIA

RECORDING REQUESTED BY AND MAIL TO:

Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89703

Recorded in Official Records, Imperial County
Dolores Provencio
County Clerk / Recorder
2/02/2010
9:58 AM
IV

P Public

Doc#: 2010 – 003202

Titles: 1 Pages: 2

Fees	10.00
Taxes	0.00
Other	1.50
PAID	$11.50

Space above for Recorder's Use

NOTICE OF LOCATION LODE MINING CLAIM

Amended for Imperial County - Document No. 2010001643
To correct a typographical error in the Meridian to S.B.B.&M.

Notice is hereby given that the Undersigned, as agent for Lincoln Gold US Corp. hereby locates and claims the following described mineral bearing ground as a lode claim:

This claim shall be known as the OC 30 Lode Mining Claim in the following quarter section(s):

¼	Section	Township	Range	Meridian
NW	13	15 South	20 East	S.B.B.&M.
NE	13	15 South	20 East	S.B.B.&M.

From this point of discovery (monument of location) 1490 feet in a East direction and 10 feet in a West direction, and 300 feet on each side of the centerline of the claim. The claim is approximately 1500 feet long and 600 feet wide and the general course of the lode or vein is from the East to the West direction. The discovery and corner monuments are 1 ½" x 1 ½" x 4' wood posts.

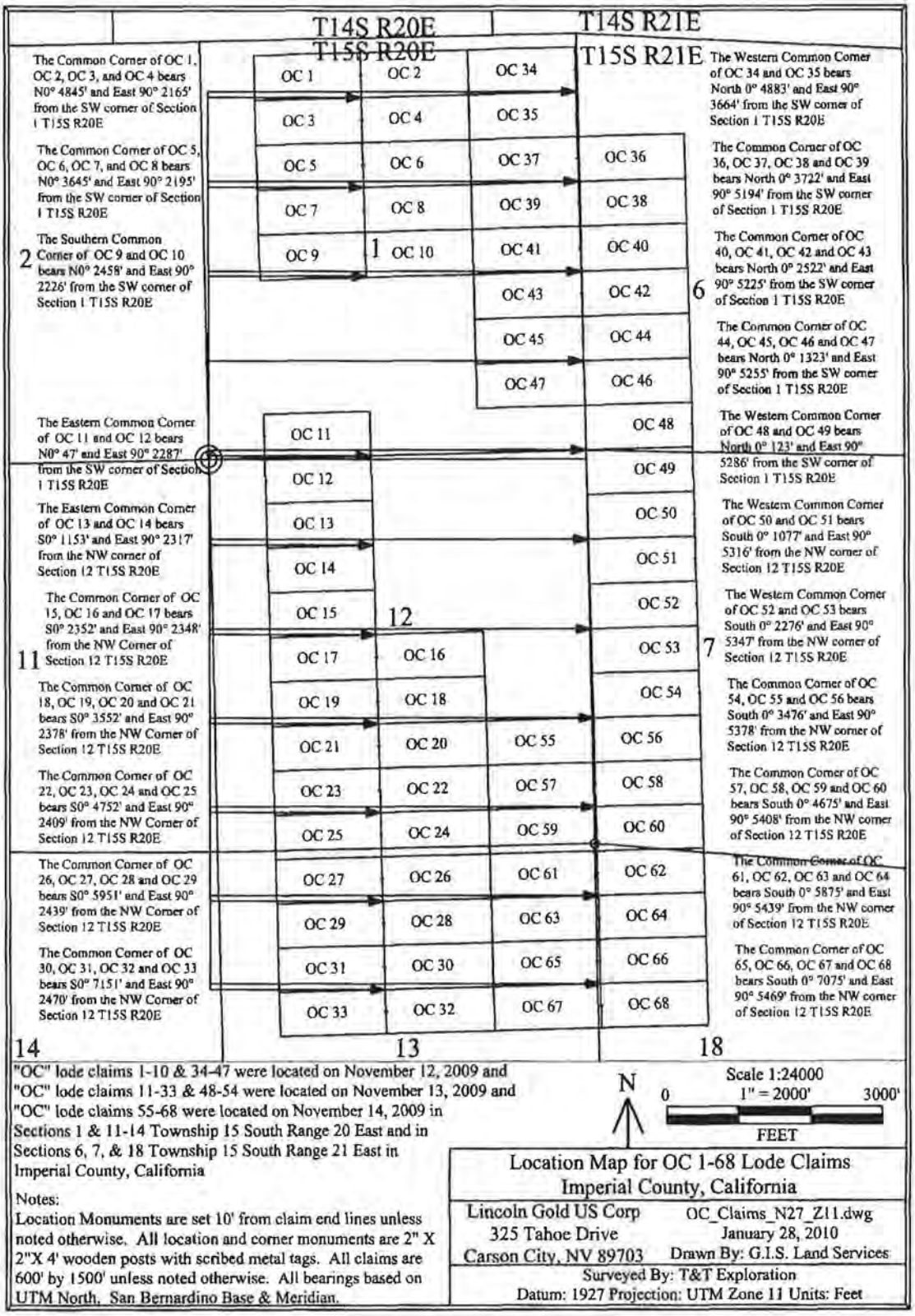
The SW corner of this claim bears SOUTH and 7151 feet and bears East and 2470 feet from the SW Corner of Section 1, Township 15 South, Range 20 East, S.B.B.&M., and is in Mesquite Mining District, Imperial County, California.
Located this 13th day of November, 2009.

Locator: Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89702

STATEMENT OF THE BOUNDARIES:
Notice is hereby given by locator that in accordance with the requirements of the California Public Resources Code.
1. The above Notice of Location is a true and correct copy of said notice.
2. The locator has defined the boundaries of this claim by erecting at each corner of the claim, or the nearest accessible points thereto, a conspicuous and substantial monument, and each corner monument so erected contains markings sufficient to appropriately designate the corner of the mining claim to which it pertains and the name of the claim. The date of marking is 12/10/2009, and the description of monument are: 1 ½" x 1 ½" x 4' wood monument with scribed metal tag.

Lincoln Gold US Corp.

By: _____
H. H. Tonking, Agent


T14S R20E
T15S R20E
T14S R21E
T15S R21E
The Common Corner of OC 1, OC 2, OC 3, and OC 4 bears N0° 4845' and East 90° 2165' from the SW corner of Section 1 T15S R20E
The Common Corner of OC 5, OC 6, OC 7, and OC 8 bears N0° 3645' and East 90° 2195' from the SW corner of Section 1 T15S R20E
The Southern Common Corner of OC 9 and OC 10 bears N0° 2458' and East 90° 2226' from the SW corner of Section 1 T15S R20E
The Eastern Common Corner of OC 11 and OC 12 bears N0° 47' and East 90° 2287' from the SW corner of Section 1 T15S R20E
The Eastern Common Corner of OC 13 and OC 14 bears S0° 1153' and East 90° 2317' from the NW corner of Section 12 T15S R20E
The Common Corner of OC 15, OC 16 and OC 17 bears S0° 2352' and East 90° 2348' from the NW Corner of Section 12 T15S R20E
The Common Corner of OC 18, OC 19, OC 20 and OC 21 bears S0° 3552' and East 90° 2378' from the NW Corner of Section 12 T15S R20E
The Common Corner of OC 22, OC 23, OC 24 and OC 25 bears S0° 4752' and East 90° 2409' from the NW Corner of Section 12 T15S R20E
The Common Corner of OC 26, OC 27, OC 28 and OC 29 bears S0° 5951' and East 90° 2439' from the NW Corner of Section 12 T15S R20E
The Common Corner of OC 30, OC 31, OC 32 and OC 33 bears S0° 7151' and East 90° 2470' from the NW Corner of Section 12 T15S R20E
The Western Common Corner of OC 34 and OC 35 bears North 0° 4883' and East 90° 3664' from the SW corner of Section 1 T15S R20E
The Common Corner of OC 36, OC 37, OC 38 and OC 39 bears North 0° 3722' and East 90° 5194' from the SW corner of Section 1 T15S R20E
The Common Corner of OC 40, OC 41, OC 42 and OC 43 bears North 0° 2522' and East 90° 5225' from the SW corner of Section 1 T15S R20E
The Common Corner of OC 44, OC 45, OC 46 and OC 47 bears North 0° 1323' and East 90° 5255' from the SW corner of Section 1 T15S R20E
The Western Common Corner of OC 48 and OC 49 bears North 0° 123' and East 90° 5286' from the SW corner of Section 1 T15S R20E
The Western Common Corner of OC 50 and OC 51 bears South 0° 1077' and East 90° 5316' from the NW corner of Section 12 T15S R20E
The Western Common Corner of OC 52 and OC 53 bears South 0° 2276' and East 90° 5347' from the NW corner of Section 12 T15S R20E
The Common Corner of OC 54, OC 55 and OC 56 bears South 0° 3476' and East 90° 5378' from the NW corner of Section 12 T15S R20E
The Common Corner of OC 57, OC 58, OC 59 and OC 60 bears South 0° 4675' and East 90° 5408' from the NW corner of Section 12 T15S R20E
The Common Corner of OC 61, OC 62, OC 63 and OC 64 bears South 0° 5875' and East 90° 5439' from the NW corner of Section 12 T15S R20E
The Common Corner of OC 65, OC 66, OC 67 and OC 68 bears South 0° 7075' and East 90° 5469' from the NW corner of Section 12 T15S R20E
OC 1
OC 2
OC 3
OC 4
OC 5
OC 6
OC 7
OC 8
OC 9
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OC 14
OC 15
OC 16
OC 17
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OC 53
OC 54
OC 55
OC 56
OC 57
OC 58
OC 59
OC 60
OC 61
OC 62
OC 63
OC 64
OC 65
OC 66
OC 67
OC 68
1
2
6
7
11
12
13
14
18
N
Scale 1:24000
0
1" = 2000'
3000'
FEET
"OC" lode claims 1-10 & 34-47 were located on November 12, 2009 and "OC" lode claims 11-33 & 48-54 were located on November 13, 2009 and "OC" lode claims 55-68 were located on November 14, 2009 in Sections 1 & 11-14 Township 15 South Range 20 East and in Sections 6, 7, & 18 Township 15 South Range 21 East in Imperial County, California
Notes:
Location Monuments are set 10' from claim end lines unless noted otherwise. All location and corner monuments are 2" X 2"X 4' wooden posts with scribed metal tags. All claims are 600' by 1500' unless noted otherwise. All bearings based on UTM North, San Bernardino Base & Meridian.
Location Map for OC 1-68 Lode Claims
Imperial County, California
Lincoln Gold US Corp
325 Tahoe Drive
Carson City, NV 89703
OC_Claims_N27_Z11.dwg
January 28, 2010
Drawn By: G.I.S. Land Services
Surveyed By: T&T Exploration
Datum: 1927 Projection: UTM Zone 11 Units: Feet

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:
SEP 13 2022 By _____ Deputy

Certified Copy of document number 2010003203

THIS IS A TRUE CERTIFIED COPY OF THE RECORD, IF IT BEARS THE SEAL AND SIGNATURE OF THE IMPERIAL COUNTY CLERK-RECORDER

DATE: 9/13/2022

CERTIFICATION FEE: 3.50

COUNTY CLERK-RECORDER

IMPERIAL COUNTY
STATE OF CALIFORNIA

RECORDING REQUESTED BY AND MAIL TO:

Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89703

Recorded In Official Records, Imperial County

Dolores Provencio
County Clerk / Recorder

P Public

2/02/2010
9:58 AM
IV

Doc#: **2010–003203**

Titles: 1 Pages: 2

Fees	10.00
Taxes	0.00
Other	1.50
PAID	$11.50

NOTICE OF LOCATION LODE MINING CLAIM

Amended for Imperial County - Document No. 2010001644
To correct a typographical error in the Meridian to S.B.B.&M.

Notice is hereby given that the Undersigned, as agent for Lincoln Gold US Corp. hereby locates and claims the following described mineral bearing ground as a lode claim:

This claim shall be known as the QC 31 Lode Mining Claim in the following quarter section(s):

¼	Section	Township	Range	Meridian
NW	13	15 South	20 East	S.B.B.&M.

From this point of discovery (monument of location) 10 feet in a East direction and 1490 feet in a West direction, and 300 feet on each side of the centerline of the claim. The claim is approximately 1500 feet long and 600 feet wide and the general course of the lode or vein is from the East to the West direction. The discovery and corner monuments are 1 ½" x 1 ½" x 4' wood posts.

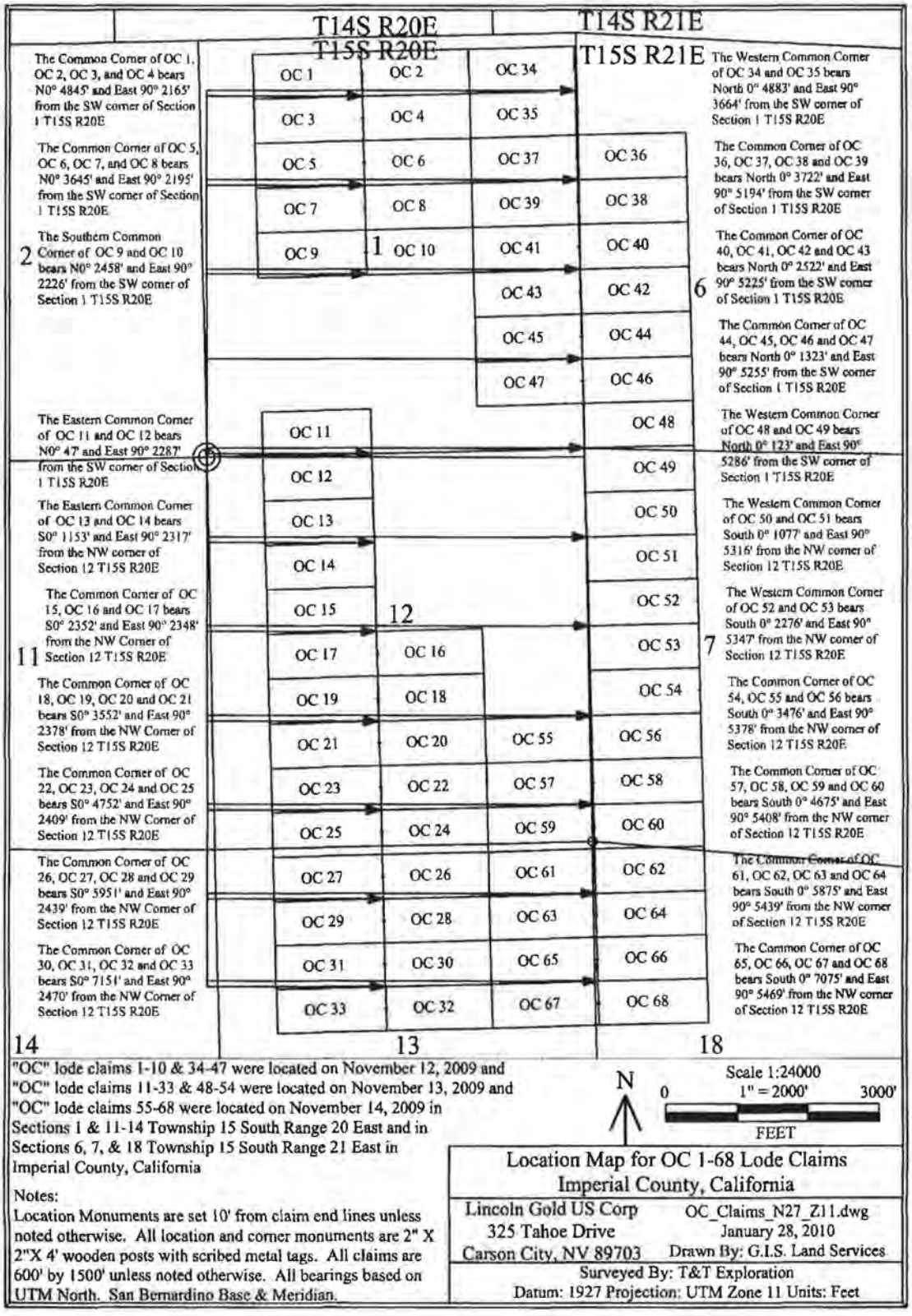
The SE corner of this claim bears SOUTH and 7151 feet and bears East and 2470 feet from the SW Corner of Section 1, Township 15 South, Range 20 East, S.B.B.&M., and is in Mesquite Mining District, Imperial County, California.
Located this 13th day of November, 2009.

Locator: Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89702

STATEMENT OF THE BOUNDARIES:
Notice is hereby given by locator that in accordance with the requirements of the California Public Resources Code.
1. The above Notice of Location is a true and correct copy of said notice.
2. The locator has defined the boundaries of this claim by erecting at each corner of the claim, or the nearest accessible points thereto, a conspicuous and substantial monument, and each corner monument so erected contains markings sufficient to appropriately designate the corner of the mining claim to which it pertains and the name of the claim. The date of marking is 12/10/2009, and the description of monument are: 1 ½" x 1 ½" x 4' wood monument with scribed metal tag.

Lincoln Gold US Corp.

By: _____
H. H. Tonking, Agent



"OC" lode claims 1-10 & 34-47 were located on November 12, 2009 and "OC" lode claims 11-33 & 48-54 were located on November 13, 2009 and "OC" lode claims 55-68 were located on November 14, 2009 in Sections 1 & 11-14 Township 15 South Range 20 East and in Sections 6, 7, & 18 Township 15 South Range 21 East in Imperial County, California

Notes:
Location Monuments are set 10' from claim end lines unless noted otherwise. All location and corner monuments are 2" X 2"X 4' wooden posts with scribed metal tags. All claims are 600' by 1500' unless noted otherwise. All bearings based on UTM North. San Bernardino Base & Meridian.

Location Map for OC 1-68 Lode Claims
Imperial County, California

Lincoln Gold US Corp	OC_Claims_N27_Z11.dwg
325 Tahoe Drive	January 28, 2010
Carson City, NV 89703	Drawn By: G.I.S. Land Services

Surveyed By: T&T Exploration
Datum: 1927 Projection: UTM Zone 11 Units: Feet

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:
SEP 13 2022 By _____ Deputy

Certified Copy of document number 2010003204

THIS IS A TRUE CERTIFIED COPY OF THE RECORD, IF IT BEARS THE SEAL AND SIGNATURE OF THE IMPERIAL COUNTY CLERK-RECORDER

DATE: 9/13/2022

CERTIFICATION FEE: 3.50

COUNTY CLERK-RECORDER

IMPERIAL COUNTY
STATE OF CALIFORNIA

RECORDING REQUESTED BY AND MAIL TO:

Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89703

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Dolores Provencio
County Clerk / Recorder

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9:58 AM
IV

P Public

Doc#: 2010–003204

Titles: 1 Pages: 2

Fees	10.00
Taxes	0.00
Other	1.50
PAID	$11.50

NOTICE OF LOCATION LODE MINING CLAIM

Amended for Imperial County - Document No. 2010001645
To correct a typographical error in the Meridian to S.B.B.&M.

Notice is hereby given that the Undersigned, as agent for Lincoln Gold US Corp. hereby locates and claims the following described mineral bearing ground as a lode claim:

This claim shall be known as the OC 32 Lode Mining Claim in the following quarter section(s):

¼	Section	Township	Range	Meridian
NW	13	15 South	20 East	S.B.B.&M.
NE	13	15 South	20 East	S.B.B.&M.

From this point of discovery (monument of location) 1490 feet in a East direction and 10 feet in a West direction, and 300 feet on each side of the centerline of the claim. The claim is approximately 1500 feet long and 600 feet wide and the general course of the lode or vein is from the East to the West direction. The discovery and corner monuments are 1 ½" x 1 ½" x 4' wood posts.

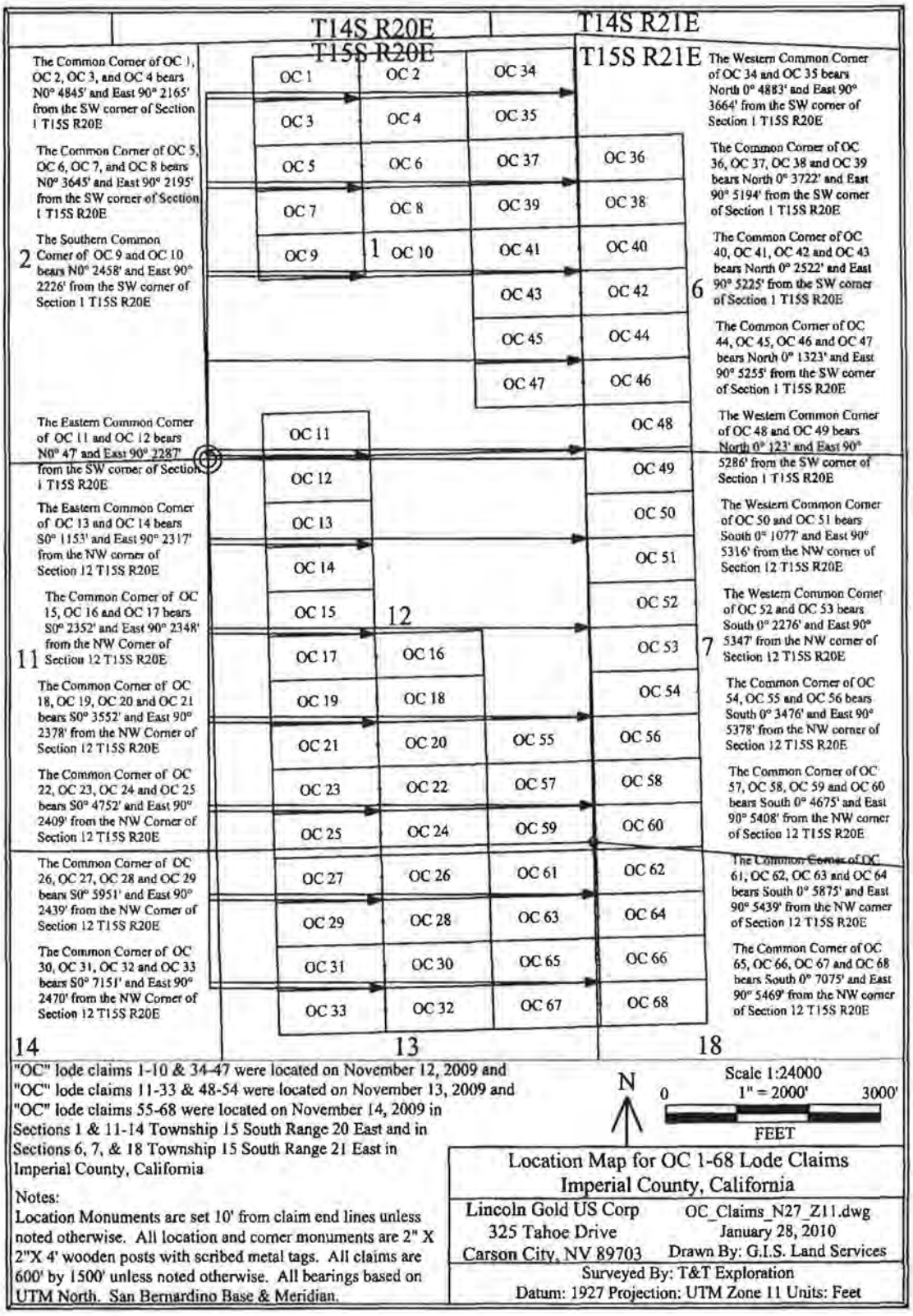
The NW corner of this claim bears SOUTH and 7151 feet and bears East and 2470 feet from the SW Corner of Section 1, Township 15 South, Range 20 East, S.B.B.&M., and is in Mesquite Mining District, Imperial County, California.
Located this 13th day of November, 2009.

Locator: Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89702

STATEMENT OF THE BOUNDARIES:
Notice is hereby given by locator that in accordance with the requirements of the California Public Resources Code.
1. The above Notice of Location is a true and correct copy of said notice.
2. The locator has defined the boundaries of this claim by erecting at each corner of the claim, or the nearest accessible points thereto, a conspicuous and substantial monument, and each corner monument so erected contains markings sufficient to appropriately designate the corner of the mining claim to which it pertains and the name of the claim. The date of marking is 12/10/2009, and the description of monument are: 1 ½" x 1 ½" x 4' wood monument with scribed metal tag.

Lincoln Gold US Corp.

By: _____
H. H. Tonking, Agent



"OC" lode claims 1-10 & 34-47 were located on November 12, 2009 and "OC" lode claims 11-33 & 48-54 were located on November 13, 2009 and "OC" lode claims 55-68 were located on November 14, 2009 in Sections 1 & 11-14 Township 15 South Range 20 East and in Sections 6, 7, & 18 Township 15 South Range 21 East in Imperial County, California

Notes:
Location Monuments are set 10' from claim end lines unless noted otherwise. All location and corner monuments are 2" X 2"X 4' wooden posts with scribed metal tags. All claims are 600' by 1500' unless noted otherwise. All bearings based on UTM North. San Bernardino Base & Meridian.

Location Map for OC 1-68 Lode Claims
Imperial County, California

Lincoln Gold US Corp	OC_Claims_N27_Z11.dwg
325 Tahoe Drive	January 28, 2010
Carson City, NV 89703	Drawn By: G.I.S. Land Services

Surveyed By: T&T Exploration
Datum: 1927 Projection: UTM Zone 11 Units: Feet

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:
SEP 13 2022 By _____ Deputy

Certified Copy of document number 2010003205

THIS IS A TRUE CERTIFIED COPY OF THE RECORD, IF IT BEARS THE SEAL AND SIGNATURE OF THE IMPERIAL COUNTY CLERK-RECORDER

DATE: 9/13/2022

CERTIFICATION FEE: 3.50

COUNTY CLERK-RECORDER

IMPERIAL COUNTY
STATE OF CALIFORNIA

RECORDING REQUESTED BY AND MAIL TO:

Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89703

Recorded In Official Records, Imperial County

Dolores Provencio
County Clerk / Recorder

P Public

2/02/2010
9:58 AM
IV

Doc#: **2010–003205**

Titles: 1 Pages: 2

Fees	10.00
Taxes	0.00
Other	1.50
PAID	$11.50

NOTICE OF LOCATION LODE MINING CLAIM

Amended for Imperial County - Document No. 2010001646
To correct a typographical error in the Meridian to S.B.B.&M.

Notice is hereby given that the Undersigned, as agent for Lincoln Gold US Corp. hereby locates and claims the following described mineral bearing ground as a lode claim:

This claim shall be known as the OC 33 Lode Mining Claim in the following quarter section(s):

¼	Section	Township	Range	Meridian
NW	13	15 South	20 East	S.B.B.&M.

From this point of discovery (monument of location) 10 feet in a East direction and 1490 feet in a West direction, and 300 feet on each side of the centerline of the claim. The claim is approximately 1500 feet long and 600 feet wide and the general course of the lode or vein is from the East to the West direction. The discovery and corner monuments are 1 ½" x 1 ½" x 4' wood posts.

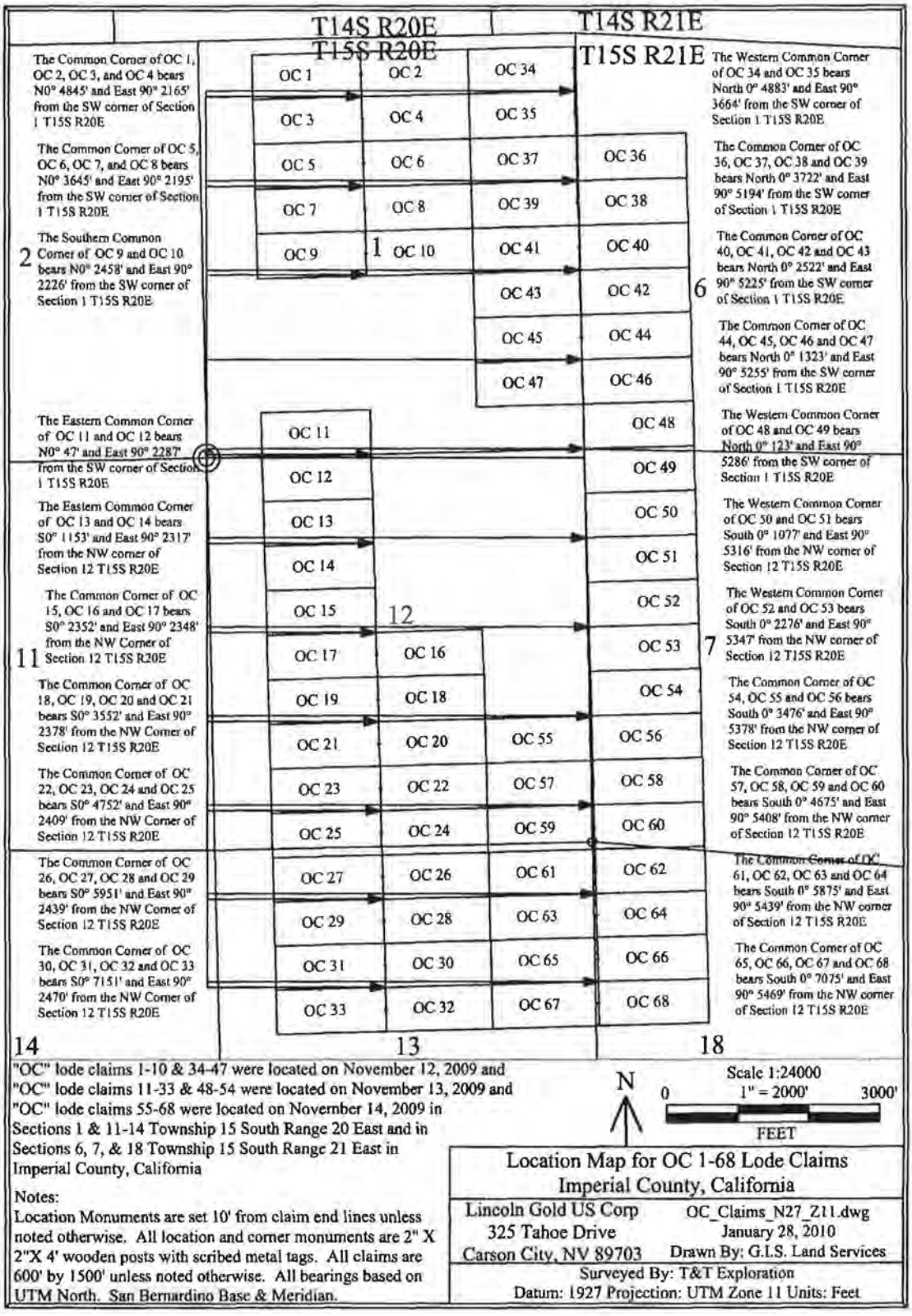
The NE corner of this claim bears SOUTH and 7151 feet and bears East and 2470 feet from the SW Corner of Section 1, Township 15 South, Range 20 East, S.B.B.&M., and is in Mesquite Mining District, Imperial County, California.
Located this 13th day of November, 2009.

Locator: Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89702

STATEMENT OF THE BOUNDARIES:
Notice is hereby given by locator that in accordance with the requirements of the California Public Resources Code.
1. The above Notice of Location is a true and correct copy of said notice.
2. The locator has defined the boundaries of this claim by erecting at each corner of the claim, or the nearest accessible points thereto, a conspicuous and substantial monument, and each corner monument so erected contains markings sufficient to appropriately designate the corner of the mining claim to which it pertains and the name of the claim. The date of marking is 12/10/2009, and the description of monument are: 1 ½" x 1 ½" x 4' wood monument with scribed metal tag.

Lincoln Gold US Corp.

By: _____
H. H. Tonking, Agent



"OC" lode claims 1-10 & 34-47 were located on November 12, 2009 and "OC" lode claims 11-33 & 48-54 were located on November 13, 2009 and "OC" lode claims 55-68 were located on November 14, 2009 in Sections 1 & 11-14 Township 15 South Range 20 East and in Sections 6, 7, & 18 Township 15 South Range 21 East in Imperial County, California

Notes:
Location Monuments are set 10' from claim end lines unless noted otherwise. All location and corner monuments are 2" X 2"X 4' wooden posts with scribed metal tags. All claims are 600' by 1500' unless noted otherwise. All bearings based on UTM North. San Bernardino Base & Meridian.

Location Map for OC 1-68 Lode Claims
Imperial County, California

Lincoln Gold US Corp	OC_Claims_N27_Z11.dwg
325 Tahoe Drive	January 28, 2010
Carson City, NV 89703	Drawn By: G.L.S. Land Services

Surveyed By: T&T Exploration
Datum: 1927 Projection: UTM Zone 11 Units: Feet

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:
SEP 13 2022 By _____ Deputy

Certified Copy of Document number 2010003206

THIS IS A TRUE CERTIFIED COPY OF THE RECORD, IF IT BEARS THE SEAL AND SIGNATURE OF THE IMPERIAL COUNTY CLERK-RECORDER

DATE: 9/13/2022

CERTIFICATION FEE: 3.50

COUNTY CLERK-RECORDER

IMPERIAL COUNTY
STATE OF CALIFORNIA

RECORDING REQUESTED BY AND MAIL TO:

Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89703

Recorded in Official Records, Imperial County
Dolores Provencio
County Clerk / Recorder
P Public

2/02/2010
9:58 AM
IV

Doc#: 2010–003206

Titles: 1 Pages: 2

Fees	10.00
Taxes	0.00
Other	1.50
PAID	$11.50

NOTICE OF LOCATION LODE MINING CLAIM

Amended for Imperial County - Document No. 2010001647
To correct a typographical error in the Meridian to S.B.B.&M.

Notice is hereby given that the Undersigned, as agent for Lincoln Gold US Corp. hereby locates and claims the following described mineral bearing ground as a lode claim:

This claim shall be known as the OC 34 Lode Mining Claim in the following quarter section(s):

¼	Section	Township	Range	Meridian
NE	1	15 South	20 East	S.B.B.&M.

From this point of discovery (monument of location) 10 feet in a East direction and 1490 feet in a West direction, and 300 feet on each side of the centerline of the claim. The claim is approximately 1500 feet long and 600 feet wide and the general course of the lode or vein is from the East to the West direction. The discovery and corner monuments are 1 ½" x 1 ½" x 4' wood posts.

The SE corner of this claim bears NORTH and 4883 feet and bears East and 3664 feet from the SW Corner of Section 1, Township 15 South, Range 20 East, S.B.B.&M., and is in Mesquite Mining District, Imperial County, California.
Located this 12th day of November, 2009.

Locator: Lincoln Gold US Corp.
325 Tahoe Drive
Carson City, NV 89702

STATEMENT OF THE BOUNDARIES:
Notice is hereby given by locator that in accordance with the requirements of the California Public Resources Code.
1. The above Notice of Location is a true and correct copy of said notice.
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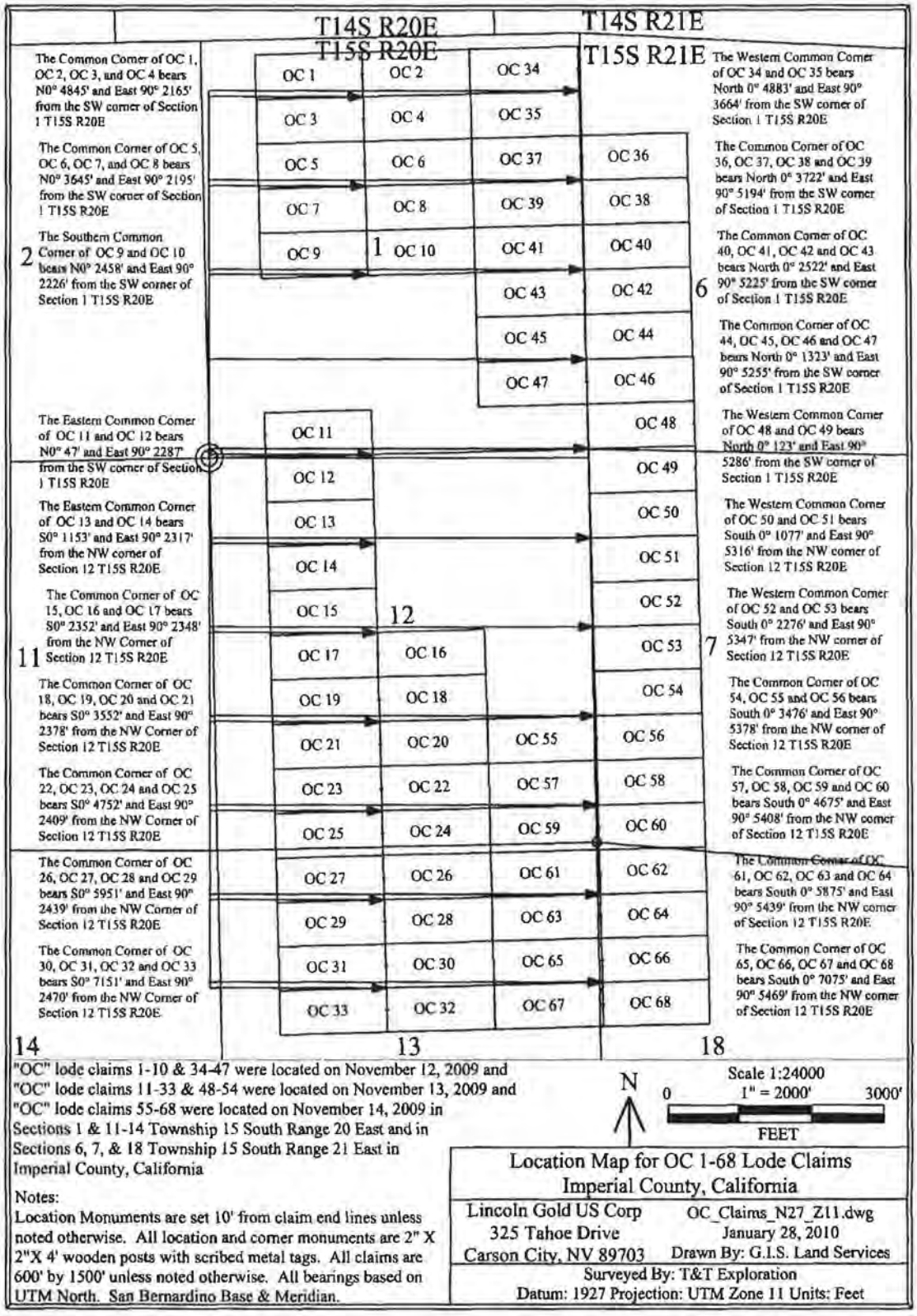
Lincoln Gold US Corp.

By: _____
H. H. Tonking, Agent



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Location Map for OC 1-68 Lode Claims
Imperial County, California

Lincoln Gold US Corp	OC_Claims_N27_Z11.dwg
325 Tahoe Drive	January 28, 2010
Carson City, NV 89703	Drawn By: G.I.S. Land Services

Surveyed By: T&T Exploration
Datum: 1927 Projection: UTM Zone 11 Units: Feet

I hereby certify that this is a true and correct copy of the record filed or recorded in this office if it bears the seal of this office.

Chuck Storey
County Clerk - Recorder
County of Imperial, State of California
Date Issued:

SEP 13 2022

By _____ Deputy

ATTACHMENT "G" – APPLICATION

IMPERIAL COUNTY
PLANNING & DEVELOPMENT SERVICES DEPARTMENT

Reclamation Plan Application

OWNER, OPERATOR AND AGENT:

1. Applicant (Name, Mailing Address and Telephone Number):

SMP Gold Corp.
912 N. Division Street
Carson City, Nevada 89703
Phone: (604) 682-8592

2. Property Owner (s), or owner of Surface Rights (Name, Mailing Address and Telephone Number): [if different from applicant]

Same as Applicant

3. Owner of Mineral Rights (Name, Mailing Address and Telephone Number): [if different than applicant]

Same as Applicant

5. Lessee (Name, Mailing Address and Telephone Number):

Not applicable

6. Operator (Name, Mailing Address and Telephone Number): [if different than applicant]

Same as Applicant

7. Agent of Process (Name, Mailing Address and Telephone Number):

Patricia Valenzuela, Planner IV
801 Main Street
El Centro, California 92243
Phone: (442) 265-1736

LOCATION:

8. Legal Description: (must be full legal)

Township 15 South, Range 20 East, Sections 1, 2, 12 and 13, and
Township 15 South, Range 21 East, Sections 6, 7 and 18

See attached Figures 1 and 2

Assessor Parcel No.: See attached Table 1.

Longitude: West 144.811888 deg

Latitude: North 32.875392 deg

Elevation: Approximately 500 - 1,100 feet

9. Size of the land(s) that will be affected by mining operation. Total acreage:

20.6 acres
See attached Section 1.5.2

10. Describe existing and proposed access to the mine site: (please be specific)

See attached Section 1.5.3

GEOLOGICAL BACKGROUND:

11. Mineral commodity to be minded:

Exploration for minerals including gold

12. General Geological description of the area:

See attached Section 1.4.1

13. Detailed description of the geology of the actual site in which surface mining is to be conducted:

Not applicable. Project proposes exploration, not surface mining.

14. Brief description of the environmental setting of the site and the surrounding areas. Existing land uses, soil, vegetation, ground water elevation and surface water characteristics.

See attached Section 1.4

MINING OPERATION AND PRODUCTION:

15. Proposed starting date of operation: 4th quarter 2021

Estimated life of operation: 12 to 24 months

Termination Date: 4th quarter 2022 to 2023

Duration of first phase: Not applicable

Second phase:

Third phase:

Fourth phase:

16. Operation will be (include days and hours of operation):

Continuous: X

Intermittent:

Seasonal:

17. Maximum anticipated annual production (Tons or Cubic Yards):

Not applicable

18. Total anticipated production:

Minerals: Not applicable cubic yards/tons _____

Tailings retained on site: cubic yards/tons _____

Tailings disposed off site: cubic yards/tons _____

Maximum anticipated depth (indicate on map location of benchmarks to verify mine depth):

19. Describe mining method:

Not applicable

See attached Section 1.5.4 for a description of exploration drilling activitites

20. Describe nature of processing and explain disposal of tailings or waste.

Not applicable

21. Do you plan to use cyanide or other toxic materials in your operations?

No

Do you plan to use or store petroleum products or other hazardous materials on the site?

Yes

See attached Sections 1.6.2 and 1.8

Describe refueling and maintenance of vehicles.

See attached Section 1.6.2 and 1.8

22. Indicate the quantity of water to be used, source of water, method of conveyance to the mine site, the quantity, quality and method of disposal of used and/or surplus water. Indicate if water well to be used for mine operation (drilling, reactivation, changing use or increasing volume of water well may require Conditional Use Permit approval).

See Section 1.7.1

23. Describe phases of mining if applicable and concurrent reclamation including time schedule for concurrent activities.

Not applicable

24. Describe the types of equipment that will be used in the operation, including the estimated average daily trips (ADT) that will be generated by the operation.

See attached Section 1.5.5

25. Include the following maps: (NOTE: Without these the application is automatically incomplete.)

    (1) Topographic Map with overlay showing proposed area to be mined.

    (2) Site Plan showing mine layout and dimensions.

    (3) General Vicinity Map showing the location of the mine site in Imperial County.

    (4) Cross Section Map.

RECLAMATION:

26. Indicate by overlay of map of Item No. 24, or by color or symbol on map those areas to be covered by the reclamation plan:

Total acreage: 20.6 acres

27. Describe the ultimate physical condition of the site and specify the proposed use (s) or potential uses of the land after reclamation. Explain if utilities, haul or access roads will be removed or reclaimed.

See attached Section 2.1

28. Describe relationship of the interim uses than mining and the ultimate physical condition to:

(a) Imperial County Zoning Ordinance

(b) Imperial County General Plan

The Project is entirely on BLM lands, see attached Section 1.2

29. Notarized statement that all owners of the possessory interest in the land have been notified of the proposed uses or potential uses identified in Item No. 25 (see Attachment "A").

The Project is entirely on BLM lands, see attached Section 1.2

SMP has filed a Project Plan of Operations with the BLM, and they have determined that it meets the content requirements at 43 CFR 3809.401(b). Preliminary discussions and planning with BLM have begun to initiate review of the Project under the National Environmental Policy Act

30. Describe soil conditions and proposed topsoil salvage plan.

See attached Section 2 and Appendix A

MAIN OFFICE: 801 Main Street El Centro, CA 92243 (760) 482-4236 FAX: (760) 353-8338 E-MAIL: planning@imperialcounty.net
ECON. DEV. OFFICE: 836 Main Street El Centro, CA 92243 (760) 482-4900 FAX: (760) 337-8907

31. Describe the methods, their sequence and timing, to be used in bringing the reclamation of the land to its end state. Indicate on map (Items Nos. 24 and 25) or on diagrams as necessary. Include discussion of the pertinent items listed below.

(a) Backfilling and grading

(b) Stabilization of slopes

(c) Stabilization of permanent waste dumps, tailings, etc.

(d) Rehabilitation of pre-mining drainage

(e) Removal, disposal or utilization of residual equipment, structure, refuse, etc.

(f) Control and disposal of contaminants, especially with regard to surface runoff and ground water

(g) Treatment of streambeds and streambanks to control erosion and sedimentation

(h) Removal or minimization of residual hazards

(i) Resoiling, revegetation with evidence that selected plants can survive given the site's topography, soil and climate:

See Attached Section 2 and associated Figures and Appendices

32. If applicant has selected a short term phasing of his reclamation, describe in detail the specific reclamation to be accomplished during the first phase:

Not applicable

33. Describe how reclamation of this site in this manner may affect future mining at this site and in the surrounding area:

See attached Section 2.1

34. Notarized statement that the person submitting the plan accepts responsibility for reclaiming the mined lands in accordance with the Reclamation Plan (Attachment "B"):

See Attached.

35. Include Reclamation Cost Calculations as Attachment "C":

To be provided at a later date.

36. Describe proposed Revegetation Plan (attach as "Attachment D" if necessary):

See attached Appendix A

ATTACHMENT "A"

STATEMENT OF NOFICATION

I, the undersigned, have notified all owners of the possessory interest in the land of the proposed use (s) or potential uses identified in Item No. 26 of the Reclamation Plan.

Signed this _____ day

of _____, 2005.

_____

Operator or Operator's Agent

MAIN OFFICE: 801 Main Street El Centro, CA 92243 (760) 482-4236 FAX: (760) 353-8338 E-MAIL: planning@imperialcounty.net
ECON. DEV. OFFICE: 836 Main Street El Centro, CA 92243 (760) 482-4900 FAX: (760) 337-8907

ATTACHMENT "B"

STATEMENT OF RESPONSIBILITY

I, the undersigned, hereby agree to accept full responsibility for reclaiming all mined lands as described and submitted herein with any modifications requested by the County of Imperial as conditions of approval.

Signed this 2 day

of July, 2021.

Operator or Operator's Agent

Sworn before me this
2nd day of July, 2021

Stewart L. Lockwood

STEWART L. LOCKWOOD
Barrister & Solicitor
BENNETT JONES LLP
2800 PARK PLACE - 666 BURRARD STREET
VANCOUVER, B.C. V6C 2X8
TEL: 604.891.5313 FAX: 604.891.5100

ATTACHMENT "C"

RECLAMATION COST ANALYSIS

Note: Reclamation Cost Analysis will be forthcoming following Imperial County review of Reclamation Plan.

MAIN OFFICE: 801 Main Street El Centro, CA 92243 (760) 482-4236 FAX: (760) 353-8338 E-MAIL: planning@imperialcounty.net
ECON. DEV. OFFICE: 836 Main Street El Centro, CA 92243 (760) 482-4900 FAX: (760) 337-8907

ATTACHMENT "D"

REVEGATION PLAN

(REVISED MARCH 25, 2005)
JH/lh/S:/forms_lists/reclamation plan aplication

MAIN OFFICE: 801 Main Street El Centro, CA 92243 (760) 482-4236 FAX: (760) 353-8338 E-MAIL: planning@imperialcounty.net
ECON. DEV. OFFICE: 836 Main Street El Centro, CA 92243 (760) 482-4900 FAX: (760) 337-8907

SMP GOLD CORP.
ORO CRUZ EXPLORATION PROJECT
REVEGETATION PLAN

Prepared for: SMP GOLD CORP.

Prepared by: WestLand Resources, Inc.

Date: June 11, 2021

Project No.: 2072.03 13

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1. Introduction and Background 1
2. Project Area Description 1
3. Reclamation and Revegetation Plan Overview 3
4. Site Preparation 4
5. Control of Weeds & Non-Native Vegetation 5
6. Seed Mix 6
7. Success Criteria 7

FIGURES

(follow text)

Figure 1. Vicinity Map
Figure 2. Project Location
Figure 3. Vegetation Classifications

APPENDICES

Appendix A. Representative Photographs

1. INTRODUCTION AND BACKGROUND

SMP Gold Corp. (SMP) proposes mineral exploration activities at the Oro Cruz Pit Area (the Project) within lands administered by the Bureau of Land Management (BLM), northwest of Yuma, Arizona, in Imperial County, California. The Project is located on previously mined BLM lands within Township 15 South, Range 20 East, Sections 1, 2, 12, and 13, and Township 15 South, Range 21 East, Sections 6, 7, and 18 (the Project Area, **Figures 1 and 2**) that are managed by the El Centro Field Office. The Project Area includes seven drill areas and access roads (**Figure 2**). Within these areas, the Project entails 20.6 acres of surface disturbance. The Project Area has been previously disturbed by mining activities. Current surrounding land uses include prospecting and recreation.

Activities would be conducted in accordance with BLM regulations published in the Code of Federal Regulations (CFR) at 43 CFR part 3809 (BLM 2016) and 43 CFR 3715 (BLM 1998). Pursuant to 43 CFR 3809.21 and 3809.301, the Project would result in minor surface reworking of previously mined and disturbed areas, and measures would be taken to prevent unnecessary or undue degradation during Project operations. The Project would comply with the performance standards in 43 CFR 3809.420 and other Federal and state laws related to environmental protection and protection of cultural resources; the Project is "reasonably incident" to mining as defined in 43 CFR 3715.0-5; and the Project would attain the stated level of protection and reclamation required by specific laws in the California Desert Conservation Area. The Project Area occurs within the Picacho Area of Critical Environmental Concern (ACEC) as designated under the Desert Renewable Energy Conservation Plan, and thus requires a BLM Plan of Operations.

The Project is described in the Draft Exploration Plan of Operations (Plan) dated December 17, 2020. The BLM has reviewed the Plan and has determined that the filed Plan meets the content requirements at 43 CFR 3809.401(b).

2. PROJECT AREA DESCRIPTION

Vegetation in the Project Area is low desert scrub typical of the high temperature region of southeastern California. In general, vegetation is sparse in both the upland and xeroriparian habitats. The uplands consist of a very low-density shrub community dominated by creosote (*Larrea tridentata*) and brittlebush (*Encelia farinose).* In addition, large portions of the Project Area consist of disturbed habitats dominated by non-native annual plants. The xeroriparian habitat generally consists of the same sparce shrub community and includes widely spaced upland trees and ocotillo (*Fouquieria splendens*). In summation, vegetation in the Project Area is uniformly sparce and consist of very low density shrublands, upland trees and highly disturbed habitats. Representative photographs of the Project Area are provided in **Appendix A.**

For the purposes of vegetation mapping, an Analysis Area that encompasses the proposed disturbance on seven drill areas and associated access roads was defined (**Figure 3**). A total of 37 plant species were identified during field surveys within the Analysis Area (**Table 1)**. Plant species observations do not represent a complete floristic survey. Three California Native Plant Society vegetation categories were identified during pedestrian surveys and thematically mapped using the Supervised Classification tool in ArcGIS Pro 2.7 (**Figure 3**).

Brassica (nigra) and other mustards semi-natural stands

Brassica (nigra) and other mustards semi-natural stands vegetation category occupies approximately 18% of the Analysis Area and 24% of the Project Area (**Figure 3**). This vegetation category corresponds with disturbed and barren areas. Although the named dominant species, black mustard (*Brassica nigra*), was not observed, Saharan mustard (*Brassica tourneforti*), a closely related non-native mustard was often present in both naturally disturbed areas including wash scour and human- disturbed areas such as roads, camp sites, and rock waste piles. This natural community is not classified as sensitive by the California Department of Fish and Wildlife (CDFW 2020)

Parkinsonia florida—Olneya tesota alliance

Parkinsonia florida—Olneya tesota alliance occupies approximately 2% of the Analysis Area and 2% of the Project Area (**Figure 3**). The vegetation category is primarily restricted to xeroriparian areas including washes, drainages and narrow canyons. Besides the named alliance's dominant plants, blue palo verde (*Parkinsonia florida*) and ironwood (*Olneya tesota*), other commonly occurring plants include sweetbush (*Bebbia juncea*), lance leaved ditaxis (*Ditaxis lanceolata*), desert lavender (*Hyptis emoryi*), ocotillo (*Fouquieria splendens*) and Anderson's desert thorn (*Lycium andersonii*). This natural community is classified as sensitive by the California Department of Fish and Wildlife (CDFW 2020).

Larrea tridentata — Encelia farinosa alliance

Larrea tridentata — Encelia farinosa alliance occupies approximately 79% of the Analysis Area and 74% of the Project Area and occurs in a variety of topographic settings (**Figure 3**). Besides the named alliance's dominant plants, creosote (*Larrea tridentata*) and brittlebush (*Encelia farinosa*), other commonly occurring plants include ocotillo, beavertail prickly pear (*Opuntia basilarus*), and burrobush (*Ambrosia dumosa*). This natural community is classified as sensitive by the California Department of Fish and Wildlife (CDFW 2020).

Table 1. Plant Species Observed in the Analysis Area During the Field Survey
This list represents species observed during the field survey and does not represent a complete floristic survey.

Common Name	Scientific Name	Common Name	Scientific Name
PLANTS			
PERENNIALS		beavertail pricklypear	*Opuntia basilaris*
burrobush	*Ambrosia dumosa*	blue paloverde	*Parkinsonia florida*
burrobush	*Ambrosia salsola*	Schott's pygmycedar	*Peucephyllum schottii*
western milkweed	*Asclepias albicans*	velvet turtleback	*Psathyrotes ramosissima*
sweetbush	*Bebbia juncea*	desert globemallow	*Sphaeralcea ambigua*
Paloverde	*Cercidium floridum*	Mesquite	*Posopis juliflora*
pink fairyduster	*Cylindropuntia erophylla*	Tamarisk*	*Tamarix pentandra*
hairy prairie clover	*Dalea mollis*	American threefold	*Trixis californica*
narrowleaf silverbush	*Ditaxis lanceolata*	ANNUALS	
Inciensio	*Encelia farinose*	sixweeks threeawn	*Aristida adscensionis*
rough jointfir	*Ephedra aspera*	Asian mustard*	*Brassica tournefortii*
desert trumpet	*Eriogonum inflatum*	brittle spineflower	*Chorizanthe brevicornu*
California fagonbush	*Fagonia laevis*	devil's spineflower	*Chorizanthe rigida*
California barrel cactus	*Ferocactus cylindraceus*	pygmy poppy	*Eschscholzia minutiflora*
ocotillo	*Fouquieria splendens*	Arizona lupine	*Lupinus arizonicus*
paleface	*Hibiscus denudatus*	Mojave desertstar	*Monoptilon bellioides*
desert lavender	*Hyptis emoryi*	desert palafox	*Palafoxia arida var. arida*
creosote	*Larrea tridentata*	cleftleaf phacelia	*Phacelia crenulata*
water jacket	*Lycium andersonii*	desert Indianwheat	*Plantago ovata*
Parry's false prairie-clover	*Marina parryi*	yellowdome	*Trichoptilium incisum*
desert wishbone-bush	*Mirabilis laevis*		
desert tobacco	*Nicotiana obtusifolia*		
ironwood	*Olneya tesota*	*non-native	

3. RECLAMATION AND REVEGETATION PLAN OVERVIEW

The intent of the California Surface Mining and Reclamation Act (SMARA) is to "maintain an effective and comprehensive surface mining and reclamation policy with regulation of surface mining operations so as to assure that: (a) adverse environmental effects are prevented or minimized and that mined lands are reclaimed to a usable condition which is readily adaptable for alternative uses; (b) the production and conservation of aggregates are encouraged, while giving consideration to values relating to recreation, watershed, wildlife, range and forage, and aesthetic enjoyment; and (c) residual hazards to the public health and safety are eliminated" (Section 2712). Article 9, Section 3700 of SMARA states the following: "Reclamation of mined lands shall be implemented in conformance with standards in this Article. The standards shall apply to each surface mining operation to the extent that:

- They are consistent with required mitigation identified in conformance with CEQA; and
- They are consistent with the planned or actual subsequent use or uses of the site."

The Oro Cruz Exploration Project Reclamation Plan prepared by Sespe Consulting Inc. (2021) describes the Reclamation Plan for reclaiming land disturbed by exploration drilling within the Project Area, as required under SMARA. This Reclamation Plan addresses the reclamation activities that will be undertaken following completion of the exploratory drilling, in conformance with SMARA.

The anticipated post-Project land uses are mining, recreational uses, and open space. Following the completion of all drilling, solids, and desiccated drilling muds that have been contained in the sump would be treated by evaporation and by allowing solids to settle out in excavated mud pits or sumps at the drill site. The sumps would then be backfilled. The drilling muds that would be used do not contain toxic or deleterious materials. The proposed drilling mud material data sheets could be provided to BLM upon request. The inert drilling mud materials would be disposed of in accordance with applicable state and federal regulations. The drill site, mud pits, and outer berm would then be returned to natural grade with a track hoe using rocks and soil set aside during site construction and mud pit excavation.

This technical memorandum describes the revegetation plan associated with the planned reclamation.

Reclaimed areas would be revegetated with a BLM-approved seed mix. These areas would be revegetated after cover placement and at the appropriate time of the year for optimum seed germination and plant growth.

4. SITE PREPARATION

The revegetation plan is based on those portions of the Project Area proposed to be reclaimed to open space. For those portions of the Project Area to be reclaimed for future mining and/or recreational uses, revegetation may not be feasible and/or appropriate.

Following completion of exploratory drilling, equipment demobilization and surface preparation of the roads and drill pads, the following typical sequence of revegetation activities will be undertaken:

- Installation of erosion control devices, such as waddles, where necessary;
- Application of seed mix either by hydroseeding or mechanical broadcasting; and
- Maintenance and monitoring.

Generally, initial seedbed preparation on flatter surfaces would include ripping or discing the surface along contours. Conventional seeding techniques (including drill and broadcast) would be used as appropriate depending on soil/cover characteristics and landform. Hydroseed, hydromulch, and

tackifier may be used on slopes that are not suitable for conventional seeding. Mulch may be applied to minimize erosion and promote moisture retention where appropriate.

Prior to application of the seed mix, the final contours, hydrology, and soils composition of the revegetation areas will be reviewed by a qualified biologist/revegetation specialist to determine the optimal broadcast rates and make any appropriate modifications to the overall revegetation plan.

Areas to be revegetated will be prepared as follows:

- Vegetation, trash, debris, and weeds will be cleared. All weeds will be removed from the area and properly disposed of offsite.
- Any eroded areas will be repaired uniformly without leaving holes or depressions that would potentially prohibit plant growth.
- Compacted areas will be ripped to a depth of one foot and left in a textured or rough condition with shallow rills and furrows to create optimal conditions for revegetation.
- Any salvaged plants will be replanted on the pads and roads in a random pattern.
- A native plant seed mix will be broadcast at a rate recommended by the BLM and Imperial County which will include a mixture of shrubs, native grasses, and annuals; and
- The seeds will be covered by hand-rake or using a chain attached to a small tractor with any salvaged top soil to protect the seeds from desiccation and predation.

5. CONTROL OF WEEDS AND NON-NATIVE VEGETATION

The predominance of exotic, invasive weed species throughout California has presented a formidable challenge to most revegetation projects. Weed species are opportunistic and have mechanisms for dispersal and establishment that can eventually lead to displacement of native species. To ensure that weed species competition is controlled, the Project site areas will be inspected by the qualified biologist/revegetation specialist prior to revegetation implementation. The qualified biologist/revegetation specialist will also determine the most effective treatments for control of invasive species. If weed control activities are necessary, they will likely include a combination of treatments such as herbicide application, hand removal, and soil solarization.

Non-native invasive plants that threaten California's wildlands have been categorized by the California Invasive Plant Council (Cal-IPC). Invasive plants that have been classified by Cal-IPC as "High" (severe ecological impacts on physical processes, plant and animal communities, and vegetation structure) or "Moderate" (substantial and apparent—but generally not severe—ecological impacts on physical processes, plant and animal communities, and vegetation structure) in terms of ecological threat will be controlled as necessary within the revegetation areas for up to three (3) years in order to prevent aggressive weeds from out-competing native plant species for resources (e.g., space, water, nutrients, and light). These invasive weeds will be removed mechanically, if feasible. In circumstances

where mechanical control is not effective, EPA-approved systemic herbicides may be used. Herbicides will be applied under the direction of a licensed applicator.

Prior to initiation of revegetation efforts, the biologist will consult the most recent Cal-IPC list, and a list of specific species to be controlled under this Reclamation Plan will be developed. Additional species may be added to the list based on actual conditions and the recommendation of the qualified biologist/revegetation specialist.

6. SEED MIX

Revegetation would require site-appropriate, BLM-approved native seed mixtures. A diverse native plant community would be targeted through the definition of seed mixtures and application rates. The seed mix list would be reviewed before revegetation activities are initiated to confirm the availability of the seeds, and the list would be adjusted as needed. The seed mix and mulch materials would be certified by the revegetation contractor to be relatively weed free.

The proposed native seed mixture will consist of the following: creosotebush (*Larrea tridentata*), burrobush (*Ambrosia dumosa*), brittlebush (*Encelia farinosa*), desert spineflower (*Geraea canescens*), turtleback (*Psathyrotes ramosissima*), forget-me-not (*Cryptantha* spp.), and hairy prairie clover (*Dalea mollis*). Seeds will be purchased and mixed in equal quantities and will be hand broadcasted at approximately 10 pounds per acre (**Table 2**). If any part of the proposed seed mixture is not commercially available at the time of purchase, BLM will be consulted to identify appropriate and available replacements for the seed mixture.

Table 2. Native Live Seed Mixture

Common Name	Scientific Name	Pounds/Acre
creosotebush	*Larrea tridentata*	3
burrobush	*Ambrosia dumosa*	3
brittlebush	*Encelia farinosa*	1.5
desert spineflower	*Geraea canescens*	1
turtleback	*Psathyrotes ramosissima*	0.5
forget-me-not	*Cryptantha* spp.	0.5
hairy prairie clover	*Dalea mollis*	0.5
	Total	**10**

The seed mix would be designed to meet the following criteria:

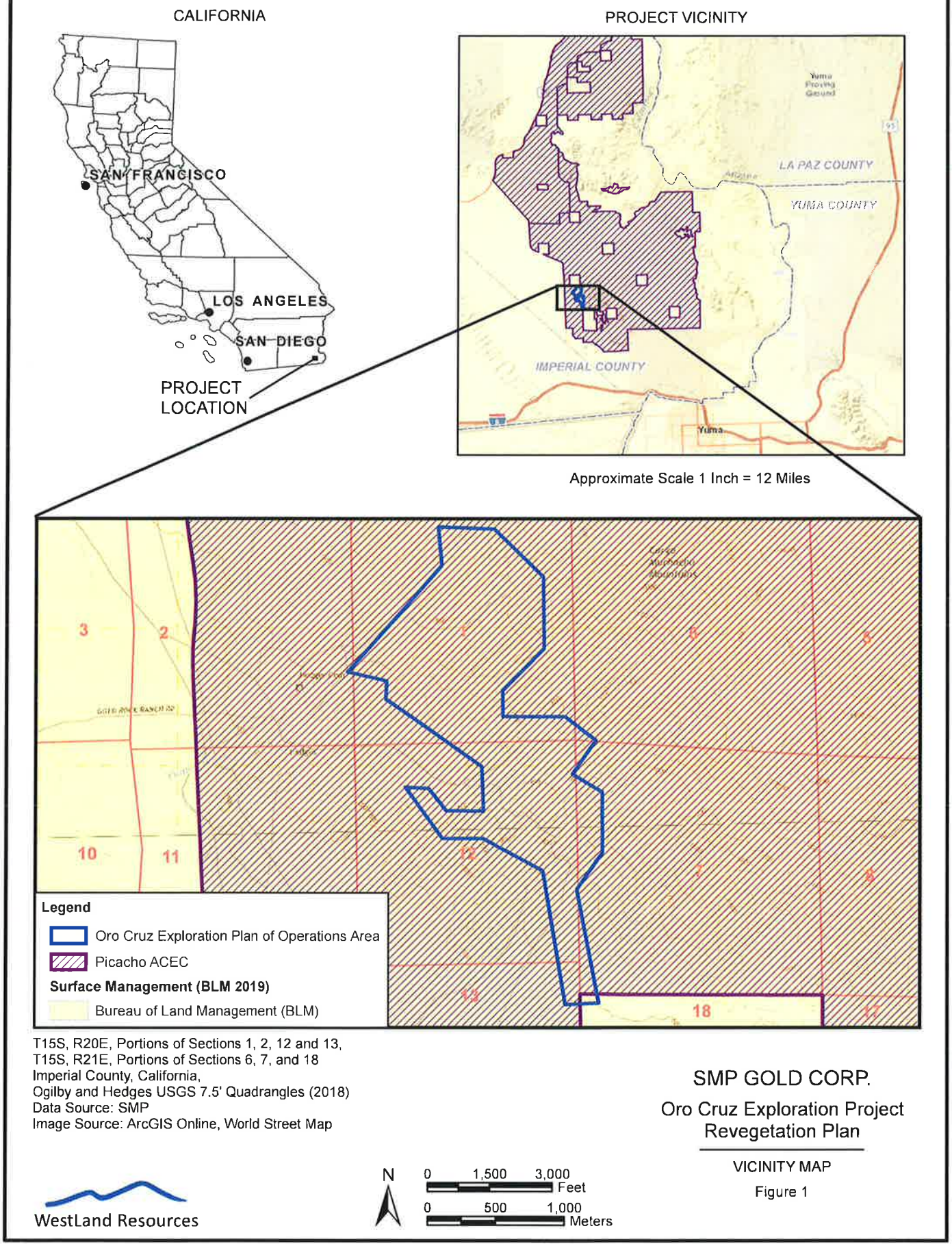
- Native non-invasive species that have a high compatibility with the existing landscape;
- Species and plant type diversity to promote a sustainable vegetative cover throughout the seasonal changes and other climate related variances; and
- Species and plant type diversity to promote a variety of germination periods and seasonal growth.

7. SUCCESS CRITERIA

The basic goal of revegetation is to re-establish self-sustaining native plant communities within the disturbed areas. California Code of Regulations (CCR) Section 3705(m) requires that reclaimed revegetated sites be "similar to naturally occurring habitats in the surrounding area." In order to accomplish this revegetation will be deemed successful upon achieving 25 percent of the vegetative cover of adjacent similar vegetation. Because the specific locations of drill pads are not known at this time and flexibility is built into the project to allow for adaptation of exact locations based on drilling results, comparison sites will be chosen in field once the exact drill pad locations are identified. This is an appropriate success criterium for the following reasons:

- The Project will entail only a small amount of total disturbance, and much of this will be within areas that have been previously disturbed.
- The Project contemplates temporary activities over a relatively short time period.
- The Project Area has been previously disturbed from past mining activities, and there is a striking lack of vegetation throughout the Project Area. Vegetation in both the uplands and washes is sparse with limited vegetation cover (**Appendix A**).
- The planned revegetation effort is planned to enhance the success of the revegetation and will augment the reseeding that will occur naturally.

FIGURES



T15S, R20E, Portions of Sections 1, 2, 12 and 13,
T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California,
Ogilby and Hedges USGS 7.5' Quadrangles (2018)
Data Source: SMP
Image Source: ArcGIS Online, World Street Map

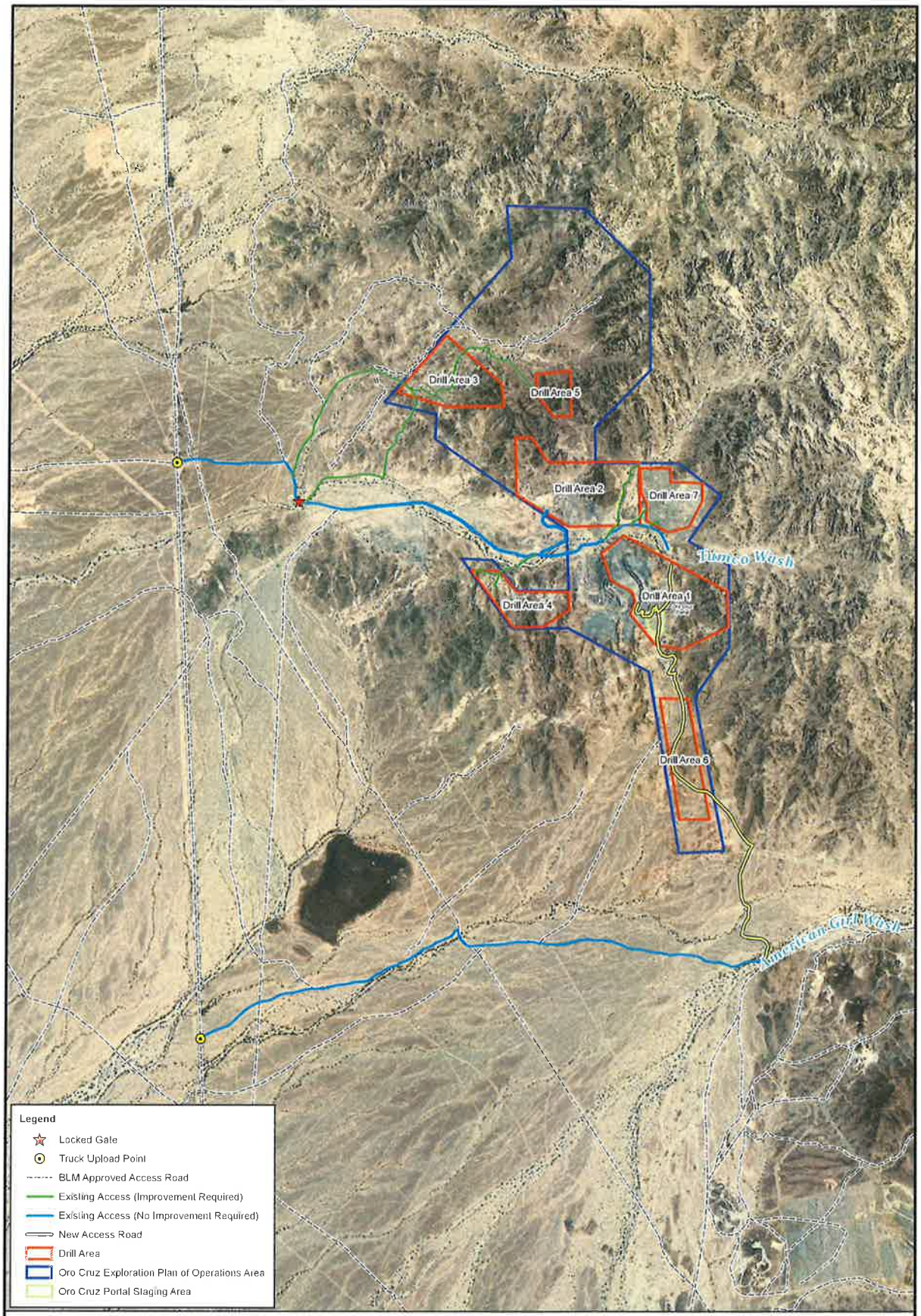
WestLand Resources

SMP GOLD CORP.

Oro Cruz Exploration Project
Revegetation Plan

VICINITY MAP

Figure 1



T15S, R20E, Portions of Sections 1, 2, 12 and 13,
T15S, R21E, Portions of Sections 5, 7, and 18
Imperial County, California. Data Source: SMP
Image Source: ArcGIS Online, World Imagery, 2018

WestLand Resources

N

0 800 1,600 Feet

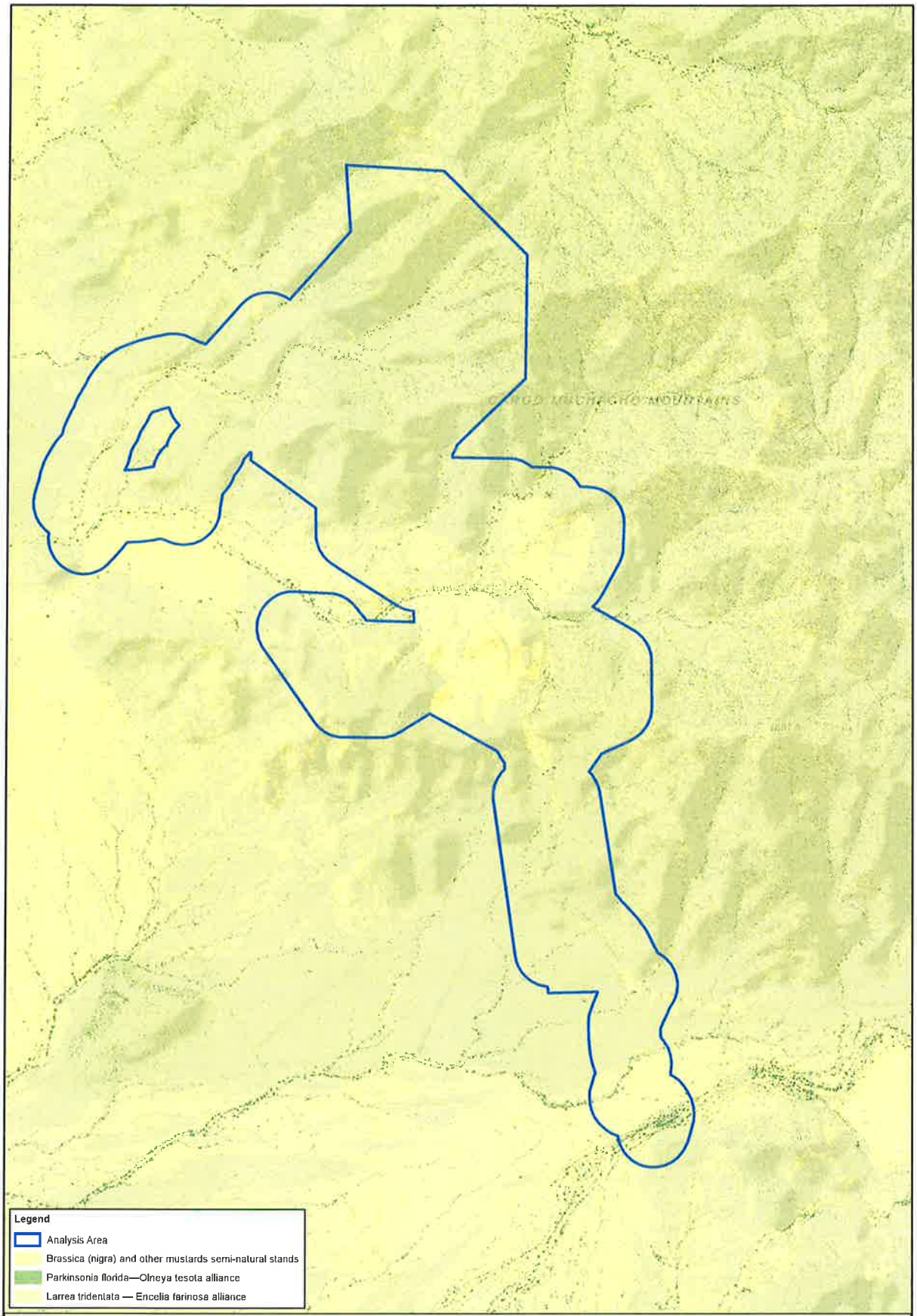
0 250 500 Meters

SMP GOLD CORP.

Oro Cruz Exploration Project
Revegetation Plan

PROJECT LOCATION

Figure 2



T15S, R20E, Portions of Sections 1, 2, 11, 12 and 13,
T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California,
Imperial County, California,
Data Source: SMP
Image Source: Supervised Classification from NAIP 2020

WestLand Resources

N

0 750 1,500 Feet

0 250 500 Meters

SMP GOLD CORP.

Oro Cruz Exploration Project
Revegetation Plan

VEGETATION CLASSIFICATION

Figure 3

APPENDIX A
Representative Photographs

Photo 1.
Drill Area 1

Photo 2.
Drill Area 1

Photo 3.
Drill Area 2

Photo 4.
Drill Area 2

Photo 5.
Drill Area 3

Photo 6.
Drill Area 3

Photo 7.
Drill Area 4

Photo 8.
Drill Area 4

Photo 9.
Drill Area 5

Photo 10.
Drill Area 5

Photo 11.
Drill Area 6

Photo 12.
Drill Area 6

Photo 13.
Access Road to Drill Area 6

Photo 14.
Drill Area 7

Photo 15.
Drill Area 7

ATTACHMENT H- COMMENT LETTERS RECEIVED DURING PUBLIC NOTICING

October 24, 2023

Sent via email

Michael Abraham
Assistant Director
Imperial County Planning and Development Services Department
801 Main St
El Centro, CA 92243
MichaelAbraham@co.imperial.ca.us
442-265-1736

RECEIVED
By Imperial County Planning & Development Services at 3:23 pm, Oct 24, 2023

Gerardo Quero
Planner II
Imperial County Planning and Development Services Department
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442-265-1736

Re: Comments on IS21-0029 SMP Gold Corp (Oro Cruz) Reclamation Plan #21-0001, a Mineral Exploration Project (SCH No. 2022120331) Environmental Assessment and Mitigated Negative Declaration

Dear Mr. Abraham, Mr. Quero, and the Planning Commission:

We respectfully submit this letter on behalf of the Center for Biological Diversity, Western Watersheds Project, Earthworks, the Sierra Club California/Nevada Desert Committee, Conservation Lands Foundation, Greenaction for Health and Environmental Justice, California Native Plant Society, Native American Land Conservancy, and the Ahmut Pipa Foundation (collectively "Conservation Organizations") with respect to the above referenced matter, in advance of the October 25, 2023 Planning Commission meeting where this item is on the agenda (#7). These comments supplement and incorporate by reference our previous comments (dated December 16, 2022, January 20, 2023, and September 12, 2023) on the County's Mitigated Negative Declaration (MND) and BLM's Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) and proposal to approve the Plan of Operations for the SMP Gold Corp. The updates to the EA/MND resolve neither the substantive nor procedural issues. For the below reasons, along with those detailed in our prior letter, the EA/MND should be denied.

I. The County Must Allow More Time for the Public to Evaluate and Comment on the Updated EA/MND for the Proposed Project.

The Conservation Organizations voice their strong objection to the way that the Planning Commission has handled the publication and posting of documents associated County's Mitigated Negative Declaration (MND) and BLM's Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) and proposal to approve the Plan of Operations for the SMP Gold Corp ("Project"). County Planning Staff emailed the updated EA/MND and associated documents to some – but not all—of the interested parties for the project on October 13, 2023—less than 2 weeks before the County's consideration of the project.[1] On October 17, four days later, the County circulated *another* staff report with even more pages, and with zero explanation of what material may be new.

The EA/MND and staff report consist of over two thousand pages, with hundreds of pages of additional material. The staff report contained no red line or other explanation of what the changes may be, which forced the Conservation Organizations to sift through and compare all two thousand pages to see where the new material might be. What's worse, within these new materials, the County repeatedly stated that it had made various updates to the EA/MND's mitigation and analysis, without providing any redline or reference to those changes. The additions and revisions to the EA/MND, which constitute hundreds of pages of new information, so close to the County's consideration of this Project deprives the public and the Planning Commission of the opportunity to meaningfully consider the issues raised by the proposed Project. It is difficult, if not impossible, for the public and interested parties to provide accurate and up-to-date comments when the environmental review documents themselves are subject to ongoing revisions and changes without proper notice about which material is new and at the last minute.

We urge the County to continue the hearing and make available redline versions of the updated documents that show the changes made to the EA/MND since the Planning Commission's September 14, 2023 hearing.

II. The County's Changes to the EA/MND Do Not Remedy the Document's Fundamental Flaws.

Like any component of environmental review, a mitigated negative declaration must effectuate CEQA's fundamental purpose to "inform the public and responsible officials of the environmental consequences of their decisions before they are made." (*Laurel Heights Improvement Ass'n v. Regents of University of California* (1993) 6 Cal.4th 1112, 1123.) If inform contains a misleading or inadequate discussion of environmental impacts, or fails "to include relevant evidence," it is "inadequate as an informational document." (*Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 718.)

[1] For instance, County staff emailed Lisa Belenky, attorney for the Center for Biological Diversity, with links to the updated EA/MND and notice for the upcoming Planning Commission hearing. County staff has failed, however, to notify any other signatories to Conservation Organizations, or other interested parties who have repeatedly engaged on the project, such as the California Department of Fish and Wildlife.

The EA/MND remains fundamentally flawed as an informational document, and the County's edits do nothing to remedy those flaws. The updated EA/MND repeatedly fails to include information necessary for decisionmakers to meaningfully understand the impacts of the proposed Project, and how the Project will effectively mitigate those impacts to less than significant levels. For example, the EA/MND acknowledges that plant species observed in the field during the March 2021 biological baseline surveys "do not represent a complete floristic inventory," a concern Conservation Organizations repeatedly raised. Rather than remedy that inadequacy by conducting the necessary surveys, the EA/MND updated the text of its mitigation measure, specifically M-8 and PDF-34, to add pre-construction vegetation surveys prior to surface disturbance.[2] The vague promise to conduct a vegetation survey does little to resolve the EA/MND's acknowledged information gaps. The EA/MND fails to explain how these surveys will be conducted, when they will be conducted, or to provide any other assurances that the surveys will be designed to accurately capture the floristic diversity of the site. Rather, the EA/MND states in vague and conclusory fashion that a pre-construction survey will "ensure that no special status plants are present within areas proposed for disturbance." But without actually including the baseline data on the plants that exist on the Project site, it is impossible for decisionmakers to determine the gravity of the Project's impacts, or whether their severity requires the County to prepare an EIR to better assess and mitigate these impacts.

Similarly, the updated EA/MND now reveals that the proposed new access road leading to Drill 1 will remain in place as a "post-surface exploration feature" for reclamation, monitoring, and underground exploration activities and would be in place up to five years after project implementation. (PDF page 2370.) The continuing use of the road was not previously disclosed or analyzed in the EA/MND. The EA/MND did not analyze how the ongoing presence of this road may result in myriad environmental impacts resulting from increased use/access of the area. These includes dust, which would reduce photosynthesis, affect stomata function, and inhibit reproduction on vegetation resources. And although, the EA/MND asserts that the road would eventually be removed as part of the project—not as an enforceable mitigation measure as CEQA requires (see *Lotus v. Department of Transportation* (2014) 223 Cal.App.4th 645, 656, 658)—without describing the amount of earthwork required to remediate it, it is impossible for decision makers to understand the scope and impacts from any earthwork that would be necessary.

Similar cursory conclusions pervade the EA/MND. The EA/MND repeatedly fails to provide comparative *evidence* to support its conclusions that environmental impacts will be sufficiently mitigated with the new and added "clarifications" to its mitigation program. As a result, the County's decisionmakers lack necessary information to determine whether the County may proceed with an EA/MND, or instead must prepare an EIR.

III. The EA/MND's Analysis Remains Deficient.

[2] CEQA requires that, if the mitigation measures are changed, or mitigation measures are added after public review, the mitigated negative declaration ordinarily will have to be recirculated for a second round of public review. (14 Cal Code Regs §15073.5.) Here, the County did not provide adequate notice or time for the public to adequately review the changes to the EA/MND.

During the Imperial County Planning Commission meeting held on September 13, 2023,[3] numerous members of the Fort Yuma Quechan Indian Tribe, including several tribal council members, voiced their concerns regarding the BLM's failure to consult. Their testimonies emphasized the significance of the traditional cultural resources and landscape, highlighting BLM's failure to acknowledge or incorporate the valuable information provided by the tribe regarding the location of many cultural resources.

Jordan Joaquin, the President of the Quechan Tribe, and Donald Medart Junior, a Tribal Councilmember, both attested that during meetings with BLM, the agency explicitly stated that these gatherings should not be considered official tribal consultations and that government-to-government consultation has not occurred. Furthermore, they pointed out glaring omissions in BLM's documentation, noting that "hundreds, if not thousands, of specific glyphs" shared by the tribe did not find their way onto the maps provided to Oro Cruz for the project.[4]

Preston J. Arrow-Weed, a traditional practitioner, also testified about the cycles of traditional songs he sings and teaches, and the importance of protecting the land and groundwater needed for all living things in the desert.[5]

Faron Owl, discussed the religious and cultural importance of the "Trail of Dreams" to the Quechan and explained that Project activities could "permanently desecrate area belonging to our cultural heritage."[6]

In response to the concerns raised by the tribal members and the Planning Commissioners, BLM staff at the meeting asserted that "consultations are ongoing," despite the apparent inadequacy of their previous efforts. In light of these issues, the Imperial County Planning Commission made a unanimous decision to postpone consideration of the project until such time as BLM could engage in a proper consultation process with the Quechan tribe.

The updated EA/MND makes abundantly clear that neither BLM nor the County engaged in any additional consultation, as the Planning Commission ordered. Instead, it merely contains a memorandum written by the developer's consultant, containing the consultant's summary of communications between the requisite agencies and the tribes. This summary does little to address the Quechan's ongoing concerns about the project, and BLM and the County's failure to consult with the Quechan regarding those concerns.

VI. Conclusion

In light of the foregoing, the EA/MND still fails to satisfy CEQA's requirements. At the same time, ample evidence still demonstrates that a fair argument exists that the Project may

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[3] Audio-Video available at https://imperial.granicus.com/player/clip/2431?view_id=2&redirect=true&h=f1baefeef32433332b4c0cd698f7480d.
[4] *Id*. at minute 1:10-1:15 and 1:18-1:20.
[5] *Id*. at 1:20-1:24.
[6] *Id*. at 1:16-1:18.

result in significant environmental impacts. In light of this evidence, CEQA requires that an EIR be prepared. For this reason, and because the Project will have irreparable impacts, we respectfully request that the Project be denied at this time. The Project should not be reconsidered until a legally adequate EIR is prepared and certified.

Please include this letter and all references in your project file for the Project. Please also include all of the signatories below on your notice list for all future updates, notices, and documents related to the Project and do not hesitate to contact us with any questions at the number or email listed below.

Sincerely,

Lisa Belenky, Senior Attorney
Hallie Kutak, Staff Attorney
Center for Biological Diversity 1212 Broadway, Suite 800
Oakland, CA 94612
lbelenky@biologicaldiversity.org
hkutak@biologicaldiversity.org

Joan Taylor, Chair
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T. Robert Przeklasa, Ph.D.
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Preston J. Arrow-weed, President
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ahmut@earthlink.net

Cc:
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Brian Croft, US Fish and Wildlife Services, Brian_Croft@fws.gov

Magdalena Rodriguez, CDFW, Magdalena.Rodriguez@wildlife.ca.gov
Alyssa Hockaday, CDFW, Alyssa.Hockaday@wildlife.ca.gov
Heather Brashear, Heather.Brashear@wildlife.ca.gov
Tom Plenys, EPA, Plenys.Thomas@epa.gov
Chris Harris, Executive Director, Colorado River Board of California crb@crb.ca.gov
Julianne Polanco, State Historic Preservation Officer (SHPO),
julianne.polanco@parks.ca.gov
Commissioner Laura Miranda, California Native American Heritage Commission.
Chairperson Laura.Miranda@nahc.ca.gov, nahc@nahc.ca.gov

QUECHAN INDIAN TRIBE
Ft. Yuma Indian Reservation
Office of Tribal Administration
P.O. Box 1899
Yuma, Arizona 85366-1899
Phone (760) 919-3600
Fax (760) 572-2962

October 24, 2023

RECEIVED
OCT 24 2023
IMPERIAL COUNTY
PLANNING & DEVELOPMENT SERVICES

VIA ELECTRONIC MAIL (planninginfo@co.imperial.ca.us)

Planning Commission
Imperial County
Attn: Rudy Schaffner, Chairman
801 Main Street
El Centro, CA 92243

Re: Request to Stay Consideration of Reclamation Plan #21-0001/Initial Study #21-0029

Dear Chairman Schaffner:

On September 13, 2023, the Imperial County Planning Commission ("Commission") heard public comment regarding the proposed Oro Cruz gold exploration project (Reclamation Plan #21-0001/Initial Study #21-0029, "Project,"). During this meeting, elected officials of the Quechan Tribe of the Fort Yuma Indian Reservation ("Tribe"), including myself, expressed our serious concerns regarding the Project, due to the Bureau of Land Management's ("BLM") failure to engage in the required government-to-government consultation with the Tribe. The Commissioners expressed concerns about BLM's failure to consult and unanimously voted to continue consideration of matters related to the Project until such time as meaningful government-to-government consultation occurs. I am writing to inform you that despite continued efforts to schedule consultation with the BLM, no consultation has yet taken place; therefore, the Tribe respectfully requests that the Commission remove this item from the Commission's October 25, 2023 meeting agenda.

As the minutes of the September 13, 2023 meeting reflect, the Commission decided not to set a specific date to consider and vote upon the Project in order to give the Tribe and BLM sufficient time to conduct this important and legally required consultation. Please accept this written request to continue Agenda Item 7 for the October 25, 2023 Commission meeting until the Tribe and BLM can schedule a consultation meeting. I am currently in Washington, D.C. attending to Tribal business and unable to attend the Commission meeting to make this request in person. However, I am working to schedule a consultation meeting in early November, pending confirmation from the BLM El Centro Field Office. The Tribe is hopefully that a consultation meeting with BLM can take place in the near future; however, we believe it would be inappropriate for the Commission to consider this item at its October 25th meeting, given that consultation has not yet taken place.

Thank you for your consideration of the Tribe's request. Please do not hesitate to contact me with any questions regarding this important matter.

Sincerely,

Jordan D. Joaquin
President

Gerardo Quero

From: Michael Garitty <garitty@nccn.net>
Sent: Thursday, 16 November, 2023 10:46 AM
To: Gerardo Quero
Subject: Reject the Oro Cruz Mitigated Negative Declaration (MND) and require an EIR

CAUTION: This email originated outside our organization; please use caution.

Dear Imperial County Planning Commission,

I'm writing to express my serious concerns about the impacts of the proposed Oro Cruz Exploration Project in Imperial County, California. Exploration by SMP Gold Corp. would cause irreversible damage to a landscape of great cultural, religious, and spiritual importance to the Quechan people. Furthermore, the project would have significant impacts on the Picacho Area of Critical Environmental Concern, including on critical habitat for the threatened Mojave Desert Tortoise. I urge the commission to reject the Mitigated Negative Declaration and require an Environmental Impact Report to fully analyze these significant impacts.

Sincerely,
Michael Garitty
13088 Vista Knls
Nevada City, CA 95959

September 13, 2023

Dear Imperial County Planning Commission:

RE: Oro Cruz Exploration Project

Just west of the Quechan Indian land lays a place many believe has magical powers. However, for the Quechan and other native people in the region for centuries, the land holds not mythical magic, but a real religious and cultural connection with the land, air, water insects, winged, and four legged beings.

The preservation of this site (Trail of Dreams to the Quechan) is important to the Quechans to continue religious, traditional practices, and cultural teaching of future generations of Quechan children. The site is a place for prayers and ceremonies; it is the site of our creation story and should be interpreted as a literal and historical account of how the Quechan people were created.

I am writing to you because of my growing concern regarding the impacts of the proposed Oro Cruz Exploration Project in Imperial County, California. Exploration, by SMP Gold Corp., will permanently desecrate the area and destroy our tribal cultural and religious heritage. I urge the Imperial County Planning Commission to require an Environmental Impact Study to properly analyze the irreparable impact on this sacred land before making a decision on the project.

Please include this letter in your project file for the Oro Cruz Exploration Project. Also, include all future updates, notices, and documents related to the Project. Please do not hesitate to contact me with any questions at the number or email listed below.

Sincerely,

Faron Owl
Quechan Tribal Elder/Member
(928) 210-0114
owl.rez19@gmail.com

Laryssa Alvarado

From: Gerardo Quero
Sent: Monday, September 11, 2023 11:34 AM
To: Laryssa Alvarado; Rosa Soto
Cc: Diana Robinson; Michael Abraham
Subject: FW: Reject the Oro Cruz Mitigated Negative Declaration (MND) and require an EIR

Good morning Lary/Rosa
Below you will find comment email on RP21-001
Regards

Gerardo A. Quero
Planner I
Imperial County Planning
& Development Services
801 Main Street
El Centro, CA 92243
Phone (442) 265-1736

From: Wallace Ransom <gayleransom@sbcglobal.net>
Sent: Monday, 11 September, 2023 11:02 AM
To: Gerardo Quero <gerardoquero@co.imperial.ca.us>
Subject: Reject the Oro Cruz Mitigated Negative Declaration (MND) and require an EIR

CAUTION: This email originated outside our organization; please use caution.

Dear Imperial County Planning Commission,

I'm writing to express my serious concerns about the impacts of the proposed Oro Cruz Exploration Project in Imperial County, California. Exploration by SMP Gold Corp. would cause irreversible damage to a landscape of great cultural, religious, and spiritual importance to the Quechan people. Furthermore, the project would have significant impacts on the Picacho Area of Critical Environmental Concern, including on critical habitat for the threatened Mojave Desert Tortoise. I urge the commission to reject the Mitigated Negative Declaration and require an Environmental Impact Report to fully analyze these significant impacts.

Sincerely,
Wallace Ransom
3974 Oakmore Rd
Oakland, CA 94602

"Reject the Oro Cruz Mitigated Negative Declaration (MND) & require an EIR" Petition

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102. Javier Roman-Nieves	javier@weareminnow.org

CENTER for BIOLOGICAL DIVERSITY

September 12, 2023

Sent via email (with attachments by electronic file transfer)

Imperial County Planning Commission

RECEIVED
SEP 12 2023
IMPERIAL COUNTY
PLANNING & DEVELOPMENT SERVICES

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442-265-1736

Re: Comments on IS21-0029 SMP Gold Corp (Oro Cruz) Reclamation Plan #21-0001, a Mineral Exploration Project (SCH No. 2022120331) Environmental Assessment and Mitigated Negative Declaration

Dear Mr. Abraham:

We respectfully submit this letter and the accompanying references on behalf of the Center for Biological Diversity, Western Watersheds Project, Earthworks, the Sierra Club California/Nevada Desert Committee, the Native American Lands Conservancy, Conservation Lands Foundation, Greenaction for Health and Environmental Justice, California Native Plant Society, and the Ahmut Pipa Foundation (collectively "Conservation Organizations") with respect to the above referenced matter, in advance of the September 13, 2023 Planning Commission meeting where this item is on the agenda (#3). These comments supplement and incorporate by reference our previous comments (dated December 16, 2022, December 23, 2022, and January 20, 2023 and attached hereto as Exhibits A through E) on the County's Mitigated Negative Declaration (MND) and BLM's Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) and proposal to approve the Plan of Operations for the SMP Gold Corp.

I. The County Failed To Provide Notice to the Conservation Organizations, As Required By Law.

On December 16, 2022, the Conservation Organizations emailed the County, submitting comments on the EA/MND and requesting to be placed on the notice list. Again on January 20, 2023, the Conservation Organizations emailed the County to submit additional comments and asked once more to be placed on the notice list. The County has confirmed in writing that the Conservation Organizations are in fact on the interested parties list. (EA/MND at I-75.) Inexplicably, the Conservation Organizations received no update on the Project's environmental review.

CEQA requires that lead agencies provide notice to the name and last known address of all individuals and organizations that have previously made a written request for such notice. (Pub. Resources Code, § 21092, subd. (b)(3); CEQA Guidelines § 15087, subd. (a).) The Conservation Organizations have made multiple written requests. This letter was submitted on September 12, the day before the public hearing scheduled for September 13, 2023, and the County has not provided the Conservation Organizations with notice of any Project documents, deadlines, hearing dates, or developments. This violates CEQA's clear mandates to provide notice to interested parties.

What's more, the Final EA/MND and response to comments and associated documents made available for public review in connection with the hearing contain over one thousand pages of revised analysis and technical reports, which were made public without notice to interested parties, depriving the public and decision-makers the time necessary to review, understand, and comment on the new materials. As a result, the County's failure to comply with the notice requirement has deprived the Conservation Organizations of the opportunity to fully comment upon the Project and associated environmental review documents, or prepare to appear at the hearing,

Should the County approve and certify the Project without first providing adequate notice, it will do so in violation of CEQA. The Conservation Organizations request that the County continue the hearing to a later date in order to give the Conservation Organizations —and any other potentially interested parties who were not notified of the document's availability—time to review and comment. At a minimum, the County should continue the Commission's hearing on this highly controversial project until such time as the public is able to process this voluminous information.

Given the voluminous nature of the new material, which includes significant new information, and the extremely limited time the County has provided for the public to review it, the Conservation Organizations have been unable to fully review and respond. Despite the lack of adequate time to review and comment on the documentation, it is clear that approval of the Project would violate the California Environmental Quality Act ("CEQA") and the Surface Mining and Reclamation Act ("SMARA"), among others. These comments provide responses to some points raised but are not exhaustive.

I. The EA/MND's Analysis of Biological Resources Remains Deficient.

A. The EA/MND Fails to Properly Assess and Mitigate Impacts to the Desert Tortoise.

Numerous commenters, including the California Department of Fish and Wildlife (CDFW), observed that the EA/MND failed to analyze the Project's foreseeable impacts to the endangered Mojave Desert Tortoise. According to the EA/MND (Section 3.23.2), "evidence of tortoise use of the area was detected in some of the proposed Drill Areas" during the focused desert tortoise surveys, making direct impacts to this threatened species a certainty if the Project is approved. Rather than remedy its deficient analysis of the Project's foreseeable direct impacts, the EA/MND attempts to excuse its lack of analysis by relying exclusively on post-approval preconstruction surveys and avoidance measures. The inadequacy of these measures aside, the County's EA/MND is legally inadequate because it fails to disclose in the first instance the Project's significant impacts to the Desert Tortoise.

i. The EA/MND Presents a Fundamentally Flawed Description of the Project's Environmental Setting.

An accurate depiction of existing environmental conditions is critical to a complete assessment of project impacts. "[T]o inform decision makers and the public of any significant adverse effects a project is likely to have on the physical environment . . ., an EIR must delineate environmental conditions prevailing absent the project, defining a baseline against which predicted effects can be described and quantified." (*Neighbors for Smart Rail v. Exposition Metro Line Construction Authority* (2013) 57 Cal.4th 439, 447.) Investigating and reporting existing conditions are "crucial function[s] of the EIR." (*Save Our Peninsula Comm. v. Monterey County* (2001) 87 Cal.App.4th 99, 122 ("*SOPC*").) "[W]ithout such a description, analysis of impacts, mitigation measures and project alternatives becomes impossible." (*County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 953.) Decisionmakers must be able to weigh the project's effects against "real conditions on the ground." (*City of Carmel-by-the-Sea v. Bd. of Supervisors* (1986) 183 Cal.App.3d 229, 246.)

Here, the EA/MND fails to accurately survey for and identify the desert tortoise that may be affected by the Project and therefore undercuts the legitimacy of the environmental impact analysis from the outset. Indeed, as many agency and expert commenters, the desert tortoise surveys for the Project were conducted over one week in January 2021, outside of the tortoise's active period. "(See USFWS 2009, p. 4–8 ["surveys should be conducted during the desert tortoise's most active periods (April through May or September through October."]) Because desert tortoises hibernate in underground burrows during winter months, adults are essentially unobservable during

January, and therefore the timing and scope of the surveys were insufficient to determine the full extent of desert tortoise on the Project site. (See CDFW comment, EA/MND, I-108.)

CEQA requires the County to describe the environmental setting in a manner "that will give the public and decision makers the most accurate picture practically possible of the project's likely impacts." (*Neighbors for Smart Rail*, 57 Cal.4th at 449.) By failing to conduct proper surveys for the desert tortoise, the EA/MND falls far short of this requirement.

ii. The EA/MND Fails to Analyze the Impacts to Desert Tortoise Habitat.

The Project will require the removal of vegetation from the site prior to the start of construction for up to 20.54 acres, which will necessarily include any desert tortoise habitat located in the Project footprint. Yet the EA/MND fails to acknowledge any potentially significant direct or indirect impacts associated with the destruction or adverse modification of the desert tortoise's *habitat.*

Habitat destruction due to urban development, mining activities, and off-road vehicle use has significantly reduced the tortoise's available living space. Moreover, factors like climate change, prolonged droughts, and invasive plant species have disrupted the fragile desert ecosystems on which these tortoises depend for food and shelter. (USFWS 2022). Range-wide, the desert tortoise continues to lose over ten thousand acres each year. (*Ibid.*) According to the USFWS:

> Overall, desert tortoises do not coexist well with human development and disturbances; tortoises are essentially absent from habitat within 1 km of areas with greater than 10% development (including … surface mines and quarries; Carter et al. 2020).

(USFWS 2022.)

Operations on the Project site will result not just in the loss of desert tortoises from the site itself, but will eliminate this habitat from use, potentially resulting in significant adverse impacts. Large expanses of high-quality habitat are necessary to provide resilience to populations as they fluctuate due to threats under the other listing factors, such as variability in precipitation patterns; localized declines attributed to drought, disease, or predation events; or stochastic population dynamics (USFWS 2022, Averill-Murray et al. 2021). As habitat is lost and fragmented, habitat patches become smaller, patch populations (e.g., clusters of tortoises) have fewer tortoises and become more disjunct, extinction probabilities within patches increase, and the number of occupied patches decreases (USFWS 2022).

None of these impacts are analyzed in the EA/MND. The EA/MND does not acknowledge significant individual or cumulative impacts to desert tortoises associated with the reduction in habitat or habitat connectivity.

B. The EA/MND Fails to Properly Describe the Environmental Setting and Assess and Mitigate Impacts to Special Status Plants and Wildlife.

The EA/MND fails to provide adequate baseline information and description of the environmental setting for species other than the desert tortoise. This deficiency extends to the EA/MND's treatment of rare plants, animals, and other imperiled desert species, as well as more common species likely present on the Project site. For some species or habitats baseline conditions are lacking or totally absent and as a result no impact assessment is provided for these biological resources. (*Nelson v. Cnty. of Kern* (2010) 190 Cal. App. 4th 252, 284 [information before County showing that mining exploration project could significantly impact plant and animal life in the area meets the fair argument test to require preparation of an EIR.].)

The failure to address numerous species is the inevitable result of inadequate surveys. The EA/MND conducted one plant and wildlife survey in March 2021. It conducted no other focused or protocol level surveys for any special-status plant or animal species aside from the focused survey for desert tortoise. (EA/MND at I-97.)

The MND/EA (Section 3.20.2) concluded that the following special-status plants have historically occurred near the Project site or have the potential to occur: Wiggin's croton (*Croton wigginsii*), sand foot (*Pholisma sonorae*), Munz cholla (*Cylindropuntia munzii*), flat-seeded spurge (*Euphorbia platysperma*), pink fairy-duster (*Calliandra erophylla*), and glandular ditaxis (*Ditaxis claryana*). While no BLM special status species were documented during the survey, section 3.20.2 of the EA/MND was amended to clarify that pink fairyduster (Calliandra eriophylla) was found on the project site and that this 2B.3 listed species does require CEQA review, despite not being a BLM listed species.

Many sensitive plant species are either annuals or herbaceous perennials. The EA/MND presumed any remaining special-status plant species were absent, even though the EA/MND's single survey was outside their blooming period, and thus the presumption is unsupported. For example, a March survey would not detect Pholisma sonorae, despite the plant's likelihood of being present. This perennial species is only visible aboveground for a portion of the year, typically in April and May. The California Consortium of Herbaria records show that, of the 29 collections of this species, 55% occurred in April, 38% occurred in May, and only 7% occurred in March (The Jepson Herbarium, 2023a), demonstrating statistically how uncommon it would be for this species to be present in March.

A 9 quad CNDDB rare plant search of the project area showed additional species with the potential to occur that, while not BLM special status species, should have been included for CEQA review. California snake bush (Colubrina californica), and crown of thorns (Koeberlinia spinosa var. tenuispina) are shrub species that may have been detectable during the March 2021 surveys. Roughstalk witch grass (Panicum hirticaule ssp. hirticaule), however, would not have been detectable at this time. The species blooms from August through December, and the California Consortium of Herbaria records show that the majority of collections were made between September and November (87.5%), with one collection in December, one in January, and one in May. The Jepson Herbarium, 2023b). There are no collections from February through April (The Jepson Herbarium, 2023b).

Seasonally appropriate surveys (e.g., spring surveys after adequate precipitation) are necessary to accurately evaluate whether these sensitive annual and herbaceous perennial species are present on site. CDFW highlighted this requirement in its comments on the EA/MND for the project.

> CDFW is concerned that the habitat assessments were not conducted at the appropriate time(s) of year to detect all special status plants on the Project site and did not follow the standard protocol to detect special status plants… . CDFW recommends that a revised MND/EA or other CEQA document include a thorough, recent, floristic-based assessment of special-status plants completed at the appropriate time(s) of year before Imperial County adopts the MND/EA.

(EA/MND at I-100.)

California has experienced a significant shift in ecological conditions after the wet winter of 2022-2023. This is true of the Project Area as well. The EA/MND's biological surveys were conducted in the March 2021, in the midst of a multi-year drought. Due to the extremely high precipitation of the past winter, current ecological conditions are likely significantly different. It is extremely likely that this wet winter and recent summer rains have impacted special-status species in the Project Area and that several species not detected during the 2021 surveys would have been present during the spring of this year. The Applicant must conduct additional follow-up surveys to reassess the baseline conditions and potential impacts to sensitive species and habitats after the significant increase in precipitation over the past year.

Critically, even the *County* acknowledges that its surveys were inadequate. It agreed that "the March 2021 biological baseline surveys do not represent a complete floristic inventory as it is representative of the species that were identified during the surveys and may not be representative of species that are present year-round." (EA/MND at I-101.) Because of the deficiencies of the baseline data for the proposed project area,

the EA/MND fails to adequately describe the environmental baseline for biological conditions on the Project site. And without the proper baseline data, the EA/MND also lacks evidence to presume that temporary barrier fencing around the few individual plants found in earlier surveys will minimize impacts to any special status plant species throughout the Project. (EA/MND, PDF-34.) In sum, the EA/MND lacks evidence to conclude that the project will not have a significant impact with mitigation incorporated, and a fair argument still exists that the Project may have such impacts.

C. The EA/MND Fails To Assess and Mitigate Impacts to Bat Species.

Numerous commenters, including CDFW, observed that the EA/MND failed to assess or mitigate impacts to bats roosting in underground mines. (See, e.g., EA/MND at I-75). Specifically, the MND/EA (Appendix E, Biological Assessment Section 5.1.2) acknowledged that "previous survey efforts detected 20 high value bat roosts in underground mines within the Analysis Area." Additionally, the MND/EA states "these mine features were occupied by a suite of species including California leaf-nosed bat (*Macrotus californicus*), Townsend's big-eared bat (*Corynorhinus townsendii*), pallid bat (*Antrozous pallidus*) and an unknown myotis species, likely cave myotis (*Myotis velifer*)." While the EA/MND failed to conduct any underground survey or monitoring effort, commenters presented evidence from prior surveys showing that these bats are present year-round.

The EA/MND does not dispute that a fair argument exists that these species may be impacted. Rather than remedy its deficient survey efforts or undertake a sufficient analysis of the Project's foreseeable direct impacts, the EA/MND attempts to excuse its lack of analysis and mitigation by claiming that the EA/MND need "analyze[] effects resulting from surface disturbance only" and explains that underground exploration is "not subject to permitting under the 43 CFR 3809 Surface Management regulations." Such an assertion is irrelevant and failure to address these issues violates CEQA and renders the EA/MND legally inadequate.

Under CEQA, the County is required to consider the whole of the action in its environmental review. (CEQA Guidelines, Section 15378.) The definition of "project" is "given a broad interpretation in order to maximize protection of the environment." (*Nelson, supra,* 190 Cal.App.4th at p. 278 [BLM's review of proposed surface mining operations under NEPA does not preclude county from undertaking environmental review of entire mining proposal under CEQA]; *Lighthouse Field Beach Rescue v. City of Santa Cruz* (2005) 131 Cal.App.4th 1170, 1180 (internal quotation omitted); see also, *Muzzy Ranch Co. v. Solano County Airport Land Use Com.* (2007) 41 Cal.4th 372, 381-83; *Fullerton Joint Union High Sch. Dist. v. State Bd. of Educ.* (1982) 32 Cal.3d 779, 796-97; *Bozung v. Local Agency Formation Com.* (1975) 13 Cal.3d 263, 277-81.) A "project" is "the whole of an action" directly undertaken, supported, or authorized by a

public agency "which may cause either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment." (Pub. Resources Code, § 21065; CEQA Guidelines, § 15378(a).) Critically, under CEQA, "the term 'project' refers to the underlying activity and not the governmental approval process." (*California Unions for Reliable Energy v. Mojave Desert Air Quality Mgmt. Dist.* (2009) 178 Cal.App.4th 1225, 1241, (quoting *Orinda Assn v. Bd. of Supervisors* (1986) 182 Cal.App.3d 1145, 1171-72 [emphasis added]; CEQA Guidelines, § 15378(c).) This means that the project encompasses all foreseeable direct and indirect environmental impacts associated with the project, not just those activities subject to a governmental permit. (*Id.* ["The term 'project' refers to the activity which is being approved and which may be subject to several discretionary approvals by governmental agencies. The term 'project' does not mean each separate governmental approval."])

Bats have been frequently observed in and around the Project site and are known to roost in the existing underground mines in the Cargos Muchachos Mountains. The purpose of the Project is "to access the underground Oro Cruz Mine portal for underground exploration" via drilling, making direct impacts to these species a certainty if the Project is approved. (EA/MND, sec. 2.1.1.) The County cannot hide behind the scope of BLM's permitting authority when defining the environmental impacts of the Project. (*Nelson, supra,* 190 Cal.App.4th at p. 278.) By failing to disclose or analyze the potentially significant impacts to bat species, the EA/MND is left legally inadequate.

II. The EA/MND's Cultural Resources Analysis Is Inadequate, and There Is a Fair Argument that the Project May Have Significant Impacts to Cultural Resources.

A. The County Has Not Properly Analyzed or Mitigated Impacts to Tribal Cultural Resources.

The site is an important cultural resource for the Fort Yuma Quechan Indian Tribe, which has been affiliated with the location for thousands of years. In the tribe's own words:

> "The location holds its significance to the Quechan People as a part of a greater cultural, religious and spiritual landscape that is entwined with origin stories, traditions and ceremonies, and the cultural patrimony of the Quechan People. The Quechan Tribe considers this landscape a Traditional Cultural Place (Traditional Cultural Property). This location has a specific name within the Quechan language. As stated previously, this landscape is associated with the cultural practices, religious beliefs and history that are important to the Tribe to continue and maintain the Tribe's cultural identity. The large number of trails, geoglyphs, ceramics, etc. in this location is proof of the longterm history, continued use and

significance of this area to the Quechan people and the connection of this location to the broader cultural landscape in this region. The Quechan people still utilize this area today in various cultural capacities. The preservation of this area is essential to continue the cultural, religious and traditional practices and teaching of future generations of Quechan youth.

This location is tied to the origins of song cycles which live within this landscape. These songs specifically reference and speak of the landscape contained within the proposed project area. These songs are still sung today by the Quechan people. Therefore, they are still a part of everyday life and tie the Quechan people to these places. Use of this landscape for the proposed project would be a direct assault on the preservation of the history, culture and religion of the Quechan people, and for that reason this landscape must be preserved for the Quechan culture to continue.

(EA/MND, Appendix I p. I-82)[1]

B. The Tribe Requested Consultation Under AB 52 and the County Did Not Consult.

Recognizing the irreplaceable nature of tribal cultural resources, California passed AB 52 to require lead agencies to consult with tribes during the CEQA process. (OPR 2023.) The consultation process is necessary for the protection of the resources that are "centrally important to tribal culture and tradition," which include sites, features, places, or cultural landscapes. (*Id*, Pub. Res. Code § 21074.) The consultation process requires the lead agency to "seek, discuss, and consider carefully" the views of the tribe, and to "seek agreement." (OPR 2017.) This is necessary to respect and honor tribal sovereignty. (*Id.*) Effective consultation is an ongoing conversation, not a single event. (*Id.*)

The law also imposes substantive requirements, namely, that "[a] project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment." (Pub. Res. Code, § 21084.2.) Evidence that could support the finding of a significant effect on a tribal resource includes formal statements from a Tribal Historic Preservation Officer. (OPR 2017) If, through consultation with a tribe, the lead agency determines that the project may hurt a tribal cultural resource, the agency must consider mitigation measures. (*Id.*)

The Fort Yuma Quechan Indian Tribe asserts that it notified Imperial County of its desire to engage in consultation regarding this Project. (EA/MND, Appendix I p. I-82.)

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[1] See also Creative FRONTLINE airs on KPBS, from Producers Robert Lundahl and Tracker Quinone (July 19, 2023). Interview available at: https://www.youtube.com/watch?v=GoCe_IIGTZ4&t=1s&ab_channel=ROBERTLUNDAHLFILMMAKING. The Conservation Organizations request that this interview be placed in the administrative record.

The County claims that the tribe did not respond to the letter it sent initiating consultation, and therefore no consultation was required. (*Id.*) This factual dispute shows that Imperial County has not successfully communicated with the tribe as intended by AB 52.

Further, the evidence in the record shows that the Fort Yuma Quechan Indian Tribe was very engaged in advocating to protect their cultural resources on the site. The tribe was in frequent contact with BLM to "identify[] potential areas of concern that may be associated with the Project." (EA/MND, p. 123.) The tribe first met with BLM regarding the Project on July 12, 2021, and the EA/MND details how tribal representatives attended at least eight site visits and meetings with BLM over the next two years. (*Id.*)

The tribe demonstrated its profound concern about the Project's impacts and its willingness to participate extensively in the review process. The County has violated AB 52 by ignoring this request for consultation.

C. The County's Determination of No Significant Impact to Cultural Resources Is Not Supported by Evidence.

It is a violation of CEQA to approve a project using an MND without first resolving uncertainties regarding the project's potential to cause significant impacts. (*Sunstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296.) This is because a lead agency must prepare an EIR whenever a fair argument supports the project could have a significant impact. (*Id.*)

Despite the lack of adequate consultation, the County has concluded through an EA/MND that the Project would not have significant impacts on tribal cultural resources. (EA/MND, p. 53.) The MND cannot support this claim. The EA/MND did not find that the site is not historically or culturally significant. (Pub. Res. Code, § 21084.1.) Instead, the EA/MND merely notes that "not enough information has been provided to understand the nature, extent, and use of the resource, and therefore to fully assess impacts." (EA/MND, p. 56.) The EA/MND stops short of explaining how, if the County cannot "fully assess impacts," it can still conclude that there is no substantial evidence supporting a fair argument that the impacts may be significant.

The EA/MND itself includes a letter from H. Jill McCormick, the tribe's Historic Preservation Officer, explaining that BLM's analysis of impacts did not incorporate input from the tribe regarding what sites were sacred or traditionally important. As Ms. McCormick said in the comment letter, it is not possible for BLM to make any conclusions about the impact of the Project when "there was no input on the cultural, religious, or spiritual effects of this project on the Quechan people." (EA/MND, Appendix I p. I-82)

The Governor's Office of Planning and Research advises lead agencies to "invest time and effort into" gathering information and "seeking a mutually agreeable resolution," and the EA/MND does not show that the County followed this guidance. (OPR 2017.) A Tribal Historic Preservation Officer's statement that the tribe has not been adequately consulted and that the project would cause "great harm" to their cultural practices establishes a "fair argument" that the project might have a significant effect on tribal cultural resources. (CEQA Guidelines § 15064(f)(1), Pub. Res. Code, § 21084.2.) The County admits that it does not have enough information to assess impacts and to establish that there will not be such an impact. Therefore, the EA/MND is inadequate and an EIS/EIR is required to gather the necessary information before the Project may proceed.

III. The EA/MND's Analysis of Hydrological and Water Quality Impacts Remains Deficient.

The EA/MND's evaluation of the Project's hydrological and water quality impacts is flawed because it lacks the necessary facts and analysis to support its conclusions that the Project would not create significant impacts.

The EA/MND recognizes that substantially degrading surface water quality, or altering the existing draining pattern of an area, including through the alteration of the course of streams, could negatively affect the hydrology of the Project site and surrounding areas. As a result, the EA/MND's thresholds of significance recognize that the Project would have a significant hydrology impact if it would 1) "substantially degrade surface or ground water quality," or 2) "substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces," such as in a manner that could result in siltation on- or off-site. (EA/MND, Table 3-31.)

The EA/MND's mapping identifies natural ephemeral drainages throughout the site, which convey water during storm events. (EA/MND, Sec. 3.22.3.) Elsewhere, the mapping shows that the Project plans to drill immediately adjacent to or on top of these ephemeral streams. (EA/MND, Figure 2-1, 3-11.)

A thorough analysis of these issues is critical. Yet the EA/MND summarily concluded there would be a less than significant impact, without disclosing or analyzing how drilling may affect these streams, what mitigation might be required, or what actions the Project would take to prevent drilling from affecting the streams. (EA/MND, Sec. 3.22.3.) The EA/MND does not describe the type of drilling that would occur, what chemicals may be involved, the slope of the surrounding areas (which would inform the measures needed to prevent run off), or the steps it will take to ensure that drilling will

not result in chemical or sediment runoff.[2] And while the EA/MND makes a vague reference to best management practices ("BMPs"), it fails to commit to any such practices, which also constitutes an unlawful deferral of mitigation (see, *infra*, section V.)

It is beyond dispute that surface mining for gold may have significant environmental impacts on perennial or intermittent streams. (Martin 2020, Okanogan 2023, Punia 2021, Timsina 2022, Yaraghi 2020.) The Department of Interior's surface mining regulations specifically prohibit surface mining activities within 100 feet of an ephemeral stream. (30 C.F.R. 816.57 ["No land within 100 feet of a perennial stream or an intermittent stream shall be disturbed by surface mining activities, unless the regulatory authority **specifically authorizes** surface mining activities closer to, or through, such a stream.].) Not only does the EA/MND appear to be in violation of these regulations, but it fails to provide the necessary disclosures so that the public may assess the Project's compliance with these regulations, as well as the potential environmental effects on hydrology. And without any of these necessary facts, such as the planned areas for drilling or the planned distance between drilling and streams, the EA/MND cannot specifically authorize these activities. In sum, the EA/MND simply lacks information to conclude that the Project would not result in a significant environmental impact.

V. The EA/MND's Mitigation Is Improperly Deferred

A lead agency cannot base a negative declaration on the presumed success of mitigation measures that have not been formulated at the time of project approval. (*Sunstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296.) To address fugitive dust, the County claims any impacts will be mitigated to less than significant levels because SMP "would develop a site-specific Operation Dust Control Plan, which would be submitted to the ICAPCD." (EA/MND at I-72.) Similarly, to address any hydrological impacts, the EA/MND

The California Court of Appeal had held that such improper deferral of mitigation renders an MND inadequate as a matter of law. In *Schaeffer Land Trust v. San Jose City Council*, a proposed mitigation measure required a project applicant "to obtain a biological report regarding the Stephens' kangaroo rat" and to "comply with any recommendations in the report." ((1995) 36 Cal.App.4th 1359.) Since the measure "required the applicant to comply with any recommendations of a report that had yet to be performed," the court found that the measure "was on all fours" and could not serve as the basis for a legal adequate MND. (*Ibid.*)

[2] Roads and other project features could disrupt surface hydrology, including washes and ephemeral streams that are protected under California law as "waters of the state." Alteration of those features requires an agreement with the California Department of Fish and Wildlife (see Fish and Game Code section 1602) and dredge or fill activities in those areas are regulated by the California State Water Resources Control Board and/or the local Regional Board (see State Water Resources Control Board Resolution No. 2019-0015 and Resolution No. 2021-0012).

Since the EA/MND only requires SMP to comply with recommendations that have yet to be developed or performed, the measure cannot serve as the basis for this MND. This is because the circumstances under which a lead agency may rely on a mitigated negative declaration are limited: only when "there is no substantial evidence in light of the whole record before the public agency that the project . . . may have a significant effect on the environment" may an agency prepare a negative declaration or mitigated negative declaration instead of an EIR. (Pub. Res. Code § 21064.5; *see also id.* §§ 21064, 21080(c).) If there is substantial evidence supporting a fair argument (a low threshold) that a project may have a significant effect on the environment, an agency must prepare an EIR. (*Id.* § 21080(d).) Without such disclosure or analysis *before* Project approval, the EA/MND simply lacks a basis or any information to conclude that there is no fair argument that there may be significant fugitive dust impacts, including the potential dust impacts to wildlife. Proper analysis of the air quality impacts is especially important due to the significant cumulative air quality issues in the Imperial County basin.

VI. The Project's Potentially Significant Impacts Require Preparation of an EIR.

An agency must prepare an EIR whenever it is presented with a "fair argument" that a project may have a significant effect on the environment, even if there is also substantial evidence to indicate that the impact is not significant. (*See No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal.3d 68; see also *Friends of B Street v. City of Hayward* (1980) 106 Cal.App.3d 988; Guidelines § 15064(f)(1).) **Where there are conflicting opinions regarding the significance of an impact, the agency must treat the impact as significant and prepare an EIR**. (*Stanislaus Audubon Society v. County of Stanislaus* (1995) 33 Cal.App.4th 144, 150-51; Guidelines § 15064(f)(1).)

An initial study also must provide the factual basis, with analysis included, for making the determination that no significant impact will result from the project. (Guidelines, § 15063(d)(3).) In making this determination, the agency must consider the direct and indirect impacts of the project as a whole (Guidelines § 15064(d)), as well as the project's cumulative impacts (see *City of Antioch v. City Council of Pittsburg* (1986) 187 Cal.App.3d 1325, 1332-33).

Here, the County must prepare an EIR because, as set forth above, there is a fair argument that the Project will cause significant impacts related to cultural resources and biological resources, among other impacts. There is substantial evidence in light of the whole record that the project may have a significant effect on the environment which cannot be mitigated or avoided, requiring recirculation and preparation of an EIR. (CEQA Guidelines, § 15073.5.) For such a controversial project with significant, irreversible environmental impacts, the environmental document must include a detailed and thorough analysis of the Project's likely impacts to permit informed decisions about

the Project and identify effective mitigation measures and alternatives that could reduce these impacts.

VII. Conclusion

As set forth above, the EA/MND does not come close to satisfying CEQA's requirements. It fails to describe the Project setting based on adequate survey data and consultation with the affected tribe and fails to provide a complete analysis of Project impacts and feasible mitigation measures. At the same time, ample evidence demonstrates that a fair argument exists that the Project may result in significant environmental impacts. In light of this evidence, CEQA requires that an EIR be prepared.

For this reason, and because the Project will have irreparable impacts, we respectfully request that the Project be denied at this time. The Project should not be reconsidered until a legally adequate EIR is prepared and certified.

Please include this letter and all references in your project file for the Project. Please also include all of the signatories below on your notice list for all future updates, notices, and documents related to the Project and do not hesitate to contact us with any questions at the email listed below.

Sincerely,

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Attachments:

Exhibit A: December 23, 2022 Conservation Organizations Letter re Oro Cruz EA/MND
Exhibit B: January 20, 2023 Conservation Organizations Letter re Oro Cruz EA/MND
Exhibit C: January 20, 2023 Site Photographs of Oro Cruz Project Site
Exhibit D: December 16, 2022 CNPS Letter re Oro Cruz Project
Exhibit E: December 16, 2022 NALC Letter re Oro Cruz Project

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Exhibit A

Submitted via email and via e-planning

Bureau of Land Management
Attn: Mayra Martinez
1661 S 4th St.
El Centro, CA 92243 mymartinez@blm.gov

December 16, 2022

Re: SMP Gold Corp. Oro Cruz Exploration Project EA/MND

Dear Ms. Martinez,

These comments are timely submitted on the BLM's Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) and proposal to approve the Plan of Operations (PoO) for the SMP Gold Corp. Oro Cruz Exploration Project (Project) from the Center for Biological Diversity, Western Watersheds Project, Earthworks, the Sierra Club California/Nevada Desert Committee, Conservation Lands Foundation, Greenaction for Health and Environmental Justice, Mojave Desert Land Trust, California Native Plant Society, and the Ahmut Pipa Foundation (collectively "Conservation Organizations"). These comments are timely submitted. Although the BLM and Imperial County prepared a joint document with the EA and a Mitigated Negative Declaration (MND) combined, BLM provided public notice for the EA comment period ending December 16, 2022. On December 13, 2022, Imperial County notified the public of an opportunity to comment on the MND with comments due January 20, 2023. Because the project is a single project and both NEPA and CEQA require the agencies to consider the whole of the project in their review, the Conservation Organizations reserve the right to add additional comments regarding the joint EA/MND and compliance with State laws including SMARA and CEQA during the comment period noticed by Imperial County.

As detailed below, BLM's review and proposed approval of the Project violates a number of federal laws, including the Federal Land Policy Management Act (FLPMA), the National Environmental Policy Act (NEPA), and other federal laws and regulations. At a minimum, due to the likely potential for significant impacts, BLM must prepare a full Environmental Impact Statement (EIS) for this Project. In addition, because there is a fair argument that the project will have significant impacts, Imperial County must prepare an EIR.

These comments incorporate the previous comments submitted by the above groups, especially as the EA fails to adequately respond to those comments.

I. The Project, and BLM's Review and Proposed Approval, Violates FLPMA

BLM's review and proposed approval of the Project violates the agency's multiple duties to protect public land resources under FLPMA.

A. <u>The Project Must Comply with All Applicable Land Use Plans</u>

FLPMA is the basic "organic act" for management of the BLM public lands. Under FLPMA, BLM

must develop land use plans for the public lands under its control, 43 U.S.C. § 1712, and all resource management decisions must be in accordance with those plans. Id. § 1732(a), 43 C.F.R. § 1610.5-3(a). *See* Norton v. S. Utah Wilderness Alliance, 542 U.S. 55, 69 (2004) (this requirement "prevent[s] BLM from taking actions inconsistent with the provisions of a land use plan"); Ore. Natural Res. Council v. Brong, 492 F.3d 1120, 1128 (9th Cir. 2007) (holding BLM decision is "inconsistent with the [Land Use] Plan and, consequently, violate FLPMA"); W. Watersheds Project v. Salazar, 843 F.Supp.2d 1105, 1114 (D. Id. 2012) (reversing BLM decisions as inconsistent with land use plans); W. Watersheds Project v. Bennett, 392 F.Supp.2d 1217, 1227 (D. Id. 2005) (same).

If a proposed action is not clearly consistent with the land use plan, BLM must either deny the proposed action or amend the plan, complying with NEPA and allowing for public participation. *See* 43 C.F.R. §§ 1610.5-3, 1610.5-5. *See also* National Parks and Conservation Ass'n v. FAA, 998 F.2d 1523, 1526 (10th Cir. 1993) (nonconforming land use required RMP amendment). The Interior Board of Land Appeals recognizes that this "consistency" requirement reflects the mandatory duty to fully and strictly comply with the governing land management plans. *See, e.g.* Jenott Mining Corp., 134 IBLA 191, 194 (1995); Uintah Mountain Club, 112 IBLA 287, 291 (1990); Marvin Hutchings v. BLM, 116 IBLA 55, 62 (1990); Southern Utah Wilderness Alliance, 111 IBLA 207, 210-211 (1989).

Complying with the RMP is required by both the general land use conformity requirement of FLPMA as well as BLM's duty under FLPMA to "prevent unnecessary or undue degradation" ("UUD") of the public lands. 43 U.S.C. §1732(b). To prevent UUD, BLM must ensure that all environmental protection standards will be met at all times. 43 C.F.R. § 3809.5 (definition of UUD prohibited by FLPMA includes "fail[ure] to comply with one or more of the following: … Federal and state laws related to environmental protection.").

"All future resource management authorizations and actions … shall conform to the approved plan." 43 C.F.R. §1610.5-3(a). BLM defines "conformity" as requiring that "a resource management action shall be specifically provided for in the plan, or if not specifically mentioned, shall be clearly consistent with the terms, conditions, and decisions of the approved plan or plan amendment." Id. §1601.0-5(b). "Consistent" is defined as requiring that decisions "will adhere to the terms, conditions, and decisions of officially approved and adopted resource related plans." Id. §1601.0-5(c).

Mining operations are not exempted from FLPMA's requirement to comply with the RMP. For example, in Western Exploration v. U.S. Dept. of the Interior, 250 F. Supp. 3d 718, 747 (D. Nev. 2017), the court held that in the mining context, as well as for other potential uses of public land, RMP standards to protect the Greater Sage Grouse must be met to comply with BLM's duty to "prevent unnecessary or undue degradation" under FLPMA. The court rejected a challenge from the mining industry and others and agreed with the Interior Department that meeting the RMP requirements was part of the UUD mandate:

> Defendants [Interior Department et al.] contend that the ''unnecessary or undue degradation'' standard in the statute does not preclude the agency from establishing a more protective standard that seeks improvements in land conditions that ''go beyond the status quo.'' The FEIS states that "if actions by third parties result in habitat loss and degradation, even after applying avoidance and minimization measures, then compensatory mitigation projects will be used to provide a net conservation gain to the sage-grouse.'' The Agencies' goals to

> enhance, conserve, and restore sage-grouse habitat and to increase the abundance and distribution of the species, they argue, is best met by the net conservation gain strategy because it permits disturbances so long as habitat loss is both mitigated and counteracted through restorative projects. If anything, this strategy demonstrates that the Agencies allow some degradation to public land to occur for multiple use purposes, but that degradation caused to sage- grouse habitat on that land be counteracted. The Court fails to see how BLM's decision to implement this standard is arbitrary and capricious. Moreover, the Court cannot find that BLM did not consider all relevant factors in choosing this strategy, as it appears to possess elements proposed in the DEIS.
>
> In sum, Plaintiffs fail to establish that BLM's challenged decisions under FLPMA are arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.

Western Exploration, at 747 (internal citations omitted). *See also* Mineral Policy Center v. Norton, 292 F. Supp. 2d 30, 49 (D.D.C. 2003) ("when BLM receives a proposed plan of operations under the 2001 rules, pursuant to Section 3809.420(a)(3), it assures that the proposed mining use conforms to the terms, conditions, and decisions of the applicable land use plan, in full compliance with FLPMA's land use planning and multiple use policies.").

BLM's mitigation policy, as detailed by the Interior Solicitor, acknowledges the need to ensure compliance with an RMP as part of its mitigation duties under the FLPMA UUD standard. In discussing the previous rulemaking (quoted above) with approval, the Solicitor reiterated "'the operator's responsibility to comply with applicable land use plans and BLM's responsibility to specify necessary mitigation measures.' Id. at 54,840 (emphasis supplied)." M-37039, The Bureau of Land Management's Authority to Address Impacts of its Land Use Authorizations through Mitigation, 20, n. 115 (Dec. 21, 2016)(Mitigation Opinion). The 2016 Mitigation Opinion was temporarily revoked in 2017, but was recently reinstated by the Solicitor. M-37075, Withdrawal of M-37046 and Reinstatement of M-37039 (April 15, 2022) (Exhibit 2). This new Opinion noted that the 2017 Opinion (M-37046) "expresses no views regarding the merits of the legal analysis or conclusions contained in the [2016 Opinion]." M-37075 at 2.

The Solicitor noted that "in the hardrock mining context, the BLM has long recognized that the UUD requirement creates a 'responsibility [for the BLM] to specify necessary mitigation measures' when approving mining plans of operations." M-37039, at 19 (citations omitted). "The BLM regulations addressing surface management of hardrock mining operations on public lands have consistently included mitigation as a requirement for preventing UUD, including as part of the general performance standards in the current regulations." Id.

B. The Project Does Not Comply with the Management Requirements and Prescriptions of the DRECP and Federal Law.

1. California Desert National Conservation Lands

The Picacho ACEC was designated as an ACEC and as California Desert National Conservation Lands (CDNCLs) by the Desert Renewable Energy Conservation Plan (DRECP) Record of Decision signed in September of 2016. The DRECP identifies CDNCLs, in accordance with the Omnibus Public Land

Management Act of 2009 (Omnibus Act), which are nationally significant landscapes within the California Desert Conservation Area (CDCA) with outstanding cultural, ecological, and scientific values. The CDNCLs are a permanent addition to the National Landscape Conservation System (NLCS), as per the direction to BLM in the Omnibus Act. DRECP at xi-xii.

The Omnibus Act added to the newly established NLCS "[a]ny area designated by Congress to be administered for conservation purposes, including…public land within the [CDCA] administered by the [BLM] for conservation purposes." 16 U.S.C. § 7202(b)(2)(D). Unlike other CDCA lands managed under multiple-use principles, these areas are to be managed "in a manner that protects the values for which [they were] designated." *Id.* § 7202(c)(2); see also 43 U.S.C. §1732(a).

The Federal Land Policy Management Act (FLPMA) requires that public lands be managed under multiple use principles "except that where a tract of such public land has been dedicated to specific uses according to any other provisions of law it shall be managed in accordance with such law" (emphasis added). Thus, all NLCS lands within the CDCA must be managed to prohibit discretionary uses that are incompatible with the conservation, protection, and restoration of their landscapes. See 16 U.S.C. § 7202.

Because the project is in the Picacho Area of Critical Environmental Concern it will significantly impact nationally significant values therein, including cultural, ecological, and scientific resources of this area. These values and the management goals are detailed in the DRECP Appendix B regarding the Picacho ACEC. Most importantly, the BLM EA/MND must consider how the goals can be met if the Project is approved. The goals include to enhance, protect, and preserve the cultural and biological resources, and to maintain desert tortoise habitat connectivity between the Chuckwalla Desert Wildlife Management/Area of Critical Environmental Concern/ Critical Habitat Units and high value climate refugia for wildlife. Due to their special protective designation, ACECs, including the Picacho ACEC, must be managed to a higher conservation standard that is consistently implemented across all ACECs. The EA/MND fails to show that BLM fully considered how the Project would affect these management goals.

2. *National Conservation Lands Standards*

The 2009 Omnibus Bill (Omnibus) established the National Conservation Lands as a permanent system of protected lands, "...to conserve, protect and restore nationally significant landscapes that have outstanding cultural, ecological, and scientific values for the benefit of current and future generations." Id. To ensure that the permanently protected National Conservation Lands are managed in order to "conserve, protect and restore nationally significant landscapes," all units within the system have several basic conservation standards, including:

1) Prescriptive language that requires the area to be managed for the conservation, protection and enhancement of resources over other uses;
2) A prohibition on discretionary uses that are not consistent with conservation and protection of these resources;
3) A mineral withdrawal; and
4) Restrictions on off-road vehicles and a travel management plan with restrictions necessary to protect the area.

These standards ensure that lands within the system are managed consistently for conservation and safeguarded for future generations. The Omnibus Bill makes clear that units of the system must be managed to a higher conservation standard.

3. *Department of the Interior and BLM Policy*

Conservation primacy and standards for the system have also been outlined in Department of the Interior guidance and BLM policies. In 2010, Secretarial Order 3308 established a unified conservation vision for managing the National Conservation Lands 'as required by the Omnibus Act of 2009' to 'conserve, protect, and restore nationally significant landscapes.' Further stating that "the BLM shall ensure that the components of the [system] are managed to protect the values for which they were designated, including, where appropriate, prohibiting uses that are in conflict with those values." Secretarial Order 3308, Management of the National Landscape Conservation System, Nov 15, 2010, Sec. 4.

In 2011, BLM released the 15-Year Strategic Plan, setting specific goals for how to manage the National Conservation Lands focused on conservation, protection, and restoration. The Strategic Plan further expanded that "there is an overarching and explicit commitment to conservation and resource protection as the primary objective" and that the BLM shall "not authorize discretionary uses that cannot be managed in a manner compatible with the designation proclamation or legislation." The National Landscape Conservation System, 15 Year Strategy, 2010.

In 2012, BLM released two relevant Policy Manuals: 6100-National Landscape Conservation System Management; and 6220-National Monuments, Conservation areas, and Similar Designations. When making management decisions BLM must use these manuals as guidance. Secretarial Order 3308, and policy manual 6100 and 6220 provide guidance to BLM employees on the drafting of management plans and land use plan decisions as related to the National Conservation Lands. The Secretarial Order, 15-Year Strategy and Policy Manuals make clear that agency policy prioritizes conservation over other uses within the National Conservation Lands.

Lastly, it should be clear, that the CDNCLs are managed as part of the National Conservation Lands, and no longer managed under multiple-use standards as outlined in the Federal Land Policy Management Act. *See* BLM's 15-Year Strategy for the National Conservation Lands, citing FLPMA, as amended, Public Law No. 94-579, Title III, Sec. 302(a). Clearly, units of the National Conservation Lands must be managed for the specific uses for which they were designated.

BLM is precluded from permitting exploration activities that may run afoul of the requirements of the governing land use plan, and adversely impact the very purposes for which the ACEC and CDNCL were designated. Exploration activities will result in habitat loss, fragmentation, noise and dust, as well as adverse impacts to groundwater, cultural and scenic resources. FLPMA requires BLM to conduct all management and implementation activities "in accordance with" governing RMPs. 43 U.S.C. § 1732(a); *see also* 43 CFR § 1610.5-3(a) ("All future resource management authorizations and actions .. . shall conform to the approved plan"). The EA was required to fully analyze and disclose whether the actions proposed in the amended Plan of Operations (PoO) conform to the requirements of the DRECP, including the objectives for land; wildlife; vegetation; cultural and tribal resources, and other resources. It has failed to do so.

BLM cannot approve any actions under the PoO that are inconsistent with BLM's own management plans, management policies, guidelines, handbooks, and manuals. Here the EA/MND fails to show that the Project will not be inconsistent with the management plans and policies, and therefore BLM should not approve the Project.

4. *The EA/MND Fails to Fully Address ACEC and CDNCL Standards*

While the SMP Gold Corporation's Oro Cruz Pit Area Exploration Plan of Operation recognizes that the proposed project is within an Area of Critical Environmental Concern (ACEC) - specifically the Picacho ACEC, it fails to identify that it is also within an area identified as part of the California Desert National Conservation Lands (CDNCL), which are part of the National Conservation Lands System (NLCS). The EA now acknowledges the project is within CDNCL lands but still fails to adequately address the project in the context of the NCLS.

The Desert Renewable Energy Conservation Plan (DRECP) provided a framework for the Picacho ACEC. Applicable Objectives (from Appendix L of the DRECP) for the Picacho ACEC/CDNCL lands that need to be addressed for compliance in the environmental review include:

- Minimize soil disturbance.
- Protect and enhance robust populations of both rare and common native plants. Unique plant assemblages exist within this ACEC, including mesquite and all thorn assemblages.
- Create a baseline of plant species to track environmental changes.
- Maintain and enhance habitat that supports native wildlife; Desert Tortoise, Mule Deer, Bighorn Sheep.
- Manage landscape to ensure wildlife passage and connectivity between wildlife populations.
- Protect biodiversity and manage for resilience (protect climate refugia and provide for migration corridors).
- Maintain and or enhance key ecosystem processes (e.g., carbon sequestration, water residence time) and prepare and respond to significant disturbances to the environment (e.g., floods).
- Encourage compliance with ACEC management recommendations
- Protect resource values of the ACEC
- Review certain proposed mining activities to ensure that they provide adequate protection of public lands and their resources. Mining activities would be allowed with appropriate analysis, stipulations, and mitigation.

Special attention is to be given to project impacts that may affect groundwater. Specifically, "for any activity that proposes to utilize groundwater resources regardless of project location," BLM must comply with the groundwater CMA's, including CMA LUPA-SW-23 that states:

> LUPA-SW-23: A Water (Groundwater) Supply Assessment shall be prepared in conjunction with the activity's NEPA analysis and prior to an approval or authorization. This assessment must be approved by the BLM in coordination with USFWS, CDFW, and other agencies, as appropriate, prior to the development, extraction, injection, or consumptive use of any water resource. The purpose of the Water Supply Assessment is to determine whether over-use or over-draft conditions exist within the project basin(s), and whether the project creates or

exacerbates these conditions. The Assessment shall include an evaluation of existing extractions, water rights, and management plans for the water supply in the basin(s) (i.e., cumulative impacts), and whether these cumulative impacts (including the proposed project) can maintain existing land uses as well as existing aquatic, riparian, and other water-dependent resources within the basin(s) (i.e., cumulative impacts), and whether these cumulative impacts (including the proposed project) can maintain existing land uses as well as existing aquatic, riparian, and other water-dependent resources within the basin(s).

DRECP at 141.

The Water Supply Assessment shall also address:

- Estimates of the total cone of depression considering cumulative drawdown from all potential pumping in the basin(s), including the project, for the life of the project through the decommissioning phase
- Potential to cause subsidence and loss of aquifer storage capacity due to groundwater pumping
- Potential to cause injury to other water rights, water uses, and landowners
- Changes in water quality and quantity that affect other beneficial uses
- Effects on groundwater dependent vegetation and groundwater discharge to surface water resources such as streams, springs, seeps, wetlands, and playas that could impact biological resources, habitat, or are culturally important to Native Americans
- Additional field work that may be required, such as an aquifer test, to evaluate site specific project pumping impacts and if necessary, establish trigger points that can be used for a Groundwater Water Monitoring and Mitigation Plan
- The mitigation measures required, if there are significant or potentially significant impacts on water resources include but are not limited to, the use of specific technologies, management practices, retirement of active water rights, development of a recycled water supply, or water imports.

BLM's environmental review must provide a Groundwater Supply Assessment in conjunction with its analysis of the proposed project under NEPA to comply with the Plan requirements and FLPMA. But has failed to do so. The EA/MND, Appendix B says that it is unnecessary to provide a Ground Water Supply Assessment and that other groundwater CMAs do not apply because the groundwater extraction is not *under the Project* site, but this response fails to address the key question—whether and how the use of groundwater for this Project may affect resources and potentially cause injury to other water uses and whether mitigation is needed. In addition, as discussed below, the failure to fully analyze these uses and impacts violates BLM's duties under NEPA. The EA/MND at 59 states the water will come from either Gold Rock Ranch and/or a local water purveyor and without even fully identifying the source states there will be "sufficient water supplies available to serve the Project. Therefore, the Project would have less than significant impacts." EA/MND at 59. This kind of conclusory statement without support does not meet the requirements of the Plan in the CMAs, NEPA, or CEQA. Further, the EA/MND (at 92) admits "Groundwater may be encountered during the course of exploratory drilling within the Drill Pads." But fails

to quantify the amount of groundwater that may be affected if it is encountered as well as the baseline conditions of the groundwater. This also contradicts the premise in the EA/MND that no groundwater on site would be affected.

C. The Project Fails to Prevent Undue Impairment of the Scenic, Scientific and Environmental Values of the CDCA.

BLM must also consider whether the proposed PoO complies with the FLPMA requirements "to protect the scenic, scientific, and environmental values of the public lands of the California Desert Conservation Area against undue impairment, and to assure against pollution of the streams and waters within the California Desert Conservation Area." 43 U.S.C. § 1781.

The undue impairment standard is a more environmentally protective standard than the unnecessary and undue degradation (UUD) standard (discussed in more detail below), which applies on all BLM lands:

> Under FLPMA section 601(f), BLM can prevent activities that cause undue impairment to the scenic, scientific, and environmental values or cause pollution of streams and waters of the CDCA, separate and apart from BLM's authority to prevent unnecessary or undue degradation. The IBLA has agreed that BLM's obligation to protect the three enumerated CDCA values from ''undue impairment'' supplements the unnecessary or undue degradation standard for CDCA lands. *See* Eric L. Price, James C. Thomas, 116 IBLA 210, 218–219 (1990). Thus, BLM decisions with respect to development proposals in the CDCA are governed by both the ''undue impairment'' standard of subsection 601(f) and the ''unnecessary or undue degradation'' standard of section 302(b), as implemented by the subpart 3809 regulations.

66 Fed. Reg. 69998, 70018 (Nov. 21, 2000). *See also* Reeves v. U.S., 54 Fed. Cl. 652, 670-674 (Fed. Cl. 2002) (in the context of the "nonimpairment" standard for Wilderness Study Areas, federal claims court held that mining claimant had no property right under the Mining Law to violate the standard, upholding BLM's denial of the proposed plan of operations). BLM's surface mining regulations, 43 C.F.R. § 3809 et seq., specifically define UUD as occurring when operations "[f]ail to attain a stated level of protection or reclamation required by specific laws in areas such as the California Desert Conservation Area." 43 C.F.R. § 3809.5.

BLM was required to fully consider FLPMA's "undue impairment" standard for the CDCA and require measures "to protect the scenic, scientific, and environmental values of the public lands of the California Desert Conservation Area against undue impairment, and to assure against pollution of the streams and waters within the California Desert Conservation Area." FLPMA Section 601(f), 43 U.S.C. § 1781(f). All of the areas within the proposed plan of operations are protected as CDNCL and/or ACEC; therefore, as part of the analysis of the proposed plan of operations, BLM must look to the objectives, desired future conditions, allowable uses, and Conservation Management Actions (CMAs) adopted in the DRECP (as detailed above), but the EA/MND fails to show that BLM has done so. Allowing any unmitigated adverse impacts to sensitive and protected plant species, wildlife, water resources, cultural resources, scenic, and other environment values would violate FLPMA's standards for these lands, and therefore the Project should not be approved.

D. The Project Fails to Prevent Unnecessary or Undue Degradation of Public Land Resources.

FLPMA requires that the BLM "take any action necessary to prevent unnecessary or undue degradation of the lands." 43 U.S.C. § 1732(b). This is known as the "prevent UUD" standard. This duty to "prevent undue degradation" is "the heart of FLPMA [that] amends and supersedes the Mining Law." Mineral Policy Center v. Norton, 292 F.Supp.2d 30, 42 (D.D.C. 2003). "FLPMA, by its plain terms, vests the Secretary of the Interior [and the BLM] with the authority – indeed the obligation – to disapprove of an otherwise permissible mining operation because the operation, though necessary for mining, would unduly harm or degrade the public land." Id.

The 3809 regulations implement FLPMA's mandate to prevent UUD through two primary provisions: (1) the definition of UUD at 3809.5; and (2) the Performance Standards at 3809.420. As detailed below, BLM must fully consider the UUD mandate and protect public resources. The Performance Standards in Part 3809 mandates that all operations "must take mitigation measures specified by BLM to protect public lands." 43 CFR § 3809.420(a)(4). BLM cannot approve a mining project that would cause UUD. 43 C.F.R. § 3809.411(d)(3)(iii). "FLPMA's requirement that the Secretary prevent UUD supplements requirements imposed by other federal laws and by state law." Center for Biological Diversity v. Dept. of Interior, 623 F.3d 633, 644 (9th Cir. 2010). BLM complies with this mandate "by exercising case-by-case discretion to protect the environment through the process of: (1) approving or rejecting individual mining plans of operation." Id. at 645, quoting Mineral Policy Center, 292 F.Supp.2d at 44:

> "Mitigation measures fall squarely within the actions the Secretary can direct to prevent unnecessary or undue degradation of the public lands. An impact that can be mitigated, but is not, is clearly unnecessary." 65 Fed. Reg. 69998, 70052 (Nov. 21, 2000) (preamble to BLM's 43 C.F.R. Part 3809 mining regulations). Furthermore, if an UUD cannot be prevented through mitigation measures, BLM must reject the plan of operations. Kendall's Concerned Area Residents, 129 IBLA 130, 138 (1994) ("If unnecessary or undue degradation cannot be prevented by mitigation measures, BLM is required to deny approval of the plan.").

In undertaking environmental review of this proposed plan of operations, BLM must consider whether mitigation measures can protect the species, habitats, soils, cultural and water resources affected by the proposed plan of operations in order to prevent UUD. That analysis must include detailed identification of direct and indirect impacts as well as cumulative impacts. It must identify specific mitigation measures that address each impact and also include an analysis of the effectiveness of each measure in order to meet BLM's duties under NEPA as well as FLPMA. As detailed below, the EA/MND fails to adequately address environmental impacts and as a result has also failed to show it has taken steps to prevent UUD.

E. The Project Fails to Meet the FLPMA and Part 3809 Reclamation and Submittal Requirements and the SMARA requirements

Related to, and part of, the failure to prevent undue impairment and UUD under FLPMA, the Project fails to meet all of the requirements of the 43 CFR Part 3809.420 Performance Standards and the PoO submittal requirements of 3809.401. Those rules require detailed operational and reclamation requirements

for all proposed activities.

But the EA and the PoO fall far short of these mandates. As one example, the EA says that there will be 65 drill sites (EA at 6). Yet the maps of the drill sites in the PoO show well over 100 sites. *See* PoO Figures 3a-3h. In addition, many, indeed most, of these drill sites do not show any road access, whether existing or proposed. Section 3809.401(b) requires detailed plans for all "drill sites" and "access routes," as well as detailed reclamation plans for all these sites. Yet, while the PoO clearly shows the company's drilling sites, the EA contains no analysis of these additional sites (a NEPA violation as well, as noted below).

Regarding the "reclamation" professed to comply with the 3809 standards, the BLM does not intend to require reclamation of the newly-constructed road coming up from the south from American Girl Wash for 5 or more years.

> Access to the Oro Cruz Portal would require the construction of 9,640 linear ft (1.8 miles) of new 15-foot-wide road. The road would be secured from unauthorized access for the duration of activity at the portal staging area while assuring access by BLM staff. A gate would be placed across the road accompanied by proper deterrence on either side of the gate (i.e. fence, berm, or large boulder).
>
> Reclamation would be implemented at the 2.8-acre portal staging area and all equipment would be removed within the 5-year reclamation monitoring period.

PoO at 4. BLM does not explain why reclamation will take 5 years at this site, especially when it would begin concurrently. Nor does BLM why all of the equipment and facilities could not be removed immediately, not just within 5 years.

It appears that BLM is keeping this new road open to the portal area (and allowing its construction in the first place) in order to facilitate the company's future mining operations. Indeed, there is no mention of closing the road, even after that 5 years. BLM does not explain why drilling areas 1 and 6 could not occur first, and be fully reclaimed, along with the southern access road.

Notably, "The anticipated post-Project land uses are **mining**, recreational uses, and open space." PoO at 20 (emphasis added). As the company has stated: "the Oro Cruz Gold Project hosts many exploration targets in addition to a high-grade oxide gold zone that, based on the historical mine operation records, is amenable to conventional heap leach extractive methods." About Us - Southern Empire Resources at https://smp.gold/about/ (pdf from December 14, 2022) (Attachment 1).

Under NEPA and FLPMA, if the post-Project land use is "mining," then this future use should have been analyzed.

Further, the EA and project documents available to the public by BLM do not contain the reclamation cost estimate and bonding for all these facilities/activities as required by the Part 3809 rules. This includes the failure to include the operational and reclamation information and analysis for the additional dozens/scores of drill sites noted above, but also for the construction and reclamation of the new

southern access route.

F. BLM Failed to Comply with the Requirements for Rights of Ways Under FLPMA Title V.

The EA and proposed Project approval fail to meet the strict public interest, environmental protection, and financial requirements of the Federal Land Policy and Management Act (FLPMA). BLM is under the mistaken view that all of the new access roads are governed by "rights" under the 1872 Mining Law and the 43 CFR part 3809 regulations. Although it could be argued that the company has a right for one access road into its claim block, BLM proposes additional new route(s), especially the new road from the south to access drill areas 1 and 6. *See* PoO Figure 2.

But as shown in that Figure 2, these drill areas can be accessed from the north, from the existing road along Tumco Wash (with only a slight area of new construction needed). *See also* PoO Figure 3b. With that access from the north, drill areas 1 and 6 can be accessed without the construction of a new road coming up from American Girl Wash. Thus, the new road all the way up from American Girl Wash is not needed to access the claims and drilling areas. As such, the company cannot assert any legitimate "right" under the Mining Law, and that road is not "authorized by the mining laws" under 43 CFR 3809.1(a) and 3809.2(a).

In addition, constructing this new, and unneeded, road, violates the protective standards and requirements under the FLPMA undue impairment, UUD, Land Use Plan, and other requirements noted above.

Even if it could be constructed, this access road is governed by FLPMA Title V, Section 504, and requires the issuance of a Right-of-Way (ROW) to construct the road across public lands. *See* Alanco Environmental Resources Corp., 145 IBLA 289, 297 (1998) ("construction of a road, was subject not only to authorization under 43 C.F.R. Subpart 3809, but also to issuance of a right-of-way under 43 C.F.R. Part 2800."); Wayne D. Klump, 130 IBLA 98, 100 (1995) ("Regardless of his right of access across the public lands to his mining claims and of his prior water rights, use of the public lands must be in compliance with the requirements of the relevant statutes and regulations [FLPMA Title V and ROW regulations]."). The leading treatise on federal natural resources law confirms this rule: "Rights-of-way must be explicitly applied for and granted; approvals of mining plans or other operational plans do not implicitly confer a right-of-way." George C. Coggins & Robert L. Glicksman, *Pub. Nat. Res. Law*, § 15.21 (2d ed. 2020).

BLM may grant a Right-of-Way (ROW) only if it "(4) will do no unnecessary damage to the environment." 43 U.S.C. § 1764(a). Rights of way "shall be granted, issued or renewed … consistent with … any other applicable laws." Id. § 1764(c). A right-of-way that "may have significant impact on the environment" requires submission of a plan of construction, operation, and rehabilitation of the right-of-way. Id. § 1764(d). A Title V SUP/ROW "shall contain terms and conditions which will … (ii) minimize damage to scenic and esthetic values and fish and wildlife habitat and otherwise protect the environment." Id. § 1765(a). In addition, the ROW can only be issued if activities resulting from the ROW:

> (i)protect Federal property and economic interests; (ii) manage efficiently the lands which are subject to the right-of-way or adjacent thereto and protect the other lawful users of the lands adjacent to or traversed by such right-of-way; (iii) protect lives and property; (iv) protect the interests of individuals living in the general area traversed by the right-of-way who rely on

> the fish, wildlife, and other biotic resources of the area for subsistence purposes; (v) require location of the right-of-way along a route that will cause least damage to the environment, taking into consideration feasibility and other relevant factors; and (vi) otherwise protect the public interest in the lands traversed by the right-of-way or adjacent thereto.

FLPMA, § 1765(b).

At least three important potential substantive requirements flow from the FLPMA's ROW provisions. First, BLM has a mandatory duty under Section 505(a) to impose conditions that "will minimize damage to scenic and esthetic values and fish and wildlife habitat and otherwise protect the environment." Id. §1765(a). The terms of this section do not limit "damage" specifically to the land within the ROW corridor. Rather, the repeated use of the expansive term "the environment" indicates that the overall effects of the ROW on wildlife, environmental, scenic and aesthetic values must be evaluated and these resources protected. In addition, the obligation to impose terms and conditions that "protect Federal property and economic interests" in Section 505(b) requires that the BLM must impose conditions that protect not only the land crossed by the right-of-way, but all federal land affected by the approval of the ROW. In this case, as noted herein, BLM failed to evaluate all aspects and ramifications of issuing the ROW for the Ambler Road. At a minimum, the DEIS failed to consider the mineral material/gravel mines and related infrastructure made possible by the ROW. Also as noted herein, the DEIS fails to show how the mineral projects in the Ambler District made possible by the issuance of the ROW meet these FLPMA requirements.

Second, the requirements in Section 505(b) mandate a BLM determination as to what conditions are "necessary" to protect federal property and economic interests, as well as "otherwise protect[ing] the public interest in the lands traversed by the right-of-way or adjacent thereto." This means that the agency can only approve the ROW if it "protects the public interest in lands" not only upon which the road would traverse, but also lands and resources adjacent to and associated with the ROW.

Third, is the requirement that the right-of-way grant "do no unnecessary damage to the environment" and be "consistent with … any other applicable laws," id. §§ 1764(a)-(c). This means that a grant of a ROW leading to the exploration and mining must satisfy all applicable laws, regulations and policies, including all state and local laws, etc.

The federal courts have repeatedly held that the federal land agency not only has the authority to consider the adverse impacts on lands and waters outside the immediate ROW corridor, it has an obligation to protect these resources under FLPMA. In County of Okanogan v. National Marine Fisheries Service, 347 F.3d 1081 (9th Cir. 2003), the court affirmed the Forest Service's imposition of mandatory minimum stream flows as a condition of granting a ROW for a water pipeline across USFS land. This was true even when the condition/requirement restricted or denied vested property rights (in that case, water rights). Id. at 1085-86.

The BLM thus cannot issue a ROW that fails to "protect the environment" as required by FLPMA, including the environmental resource values in and not within the ROW corridor. "FLPMA itself does not authorize the Supervisor's consideration of the interests of private facility owners as weighed against environmental interests such as protection of fish and wildlife habitat. FLPMA *requires* all land-use authorizations to contain terms and conditions which will protect resources and the environment." Colorado Trout Unlimited v. U.S. Dept. of Agriculture, 320 F.Supp.2d 1090, 1108 (D. Colo. 2004)(emphasis in

original) appeal dismissed as moot, 441 F.3d 1214 (10th Cir. 2006).

The Interior Department, interpreting FLPMA V and its right-of-way regulations, has held that: "A right-of-way application may be denied, however, if the authorized officer determines that the grant of the proposed right-of-way would be inconsistent with the purpose for which the public lands are managed or if the grant of the proposed right-of-way would not be in the public interest or would be inconsistent with applicable laws." Clifford Bryden, 139 IBLA 387, 389-90 (1997) 1997 WL 558400 at *3 (affirming denial of right-of-way for water pipeline, where diversion from spring would be inconsistent with BLM wetland protection standards). Here, allowing access and granting a ROW for the southern route would be "inconsistent with the purpose for which the public lands are managed," as detailed above, and thus cannot be authorized.

Similar to the County of Okanogan and Colorado Trout Unlimited federal court decisions noted above, the Interior Department has held that the fact that a ROW applicant has a property right that may be adversely affected by the denial of the ROW does not override the agency's duties to protect the "public interest." In Kenneth Knight, 129 IBLA 182, 185 (1994), the BLM's denial of the ROW was affirmed due not only to the direct impact of the water pipeline, but on the adverse effects of the removal of the water in the first place:

> [T]he granting of the right-of-way and concomitant reduction of that resource, would, in all likelihood, adversely affect public land values, including grazing, wildlife, and riparian vegetation and wildlife habitat. The record is clear that, while construction of the improvements associated with the proposed right-of-way would have minimal immediate physical impact on the public lands, the effect of removal of water from those lands would be environmental degradation. Prevention of that degradation, by itself, justified BLM's rejection of the application.

1994 WL 481924 at *3. That was also the case in Clifford Bryden, as the adverse impacts from the removal of the water was considered just as important as the adverse impacts from the pipeline that would deliver the water. 139 IBLA at 388-89. *See also* C.B. Slabaugh, 116 IBLA 63 (1990) 1990 WL 308006 (affirming denial of right-of-way for water pipeline, where BLM sought to prevent applicant from establishing a water right in a wilderness study area).

In King's Meadow Ranches, 126 IBLA 339 (1993), 1993 WL 417949, the IBLA affirmed the denial of right-of-way for a water pipeline, where the pipeline would degrade riparian vegetation and reduce bald eagle habitat. The Department specifically noted that under FLPMA Title V: "[A]s BLM has held, it is not private interests but the public interest that must be served by the issuance of a right-of-way." 126 IBLA at 342, 1993 WL 417949 at *3 (emphasis added). As the IBLA recently held:

> The public interest determination is more than a finding that no laws will be violated by granting the ROW. Even if UUD [Unnecessary or Undue Degradation] can be avoided, degradation to public resources posed by a requested ROW may factor into BLM's determination of whether that ROW would be in the public interest. For example, in Sun Studs, we upheld BLM's rejection of a logging road ROW permit based on environmental considerations without any suggestion that the environmental harm rose to the level of

unlawful degradation.

Klamath-Siskiyou Wildlands Center, IBLA 2019-75, at 9 (April 29, 2019), citing Sun Studs, 27 IBLA at 282-83.

II. The EA and Proposed FONSI Violate NEPA

NEPA requires federal agencies to take a "hard look" at the environmental consequences of their proposed actions. Kleppe v. Sierra Club, 427 U.S. 390, 410 n.21 (1976); Blue Mountain Biodiversity Project v. Blackwood, 161 F.3d 1208, 1211 (9th Cir. 1998). To take this "hard look," agencies must prepare an EIS for all "major Federal actions significantly affecting the quality of the human environment." 42 U.S.C. § 4332(C). The standard for when an agency must prepare an EIS is a "low standard." Klamath Siskiyou Wildlands Ctr. v. Boody, 468 F.3d 549, 562 (9th Cir. 2006).

The Council on Environmental Quality (CEQ) establishes NEPA regulations, which are binding on every federal agency. 40 C.F.R. § 1500.3(a) (2020). The original regulations implementing NEPA were published by CEQ in 1978. See 40 Fed. Reg. 55,978 (Nov. 29, 1978). In 2020, the Trump administration published new CEQ NEPA regulations. See 85 Fed. Reg. 43,304 (July 16, 2020) (codified at 40 C.F.R. Part 1500). The Biden administration has since revised the regulations and is making further revisions. See 87 Fed. Reg. 23,453 (April 20, 2022).

The Secretary of the Interior issued Order #3399, on April 16, 2021, which states that: "Bureaus/Offices will not apply the 2020 Rule in a manner that would change the application or level of NEPA that would have been applied to a proposed action before the 2020 Rule went into effect on September 14, 2020." Thus, the 1978 NEPA rules apply here.

Under NEPA, if an agency is unsure whether a proposed action may have significant environmental effects, it may prepare a shorter "environmental assessment" to determine whether an EIS is necessary. 40 C.F.R. § 1501.4(c) (1978); 40 C.F.R. § 1501.5 (2020). To avoid preparing an EIS, the agency's EA and FONSI must provide a "convincing statement of reasons" why a project's impacts are insignificant. 40 C.F.R. §§ 1501.4, 1508.9, 1508.13 (1978).

The scope of NEPA review is broad. BLM must evaluate and disclose the direct, indirect, and cumulative effects of the proposed action and its alternatives on ecological, aesthetic, historic, cultural, economic, social, and health interests. 40 C.F.R. §§ 1508.7–1508.8 (1978). That did not happen here.

It should also be noted that the EA repeatedly describes the Project lands as "previously disturbed," as one of the grounds to support its truncated FLPMA and NEPA review. "[T]he Project is an exploratory drilling project, that would occur entirely within an area disturbed by historical mining activities. The majority of the Project Area has been disturbed due to these historical mining operations." EA at 114. BLM does not inform the public as to which "majority" Project lands were "previously disturbed" by mineral operations.

Yet, even if some, but certainly not most, of the Project lands experienced previous mining activities, under BLM regulations, these lands were satisfactorily "reclaimed." Thus, BLM cannot justify new and

significant impacts to public land and resources under the guise that the lands had been "previously disturbed" by mining, as all of those lands have been supposedly reclaimed to support public uses such as for recreation, wildlife, cultural values, etc. – resources that will be impacted by the Project.

A. The EA Failed to Fully Analyze Direct, Indirect and Cumulative Impacts.

The EA fails to conduct the required "hard look" at the Project's impacts, including both the drilling areas and the access route(s) and the Project as a whole.

Under NEPA, BLM must consider all direct, indirect, and cumulative environmental impacts of the proposed action. 40 CFR §§ 1502.16, 1508.8, 1508.25(c). Direct effects are caused by the action and occur at the same time and place as the proposed project. 40 CFR § 1508.8(a). Indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. 40 CFR § 1508.8(b). Both types of impacts include "effects on natural resources and on the components, structures, and functioning of affected ecosystems," as well as "aesthetic, historic, cultural, economic, social or health [effects]." Id.

BLM's limited environmental review of the exploratory drilling and road access is inadequate under NEPA. At a minimum, as noted above, the PoO proposed to be approved shows well over 100 drill sites, but the EA is based on only 65 drill sites. EA at 6. Additionally, the likely impacts of use of these public lands by heavy equipment and exploratory drilling that are not adequately disclosed or addressed include, but are not limited to:

- Impacts to wildlife;
- Impacts to native habitat;
- Impacts to soils;
- Impacts to groundwater and hydrology;
- Impacts to air quality;
- Impacts to the ACEC;
- Impacts to cultural resources and Environmental Justice;
- Consistency with Resource Management Plans.

BLM must also fully review the impacts from all "past, present, and reasonably foreseeable future actions." These are the "cumulative effect/impacts" under NEPA. Cumulative effects/impacts are defined as:

> [T]he impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

40 CFR § 1508.7. In a cumulative impact analysis, an agency must take a "hard look" at all actions.

> An EA's analysis of cumulative impacts must give a sufficiently detailed catalogue of past, present, and future projects, and provide adequate analysis about how these projects, and

> differences between the projects, are thought to have impacted the environment. … Without such information, neither the courts nor the public ... can be assured that the [agency] provided the hard look that it is required to provide.

Te-Moak Tribe of Western Shoshone v. U.S. Dept. of Interior, 608 F.3d 592, 603 (9th Cir. 2010) (rejecting BLM-issued EA for mineral exploration that had failed to include detailed analysis of impacts from nearby proposed mining operations).

NEPA's mandate to analyze cumulative impacts applies to all "past," "present," and "reasonably foreseeable future actions." 40 C.F.R. §1508.7. BLM must include "mine-specific or cumulative data." Great Basin Resource Watch v. BLM, 844 F.3d 1095, 1105 (9th Cir. 2016), quoting Great Basin Mine Watch v. Hankins, 456 F.3d 955, 973 (9th Cir. 2006). It must provide a detailed "quantified" analysis of other projects' combined environmental impacts, and "identify and discuss the impacts that will be caused by each successive project. Including how the combination of those various impacts is expected to affect the environment" within the area. Great Basin Res. Watch, 844 F.3d at 1105.

The EA does not adequately analyze the cumulative impacts from the other proposed activities within the cumulative effects study area on environmental justice, cultural resources and uses, wildlife, recreation, air quality, and other potentially affected resources. The EA contains little, if any, detailed analysis of these and other past, present, and "Reasonably Foreseeable Future Activities" (RFFAs) within the potentially affected areas that may cumulatively affect these resources. BLM simply lists the acreages of these activities, with no detailed impacts analysis.

The Ninth Circuit has repeatedly rejected similarly cursory analyses contained in BLM EAs and EISs for mineral operations, holding that listing other projects does not satisfy NEPA:

> [S]imply listing all relevant actions is not sufficient. Rather, "some quantified or detailed information is required. Without such information, neither the courts nor the public ... can be assured that the [agency] provided the hard look that it is required to provide." Neighbors of Cuddy Mountain v. U.S. Forest Serv., 137 F.3d 1372, 1379 (9th Cir. 1998).

Great Basin Res. Watch, 844 F.3d at 1104. The Ninth Circuit in Great Basin Mine Watch v. Hankins specifically rejected BLM's argument that a list of other projects and their acreages satisfied NEPA's cumulative impacts analysis requirements: "**A calculation of the total number of acres to be impacted by other projects in the watershed is a necessary component of a cumulative effects analysis, but is not a sufficient description of the actual environmental effects that can be expected.**" 456 F.3d at 973 (emph. added).

But that's exactly what the EA does here. It provides a general description of other types of projects in the area, and their general impacts, and their acreages. But no details or analysis is provided – not even the names of the RFFA projects. *See* EA Table 3-37 (for the cumulative impacts to wildlife, merely listing the general types of past, present, and RFFAs, and their acreages). EA at 106-07.

In addition, the EA fails to even mention other existing and RFFA operations/activities in the cumulative affects study area (CESA). For example, for the Environmental Justice CESA, the EA correctly

notes its large area. EA Figure 3-4. Yet there is no discussion, analysis, or even a list, of the other current and RFFA projects in this CESA. As BLM knows, there are a number of mineral projects proposed in this CESA. *See* Imperial Exploration Project (and maps showing the projects within the Environmental Justice CESA for the Oro Cruz Project) (Attachment 2).

Regarding the CESAs themselves, the EA improperly restricted the scope of analysis for critical resources such as wildlife, and even more importantly, Native American Cultural/Historical Resources. *See* EA Figures 3-2, 3-12. As discussed in more detail below, BLM is aware, the Tribes and Native communities that have lived and used these areas for millennium consider these mountains, and the Project site, as part of a much larger cultural landscape, which includes Indian Pass and related Trails network (such as the Trail of Dreams). *See* Record of Decision for the Imperial Project, at 10 (discussing Trail of Dreams as a ground for denying the Project)(Attachment 3). BLM cannot avoid its duties to the Tribes, and under NEPA and FLPMA cannot ignore these facts.

Here, the adverse impacts from the Project when added to other past, present or reasonably foreseeable future actions is clearly essential to the BLM's determination (and duty to ensure) that the Project complies with all legal requirements and minimizes all adverse environmental impacts. "[W]hen the nature of the effect is reasonably foreseeable but its extent is not, we think that the agency may not simply ignore the effect. The CEQ has devised a specific procedure for 'evaluating reasonably foreseeable significant adverse effects on the human environment' when 'there is incomplete or unavailable information.' 40 C.F.R. § 1502.22." Mid States Coalition for Progress v. Surface Transportation Board, 345 F.3d 520, 549-550 (8th Cir. 2003). The BLM's failure to obtain this information, or make the necessary showings under § 1502.22, for all direct, indirect and cumulative impacts violates NEPA.

Thus, BLM failed to fully consider the cumulative impacts from all past, present, and reasonably foreseeable future projects in the region on, at a minimum, environmental justice, water and air quality, recreation, cultural/religious, wildlife, scenic and visual resources, etc. BLM must fully review, and subject such review to public comment in a revised draft EA or EIS, the cumulative impacts from all other past, present and RFFAs including mining/exploration, grazing, recreation, energy development, roads, ORV use, etc., in the region. The EA's failure to include these reviews violates NEPA.

B. The EA fails to fully review all baseline conditions.

The establishment of the baseline conditions of the affected environment is a fundamental requirement of the NEPA process whether an EA or EIS is prepared:

> "NEPA clearly requires that consideration of environmental impacts of proposed projects take place before [a final decision] is made." LaFlamme v. FERC, 842 F.2d 1063, 1071 (9th Cir.1988) (emphasis in original). Once a project begins, the "pre-project environment" becomes a thing of the past, thereby making evaluation of the project's effect on pre-project resources impossible. Id. Without establishing the baseline conditions which exist in the vicinity … before [the project] begins, there is simply no way to determine what effect the proposed [project] will have on the environment and, consequently, no way to comply with NEPA. Half Moon Bay Fisherman's Mark't Ass'n v. Carlucci, 857 F.2d 505, 510 (9th Cir. 1988). "In analyzing the affected environment, NEPA requires the agency to set forth the

baseline conditions."

Western Watersheds Project v. BLM, 552 F.Supp.2d 1113, 1126 (D. Nev. 2008). Similarly, the CEQ explained: "The concept of a baseline against which to compare predictions of the effects of the proposed action and reasonable alternatives is critical to the NEPA process." Council of Environmental Quality, Considering Cumulative Effects under the National Environmental Policy Act (May 11, 1999). "NEPA requires that the agency provide the data on which it bases its environmental analysis. Such analyses must occur before the proposed action is approved, not afterward." Northern Plains v. Surf. Transp. Brd., 668 F.3d 1067, 1083 (9th Cir 2011) (concluding that an agency's "plans to conduct surveys and studies as part of its post-approval mitigation measures," in the absence of baseline data, indicate failure to take the requisite "hard look" at environmental impacts). Baseline information and analysis must be part of the environmental review and be subject to public review and comment under NEPA.

Federal courts have repeatedly rejected EAs for mineral exploration project that do not contain detailed analysis of baseline conditions for all potentially affected resources, such as groundwater, wildlife, etc. *See* Gifford Pinchot Task Force v. Perez, 2014 WL 3019165, **27-33 (D. Or. 2014) (BLM EA for mineral exploration failed to analyze baseline ground water conditions); Cascade Forest Conservancy v. Heppler, 2021 WL 641614, *17–20 (D. Oregon 2021); ICL v. U.S. Forest Serv., 2012 WL 3758161, *14–17 (D. Idaho 2012); ICL v. U.S. Forest Serv., 429 F. Supp. 3d 719, 730-32 (D. Idaho 2019).

Here, the EA failed to obtain this baseline information on all potentially affected resources, including listed and imperiled plants and animals, other native and non-native vegetation and wildlife, ground and surface waters resources and water quality, air quality, recreation, cultural/religious/historical, and soils.

C. The EA failed to include an adequate mitigation plan under NEPA and BLM mining regulations

As noted herein, the EA fails to have an adequate plan to mitigate the significant impacts to cultural and environmental resources, as required by NEPA, FLPMA, and BLM regulations (e.g., Part 3809). As just one example, the EA fails to analyze mitigation of the dozens/scores of potential drill sites (and access routes), as it fails to analyze their impacts at all. There is also no mitigation for the loss of Native American religious and cultural use and values at and around the Project site.

Under NEPA, the agency must have an adequate mitigation plan to minimize or eliminate all potential project impacts. NEPA requires the agency to: (1) "include appropriate mitigation measures not already included in the proposed action or alternatives," 40 CFR § 1502.14(e); and (2) "include discussions of: . . . Means to mitigate adverse environmental impacts (if not already covered under 1502.14(e))." 40 CFR § 1502.16(a)(9). NEPA regulations define "mitigation" as a way to avoid, minimize, rectify, or compensate for the impact of a potentially harmful action. 40 C.F.R. §§1508.1(s). "[O]mission of a reasonably complete discussion of possible mitigation measures would undermine the 'action-forcing' function of NEPA. Without such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects." Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 353 (1989). NEPA requires that the agency discuss mitigation measures, with "sufficient detail to ensure that environmental consequences have been fairly evaluated." Methow Valley, 490 U.S. at 352.

An essential component of a reasonably complete mitigation discussion is an assessment of whether the proposed mitigation measures can be effective. *Compare* Neighbors of Cuddy Mountain v. U.S. Forest Service, 137 F.3d 1372, 1381 (9th Cir.1998) (disapproving an EIS that lacked such an assessment) *with* Okanogan Highlands Alliance v. Williams, 236 F.3d 468, 477 (9th Cir.2000) (upholding an EIS where "[e]ach mitigating process was evaluated separately and given an effectiveness rating"). The Supreme Court has required a mitigation discussion precisely for the purpose of evaluating whether anticipated environmental impacts can be avoided. Methow Valley, 490 U.S. at 351–52 (citing 42 U.S.C. § 4332(C)(ii)).

A mitigation discussion without at least some evaluation of effectiveness is useless in making that determination. South Fork Band Council v. Dept. of Interior, 588 F.3d 718, 727 (9th Cir. 2009) (rejecting EIS for failure to conduct adequate review of mitigation and mitigation effectiveness in mine EIS). "The comments submitted by [plaintiff] also call into question the efficacy of the mitigation measures and rely on several scientific studies. In the face of such concerns, it is difficult for this Court to see how the [agency's] reliance on mitigation is supported by substantial evidence in the record." Wyoming Outdoor Council v. U.S. Army Corps of Eng'rs, 351 F. Supp. 2d 1232, 1251 n. 8 (D. Wyo. 2005). *See also* Dine Citizens v. Klein, 747 F.Supp.2d 1234, 1258-59 (D. Colo. 2010) (finding "lack of detail as the nature of the mitigation measures" precluded "meaningful judicial review").

D. The agency must fully review all reasonable alternatives

NEPA requires the agency to "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal that involves unresolved conflicts concerning alternative uses of available resources." 42 U.S.C. § 4332(E); 40 CFR § 1502.14. It must "rigorously explore and objectively evaluate all reasonable alternatives" to the proposed action. City of Tenakee Springs v. Clough, 915 F.2d 1308, 1310 (9th Cir. 1990). NEPA requires the environmental review to "present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public." League of Wilderness Defs.-Blue Mts. Biodiversity Project v. United States Forest Serv., 689 F.3d 1060, 1069 (9th Cir. 2012). Whether an EA or EIS is prepared, BLM must "rigorously explore and objectively evaluate all reasonable alternatives" including alternatives that are "not within the [lead agency's] jurisdiction. 40 C.F.R. § 1502.14(a), (c)." Id. at 1071. "While a federal agency need not consider all possible alternatives for a given action in preparing an EA, it must consider a range of alternatives that covers the full spectrum of possibilities." Ayers v. Espy, 873 F.Supp. 455, 473 (D. Colo. 1994).

In this case, the EA failed to justify its rejection and/or failure to fully consider, at a minimum, the following reasonable alternatives: (1) access to each activity without the construction of new roads or reconstruction/improvement any existing or reclaimed, which could require helicopter access; (2) reduction in the amount, scope, and impact of each activity or group of activities including drilling waste disposal; (3) timing restrictions to protect wildlife; (4) preclusion of any impact to cultural/religious/historical resources, (5) moving the activities further from wildlife core/home ranges and (6) avoidance of rare plants/plant communities and their ecological/hydrological requirements.

III. Failure to Prepare EIS Violates NEPA

BLM's proposed issuance of a FONSI, and failure to prepare an EIS, violates NEPA and FLPMA. At the outset, due to the fundamental NEPA deficiencies in the EA noted above, BLM cannot issue a FONSI. BLM's deficient EA renders its FONSI inadequate. "[I]f the EA is deficient under NEPA in one of the ways Plaintiff has previously argued, then the [agency's] DN/FONSI is necessarily arbitrary and capricious because it relied on the 2012 EA." Gifford Pinchot Task Force v. Perez, 2014 WL 3019165, *40 (D. Or. 2014).

This follows a line of well-established Ninth Circuit precedent. *See* Native Ecosystems Council v. Tidwell, 599 F.3d 926, 937 (9th Cir. 2010) (USFS violated NEPA in issuing FONSI based on inadequate analysis); Ctr. for Biological Diversity v. NHTSA, 508 F.3d 1212, 1223-24 (9th Cir. 2007) (When an EA fails to comply with NEPA requirements, it "do[es] not constitute a 'hard look' at the environmental consequences of the action as required by NEPA. Thus, the FONSI is arbitrary and capricious.").

Here, BLM's decision not to prepare an EIS was made without the critical information regarding cumulative and other impacts, alternatives, mitigation, and baseline conditions detailed above. As such, the FONSI is consequently invalid.

NEPA requires federal agencies to prepare an EIS for "major Federal actions significantly affecting the quality of the human environment." 42 U.S.C. § 4332(C). "If an agency decides not to prepare an EIS, it must supply a convincing statement of reasons to explain why a project's impacts are insignificant." Native Ecosystems Council v. Tidwell, 599 F.3d 926, 937 (9th Cir. 2010) (quotation omitted). It is well established in the Ninth Circuit that an "EIS must be prepared if substantial questions are raised as to whether a project . . . may cause significant degradation of some human environmental factor." Blue Mountains, 161 F.3d at 1212 (quotation omitted). "Thus, to prevail on a claim that the [agency] violated its statutory duty to prepare an EIS, a plaintiff need not show that significant effects will in fact occur." Id. (quotation omitted). "It is enough for the plaintiff to raise substantial questions whether a project may have a significant effect on the environment." Id. (quotation omitted).

The Ninth Circuit has regularly described the bar for whether significant effects may occur as a "low standard." *See, e.g.*, League of Wilderness Defenders v. Connaughton, 752 F.3d 755, 760 (9th Cir. 2014); Cal. Wilderness Coal. v. U.S. Dep't of Energy, 631 F.3d 1072, 1097 (9th Cir. 2011); Klamath Siskiyou Wildlands Center v. Boody, 468 F.3d 549, 562 (9th Cir. 2006). Applying these principles, the Ninth Circuit has ordered EISs where plaintiffs raise substantial questions as to whether there may be significant impacts. *See, e.g.*, Blue Mountains, 161 F.3d at 1212–16; Nat'l Parks, 241 F.3d at 732; Ocean Advocates v. U.S. Army Corps of Eng'rs, 402 F.3d 846, 868 (9th Cir. 2005); Bark, 958 F.3d at 873; Envtl. Def. Ctr., 36 F.4th at 882.

Courts have ordered an EIS where cursory analysis in an EA—like BLM's analysis here—renders effects highly controversial, unknown, or uncertain and, thus, potentially significant. The Ninth Circuit held that an EA with "data gaps" and "lack of data" concerning potential effects requires an EIS. *See* National Parks, 241 F.3d at 733 (an agency's "lack of knowledge does not excuse the preparation of an EIS; rather it requires the [agency] to do the necessary work to obtain it."); Blue Mountains, 161 F.3d at 1212–16 (lack of supporting data and cursory treatment of environmental effects in EA warranted preparation of EIS).

Similarly, in Hausrath v. U.S. Dep't of the Air Force, 491 F. Supp. 3d 770 (D. Idaho 2020), the court found effects were controversial and required preparation of an EIS where plaintiffs "identified serious gaps in the USFAF's analyses concerning the effects of noise from the proposed action" to the community and wildlife. Id. at 802. The court also found that an EIS was required because the action in Hausrath had uncertain effects due to "the absence of baseline noise data actually measuring the ambient noise levels in the affected communities." Id. at 802–03.

Here, based on the EA's inadequate analysis, the significance of the Project's impacts to public resources, an EIS is required. That was the case recently in the California Desert as found by BLM. For an exploration drilling proposed on Conglomerate Mesa, BLM is requiring an EIS instead of an EA. That was for an exploration drilling project of far fewer drill sites, road construction, and environmental impacts. *See* March 9, 2022 letter from Carl Symons, BLM Ridgecrest Field Manager, to Mojave Precious Metals (Attachment 4). That project at Conglomerate Mesa involves only 12 acres and 30 drill sites, far less drill sites and surface impacts than are contemplated for this Oro Cruz project. Id. Notably, the Conglomerate Mesa project is within the same California Desert Resource Management Plan for the CDCA, also involves ACEC and CDNCL lands, and other critical public resources as does the much-larger Oro Cruz Project. BLM properly found that an EIS is required for the Conglomerate Mesa proposal, and should make the same finding here.

A. Biological Resources

1. Desert Tortoise

The Picacho Area of Environmental Concern (ACEC) was established in part to conserve the declining Mojave desert tortoise (EA at 25). Active burrows and tortoise sign were found in the drill areas (EA at 98).

The environmental review must clearly address alternative proposals for avoiding, minimizing, and mitigating the impacts to the desert tortoise and any occupied habitat. Yet the required mitigation measures outlined in Appendix F, Table F-3 simply state that access roads will be fenced with tortoise exclusion fencing in Tumco Wash.

An aggressive raven prevention plan also needs to be developed as part of the environmental review and followed during project development and implementation. LUPA-BIO-6 is listed as a mitigation measure, with raven management guidelines, but nothing specific to the project area. More detail of raven management specific to this area needs to be given, including nest management. Ravens are an increasing threat to Mojave desert tortoises range-wide.

2. Flat-tailed horned lizard and Colorado fringe-toed lizard

Small areas of sand can harbor fringe-toed lizards (*Uma notata*) and fringe-toed lizards (*Phrynosoma mccallii*), and the EA at 79 mentions that surveyors found small sand patches in the western edge of the area of analysis during March 2021 plant surveys. The Plan of Operations states that loose sandy soils are present in the project area. But surveys during the main activity time for reptiles—May and June—were not undertaken. These reptile species may have been dormant in underground burrows in March. Therefore, the

presence of these two lizard species needs to be assessed with targeted surveys during the proper season. No Aeolian Sand Transport assessment was conducted, as is required by LUPA-BIO-1. A Habitat Assessment was undertaken but is simply shown as habitat photos in Appendix E. No sand areas were mapped. Photos 13 and 14 in Appendix E show sandy areas, but methods for assessing sand habitats or sand transport are not given.

3. Golden Eagles

Apparently, no nest surveys were undertaken. Avian surveys found active nesting prairie falcons (EA at 96). Helicopter operations to deliver drilling equipment, water, and other supplies to mountain drill sites could disturb any golden eagles nesting in the area and could lead to take under the Bald and Golden Eagle Protection Act. Golden eagles are also fully protected species under California law and cannot be taken at any time. (Cal. Fish and Game Code §3511(b)(7).) Targeted surveys during the winter nesting season should be undertaken.

The EA states at 100:

> Should golden eagles or golden eagle nests be identified during pre-clearance surveys, CMA LUPA-BIO-IFS-24 would be implemented to minimize impacts of surface disturbance within one-mile of active golden eagle nests or territories, as included in **Appendix F**.

This indicates that no nest surveys were undertaken to determine the location and number of breeding pairs and active nests in the Project Area. This is not acceptable.

The Finding of No Significant Impact for the Silicon Exploration Project Environmental Assessment DOIBLM-NV-B020-2020-0017-EA (Attachment 5) states for golden eagles:

> There was one golden eagle nest and five possible golden eagle nests within one mile of the Project Area. None of the nests were occupied during 2019 field surveys; however, one nest was active during 2020 field surveys. To avoid impacts to those nests, AGA would implement the EPM in Section 2.2.6.10 that states Project activities would not be conducted between January 1 and August 31 within one mile of a nest. However, if that is not practicable, a survey would be conducted after March 21 at eagle nest sites that are within one mile of the Project Area to determine occupancy. The timing of the surveys may be adjusted due to winter weather conditions and is subject to approval from the NDOW based on consideration of bighorn sheep (*Ovis canadensis*) lambing activity. If a nest has a bird in an incubating/brooding posture, it would be assumed that the nest is active that year, and a one-mile disturbance buffer would be applied until August 31, or until it has been determined that 1) the nest has failed; or 2) the young have fledged and are no longer dependent on the nest. The buffer sizes may be reduced with approval from the US Fish and Wildlife Service (USFWS). If the nest is not active at the time of the surveys, the one-mile buffer would not apply and Project activities could commence. (FONSI at 6).

Ultimately the gold exploration company decided to seek a take permit from US Fish and Wildlife Service, which was analyzed in a March 2022 Environmental Assessment. (Attachment 6). **This gold**

exploration project did not use helicopters. The Service discusses the need for a take permit:

> This Environmental Assessment (EA) analyzes the environmental consequences of the United States (U.S.) Fish and Wildlife Service (Service) issuing an incidental take permit for the take of golden eagles (*Aquila chrysaetos*) associated with the Silicon Exploration Project (Project) pursuant to the National Environmental Policy Act (NEPA) (42 United States Code [U.S.C.] §§ 4321–4347). Issuance of an eagle take permit by the Service for take that is incidental to otherwise lawful activities under the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. §§ 668–668d and 50 Code of Federal Regulations [CFR] § 22.26) constitutes a discretionary federal action that is subject to NEPA. This EA assists the Service in ensuring compliance with NEPA, and in making a determination as to whether any "significant" impacts could result from the analyzed actions that would require preparation of an Environmental Impact Statement (EIS). This EA evaluates the effects of alternatives for the Service's decision whether to issue an eagle take permit. (EA at 1)

The Service issued a take permit for eagles for the Silicon Exploration Project. (*See* Attachment 5).

Without proper eagle nest surveys, the Oro Cruz applicant may unintentionally harass golden eagles that might be nesting in the mountains around the drill areas, especially with the use of helicopters. This could result in the loss of productivity of eagles in the region.

4. Desert Bighorn Sheep

Currently desert bighorn sheep are not known to be present in the Cargo Muchacho mountains, but the proposed project area is within the desert bighorn Wildlife Habitat Management Area designated in BLM's 2002 Northern and Eastern Colorado Desert Plan Amendment. Repatriating the desert bighorn sheep in the Cargo Muchacho Mountains is a key goal to sustaining the desert bighorn sheep metapopulation particularly as the effects of climate change advance. The environmental review must analyze the impacts to bighorn sheep habitat from the proposed project and whether it could impact future recovery efforts.

The EA at 95 states that no known guzzlers are in the area, but otherwise the EA does not analyze potential bighorn sheep habitat here, nor future recovery efforts.

5. Burro Deer

The EA at 97 states that mule deer were observed during 2021 desert tortoise surveys. This narrow endemic mule deer subspecies (*Odocoileus hemionus eremicus*) is only found in the Colorado Desert of southeastern California. Measures should be outlined that avoid disturbing these deer populations.

6. Rare Plants

Although several rare plants are known in this area and some are identified in the EA/MND (at 79), it is unclear when plant surveys were conducted and whether they were seasonally appropriate to find certain plants. Therefore other rare plants may have been missed. Without more information it appears that the conclusions in the EA/MND that rare plants will not be significantly impacted is unsupported.

B. Cultural Resources

The proposed action would adversely affect the sacred Tribal Cultural Landscape that consists of the ancient trail network, called Trail of Dreams or Xam Kwatchan Trail Network, which extends from Avi Kwa Ame (Spirit Mountain, Nevada) to the Avi Kwlal (Pilot Knob, California). The area that would be disturbed by the Oro Cruz exploration project is included in this Tribal Cultural Landscape. (*See* Figure 2 (map) Attachment 7). The EA has failed to analyze the impact on this Tribal Cultural Landscape held sacred by six native American Tribes in the region. Comments submitted by the Quechan Tribe are referenced in the EA (section 3.14.3):

> The proposed Project location is sited within a region that is highly significant to the Fort Yuma Quechan Indian Tribe. This is a location that the Tribe attaches great cultural, religious and spiritual significance to. The Fort Yuma Quechan Indian Tribe objects to the proposed mining project and the proximity of the operation to a significant cultural landscape and items of cultural patrimony which are integral to the spiritual and everyday lives of the Quechan people.

However, the EA states (section 3.14.3) states that "Currently, not enough information has been provided to understand the nature, extent and use of the resource, and therefore to fully assess impacts or determine if there are minimization or avoidance measures that would apply." Not having enough information to analyze the impacts on the Tribal Cultural Landscape is not sufficient grounds to determine the project would have no significant impacts on Native American Religious Concerns and Traditional Values. Instead, the BLM should require an EIS to analyze these impacts in detail.

Furthermore, BLM pursuant to the 2019 Dingell Act the BLM was required to develop and implement a cultural resources management plan for the Xam Kwatchan Trail Network:

> Not later than 2 years after the date of enactment of the John D. Dingell, Jr. Conservation, Management, and Recreation Act [enacted March 12, 2019], the Secretary shall develop and implement a Tribal cultural resources management plan to identify, protect, and conserve cultural resources of Indian Tribes associated with the Xam Kwatchan Trail network extending from Avikwaame (Spirit Mountain, Nevada) to Avikwlal (Pilot Knob, California).

16 U.S.C.S. § 410aaa-75. That plan is overdue and BLM cannot authorize mine exploration activities on lands associated with the Xam Kwatchan Trail Network until it completes the tribal cultural resources management plan which is needed to ensure protection and conservation of these resources.

C. Additional Resource Issues

The environmental review must provide sufficient information to evaluate serious aspects of the project and raise many questions, which if answered, might expose environmental impacts.

1. Source of Groundwater and Impacts

The EA, at 87-92, states that 2,000 gallons of water per day will be required for drilling and dust suppression. The water would be procured from Gold Rock Ranch and/or another local water purveyor. A mobile water truck would be utilized onsite for dust suppression, and applied water would either naturally evaporate or infiltrate into the ground. The impact of taking that water from existing wells is not addressed despite the drought conditions in the area. And even though the specific source of water is not known, the EA/MND at 92 claims that the "Project would not consume groundwater from the Imperial Valley Groundwater Basin" – there is no support for this statement. In addition, because the groundwater in this area is connected to the Colorado River, taking any water from the water table must be strictly accounted for under the law of the river. (*See* Map 7 in Attachment 8). The EA/MND fails to analyze how groundwater pumping from off-site sources may impact the Imperial Valley groundwater district and the Colorado River accounting surface (as noted above). Because the identification and analysis of groundwater resources, including the source of water and the impacts of its extractions, are not adequately disclosed or addressed the EA/MND violates NEPA and CEQA.

2. Surface Disturbance

The EA/MND (at 5) calculates the surface disturbance at 20.54 acres – but it is unclear if that calculation accounts for additional for turnaround spaces for the large trucks and heavy equipment, sumps, and overburden. All the road segments and drill pads must be considered new ground disturbances regardless of being on top of the roads and pads of previous mining/drilling/disturbed areas. Use of all road segments and pads for the proposed project will cause new disturbances. The EA/MND attempts to waive away the significance of these new surface disturbances on previously reclaimed areas, undermining the environmental review.

3. Reclamation Plan is Not Provided

The EA/MND refers to a Reclamation Plan (Sespe 2022) (at 8), but it is not provided with the EA/MND. Instead the EA/MND provides only a summary: "A summary of the Reclamation Plan is provided below, and complete details are provided in SMP – Oro Cruz Exploration Project Reclamation Plan (Sespe 2022), on file with Imperial County (Reclamation Plan #21-0001)." EA/MND at 8-10. A copy of the plan should have been circulated to the public during the comment period. Several important recommendations for reclamation from scoping comments do not appear to have been addressed in the EA/MND:

- Prohibit blading of road segments or the staging area. Mow or hand cut vegetation to within inches of the ground on the road segments and then drive over them to the drill pad, creating a 2-track path and leaving the roots intact. Vegetation will grow back faster from root stock than from seed.
- Prohibit tracked vehicles and require only vehicles equipped with oversized, balloon tires to minimize soil compaction and to speed revegetation.
- Topsoil is thin in the desert and what is scraped off for reclamation may blow away, if not covered. That topsoil needs to be protected by stockpiling at appropriate height to prevent composting from occurring which would kill off propagules and soil fauna.

- Plant seedlings and require reseeding only in the fall. Do not use hydroseeding methods.
- The seed source for reseeding must contain *locally* sourced native species only. The grasses should be grasses that are native to the project site.
- The BLM or an independent botanist needs to survey all of the drill sites and roads to them annually starting after the drilling ends, to determine whether SMP Gold Corporation has complied with the reclamation requirements. This information should be shared with the public. Issue a notice of violation if the results are substandard.
- Require an annual report in the fall on how the revegetation is progressing and the presence of and removal of all noxious weeds.
- Establish criteria for "successful reclamation". Including the density and diversity of species
- Require remediation if plants aren't established after three years.
- Identify who will be responsible for the monitoring after three years if the goals have not been met and funding from the project proponent to be sure it continues.
- Clean vehicles before entering the project site if they have been driven where they could pick up non-native plant propagules on their vehicle.

Because these important issues regarding reclamation raised in scoping were not addressed in the EA/MND, and a copy of the full Reclamation Plan is not provided for public review, the document is inadequate as an informational document under NEPA and CEQA.

IV. The Mitigated Negative Declaration is Inadequate to Fulfill the Requirements of SMARA or CEQA.

A. SMARA and the County Ordinance Require the County to Evaluate Both the Mining Exploration Project and the Reclamation Plan

Imperial County is identified as the lead agency for both SMARA and CEQA. EA/MND at 2. As the court explained in Nelson v. County of Kern, 190 Cal. App. 4th 252 (2010):

> The Legislature declared that its intent in enacting SMARA was "to create and maintain an effective and comprehensive surface mining and reclamation policy with regulation of surface mining operations so as to assure that: [¶] (a) Adverse environmental effects are prevented or minimized and that mined lands are reclaimed to a usable condition which is readily adaptable for alternative land uses[; and ¶] (b) The production and conservation of minerals are encouraged, while giving consideration to values relating to recreation, watershed, wildlife, range and forage, and aesthetic enjoyment." (§ 2712, subds. (a) & (b).) "To achieve those goals, SMARA requires that persons conducting surface mining operations obtain a permit and obtain approval of a reclamation plan from a designated lead agency for areas subjected to post-January 1, 1976, mining. (§§ 2770, 2776.)" (*Hansen Brothers Enterprises, Inc. v. Board of Supervisors* (1996) 12 Cal.4th 533, 547, fn. omitted.) In particular, SMARA provides: "[N]o person shall conduct surface mining operations unless a permit is obtained from, a reclamation plan has been submitted to and approved by, and financial assurances for reclamation have been approved by, the lead agency for the operation pursuant to this article." (§ 2770, subd. (a).) This section, including the requirement that a surface mining permit be obtained from the lead agency, has been described as "'[a]t the

heart of SMARA.' " (*People ex rel. Dept. of Conservation v. El Dorado County* (2005) 36 Cal.4th 971, 984.)

To facilitate the enforcement of SMARA, section 2774 states that "[e]very lead agency shall adopt ordinances in accordance with state policy that establish procedures for the review and approval of reclamation plans and financial assurances and the issuance of a permit to conduct surface mining operations . . ." (§ 2774, subd. (a).)

Under the Imperial County Ordinance, exploratory mining activities fall within the definition of Surface Mining Operations (Title 9, Div. 20: Surface Mining & Reclamation (hereinafter "Title 9") § 92001.01.) The County Ordinance prohibits mining activities without first obtaining County approval of "a Permit, Reclamation Plan, and financial assurances for reclamation," subject to narrow exceptions which are not relevant here. Title 9 § 92001.03.

The EA/MND acknowledges that Imperial County must approve the reclamation plan (at 2), but fails to acknowledge that a permit approval is also needed. Just as in Nelson, here, the is no question that the County, as lead agency, "is responsible under SMARA and the local ordinance to evaluate the entire [] proposal and to determine *both* whether to issue a permit for mining operations and whether to approve the reclamation plan." Nelson, 190 Cal. App. 4th at 269 (emphasis in original; citing Pub. Res. Code §§ 2770, subd. (a), 2774, subd. (a)). And as in Nelson, "[t]hat being the case, it was improper for County to sever the mining operations from the scope of its review under SMARA." Id. 190 Cal. App. 4th at 269.

As noted above, a complete copy of the reclamation plan was not provided to the public during this comment period. On this basis, the conservation groups reserve the right to provide additional comments once a complete copy of the reclamation plan is provided. The summary provided in the EA/MND is insufficient for the public or decision makers to determine if the reclamation plan is adequate to meet SMARA standards, and because the reclamation plan is a key part of the mitigation for the project, the failure to provide the public with all relevant studies and information also fails CEQA and fails to show that an MND is appropriate.

B. CEQA requires the County to consider the whole of the action in an EIR.

The joint EA/MND section "3.2 CEQA Checklist and Impact Analysis" is insufficient in several ways as detailed below and an EIR is needed. The purpose of CEQA is to provide decision-makers and the public with environmental information before decisions are made, not after. As the California Supreme Court observed in Laurel Heights I, "[i]f post-approval environmental review were allowed, [CEQA analyses] would likely become nothing more than post hoc rationalizations to support action already taken. We have expressly condemned this [practice]." Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal. ("Laurel Heights I"), (1988) 47 Cal. 3d 376, 394 (citation omitted). Accordingly, "public agencies shall not undertake actions concerning the proposed public project that would have a significant adverse effect or limit the choice of alternatives or mitigation measures, before completion of CEQA compliance." CEQA Guidelines § 15004(b)(2). In particular, an agency shall not "take any action which gives impetus to a planned or foreseeable project in a manner that forecloses alternatives or mitigation measures that would ordinarily be part of CEQA review of that public project." CEQA Guidelines § 15004(b)(2)(B). CEQA requires the preparation of environmental review documents "as early as feasible in the planning process to

enable environmental considerations to influence project program and design and yet late enough to provide meaningful information for environmental assessment." Laurel Heights I, 47 Cal. 3d at 395; *see also* CEQA Guidelines § 15004(b).

Only when "there is no substantial evidence in light of the whole record before the public agency that the project . . . may have a significant effect on the environment" may an agency prepare a negative declaration or mitigated negative declaration instead of an EIR. (Public Res. Code § 21064.5; *see also id.* §§ 21064, 21080(c).). A mitigated negative declaration, in particular, is prepared "when the initial study has identified potentially significant effects on the environment, but . . . revisions in the project plans or proposals . . . would avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur" and there is no substantial evidence the project may have a significant effect on the environment. (Id. § 20164.5.) If there is substantial evidence that a project may have a significant effect on the environment, an agency must prepare an EIR. (Id. § 21080(d).)

If an agency is presented with so much as "a fair argument that a project may have a significant effect on the environment, the lead agency shall prepare an EIR even though it may also be presented with other substantial evidence that the project will not have a significant effect." (CEQA Guidelines § 15064(f)(1); *see also* No Oil, Inc. v. Los Angeles (1974) 13 Cal.3d 68, 75. By contrast, negative declarations are appropriate only when there is no substantial evidence in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment. Pub. Resources Code, § 21064.5; *see also* § 21080, subd. (c); CEQA Guidelines §§ 15006, subd. (h), 15064, subd. (f)(2), 15070, subd. (b), 15369.5.

Where, as here, there is a fair argument that the proposed project – the proposed mine exploration activities including new and expanded access roads and a reclamation plan—may have a significant effect on the environment, preparation of an EIR is required. Public Resources Code §§ 21100, 21151; CEQA Guidelines § 15064(a)(1); No Oil, Inc. v. City of Los Angeles (1974) 13 Cal. 3d 68, 82. No such determination can be made in this instance as detailed in this letter, there are potentially significant impacts to wildlife, water, air, cultural resources, and other resources.

Furthermore, under CEQA, an EIR must be prepared even if the lead agency can point to substantial evidence in the record supporting its determination that no significant effect will occur. Architectural Heritage Assn. v. County of Monterey (2004) 122 Cal. App. 4th 1095, 1110. The lead agency may not dismiss evidence because it believes that there is contrary evidence that is more credible. Pocket Protectors v. City of Sacramento (2005) 124 Cal. App. 4th 903, 935. Either there is substantial evidence showing the possibility of a significant environmental effect or there is not. If there is, then the lead agency must prepare an EIR. Architectural Heritage Assn., 122 Cal. App. 4th at 1109-1110. Importantly, the "fair argument" test "establishes a low threshold for initial preparation of an EIR, which reflects a preference for resolving doubts in favor of environmental review." Id. at 1110.

The County is required to consider the whole of the action in its CEQA review. CEQA Guidelines, Section 15378. The definition of "project" is "given a broad interpretation in order to maximize protection of the environment." Lighthouse Field Beach Rescue v. City of Santa Cruz (2005) 131 Cal.App.4th 1170, 1180 (internal quotation omitted); *see also,* Muzzy Ranch Co. v. Solano County Airport Land Use Com. (2007) 41 Cal.4th 372, 381-83; Fullerton Joint Union High Sch. Dist. v. State Bd. of Educ. (1982) 32 Cal.3d

779, 796-97; Bozung v. Local Agency Formation Com. (1975) 13 Cal.3d 263, 277-81.) A "project" is "the whole of an action" directly undertaken, supported, or authorized by a public agency "which may cause either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment." (Public Resources Code § 21065; CEQA Guidelines § 15378(a).) Under CEQA, "the term 'project' *refers to the underlying activity* and not the governmental approval process." California Unions for Reliable Energy v. Mojave Desert Air Quality Mgmt. Dist. (2009) 178 Cal.App.4th 1225, 1241, (quoting Orinda Assn v. Bd. of Supervisors (1986) 182 Cal.App.3d 1145, 1171-72 [emphasis added].) (CEQA Guidelines, § 15378(c) ["The term 'project' refers to the activity which is being approved and which may be subject to several discretionary approvals by governmental agencies. The term 'project' does not mean each separate governmental approval."]. As the court concluded in Nelson, 190 Cal. App. 4th at 272 "the entire CEQA project that had to be reviewed by County included both the mining operations and the reclamation plan. Both aspects were integrally related and constituted the whole of the action or the entire activity for which approvals were being sought." Put another way, "CEQA required County to engage in an environmental review of both the mining operations and the reclamation plan—the entire project." Id.

Under the County Ordinance, before a permit or reclamation plan can be approved, the site plan and reclamation plan must be found to meet the requirements of SMARA and other state statutes and regulations including CEQA. *See* Title 9 § 92002.03. Unfortunately, the County's ordinance does not fully describe the County's CEQA obligations because it only expressly mentions CEQA in the context of approval of the reclamation plan. Title 9 § 92002.03(B)(4). Here, the County does not acknowledge the need for a permit for all operations and the IS/MND fails to address several potentially significant impacts, rendering it inadequate.

As detailed above, the Project may have significant direct and indirect impacts on listed species (desert tortoise), fully protected species (golden eagles), as well as other wildlife species of special concern (flat-tailed horned lizard and Colorado fringe-toed lizard), therefore, an EIR is required. *See, e.g.,* CEQA Guidelines §15065(a)(1) (mandatory findings of significance). Impacts to habitat for rare flora and fauna are significant under section 15065 and require full evaluation under CEQA. *See* Mira Monte Homeowners Association v. Ventura County, 165 Cal.App.3d 357, 363-364. In addition, the EA/MND fails to show that all needed plant surveys were undertaken, particularly fall plant surveys. On this basis as well the EA/MND is inadequate.

As detailed above, the analysis of impacts to water resources is woefully incomplete. EA/MND states that Project water use overall will be up to 2,000 gallons per day and approximately 240,000 gallons of water over the life of the Project (EA/MND at 90) and that the water would be trucked in from existing wells but does not identify which wells (at 92). And even though the specific source of water is not known, the EA/MND at 92 claims that "Project would not consume groundwater from the Imperial Valley Groundwater Basin" – there is no support for this statement. Further, the EA/MND at 92 admits "Groundwater may be encountered during the course of exploratory drilling within the Drill Pads." But the EA/MND fails to quantify the amount of groundwater that may be affected if it is encountered. This also contradicts the premise in the EA/MND that no groundwater on site would be affected. The IS/MND notes that the area is not an adjudicated basin but provides no analysis to support the determination that this level of groundwater use is not significant in this arid environment that is currently in drought conditions. Water, especially in the desert and even more so in the time of chronic drought in California is a key resource that needs to have a full analysis in an EIR for this proposed project. The County should have fully addressed

those potentially significant impacts but did not, on this basis as well an EIR is needed. In addition, as noted above, groundwater in this area is limited because it's use may draw water from the Colorado River, the CEQA review did not disclose whether a water right is needed. Because the EA/MND fails address this potentially significant impact to Colorado River water resources, it is inadequate on this basis as well. Because the IS/MND failed to fully identify and analyze impacts of groundwater use by the Project it fails to comply with CEQA.

CEQA also requires that environmental review must analyze the effects of any proposed mitigation measures and their likely efficacy. CEQA Guidelines § 15126.4(a)(1)(D) ("If a mitigation measure would cause one or more significant effects in addition to those that would be caused by the project as proposed, the effects of the mitigation measures shall be discussed"); Save Our Peninsula Comm. v. Monterey Board of Supervisors (2001) 87 Cal.App.4th 99, 130 ("An EIR is required to discuss the impacts of mitigation measures"). An agency's determination that a proposed mitigation measure will effectively mitigate an impact must be supported by substantial evidence. City of Irvine v. County of Orange (2015) 238 Cal.App.4th 526.

The IS/MND suggests several mitigation measures that may themselves have impacts which are not analyzed. For example, the IS/MND acknowledges for air quality that the area is in nonattainment for PM_{10} (at 17), and that the project will cause emissions and relies on standard "project design features ("PDFs") incorporating the local air district rules for fugitive dust emissions and GHG emissions to mitigate impacts to PM_{10} air quality (at 19). However, those PDFs which would potentially reduce impacts to air quality, which address mitigation measures for air quality relied on in the IS/MND, would use potentially significant amounts of water and the mitigation measures are very general. PDF-7 for Air Quality only states that "The Project would comply with applicable State of California and Imperial County Air District rules for fugitive dust emissions and greenhouse gas emissions." It does not provide details of those rules.

Compliance with the law alone is not sufficient evidence to support a finding of no significant impact under the CEQA. *See* Oro Fino Gold Mining Corp. v. County of El Dorado (1990) 225 Cal. App. 3d 872, 881–882. The IS/MND assumes that compliance with other regulations and programs will mitigate the air quality impacts to less-than-significant levels. The IS/MND lacks any project-specific analysis of the potential impacts and the effect that regulatory compliance could have on those impacts. Because the Project does not disclose the specifics of the Project's impacts in the first instance, nor provide any specifics on these regulatory programs, the IS/MND lacks a basis to conclude that these regulatory programs in and of themselves will reduce the environmental impacts *of this project* to less-than-significant levels. Accordingly, the IS/MND's conclusion that air quality impacts will be mitigated to less-than-significant levels is unsupported.

Further, although EA/MND at 91 and Appendix F Table F-1, PDF-3 state "Water used for dust control would be kept to a practicable minimum . . .", the EA/MND elsewhere states that Project water use overall will be up to 2,000 gallons per day and approximately 240,000 gallons of water over the life of the Project (EA/MND at 90) and that the water would be trucked in from existing wells but does not identify which wells (at 92). As explained above, this discussion of the groundwater use is in adequate. Because the mitigation measure to address potential impacts to air quality may have potentially significant impacts to water resources, the MND should have fully addressed those potentially significant impacts but did not. In addition, as noted above, groundwater in this area is limited because it's use may draw water from the

Colorado River, the CEQA review did not disclose whether a water right is needed. Because the EA/MND fails to mention this additional potential limit on water availability for the mitigation measure it relies on, it is inadequate on this basis as well. Because the IS/MND failed to address the impacts of the water use for the air quality mitigation measure the MND cannot be relied on and the County has failed to comply with CEQA.

Here, there are several potentially significant impacts that are not shown to be fully mitigated including impacts to wildlife, cultural resources, air quality and ground water and there are potentially significant impacts to the environment that are not adequately identified and analyzed including inconsistencies with the governing land use management plan (as detailed above). Therefore, the County must prepare an EIR and cannot rely on a mitigated negative declaration.

The proposed mining exploration project may also have significant impacts to cultural resources. Imperial County claims it has fulfilled its obligations under AB 52 with a letter to a single tribe that went unanswered (EA/MND at 49). This fails to comply with the spirit of consultation requirement cannot excuse the County's failure to consider cultural resources and information tribal representatives have provided to BLM regarding the Project's potentially significant effects on cultural resources. On this basis as well, an EIR is needed.

Based on the number of imperiled species with potential to be affected by the proposed mining exploration, lack of adequate biological surveys, and because potential impacts to water resources and air quality that have not been fully identified or analyzed in the EA/MND, an EIR is required.

Conclusion

Due to the numerous violations of FLPMA, NEPA, and other laws, BLM cannot approve the Project based on the EA and must prepare an EIS. Due to Imperial County's failure to comply with SMARA, CEQA and other laws and regulations, and because there is a fair argument that the Project will significantly impact the environment Imperial County cannot approve the Project based on the IS/MND and must prepare an EIR.[1] Please keep us informed of all notices associated with this project.

Respectfully,

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[1] As noted above, because the notice period for the IS/MND by Imperial County continues until January 20, 2023, the conservation organizations reserve the right to provide additional detailed comments on all issues.

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Attachments:

Attachment 1: About Us - Southern Empire Resources at https://smp.gold/about/ (pdf from December 14, 2022)
Attachment 2: EXPLORATION PLAN OF OPERATION for the IMPERIAL EXPLORATION PROJECT IMPERIAL COUNTY, CA, revised Oct. 2020
Attachment 3: Record of Decision for the Imperial Project Gold Mine Proposal Imperial County, California, U.S. Department of Interior, BLM Case File No. CA 670-41027 OEPC #DES-97-43 and #DES-99-8 OEPC #FES-00-50, Signed by the Secretary of Interior, January 17, 2001
Attachment 4: March 9, 2022 letter from Carl Symons, BLM Ridgecrest Field Manager, to Mojave Precious Metals
Attachment 5: FONSI for the Silicon Exploration Project Plan of Operations Nevada Reclamation Permit Application DOI-BLM-NV-B020-2020-0017-EA available at https://www.fws.gov/media/silicon-exploration-project-eagle-permit-nepa-documents ; https://eplanning.blm.gov/public_projects/1505119/200366575/20022705/250028909/20200724_Silicon_FONSI_Final_Signed.pdf

Attachment 6: Environmental Assessment for the Issuance of an Eagle Take Permit for the Silicon Exploration Project, U.S. Fish and Wildlife Service, March 2022 available at https://www.fws.gov/sites/default/files/documents/EA-silicon-exploration-project-eagle-permit.pdf

Attachment 7: Cleland, James H. 2008. Ethnographic Trail Systems as Large-Scale Cultural Landscapes: Preservation and Management Issues in Preserving the Boundaries of Historic Landscape Preservation, edited by Cari Goetcheus and Eric MacDonald (Clemson, SC: Clemson University Digital Press, 2008), [6]+208 pp. Paper (out of print). ISBN 978-0-9796066-5-6 available at https://tigerprints.clemson.edu/cgi/viewcontent.cgi?article=1003&context=cudp_environment

Attachment 8: Wiele, S.M., Leake, S.A., Owen-Joyce, S.J., and McGuire, E.H., 2009, Update of the accounting surface along the lower Colorado River: U.S. Geological Survey Scientific Investigations Report 2008-5113, version 1.1, 16 p., 3 plates in pocket. Available at https://pubs.usgs.gov/sir/2008/5113/sir2008-5113_text.pdf

Attachment 1

About Us – Southern Empire Resources

Acquisition, Exploration and Development of Gold Deposits in North America.

Southern Empire is focused on the acquisition, exploration and development of gold deposits in North America. Our projects are located in the world's best mining jurisdictions and they are selected strategically to be positioned near existing infrastructure.

ORO CRUZ & AMERICAN GIRL, CARGO MUCHACHO MOUNTAINS, CALIFORNIA

In the Cargo Muchacho mountains of Imperial County, southeast California, Southern Empire owns the American Girl Mine Property and holds options to acquire a 100% interest in the 2,160 hectares (5,338 acre) Oro Cruz Property located approximately 22.5 kilometres (km; 14 miles) southeast of the operating Mesquite gold mine of Equinox Gold Corp.

With a history that includes extensive drilling and large-scale open pit and underground mining by the American Girl Mining Joint Venture (53 per cent owned by MK Gold Co., a subsidiary of Morrison Knudsen Corporation, and 47 per cent owned by Hecla Mining Company), which was suspended during the gold market downturn in 1996, the Oro Cruz Gold Project hosts many exploration targets in addition to a high-grade oxide gold zone that, based on the historical mine operation records, is amenable to conventional heap leach extractive methods.

EQUITY INTEREST IN BULLFROG GOLD CORP.

Southern Empire also holds a significant equity interest in Bullfrog Gold Corp., a US based gold exploration company with a commanding land package in the Bullfrog Mine area from which Barrick Gold Corp. produced more than 2 million ounces during the 1990's.

EXPERIENCED & KNOWLEDGABLE MANAGEMENT TEAM

Our team, including 2015 Canadian Mining Hall of Fame inductee, Ron Netolitzky, has decades of experience and the proven ability to deliver results. Meet our leadership team here.

Southern Empire is listed on Toronto's TSX Venture Exchange under the symbol SMP and also trades on Germany's Frankfurt Exchange, having the symbol 5RE.

Our share capital is widely, but tightly held. Please, see our current Share Capital Structure.

For further information, please contact Southern Empire here and visit our SEDAR page.

SMP CORPORATE PRESENTATION

CONTACT SMP

Join our Mailing List

Direct Contact Form

Attachment 2

EXPLORATION PLAN OF OPERATION
for the
IMPERIAL EXPLORATION PROJECT
IMPERIAL COUNTY, CA

For submittal to:

U.S. Department of the Interior
Bureau of Land Management

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revised - October 2020

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Attachments

Attachment A	Project Maps – Overview and Segments
Attachment B	Pad Name, Location and Claim Information
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Attachment D	Typical Monitoring Well and Piezometer Diagrams

2020 – Imperial Exploration Project
Pursuant to CFR §3809.401

1.0 Introduction

1.1 Purpose and Scope

This Exploration Plan of Operations ("EPO") describes the Imperial Exploration Project ("Project") proposed by Imperial USA Corporation ("IUC"). The purpose of the Project is to develop exploratory drill holes for mineral, geotechnical, environmental, hydrogeological, and/or engineering assessments. This EPO is submitted pursuant to and in conformance with the U.S. Bureau of Land Management ("BLM") Surface Management Regulations at 43 CFR § 3809 et seq.

1.2 Project Overview

The Project is a drilling program on three segments of a claim block controlled by IUC that includes contiguous unpatented lode and mill site claims on 2,939 acres (1,149 ha.) (the "Project Segments"). The Project Segments are located north of the Cargo Muchacho Mountains in southeast Imperial County, California and approximately 47 miles east-northeast of El Centro, California and 22.5 miles north-northwest of Yuma, Arizona. (Figure 1). The boundaries of the Project Segments and land use status are presented on Figure 2.

All IUC's claims located within the Project Segments are on federally owned lands administered by the BLM El Centro Field Office. There are no private or state-owned lands within the Projects Segments.

The Project Segments trend southeast to northwest and are referred to as (i) the Indian Pass Segment at the southeast end of the project area, (ii) the Ogilby Segment in the trend center, and (iii) the East Mesquite Segment in the northwest. The Project Segments will be accessed primarily by (i) Indian Pass Road, (ii) the Ogilby Road, and (iii) several existing BLM Legal Routes within and around the Project Segments. Table 1 presents pertinent information on the Project Segments.

Table 1. Project Segments

Project Segment	Claim Names	Acres Disturbed	Total Acres	BLM Legal Routes Used	Township, Range and Section
Indian Pass	UYA, BB, SWL	10.8	1,571	649, 680, 989, 880, 841, 840, 843, 845, 859, 858, 878, 877	NW Corner of T.14S. R.21E and SW Corner T.13S., R.21.E.
Ogilby	KMI	1.9	645	654,647, 645, 643, 641, 631, 615, 531	SE Corner of T.13S, R.20E.
East Mesquite	KMI	1.6	723	648,683,754.735,629	T. 13S., R.19E, S.12,

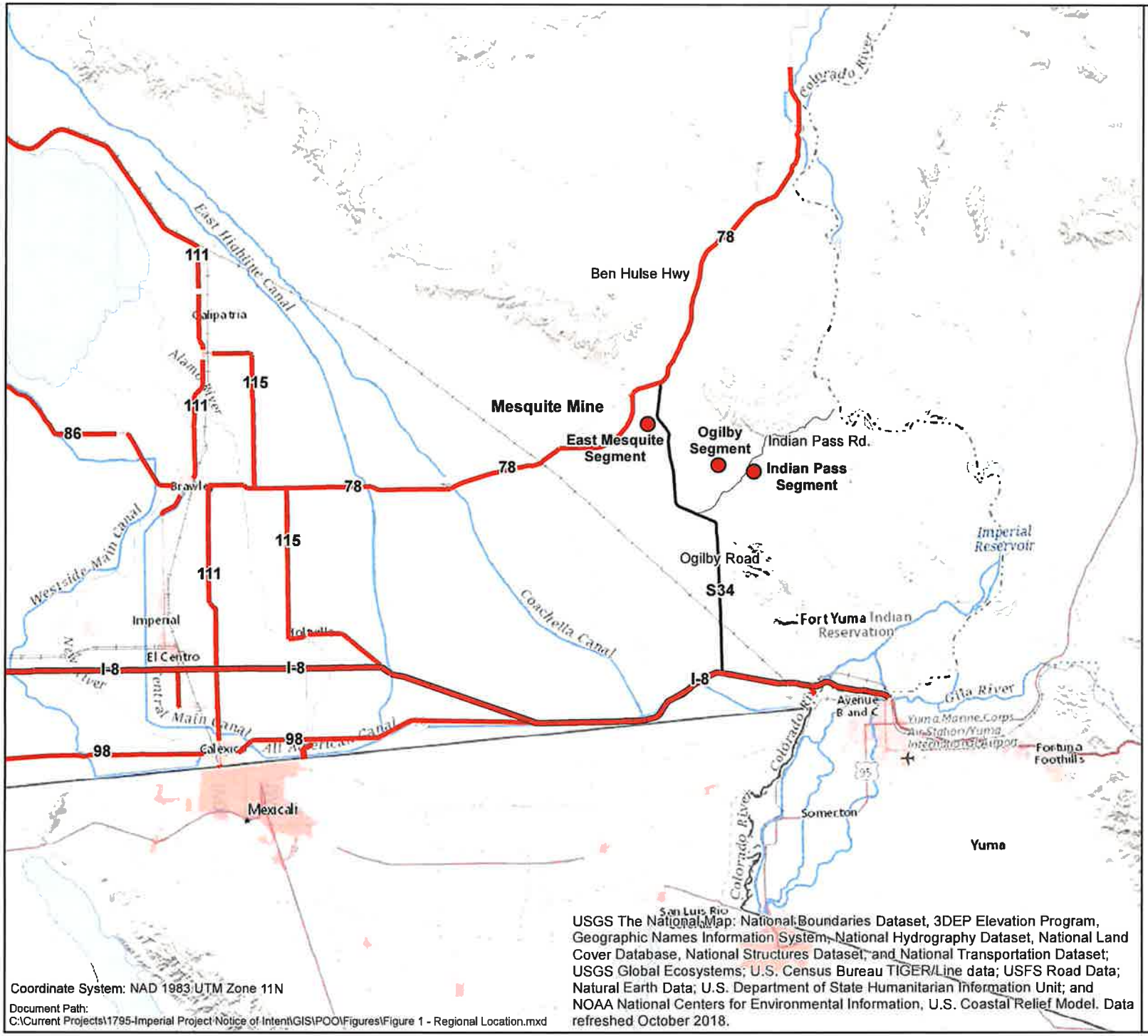

Figure 1
Imperial Exploration Project:
Regional Location

Legend

- U.S. Interstate Highways
- State Route Highways
- County Route Highways
- Indian Pass Road
- Project Locations

Miles
0 5 10

Coordinate System: NAD 1983 UTM Zone 11N

Document Path:
C:\Current Projects\1795-Imperial Project Notice of Intent\GIS\POO\Figures\Figure 1 - Regional Location.mxd

USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model. Data refreshed October 2018.

EnviroMINE Inc.

Date: 7/2/2020

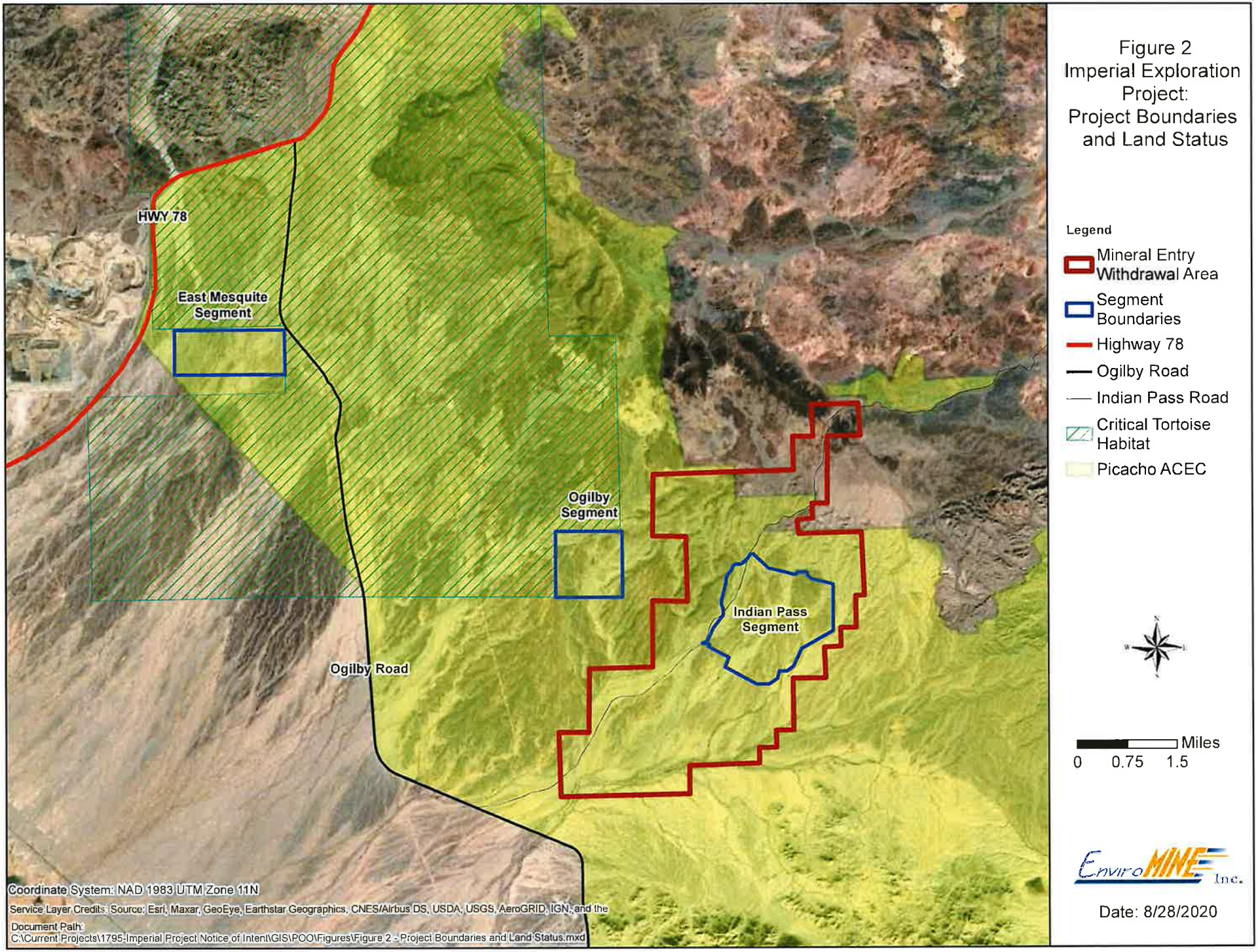

Figure 2
Imperial Exploration Project:
Project Boundaries and Land Status

Legend

- Mineral Entry Withdrawal Area
- Segment Boundaries
- Highway 78
- Ogilby Road
- Indian Pass Road
- Critical Tortoise Habitat
- Picacho ACEC

Miles
0 0.75 1.5

EnviroMINE Inc.

Date: 8/28/2020

The Project proposes to grade drill pads within the Project Segments that will be used to complete 4-inch diameter exploratory drill holes for mineral, geotechnical, environmental, hydrogeological, and/or engineering assessments. Grading, where needed, will be accomplished with a rubber-tired backhoe loader and will be conducted in a manner to minimize disturbance. A core or reverse circulation ("RC") drill rig will advance the drill holes.

Access to the drill pads on the Project Segments will utilize BLM Legal Routes, and previously disturbed lands as much as possible. Attachment A provides an overview map and individual maps for each Project Segment.

Using the local workforce where possible, work will begin as soon as this EPO has been approved and equipment can be mobilized. The operation, including reclamation, should be complete within about three years from start-up. No permanent fixed structures will be built, and all equipment and any temporary structures will be removed from individual pads after completion of drilling and proper abandonment of the drill holes.

The Project is designed and will be operated to minimize potential direct, indirect, and cumulative impacts related to the resources discussed below. Table 2 identifies resources with potential to be impacted by the Project, and the development and operating practices that will be used to minimize any potential impacts.

Table 2. Project Practices to Reduce Potential Impacts

Potentially Affected Resource	Practice
Air	• Implement dust control measures such as two-track trails watering and treatment during movement of equipment. • Employee training for dust emission reduction • Reduced speed limits
Water	• Utilize BMPs to minimize erosion and sedimentation. • Utilize approved non-hazardous drill lubricants and palliatives for dust control. • Clean up spills immediately. • Recycle ~80% of the water at the process site.
Land/Soils	• Use BLM Legal Routes for access to drill sites to fullest extent possible. • Use rubber-tired backhoe-loader to minimize disturbance. • Stockpile topsoil for revegetation.
Vegetation	• Minimize new disturbance to limit vegetation damage. • Relocate cacti for use prior to grading.
Wildlife	• Minimize new disturbance to limit habitat degradation. • Desert tortoise awareness training for all employees.

	• Baseline and preconstruction surveys for desert tortoise • Monitoring in advance of all new grading activity • Exclusionary fencing where appropriate
Special Species Status	• Train workers to recognize and protect special status species. • Record any observations or encounters of species with special status. • Determine if observations or encounters merit additional measures.
Cultural Resources	• Avoid adverse effects to historic properties through project redesign; utilization of existing ground disturbance; and oversight by archaeological monitors where appropriate. • Train workers to recognize and avoid cultural resources. • Develop and implement drilling work plans to avoid adverse effects. • Adhere to existing guidance in The CA BLM Protocol to address human remains and unanticipated discoveries.
Visual Resources	• Remove temporary structures upon completion of use. • Remove all equipment upon completion of drilling on each pad. • Drill cuttings buried on site or worked into the surface of the drill pad prior to topsoil application. • Regrade disturbed areas to blend with topography during reclamation. • Revegetate disturbed areas.
Recreation/Public Safety	• Minimize new disturbance. Exclude public from operational areas only. Safety signage will be posted the drill pads and along the two-track trails. • Will not block BLM Legal Routes.

1.3 History

The region has a long mining history which dates back to the 1780's and has continued until the present with mines such as Picacho, Tumco, and American Girl from the late 1800's and more recently, the opening of the Mesquite Mine in 1986. Mining activities within in the Project boundaries, however, were limited to minor dry placer exploration operations and drilling exploration conducted in the 1970's into the 1990s.

More recently, Chemgold, Inc. began exploring the Indian Pass area for a mining operation in the mid-1990s. This project was continued as Glamis Imperial Corporation's Imperial Project. Between the two companies, over 300 exploration drill holes were placed in the Indian Pass area that included numerous access roads and the conversion of some drill holes into groundwater monitoring wells and piezometers.

This area was also the subject of several technical environmental studies and evaluations that included Cultural Resource and Biological assessments, amongst others. Previous field work for assessing mineralization potential, rock hounding and recreational use of the area by off-road enthusiasts has resulted in a significant amount of disturbance on the site.

1.4 Environmental Setting

The Project area is situated on nearly flat terrain south of the Chocolate Mountains and north of the Cargo Muchacho Mountains, at elevations ranging between 760 and 925 feet above mean sea level (AMSL). The Project area is transected by ephemeral washes which drain from the northeast to the southwest, terminating by infiltration against the Algodones Dunes.

Present and pre-mining land use of the Project area includes mineral-related activities, recreation (rock-hounding and off-highway vehicle use), hunting and wildlife habitat.

Soils on the Project area are 0 to 18 inches thick and poorly developed, consisting of gravelly or coarse sands, with most of the area covered by upland flats or desert pavement. Vegetation in the Project area is sparse, with plants more abundant along washes. Typical upland vegetation is a shrub/scrub type consisting of burrobush, creosote bush, teddy-bear cholla, and ocotillo; washes have additional tree species of desert ironwood and palo verde, and other shrub species of sweetbush and desert lavender.

Previous groundwater studies completed in the mid 1990's for the Project area determined that groundwater elevations varied extensively across the Project area and ranged from 75 feet amsl to 575 feet amsl. Tests conducted in the Indian Pass Segment of the Project indicated that the hydraulic conductivity of the bedrock formation is very low. The closest surface water bodies to the Project area are the Colorado River approximately 7.75 miles to the east and the Salton Sea about 44 miles northwest (Westec, 1996).

Average annual precipitation in the Project area is approximately 4.5 inches. All surface drainages in the area are ephemeral, with flows occurring only during and immediately following major precipitation events. Precipitation tends to occur in fairly short, intense storm events in the summer and frontal storms in the winter

2.0 Applicant Information

2.1 Name of Operator and Claimant

Imperial USA Corporation
312 E Barioni Blvd.
Imperial, CA 92251
c/o Marc Leduc
(720) 635-3143 (Marc@Koremining.com)

2.2 Taxpayer EIN:

88-0262623

2.3 Individual Completing Application

Dennis Fransway
EnviroMINE, Inc
3511 Camino Del Rio South Suite 403
San Diego, CA 92108
619-284-8515 (Dennis@Enviromineinc.com)

2.4 Legal Description and Claim Information

The proposed activities for this Project will take place on the three Project Segments presented in Table 1, the Indian Pass Segment is located is located in the northwest corner of Township 14S, Range 21E and the southwest corner of Township 13S, Range 21E. Ogilby Segment is located in the SE Corner of T.13S, R.20E. and East Mesquite is T. 13S., R.19E, S.12 all on the Hedges, CA 7.5 Quad, San Bernardino Base Meridian. The specific details for the location and the claims are presented in Attachment B. All claims are controlled by IUC.

2.5 Claim type

Lode and Mill Site

2.6 Relationship to BLM Regulations and Land Use Plan Conformance

The three Project Segments are located within the Picacho Area of Critical Environmental Concern ("ACEC") established as a result of the Desert Renewable Energy Conservation Plan ("DRECP") in 2016 (Figure 2). Under BLM regulations, any level of new disturbance within an ACEC will require a Plan of Operation and Environmental Assessment pursuant to the National Environmental Policy Act ("NEPA"). Exploration activities proposed in this EPO subject to this requirement include overland access, two-track trail establishment (to the limited extent where access via BLM Legal Routes is not available), grading of exploration drill pads and sumps, and reclamation.

Although certain activities in the ACEC are subject to a disturbance cap,[1] all disturbance associated with IUC's exploration activities discussed herein are not subject to the ACEC disturbance cap, because IUC's exploration activities are "operations" "reasonably incident" to surface mining, as defined within 43 CFR §

[1] It is unclear whether BLM has inventoried existing disturbance throughout the ACEC.

3809.5 and 3715.0-5, respectively. Thus, IUC's exploration activities, which are authorized by the Mining Law of 1872, cannot be limited by provisions of a subordinate land-use plan such as the DRECP. (See, e.g., BLM H-3809-1 Surface Management Handbook, p 8-14, § 8.7.1.[2]) Accordingly, the ACEC disturbance cap shall "have no force and effect" on IUC's right to enter and explore IUC's unpatented mining claims located within the Ogilby and East Mesquite Segments.

Moreover, although IUC's unpatented mining claims located within the Indian Pass Segment are located within the "Indian Pass Withdrawal Area," which was subject to a 20-year withdrawal from mineral entry effective October 27, 2000, and was subsequently permanently withdrawn from mineral entry on or around March 12, 2019, both withdrawals were subject to valid existing rights. As set forth in that certain 2002 BLM Mineral Report (Serial No. CACA 35511), IUC's unpatented mining claims located within the Indian Pass Segment were deemed valid as of 1998, prior to any withdrawal from mineral entry, and therefore remain open for mineral entry and exploration by IUC and not subject to the ACEC disturbance cap.

The proposed drill pads on the Indian Pass segment of the Project are all located on valid mill site or lode claims as identified in the 2002 Mineral Report cited above. Work on the mill site claims will consist of placing drill holes for the purpose of collecting geotechnical data, conducting hydrogeological assessments or other ancillary purposes. Drill pads on these mill site claims are identified with the designator "G" attached to the pad number. For example, KIP20–XXXG. Lode claims will be drilled for mineral re-assessment and to collect information on the geotechnical, hydrogeologic and subsurface conditions of the Project. These pads do not have the "G' designator attached to the claim number.

(area left blank intentionally)

[2] "In addition, land use plans must recognize the rights granted by the Mining Law to enter, explore, and develop mineral resources on the public lands. A land use plan cannot change the law's authorization to use public lands that are open to location under the Mining Law. Areas may only be removed from operation of the Mining Law by congressional withdrawal or in accordance with the withdrawal provisions of Section 204 of FLPMA." Further, in areas open to mineral entry or closed subject to valid existing rights, a land use plan cannot preclude mining or restrict certain types of mining activities, or generally place limits on the type or size of an operation.

3.0 Description of Exploration Activity

3.1 Activity Description

The activity described in this EPO is an exploration drilling program to complete mineral, geotechnical, environmental, hydrogeological, and/or engineering assessments within the following three Project Segments: (i) the Indian Pass Segment, (ii) the Ogilby Segment and (iii) the East Mesquite Segment of the Project. These three Project Segments lie on a southeast to northwest trend with Indian Pass Segment on the southeast and East Mesquite Segment on the northwest of the Project area.

Exploration activities on all Project Segments proposed in this EPO include overland access via 10 feet wide two-track trails (to the extent BLM Legal Routes are not available), grading of exploration drill pads and sumps, and reclamation.

The proposed drilling operations will access all the Project Segments across BLM Legal Routes and overland access with 10 feet wide, two-track trails, as much as possible, to minimize disturbance. Two-track trails will also be used where old roads disturbed the site in the past. A total of one hundred and sixty-eight (168) drill pads will be constructed on the three Project Segments and multiple borings may be drilled on each pad. After drilling for mineral re-assessment is completed on pad KIP20-109 and for geotechnical purposes on KIP20-110G, a boring will be completed, and groundwater monitoring wells installed at these locations. To support the groundwater monitoring, piezometers for measuring groundwater levels will be installed in completed boreholes on pads KIP20-004, KIP20-054 and KIP20-007.

Four, small test pits will also be excavated by an excavator for metallurgical samples. These test pits will be located on a rock outcrop on the northern part of the Indian Pass segment of the Project and are expected to be completed in approximately two days. These test pits will be 4 ft. wide x 15 ft. long and 10 ft. deep with approximately 30 cubic yards, total, of rock material retrieved for analysis. Each trench will be backfilled immediately after completion. Test pits 1 and 2 will be on claim UYA-189. Test Pit 3 will be on claim UYA-101 and Test Pit 4 on claim UYA-186.

3.2 Location and Access

The route of access from El Centro, California to the Indian Pass and Ogilby Project Segments of the Project area is to proceed east on Interstate 8 about 44 miles to the Ogilby Road exit (Exit 159). From Yuma, Arizona take Interstate 8-West approximately 15.3 miles to the Ogilby Road Exit. Turn north and proceed approximately 13.3 miles to the intersection with Indian Pass Road, a graded dirt road. Turn east (right) and continue for approximately 5.0 miles to the Project area (Figure 3). Access to the East Mesquite segment is to proceed north on Ogilby Road approximately about 8.25 miles past Indian Pass Road to BLM Legal Route 648 and go west. A power/telephone line is adjacent to this road on the north side. No incorporated towns are located within 20 miles of the Project area; however, there is a fueling station and a California Highway

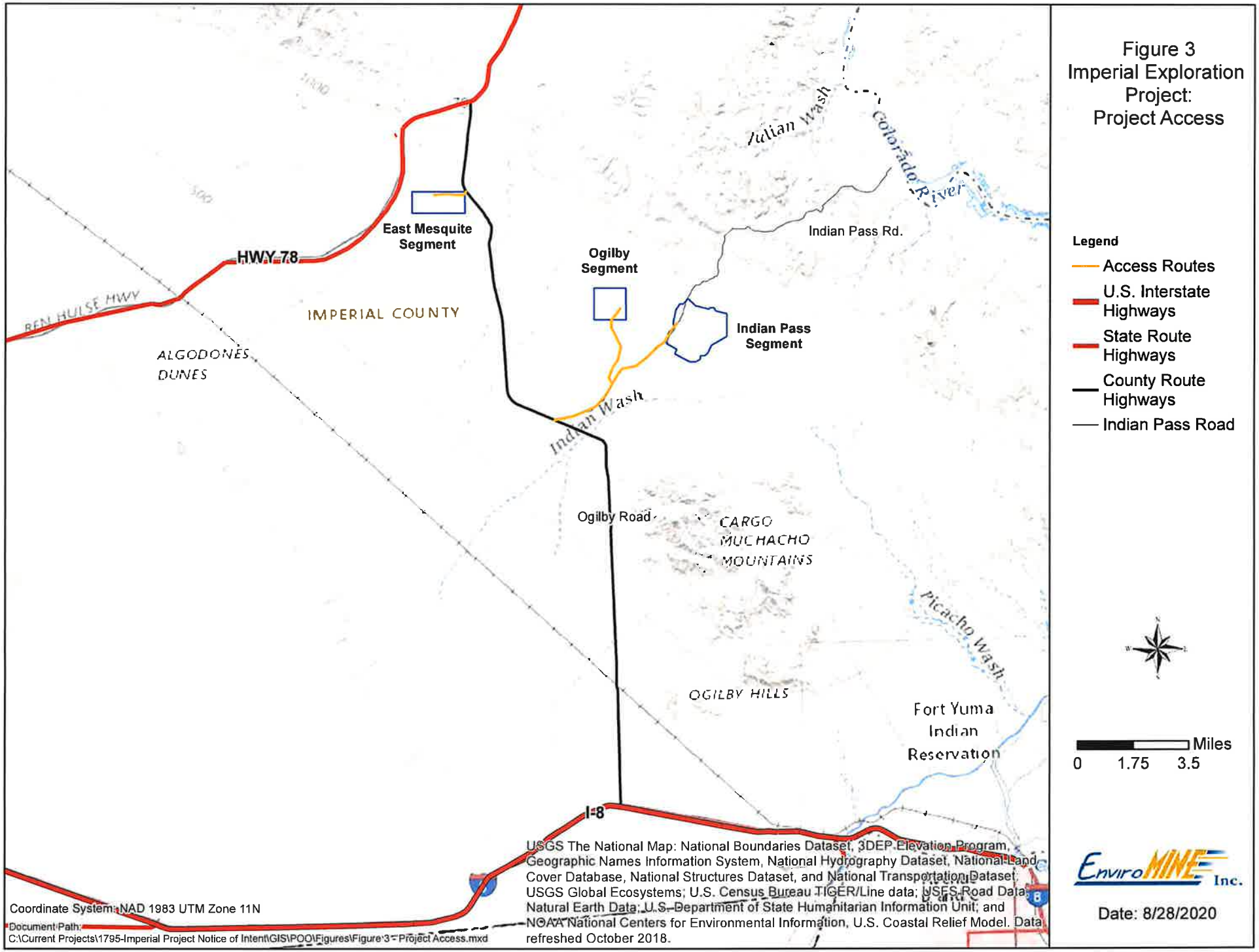

Figure 3
Imperial Exploration Project:
Project Access

Legend

- Access Routes
- U.S. Interstate Highways
- State Route Highways
- County Route Highways
- Indian Pass Road

Miles
0 1.75 3.5

EnviroMINE Inc.

Date: 8/28/2020

road trails/unmaintained roads previously used by other operators and off-road vehicles are present in the proposed Project area. As much as practical, IUC will follow these previously disturbed trails/unmaintained roads to access the locations of the new drill pads. Safety signage will be place around all active Project areas, at each pad and along each of the two track trails used by the Project.

3.3 Project Area Biology

The following description of the biological resources is based on previous assessments of the Indian Pass Segment of the Project. Ogilby and the East Mesquite Segments have not been evaluated however, IUC is in the process of contracting for professional services to have both biological and cultural evaluations conducted for the disturbance areas of these two Project Segments.

3.3.1 Vegetation

Biological surveys completed in the mid-1990s described the vegetation communities on the Indian Pass Segment ("Indian Pass Study Area") of the Project and assessed the potential for special-status plant species to occur (Figure 5). In 2018 a biological evaluation for the Indian Pass Study Area found that no substantial changes in vegetation composition have occurred within that area over the past 25 years. Vegetation communities mapped during the 1995 surveys persist in the Indian Pass Study Area; however, the names given to those communities have changed. (Table 3.)

Table 3. Vegetation Communities within the Indian Pass Study Area

Vegetation Community 1990s	Vegetation Community 2018	Sensitive?	Acres
Desert succulent scrub	Creosote bush scrub	No	662.61
	Creosote bush – white burr sage	No	266.49
	Desert pavement	No	500.30
Microphyll woodland	Blue palo verde – ironwood woodland	Yes	140.82
	Total:		1570.22

Figure 4
Imperial Exploration Project:
Project Vicinity

Legend

- Nearby Mines
- Segment Boundaries
- U.S. Interstate Highways
- State Route Highways
- Indian Pass Road

Miles
0 2.5 5

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Date: 8/28/2020

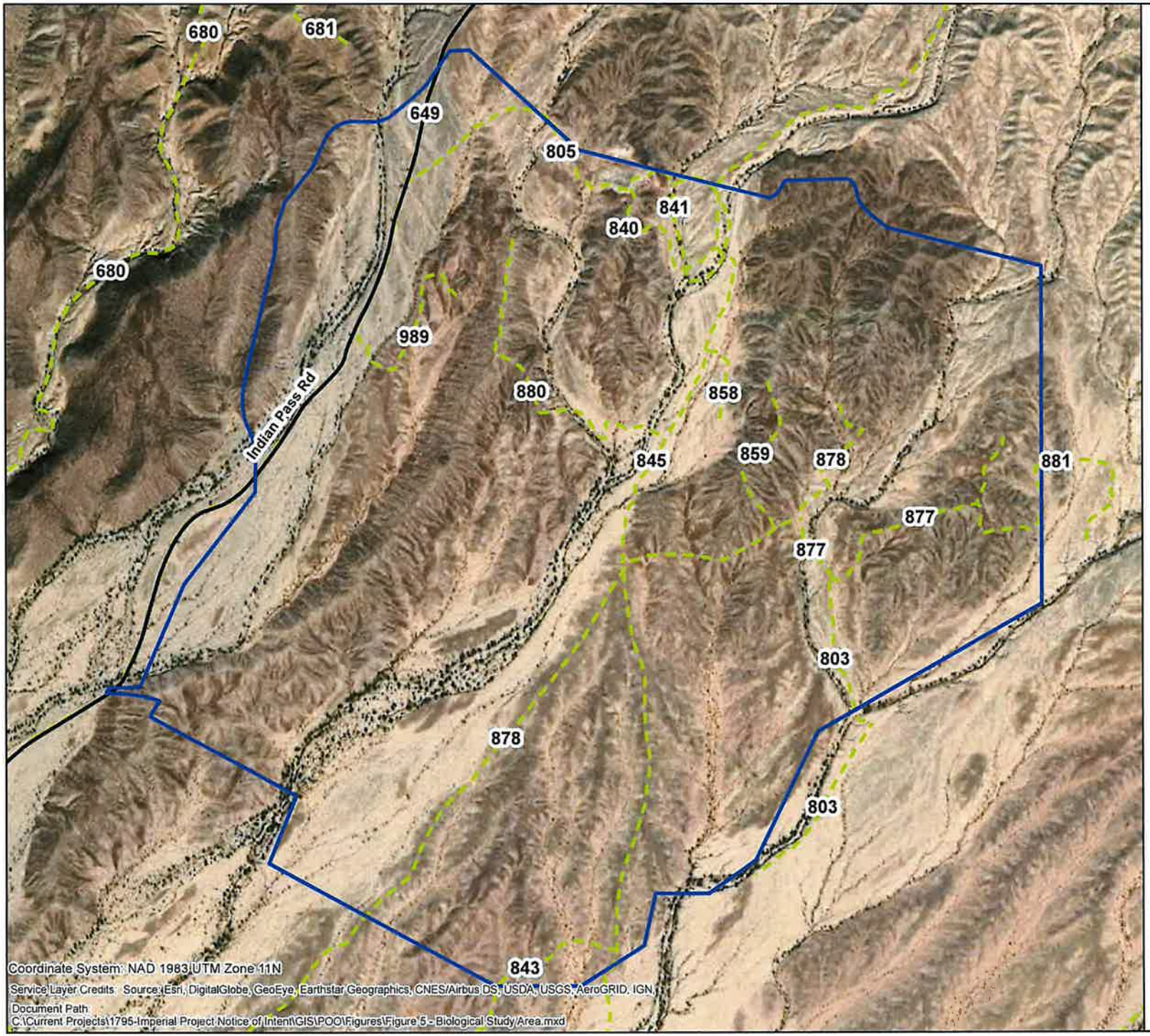

Figure 5
Imperial Exploration Project:
Biological Study Area

Legend

- Study Area
- Indian Pass Road
- BLM Legal Routes

Feet
0 800 1,600

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Date: 6/23/2020

Special-Status Species - Vegetation

Previous surveys assessed the potential for 26 special status species to occur in the Indian Pass Study Area. Of the 26 special status species, 12 special status plant species were determined to have a moderate to high potential to occur within the Indian Pass Study Area.

Two plant species classified under the California Native Plant Society ("CNPS") Inventory system were observed during a 2018 survey. Pink fairyduster (CNPS 2B.3) was observed in shallow, narrow tributary washes to the major washes within the Indian Pass Study Area. Approximately 7,000 individuals were identified and mapped on silty or sandy drainage bottoms within thee drainages. Pink velvet mallow (CNPS 4.3) was also observed in several localized patches in the westernmost major wash within the Study Area. Approximately 200 individuals were identified and mapped on the wash edges under blue palo verde–ironwood woodland canopy.

Neither species is protected under California's applicable plant life protection statutes, including the California Endangered Species Act ("CESA"), the Native Plant Protection Act ("NPPA"), and the Desert Native Plant Act ("DNPA").

Threatened or Endangered Plant Species

No threatened or endangered plant species were observed in the Indian Pass Study Area.

3.3.2 Wildlife

Wildlife composition and habitats have remained generally un-changed in the last 25 years. Wildlife encountered during a 2019 site visit make up the basis for the assessment of current conditions (WRA. 2020).

Special-Status Wildlife

One special-status wildlife species, black-tailed gnatcatcher (California Fish and Wildlife Service: Watch List), was commonly observed flying and foraging within the larger washes on the Indian Pass segment of the property in 2018. Based on a review of the resources and databases, a total of 29 special-status wildlife species have been documented in the vicinity of the Indian Pass Study Area. Twelve of these species have been documented within 5 miles of the Indian Pass Study Area.

Threatened or Endangered Animal Species

The Mojave Desert tortoise is a federally listed species that is known to occupy the Project area. The Project Segments and all drill pads located thereon are not located within Mojave Desert tortoise Designated Critical Habitat.

Due to the potential presence of desert tortoise within the vicinity of the Project Segments , formal consultation between BLM and USFWS may be necessary. A biological assessment that addresses the impacts to the desert tortoise would be required to initiate formal consultation. The measures described in the Section 3.3.3 Mitigation, below, reflect standard or anticipated requirements, and may be incorporated as part of the Project. Any Biological Opinion resulting from any Section

7 Consultation would provide specific conditions and requirements that may supersede some of the following measures.

Raptors
There are no known raptor nests in the Project area, although several raptors have been observed foraging in the area.

3.3.3 Mitigation

Pre-construction surveys for special-status plants and wildlife will be completed within 30 days of the start of work. If necessary, access routes and pads will be adjusted to avoid sensitive species. A Desert tortoise monitor will be utilized to clear all grading in advance of the activity.

Plants:

- Ocotillo shrubs and all cacti species will be identified. If two track trails or pads cannot be adjusted to avoid these plants, they will be salvaged by excavating and placing in containers for future reclamation.

Wildlife:

- Desert Tortoise Monitoring and Exclusion
    - Best Management Practices ("BMPs") for desert tortoise surveying, monitoring and avoidance will be utilized. Specific mitigation measures may be necessary and will be implemented consistent with state and/or federal law, BLM requirements, and USFWS requirements.
    - There will be pre-construction surveys utilizing USFWS approved (2009, 2019)[3] survey methods of defined project areas for tortoise sign. Surveyors will first determine whether desert tortoise are present in the area. If appropriate, surveyors will record tortoise sign on a standardized form. Tortoise sign includes burrows and burrow conditions, scats that are not burrows, carcasses, tracks, and live animals. If appropriate, survey results will be used to determine an estimated number of desert tortoises in the project area(s) using USFWS (2019) methodology and any necessary further action will be taken consistent with state and/or federal law.
    - Clearance surveys will be conducted consistent with USFWS Desert Tortoise Field Manual (2009) and any other current guidance.

[3] Desert Tortoise (Mojave Population) Field Manual (*Gopherus agassizii*), December 2009; Preparing for Any Action That May Occur Within the Range Of The Mojave Desert Tortoise (*Gopherus agassizii*), October 8, 2019.

- Prior to construction activities, an Authorized Biologist[4] will present a Worker Environmental Awareness Program ("WEAP") to all project personnel. The WEAP will contain information concerning the biology and distribution of the desert tortoise, desert tortoise activity patterns, desert tortoise sensitivity to human activities, desert tortoise legal status, and occurrence.

- Desert tortoise exclusion fencing will be constructed, where viable, consistent with clearance survey areas. Construction sites should be completely fenced with security and desert tortoise exclusion fencing, including desert tortoise exclusion gates at access points. Exclusion fencing will be maintained over the course of construction and operations, as necessary.

- An Authorized Biologist or a Desert Tortoise Monitor trained and authorized by USFWS and/or BLM, as appropriate, will be present at the site during two-track trail establishment and pad grading. Desert tortoise clearance surveys of any unfenced work areas will be conducted immediately prior to the onset of pre-construction, during grading operations, and reclamation of the disturbance areas. Such monitoring shall be conducted in compliance with all applicable state and federal requirements.

- All information regarding the location and characteristics of any encountered tortoises will be documented. Any tortoise encountered by the crew shall not be touched or harassed and the encounter shall be reported to the Monitor or Authorized Biologist immediately for further action consistent with state and/or federal law.

- Grading for pad construction will begin shortly after approval of the EPO. All project related vehicular traffic will be limited to a speed of 15 mph for safety and as a Desert tortoise protection measure. Silt fences around the sump and pad, in addition to safety fencing around each sump, will prevent wildlife access to the pad. These pads will be used for 3 to 12 days maximum before drilling is completed and the drill hole(s) closed by completely backfilling with hydrated bentonite chips. All equipment and temporary structures will then be removed from the pad. Once the sump dries, the safety fence will be removed, and the sump backfilled.

3.4 Other Permits

After BLM approval of the EPO and prior to the start of operations, IUC will apply for and obtain well permits for the borings through the Imperial County Planning and Development Services Building Group. The Colorado River Basin Regional Water Quality Control Board (CRBRWQCB) has been notified of the exploration to confirm

[4] As defined by USFWS Authorized Biologist Qualifications Statement (October 20, 2008), https://www.fws.gov/carlsbad/PalmSprings/DesertTortoise/DT_Auth_Bio_qualifications_statement_10-20-08.pdf.

that discharge of water and drilling sediments to the sump qualifies to obtain coverage by filing a Notice of Intent under General Order R7-2015-0006 For Discharges Of Low Threat Wastewaters To Surface Waters. A National Pollution and Discharge Elimination (NPDES) Notice of Intent will be filed with the State Water Resources Board and a Storm Water Pollution Prevention Plan (SWPPP) will be developed prior to the start of the Project. Imperial County's Planning and Development Services will be contacted regarding Surface Mining and Reclamation Act (SMARA) and any applicable requirements.

The Imperial County Air Pollution Control District (ICAPCD) will be contacted to inquire about potential operating permits. Discussions with the agency have been completed on local dust control requirements.

3.5 Drill Site & Two-track Trail Establishment

The new drill sites will be located on separate drill pads that will be no larger than 50 feet by 50 feet, plus a sump 5 feet deep by 5 feet wide by 15 feet long to capture mud and cuttings from the drill fluid. A rubber-tired backhoe loader will be used to build the pads and sump areas. Each pad will be cleared of vegetation and graded level to accommodate the equipment. Ditches and berms will be used to divert up-gradient storm water away from the pads. When necessary, a road grader will be brought to the project site to maintain BLM Legal Routes and County dirt Roads utilized by the project. A tracked excavator, Cat 349F or equivalent, will be used to excavate the four test pits on Indian Pass and a rubber tire dump truck with a 10-yard capacity will transport the rock sample off site.

Locations of the proposed routes for access to the pads, and test pits on Indian Pass for each Project Segment are presented on individual maps in Attachment A. Old roads (non-BLM Legal Routes) are shown in orange, existing BLM Legal Routes in green, and proposed new two-track trails are shown as red colored lines to the drill pads. Drill pads are outlined in yellow. Any cactus species or ocotillo shrubs encountered within proposed two-track trails will be salvaged or avoided. Salvaged plant species will be dug out by hand or by small backhoe and placed in adequately sized containers. These container plants will be cared for in an offsite location and will be re-planted in the same general area from which they were originally salvaged. If grading is required in localized areas to allow access to the drill pads, the depth of grading will be limited to that necessary to allow passage of 4-wheel drive vehicles and will be completed with the backhoe loader. Dry drainages will be crossed perpendicular to the water flow direction with any vertical side banks sloped to the channel bottom. No drainages will be blocked by the two track trails. Typical designs for the two track trails and pads are presented in Attachment C.

Disturbance from the 168 pads will total 9.6 acres and sumps of 0.3 acres. Two-track trails are measured at12,510 feet in length and 10 feet in width for a combined total of 125,100 sq. ft., or 2.9 acres. Total anticipated disturbance from the drill pads, sumps, turnouts and access routes will be 13.2 acres (Table 4).

Table 4. Project Features and Disturbed Acreage

Project Feature	Length (feet)	Width (feet)	Square Footage	Disturbed Acreage*
New Two-track Trails (includes 3,138 ft. of unmaintained roads)	112,510	10	125,100	2.9
Turnouts (6 ea.)	190 ea.	15 ea.	17,100	0.4
168 Drill Pads	50 ea.	50 ea.	420,000	9.6
168 sumps	15 ea.	5 ea.	12,600	0.3
		Totals:	**624,375**	**13.2**

*rounded to a tenth acre

Drilling fluids and drill cuttings from the drill rig will be contained in the sump on each pad. Water in the sump will be recycled into the drilling stem. A small rubber-tired backhoe loader will be used to dig or expand sumps at the direction of an IUC representative to ensure that water does not overflow the sumps.

Topsoil on each pad shall be salvaged and stockpiled on the edge of each pad for use in reclamation of the disturbance at the end of the drilling project. Vegetation will not be separated from the topsoil to encourage rapid reestablishment. Best Management Practices in the form of silt fences, straw waddles, contour ditches and soil berms will be utilized to inhibit erosion. All products containing straw or seed utilized on the Project will be certified as 'weed-free'.

3.6 Drill Site/Drill Hole Locations

Drilling on each pad may include multiple, angle borings at a drill length between 820 feet (250 m) and 1,476 feet (450 m). Individual borings will be drilled at angles ranging from 60 to 90 degrees from horizontal. Total depths of the borings will range from approximately 550 feet to 1,050 feet below ground surface. Drill holes will be drilled on azimuths ranging from 0 to 275 degrees.

All drill holes shall be completed and immediately abandoned upon completion in accordance with the well permits issued by the Imperial County Department of Planning and Development Services and the standards specified by the California Department of Water Resources Bulletin 74-81 and Bulletin 74-90, CA - Well Standards. Prior to closure, all drill holes shall be abandoned in compliance with the permit to eliminate any threat to public safety and wildlife.

3.7 Operations

Up to three drill rigs and support vehicles may be operating simultaneously on the project each season depending on the availability of these rigs in the southwest U.S. and the analytical results of samples collected as the exploration project proceeds.

Mobile equipment to be used by the operation per individual shift is listed in Table 5. and discussed in the following paragraphs. No processing equipment will be used on the Project.

Table 5. Imperial Exploration Mobile Equipment

Imperial Onsite Mobile Equipment – Drilling, Grading and Reclamation					
No.	**Make**	**Type/Model**	**Weight (lbs.)**	**Purpose**	**Usage**
3	Atlas	Core Drill Rig- CS1000	45,000	Core Drilling	90%
1	Schramm	Reverse Circulation Drill Rig – 685	45,000	Reverse circulation drilling	10%
3	Freightliner	Water Truck - M2106	66,000	Drill rig support - General dust suppression	100%
1	Cat	Excavator – 349F	100,000	Test Pit Excavation, truck loading, backfilling pits*	2 days
1	Freightliner	Dump truck, 10-cu, yd. capacity - 108SD	69,000	Transport bulk rock samples off site*	2 days
1	John Deere	Backhoe Loader - 310L EP	13,800	Drill Pad grading, sump excavation, reclamation*	30%
1	Cat	Road Grader - 140K	38,603	BLM Legal Route and County road maintenance*	Occasional
3	Ford	Pickup - F250 4x4	6,618	Transportation for drill crew	75 miles/day
4	Ford	Pickup - F150 - 4x4	4,951	Transportation for site geologist, supervisor, QC	75 miles/day

*single shift during daylight hours

A 4x4 truck mounted core drill rig, such as an Atlas Copco CS1000 8.5 feet long and 7.3 feet wide) or a Schramm 685, respectively, or equivalents, will be used for the borings and will operate 24 hours per day. The Atlas Copco rig is 8.5 feet long, 5.3 feet wide and 32.5 feet high with drill masts fully extended. This drill rig will be delivered and moved by trailer or be mounted on a truck. Each truck mounted drill rig weighs approximately 45,000 lbs., has a wheelbase of 146 inches and is 9.5 feet wide including mirrors.

The drill rig will be accompanied by an all-terrain 4x4, 4,000-gallon water truck, a 3/4-ton, 4 x 4 pickup used by the drill crew (3) members, and 1/2-ton, 4x4 pickup for the geologist. These vehicles will be used for each 12-hour shift. Pickups (2) will make one round trip per day, per shift and that mileage is indicated in Table 5. The water truck and drill rig will remain on the pad for both shifts. The water truck will make one round trip per shift to the water source. If multiple drill rigs area operating on the Project simultaneously, a third 4x4 pick up would also be present for the use of a drilling supervisor to coordinate the drilling operations.

Cores retrieved will be HQ (2.5 inches) or PQ (3.35 inches) size with a drill hole diameter of 3.78 inches or 4.83 inches, respectively. Rock samples will be collected from the drill cuttings of the RC rig.

A rubber-tired backhoe loader, similar to a John Deere 310L EP model, will be used to level the pads and excavate the sump areas. This backhoe loader weighs 13,800 lbs. and is 7-feet wide and has a 7-foot wheelbase. Minimal grading of pads is anticipated due to the low relief in the area. This loader will not be stored on the Project site after the drill pads are leveled and two-track trails established. It will return to the Project during reclamation for recontouring the pads and any necessary ripping to reduce compaction.

If necessary, a road grader will be brought to the project site to maintain BLM Legal Routes and County dirt Roads utilized by the project. A track mounted excavator, Cat 349F or equivalent, will be used to excavate the four test pits on Indian Pass. This excavator weights approximately 100,000 lbs. If available in the area, a rubber-tired excavator will be used. A 10-yard capacity, rubber-tired dump truck will be loaded with rock sample, approximately 7 yards per trench, by the excavator and transported to an offsite facility for processing. When the test pits have been completed and backfilled, this equipment will be removed from the Project site. It is expected that the test pits will be dug, sampled and backfilled over a course of two days.

A portable toilet will remain on the pad until the borings are backfilled in accordance with County well permits. All drill sites will be accessed using existing BLM Legal Routes where available. Two-track trails, cleared of vegetation by cutting to near surface level, will be utilized for travel from maintained BLM roads to the drill pads.

3.7.1 Dust Control and Water Use

A water truck will be equipped with spray bars and will have a capacity of 4,000 gallons of water. This truck will be utilized to provide water for the drill rig and to apply water on frequently traveled road pad surfaces to control dust during operations per ICAPCD Rule 801 F.1. Although the use of palliatives is not anticipated, any palliative (dust control additives) used to enhance dust control will be a magnesium chloride solution and will be approved by the CRBRWQCB prior to application. If wind speed on the project site exceeds 25 miles per hour, water will be applied to the disturbed area at least once per hour. No more than 5-gallons of the magnesium chloride will be on site at any one time and shall be stored on the water truck,

Water will be utilized for the drilling. An organic polymer, brand name Polyore, may be added to the drilling fluid to reduce friction on the drill bits. Polyore is a natural food-grade polymer, non-toxic, and biodegradable. It is a non-mineral powder made from Guar Gum (PDSCo.Inc., 2020).

Flocculants may also be used to settle particles in recycled water and will be a powdered, aluminum sulfate flocculant. There will be no more than a 5-gallon bucket of the flocculant stored on the drill rig during operations.

Water use for a 12-hour shift is anticipated to be approximately 4,000-gallons per shift (8,000 gals/day) for both drilling and dust control. In the event there is excessive

water loss due to fractures in the rock, a second tank of water may be needed to complete the work shift or until the water loss is stopped.

IUC will obtain water for drilling and dust control from a legal source (either via purchase or permitted groundwater extraction) in the vicinity of the Project.

3.7.2 Power and Communications

No power sources are proposed for the exploration activities. Any supplemental power needed at site would be provided by a portable generator on the drill rig that would be permitted and in compliance with California Air Resources Board (CARB) emissions and registration requirements.

On-site communications will be provided through hand-held radios and cellular service, as available. If additional communications capacity is needed, trailer mounted temporary radio towers may be used.

3.7.3 Storm Water

Storm water from the disturbance areas will be managed according to the best management practices outlined in the SWPPP that will be prepared upon Project approval.

3.7.5 Support Facilities

No support facilities or buildings are needed.

3.8 Environmental Protection Measures

IUC will continue to implement the following applicant-committed environmental protection measures to ensure a safe and environmentally sound exploration project.

3.8.1 Air Quality

IUC, in compliance with the ICAPCD Air Quality Best Management Practices, will protect air quality by undertaking road and two-track trail maintenance activities to reduce fugitive dust emissions. Two-track trails will be watered using fresh water to reduce fugitive dust emissions, based upon weather and surface conditions. Application of water by water trucks will be done, as needed. Wet drilling methods will be used to reduce the potential for fugitive dust emissions.

A 15-mph speed limit for all project equipment will be enforced. Vehicle speeds will be reduced in areas of disturbance to minimize the potential for fugitive dust emissions to maintain operational safety and protect any wildlife. Project vehicles will be maintained regularly to ensure they are operating in a manner to minimize vehicle emissions.

Electrical power to run air compressors and/or work lighting, if needed, would be provided by a drill rig mounted generator permitted for use by CARB. If a non-exempt

portable diesel-powered generator is necessary, it shall be registered under the Statewide Portable Equipment Registration Program Regulation (PERP) administered by CARB.

All fuel used on the Project will comply with CARB fuel quality requirements. Off-road equipment used on the project will be registered under CARB's DOORS program prior to operating on the Project.

3.8.2 Water Quality

All drill holes will be plugged upon completion of the drill hole in accordance with Imperial County Well Permits and California Bulletin 74-81 and 74-90. Two drill holes will be converted to monitoring wells. One well will be placed on pad KIP20-109 and one on KIP20-110G of the Indian Pass Segment of the project. Both will be completed as a 6-inch diameter monitoring wells that will be used for groundwater sampling and water level measurements over the term of the approved plan and possibly continue into future permitting efforts. Groundwater sample collection and water level measurements will be completed quarterly during Season 1 and bi-annual after the first season. Collected water samples shall be analyzed for the Standard Water Quality parameters and for CA Title 22 Metals by an independent, CA certified laboratory.

It is estimated that groundwater will be encountered in this area within 650 feet of the ground surface.(Personal Communication, Groundwater Levels at Indian Pass, 2020)

The monitoring wells will be completed and secured in accordance with County well permits. A cross section diagram of the well design is included in Attachment D. A secured, (tamper proof lock), steel collar embedded in concrete will be installed around the well head and a locking well cap placed on the well casing. No automatic sampling equipment or communication devices will be left on site. A transducer may be placed inside the well casings and a battery-powered data logger placed on the interior of the secured steel collar to measure water elevations. If used, data from the logger would be manually recovered each quarter and the battery replaced.

In support of the groundwater monitoring conducted on the wells, IUC will also install three piezometers in select drill holes that will be used to measure water levels around the site. Piezometers will be placed on the following drill pads:

- KIP20-007,
- KIP20-044, and
- KIP20-054.

These piezometers will be made of blank 2-inch Schedule 80 PVC casing with up to 80 feet of 2-inch Schedule 80 PVC slotted well screen installed on the bottom of the blank casing. Each piezometer will be placed in a vertical core boring that is cased with an 8-inch steel casing in a 12-inch diameter boring to a depth of 20-feet and sealed with

a concrete grout. Within this steel casing, a 5-inch diameter core boring will be drilled to a depth that is a 6-inches below the planned length of the piezometer depth.

After the core boring is complete, the bottom 6-inches will be packed with sand, the casing and well screen inserted and the remainder of the boring around the screen segment packed with sand to the height of groundwater surface level. A slurry of hydrated bentonite will then be pumped into the boring to create a 20-foot seal above the groundwater surface. The reminder of the boring up to the steel casing will be filled with a bentonite grout seal with casing centralizers placed every 100-feet in the boring to keep the casing vertical. Once the PVC casing installation is complete, the surface will be secured with the installation of a steel encased well vault and a 4-foot by 4-foot concrete pad poured around the vault.

Installation materials and anticipated depths of the piezometers are provided as D2 - Typical Piezometer Detail in Attachment D and will be secured as shown on the detail. Well permits for these piezometers will be obtained through Imperial County.

The monitoring wells and piezometers will be removed in accordance with the requirements of the County well permit if these are not needed by the claim holders for future groundwater evaluations. If the wells and piezometers remain in place after the Project ends, these will be left in a secured condition so unauthorized personnel are unable to access the interior casing.

Storm water BMPs will be used for surface disturbance sites to minimize storm water erosion. Shallow sediment traps will consist of a hand dug depression up to 6-inches deep, 3-feet long and 3-feet wide with straw wattles around the downhill side of a depression may be placed on a pad surface as part of the BMPS. These are not engineered structures and may be installed on any pad if runoff accumulates on the pad and as necessary to control erosion and sedimentation. These depressions will be reclaimed as part of the pad reclamation.

Drill cuttings will be contained on site, and fluids managed utilizing appropriate control measures. Best Management Practices will be used as necessary until the end of the drill program.

3.8.3 Spill Contingency Plan

Materials and equipment necessary for spill cleanup will be kept at each drill rig. Equipment and materials will include, but not be limited to, shovels, gloves, safety glasses, sorbent materials (absorbent pads and granulated clay pellets), sand, sawdust, and plastic/metal trash containers specifically for this purpose.

Well-maintained equipment will be used to perform the work required on the Project. When practicable, equipment maintenance will be performed off-site. In the event of oil, fuel, lubricating grease or other equipment leaks, cleanup will be conducted immediately. If a leak results in liquid pooling an oil-absorbing product will be applied.

Once the cleanup product has absorbed the spill material, the product will be removed and placed in the petroleum contaminated soil bin located on the active pad and the material disposed of according to state and federal regulations. Any contaminated soil will be removed, managed, and disposed of at an off-site facility in compliance with state and federal regulations. In the event of oil, fuel, or hydraulic fluid leaks, cleanup will be conducted as soon as possible. In the event of a major spill, the following actions will be taken in addition to any federal, state, and local health and safety regulations:

- Contain the spread or migration of the spill using the on-hand supply of erosion control structures and/or by creating dirt berms, as feasible and necessary.

- Regulated wastes will be removed from the Project area and disposed of in a state, federal, or local designated area.

If a spill of a petroleum constituent is considered to meet the reportable quantity per the Imperial County's Certified Unified Public Agency (CUPA) guidelines or a reportable quantity for hazardous waste is released based on the U.S. Environmental Protection Agency (EPA) guidelines established under Title III List of Lists (40 CFR Part 302), the BLM and Imperial County CUPA will be notified within 24 hours and the appropriate remedial actions and confirmation sampling will be conducted under direction of the BLM and Imperial County CUPA.

3.8.4 Soils and Erosion Prevention and Control

IUC will conduct exploration operations in a manner which minimizes soil erosion. Erosion and runoff control measures, such as water bars, ditching, and other water control structures will be implemented in areas of surface disturbance. After the exploration program is completed in an area, the surface disturbance will be graded, re-contoured, and available topsoil/growth medium replaced, and the area will be seeded with an BLM-approved native seed mixture in order to establish a ground cover and minimize erosion. Revegetation activities will commence at the earliest feasible time following reclamation activities. Best Management Practices (BMPs) will be utilized to control erosion and sedimentation. BMPs utilized to control erosion and sedimentation will be detailed in SWPPP prepared for the approved project.

3.8.5 Surface Water Resources

Natural drainage patterns will not be altered. Drill site construction within drainage channels will be avoided unless prior approval from the BLM is obtained. When drainages must be crossed with a two-track trails, best management practices, identified in the SWPPP to be prepared for the Project, will be followed to minimize the surface erosion and sedimentation potential. Smaller drainage patterns that could be affected by trench or pad construction will be restored, and regrading will conform to the adjacent topography upon completion of the exploration program. The

construction and maintenance practices from the BLM Gold Book, Surface Operating Standards and Guidelines, Fourth Edition, Revised 2007 will be implemented.

All exploration activities will be conducted using BMPs such that sediments, cuttings, drilling fluids, or any other material or substance will be fully contained in sumps to ensure that these materials do not enter drainages.

Sumps will be excavated and managed to prevent overtopping and saturating the safety berms. IUC will monitor sumps regularly for seeps or other evidence of erosion and will direct drill crews to cease activity and notify supervisors if seepage is observed. IUC will ensure that sump evacuation proceeds for as long as drilling or other water-producing activities continue. If evacuation is not possible, drilling will be stopped as soon as water levels approach the sump capacity. No trash will be placed in the sumps.

3.8.6 Solid and Hazardous Wastes

The Project will not generate or dispose of any hazardous waste on the exploration area. Petroleum products will be used on-site. Petroleum products are excluded as hazardous substances under the Comprehensive Environmental Response, Compensation, and Liability Act section 101(14). Diesel will be transported to the site in a mobile fuel/lube truck but will not be stored on-site. Motor oil, lubricating grease and solvent in small quantities (one case each or less) would be maintained in a fully contained box on the drill rig for emergency use. If regulated materials (petroleum products) are spilled, measures will be taken under IUC spill response guidelines to control the extent of the spill, and the appropriate agencies will be notified in accordance with the applicable federal and state regulations.

Solid waste will be collected at each drill pad and maintained in a covered container to prevent raven scavenging. All solid waste will be removed from each active pad daily and shall be disposed of at a suitable disposal site.

A portable toilet will be located on each active drilling pad. The toilets will be regularly serviced using a contract cleaning service that will manage disposal of the sewage waste.

3.8.7 Wildlife and Sensitive Species

To avoid potential impacts to breeding migratory birds, a BLM-approved biologist will survey in early spring of each year, all areas proposed for drilling or surface disturbance for the presence of active nests. IUC has committed to conducting pre-disturbance migratory bird nest surveys in the spring and establishing exclusion zones around active nests as part of the applicant committed EPMs. Additionally, surface disturbance clearance surveys will be conducted following BLM Wildlife Protocols (BLM 2014c) when a proposed activity involves ground disturbance during the nesting season, defined by the BLM as March 1 through July 31. When active nests are located, or if other evidence of nesting is observed (e.g., mating pairs, territorial defense, carrying nesting material, transporting food), IUC's biologist will

recommend to the BLM an avoidance buffer around the nest. BLM, in coordination with the U.S. Fish and Wildlife Service (USFWS), will review and approve avoidance measures prior to surface disturbance. IUC's biologist will inform IUC when the birds have left the nest. IUC will not conduct any drilling or surface disturbing activities within the exclusion zone until the biologist determines that the birds are no longer nesting.

During the nesting season (March 1 to July 31), IUC will not conduct drilling or surface disturbing activities within a 0.5-mile radius of any active raptor nests. Upon identifying an active raptor nest, IUC will immediately notify the BLM. Speed limits will be posted, and vehicle speeds reduced in areas of disturbance to minimize the potential for fugitive dust emissions, to protect wildlife and to maintain operational safely. Speed limits will be enforced.

3.8.8 Special Status Species

In the event that other special status plant or wildlife species are identified within the Project, IUC will not conduct surface disturbing activities within the species' habitat until the BLM can evaluate the potential impact and coordinate with IUC to devise and implement a plan to avoid the habitat. To the extent avoidance is not feasible, IUC will coordinate with BLM and any other appropriate agency to comply with all applicable laws and regulations.

In the event 30-day preconstruction surveys identify special status plant or wildlife species only protected pursuant to California law, IUC will coordinate with BLM and the appropriate state agency (e.g., California Natural Resources Agency or California Department of Fish and Wildlife) to avoid impacts to that species or otherwise comply with applicable California law and regulations.

All test pits, sumps, and other small excavations that pose a hazard or nuisance to the public, wildlife, or livestock will be adequately fenced to preclude access or constructed with a sloped end for easy egress.

3.8.9 Cultural and Paleontological Resources

IUC will conduct exploration activities in accordance with all applicable state and federal regulations. As part of the baseline data collection to support the NEPA analysis for this project, IUC will contract with a qualified archaeologist to conduct a Class III level cultural survey of each of the proposed disturbance areas to identify cultural resources and evaluate those resources for the National Register of Historic Places.

The archaeologist will submit a report that adheres to the BLM's Cultural Resource Inventory Guidelines documenting the results of the inventory. Documented sites will be protected from surface disturbing activities by an exclusion zone defined by BLM until the BLM determines the National Register eligibility of each archaeological site. IUC will avoid adverse effects to historic properties (i.e. sites eligible or potentially eligible for the National Register) through project redesign; archaeological monitoring;

or limiting ground disturbing activities to existing, modern disturbance. IUC will provide BLM with a written work plan for avoiding adverse effects to historic properties. Sites determined not eligible by BLM will not require avoidance or archaeological monitoring.

IUC will not knowingly disturb, alter, injure, or destroy any scientifically important paleontological remains, or adversely affect any historical or archaeological site, structure, building or object eligible or potentially eligible for the National Register on federal lands.

IUC will be responsible for ensuring that employees, contractors, or any others associated with the Exploration Project do not damage, destroy, or vandalize historic properties. Should unauthorized damage to cultural resources occur within or near the Exploration Project during the period of construction, operation, or rehabilitation due to the unauthorized, negligent, or inadvertent actions of IUC or other Exploration Project personnel, IUC will be responsible for costs of rehabilitation or mitigation.

If human remains/burials or any previously unidentified cultural (archaeological or historical) resources are discovered during construction activities under the approved Plan, IUC will immediately cease activities, ensure that the discovery is appropriately protected, and immediately notify the BLM Authorized Officer by telephone, followed with written confirmation. The remains or unanticipated find will be handled in accordance with Stipulation 9.0 or 11.0 of the *Protocol Agreement Among California BLM and California SHPO and Nevada SHPO* (2019) and any applicable state and federal regulations. Work will not resume, and the discovery will be protected until notified in writing by the BLM Authorized Officer.

IUC's employees and contractors will receive training on the potential for cultural resources and the procedures required by IUC to avoid unauthorized disturbance, alteration, or destruction of any remains or any historical or archaeological site, structure, building or object on federal land. This issue will be covered during the daily safety meeting.

3.8.10 Survey Monuments

Survey monuments, witness corners, and/or reference monuments will be protected to the extent economically and technically feasible. Should moving such a feature be required, IUC will ensure that a California licensed surveyor oversee and execute the relocation in a manner consistent with applicable laws. The BLM will be notified in writing prior to the moving of any such survey monument.

3.8.11 Vegetation/Desert Shrub Resources

Reseeding will be consistent with all BLM recommendations for seed mix constituents, application rate, and seeding methods. Where possible, IUC will minimize removal of desert shrubs and succulents during activities associated with drill pad and two-track trails establishment.

3.8.12 Wildland Fire Protection

All applicable state and federal fire laws and regulations will be complied with and all reasonable measures will be taken to prevent and suppress fires in the Project area. In the event the proposed Project activities start or cause a wildfire, IUC will be responsible for all the costs associated with the suppression.

IUC will comply with all applicable state and federal fire laws and regulations and all reasonable measures (i.e., vehicle hand tools, extinguisher), contact BLM concerning fire controls on welding) will be taken to prevent and suppress fires in the Project area.

All Project vehicles will carry fire extinguishers and a minimum of ten gallons of water during the months of May through September. Adequate fire- fighting equipment, i.e., shovel, Pulaski, extinguisher(s), and a minimum ten gallons of water, will be kept at the drill site(s). Vehicle catalytic converters will be inspected often and cleaned of all brush and grass debris.

Welding operations will be conducted in an area free from or mostly free from vegetation. A minimum of ten gallons of water and a shovel will be on hand to extinguish any fires created from the sparks. Extra personnel will be at the welding site to watch for fires created by welding sparks. Welding aprons will be used when conditions warrant (i.e., during red flag warnings).

Wildland fires will immediately be reported by calling 911. Information reported will include the location (latitude and longitude if possible), fuels involved, time started, who or what is near the fire, and the direction of fire spread. The El Centro Field Office will be notified with the same information after the initial call is completed.

3.8.13 Public and Wildlife Safety

Mine Safety and Health Administration (MSHA) approved safety signage will be posted at the intersection of a BLM Legal Route and the active two-track trail, along the two-track trails and at the entrance to and around, an operating pad to discourage the public from entering the work area. If necessary, a temporary gate-type structure will be placed across the two-track trails near the pad entrance that would require vehicle occupants to stop and open prior to proceeding. A silt fence will be installed around the edge of the pad to discourage rodents, reptiles, and tortoises from entering the active area. A safety fence will be installed around each sump. In addition, the ends of each sump will be sloped to allow small animal or reptile species to escape if they should fall into the sump.

Each drill hole will be abandoned in accordance with the Imperial County well permits as soon as it is completed by backfilling from the bottom of the drill hole to the ground surface with hydrated bentonite chips using a tremie tool. If an emergency requires all personnel to leave the site immediately, the drill hole would be covered by a heavy steel plate prior to leaving the site.

Since each pad will be operating 24 hours per day for seven days, no fence other than a safety fence around the sump and silt fencing will be installed. Under routine conditions, the site will only be left after drill holes have been properly abandoned.

4.0 Reclamation Plan

Reclamation of all areas disturbed will be completed to the standard described in Section 3809.420 of 43 CFR and reasonable measures will be taken to prevent unnecessary or undue degradation of Federal lands during operations and reclamation. These measures will include restricting reclamation activities to disturbed areas (e.g. not obtaining fill or covering materials from undisturbed areas).

4.1 Reclamation Grading

Abandonment of individual drill holes will be accomplished using hydrated bentonite chips applied with a tremie tool from the bottom of the borehole to the surface. Sumps will be backfilled when dry. Excess drill cuttings will be worked into the surface of the pad and compacted areas will be ripped or scarified. Drainages disturbed by the project by grading for pads, if any, will be re-established to their original pattern and gradient. After compaction relief and drainage establishment, the pad and two-track trails will be graded to approximate original contour to blend with the existing topography. All salvaged topsoil will then be spread over the surface, left in a roughened condition in preparation for planting with native seed in the fall of the year. Any vegetation disturbed during the grading will be strewn across the pad.

Signs will be posted around the recontoured pads and along the two-track trails that indicate reclamation is in progress and to stay off. A small berm will be placed across the trail at the intersection of the trail with a BLM Legal Route or County Road to discourage access to the trail.

4.2 Revegetation

After completion of all drilling activities and boring abandonment, each pad will be graded to the approximate original contour of the surrounding topography and left in a roughened condition. On flatter areas, the two-track trails surface will be scarified, and water bars installed where needed to prevent runoff from running down the two-track trails. If necessary, ripper teeth will be used on the bucket to relieve deep compaction. After final grading, salvaged topsoil will be spread over the disturbed area as a seed bed. The prepared seed bed will then be planted with the native seed mix presented in Table 6, or as recommended by BLM, by hand broadcasting, or broadcast by rotary spreaders. Native seed mix will be certified as weed free.

Table 6. Seed mixture for Imperial Exploration Project

Species	Pure Live Seed* (pounds per acre)

General Seed:	
creosote (Larrea tridentata)	4
white burr sage (Ambrosia dumosa)	3
brittlebush (Encelia farinosa)	2
small flowered fagonia (Fagonia laevis)	1
white rhatany (Krameria bicolor)	1
Special Seed: (for specific applications in washes)	
Pink fairyduster ((Calliandra eriophylla),	0.5
Pink velvet mallow (Horsfordia alata)	0.5
Salvaged Container Plants:	
salvaged ocotillo and all cactus species will be transplanted near original locations	unknown
Total:	**12**

*Seed mix will be certified as weed-free.

The two-track trails will be bonded for re-seeding; pads and sumps will be bonded for reclamation grading and seeding costs. Weed control will be addressed with the Imperial County Agricultural Commissioner's office.

4.3 Weed Control

IUC will be responsible for controlling all noxious weeds in newly disturbed areas until the reclamation activities have been determined to be successful and released by the BLM authorized officer.

As part of weed control measures, IUC will require that the undercarriage of all contractor vehicles be cleaned and inspected prior to entering the Project area if the vehicle is coming from an area outside of southern California.

Monitoring for weeds will occur annually by the Project Biologist. Based on the Biologists recommendations, weeds will be removed by hand or through the use of an herbicide that is approved for use on public lands. If weeds are removed by hand, all removed vegetative matter will be placed in plastic bags and removed from public land. These bags will be disposed of at a licensed solid waste facility.

5.0 Monitoring Plan

5.1 Wildlife

IUC will provide photos of threatened, endangered and special status species in the project kickoff meeting. All personnel on the site will be instructed to recognize and avoid disturbing these species or other wildlife encountered during the daily safety meeting. Speed limits will be established and enforced. Prior to moving any vehicles on the site, the area beneath the vehicles will be inspected for the presence of Desert tortoise. Sightings and injury or death of any species will be recorded and reported to the BLM.

5.2 Archaeological Sites

Archaeological sites determined eligible or unevaluated for the National Register will be marked and avoided by all project personnel. IUC will monitor operations to ensure that these sites and other artifacts that may be discovered, are not disturbed. BLM will be contacted promptly if artifacts are discovered. All markings identifying a site will be removed after initial grading of the pads are completed.

5.3 Surface Water Quality

Surface water quality at the exploration site and process site will be monitored as required by the SWPPP prepared to comply with the NPDES General Permit for Industrial Facilities.

5.4 Reclamation Success

IUC will inspect the exploration site annually for three years following the winter rains to see if disturbed areas are revegetating and other reclamation measures need repair or modification. Should remedial work appear necessary, IUC will consult with the BLM El Centro Field Office to agree on methods and to obtain approval to carry out the work.

5.5 Annual Reporting

IUC will provide a monitoring report to BLM on an annual basis that documents project activities including, a map of all project disturbance (two-track trails, drill pads, etc.), a description of all project reclamation completed and monitoring data collected; including wildlife, cultural resource and revegetation. A summary of drill hole status, work completed, and work planned for the following season will also be included.

6.0 Interim Management Plan

Temporary closure is not anticipated but could be necessitated by heavy rains interfering with drilling, break-down of key equipment, unavailability of fuel or key supplies, labor disputes or other unforeseeable events.

Should temporary closure be required, IUC would notify the BLM El Centro Field Office of the closure, identify the reason for the closure and the expected duration of the closure. In the event of a temporary shutdown, an IUC representative will remain on site until drilling can resume. Drill holes will not be left in an unsafe manner and will either be backfilled completely with hydrated bentonite chips or, in an emergency

event where personnel are required to leave immediately, covered with a heavy steel plate

In the event shutdowns, existing borings would be abandoned according to permit requirements and sumps dried and filled. All equipment and temporary structures would be removed from the project site except for silt fencing which would remain until the pads are reclaimed. Signage would remain in place. Disturbed areas would be checked every six weeks during a closure to ensure storm water BMPS are in operating condition.

7.0 Schedule of Activities

The drilling program is expected to be completed within 3 years from the approval of the Exploration Plan of Operation.

Exploration drilling will be conducted on each of the three Project Segments during each of the three years. Approximately one-third of the identified pads in each segment will be drilled per season depending on the availability of drill rigs and the results from the exploration. During the year, drilling will be dispersed throughout each Segment and not in numerical sequence. This allows the development of an overview of the sub-surface conditions and geologic resources. During the second and third years, drilling will be more concentrated in areas where positive geologic conditions and test results were found during the previous seasons. On the Indian Pass and Ogilby Segments, drilling will generally proceed in a north to south pattern while East Mesquite will be drilled in a west to east pattern.

After drilling is completed on the pads, the sumps will be allowed to dry, the safety fence removed, and the sump filled. Recontouring of the pads and spreading of topsoil would follow within 60 days of cessation of exploration activities. BMPs would remain in place during this period. Signage that indicates "Reclamation in Process – Stay Off" would be posted along the two-track trail and at the pad. At the intersection of a two-track trail and a BLM Legal Route, a short, low berm will be placed across the trail to discourage the vehicular use of the trail by the public.

Seeding would occur on the pads and the two-track trails each season between November 15th and January 15th to take advantage of seasonal rains. Monitoring of the revegetation on all IUC disturbance will continue for 3 years following reclamation.

IUC will provide an annual report documenting project activities including, a map of all project disturbance (drill sites, drill pads, test pits, geophysical pads, etc.), all project reclamation completed, any monitoring data (water, stormwater, revegetation), and a summary of drill hole status (active or plugged and abandoned). Also included will be a description of the anticipated activities for the following exploration season.

As previously discussed, IUC will contract with a Cultural Resource specialist and a wildlife biologist to clear all two-track trails and pads within the Project boundaries in

advance of disturbance. If cultural sites are identified in the survey area or the biologist recommends avoidance of an area, the trail routes and pad locations will be modified to avoid those sites or the Desert tortoise.

8.0 Reclamation Cost Estimate/Financial Assurance

IUC will provide the BLM with an irrevocable financial assurance mechanism in an amount equal to the reclamation cost estimate as a financial guarantee.
A financial assurance cost estimate (FACE) for reclamation on the Imperial Exploration Project will be provided to the BLM prior to approval of this proposed EPO. Included in the estimate shall be costs for reclaiming new drill sites, abandoning drill borings, re-seeding trails and pads, mobilization-demobilization cost and the associated contingency.

9.0 Occupancy

No occupancy of the site is proposed. No permanent structures or facilities will be placed in the Project area.

Nothing proposed in this EPO will interfere with public access to adjacent public lands. Existing BLM Legal Routes will remain open to the public and will not be blocked by the Project.

10.0 Acknowledgements

Imperial USA Corporation will complete all necessary reclamation of areas disturbed during the operations to the standards described in 36 CFR §3809.420 and the Terms and Conditions of US BLM-El Centro Field Office Notice. IUC will assure that reasonable measures will be taken to prevent unnecessary or undue degradation of the federal lands during operations.

It is understood that, should the nature of the operation change, a modified or supplemental Plan of Operations and Reclamation Plan may be required.

It is understood that approval of this Plan of Operations and Reclamation Plan does not constitute certification of ownership to any person named herein or recognition of the validity of any mining claim herein.

It is understood that a bond, equivalent to the actual cost of performing the agreed upon reclamation measures, will be required before this plan can be approved.

Bonding and any bond reduction amounts will be set on a site-specific basis in coordination with cooperating agencies.

It is understood that approval of this plan does not relieve IUC of the responsibility to comply with other applicable Federal or State laws, rules, or regulations.

It is understood that any information provided with the plan that is marked confidential will be treated by the BLM in accordance its rules, and regulations.

IUC agrees to comply with all Conditions in the Plan of Operations and Reclamation Plan, including recommended changes and reclamation requirements.

IUC understands that the bond will not be released until the BLM or state agency in charge gives written approval of the reclamation work.

Signature of Operator: _____

(On behalf of) _____ Date: _____

(to be signed upon approval)

11.0 References

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Attachment 3

United States Department of the Interior
Bureau of Land Management
California Desert District

Record of Decision for the Imperial Project Gold Mine Proposal

Imperial County, California

Prepared by:

United States Department of the Interior
Bureau of Land Management
California State Office
California Desert District
El Centro Field Office

BLM Case File No. CA 670-41027
OEPC #DES-97-43 and #DES-99-8
OEPC #FES-00-50

Approved by: _____ 1/17/01
Secretary of the Interior Date

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EXECUTIVE SUMMARY

This document constitutes the Record of Decision (ROD) for the Imperial Project, an open-pit gold mine proposed by the Glamis Imperial Corporation on public lands administered by the Department of the Interior's Bureau of Land Management (BLM) in eastern Imperial County, California. This ROD is prepared in accordance with the National Environmental Policy Act (NEPA), the Federal Land Policy and Management Act (FLPMA), and other applicable Federal laws and regulations.

After extensive analysis, public review and comment, and application of pertinent Federal laws and policies, it is the decision of the Department of the Interior, based upon the recommendation of the BLM, not to approve the plan of operations for the Imperial Project. This represents the No Action alternative as described in the Final Environmental Impact Statement/Environmental Impact Report (FEIS/EIR) published jointly by BLM and Imperial County on November 17, 2000. The FEIS/EIR is available online at http://www.ca.blm.gov/elcentro/imperial_project.html.

This decision is based upon the following key factors determined to be unique to this particular proposal:

- the proposed project is located in an area determined to have nationally significant Native American values and historic properties and would cause unavoidable adverse impacts to these resources.
- the proposed project will result in unavoidable adverse impacts to visual quality in this substantially undisturbed landscape.
- the impacts of the proposed project cannot be mitigated to the point of meeting the statutory requirement in FLPMA that BLM must prevent "undue impairment" of the public lands in the CDCA.
- the proposed project is inconsistent with the CDCA plan.
- the identified unavoidable and adverse environmental impacts resulting from the project override the possible economic benefits that might be derived from the project.
- the proposed project fails to meet the overall statutory requirement in FLPMA that BLM must prevent "unnecessary or undue degradation" of the public land resources.

The proposed project area, about 45 miles northeast of El Centro, California, and 20 miles northwest of Yuma, Arizona, lies within the boundaries of the California Desert Conservation Area (CDCA), designated by Congress in Section 601 of FLPMA as a region requiring special management due to its nationally significant resources. The proposed project, to be located on 1,571 acres of unpatented mining claims held by Glamis Imperial Corporation, would encompass a mine and processing area, including open pits, waste rock and topsoil stockpiles, heap leach pads, administrative and maintenance facilities, a precious metal recovery plant, haul roads, an electrical substation, distribution lines, and associated facilities. Up to 150 million tons of ore would be mined and leached, and an additional 300 million tons of waste rock would be deposited on the site under the proposal.

In making the determination that the proposed project area contains nationally significant Native American values and historic properties, this ROD relies heavily upon the advice of the Advisory Council on Historic Preservation, an official Presidential advisory organization. The Council advised the Secretary of the Interior on October 19, 1999, that the Indian Pass-Running Man Area of Traditional Cultural Concern in which the project would be located is archeologically significant and retains critical religious, historic, and educational importance to the Native American tribes in the area. The Council further advised that even if all feasible mitigation measures identified were required as a condition of approval, the project would still result in serious and irreparable degradation of the sacred and historic values in the area. The Council concluded that the project would effectively destroy the identified historic resources and recommended denial of the project. A copy of the Council's letter is included as Appendix A of this ROD.

In interpreting the legal authorities pertaining to this particular project, this ROD relies upon the Department of the Interior Solicitor's Opinion of December 27, 1999, which describes the nature of BLM's discretionary authority under the statutory standards of "undue impairment" and "unnecessary or undue degradation" to proposed actions on the public lands in the CDCA. A copy of the Opinion is included as Appendix B of this ROD.

In addition to Glamis Imperial Corporation's proposed action and the No Action alternative (not to approve the plan of operations), the Department also considered West Pit, East Pit, and Complete Pit Backfill alternatives. Several other alternatives were considered initially but were eliminated from detailed analysis in the FEIS/EIR, including alternative mine locations, alternatives to relocate facilities, and alternative mining and processing methods. The No Action alternative is both the agency's preferred alternative and the environmentally preferable alternative as identified in the FEIS/EIR.

During the extensive environmental review process, the combined public comment periods provided for approximately 11 months of public review. A draft EIS/EIR on the project was published in November 1996 for public review and comment through March 1997. Based upon public comments received, the November 1996 draft EIS/EIR was withdrawn and a new draft EIS/EIR was prepared and published November 1997 for public comment through April 1998. Four public hearings were held to receive comments on the two drafts. A public hearing on the project was also conducted by the Advisory Council on Historic Preservation in March 1999. Public comments on the FEIS/EIR were also accepted for 30 days. Approximately 1,000 individual comments were received by BLM on the project during these comment periods. These comments were carefully considered and are addressed in the FEIS or in this ROD.

Since this was a joint environmental review process, BLM worked closely with Imperial County in the EIS/EIR preparation. As part of the environmental review process, BLM and Imperial County consulted and coordinated with the U.S. Fish and Wildlife Service, the U.S. Environmental Protection Agency, the U.S. Geological Survey, the U.S. Army Corps of Engineers, the U.S. Bureau of Reclamation (Lower Colorado Division), the Advisory Council on

Historic Preservation, the Governor's Office of Planning and Research, the California Department of Conservation, the California Department of Fish and Game, the California State Office of Historic Preservation, the California Native American Heritage Commission, the California Regional Water Quality Control Board, the Metropolitan Water District of Southern California, and the Southern California Association of Governments. In accordance with Section 106 of the National Historic Preservation Act, BLM also officially consulted with the Quechan Tribal Council, Fort Yuma Indian Reservation. In addition to correspondence from the Quechan Tribe and verbal discussions and tours with Tribal members, BLM held three formal government-to-government consultations with the Tribe: December 16, 1997; February 4, 2000; and November 27, 2000.

This ROD constitutes the final administrative decision of the Department of the Interior.

Additional information on this decision can be obtained from BLM's El Centro Field Office, 1661 S. 4th Street, El Centro, California, 92243, telephone (760) 337-4400.

Proposed Imperial Project Area

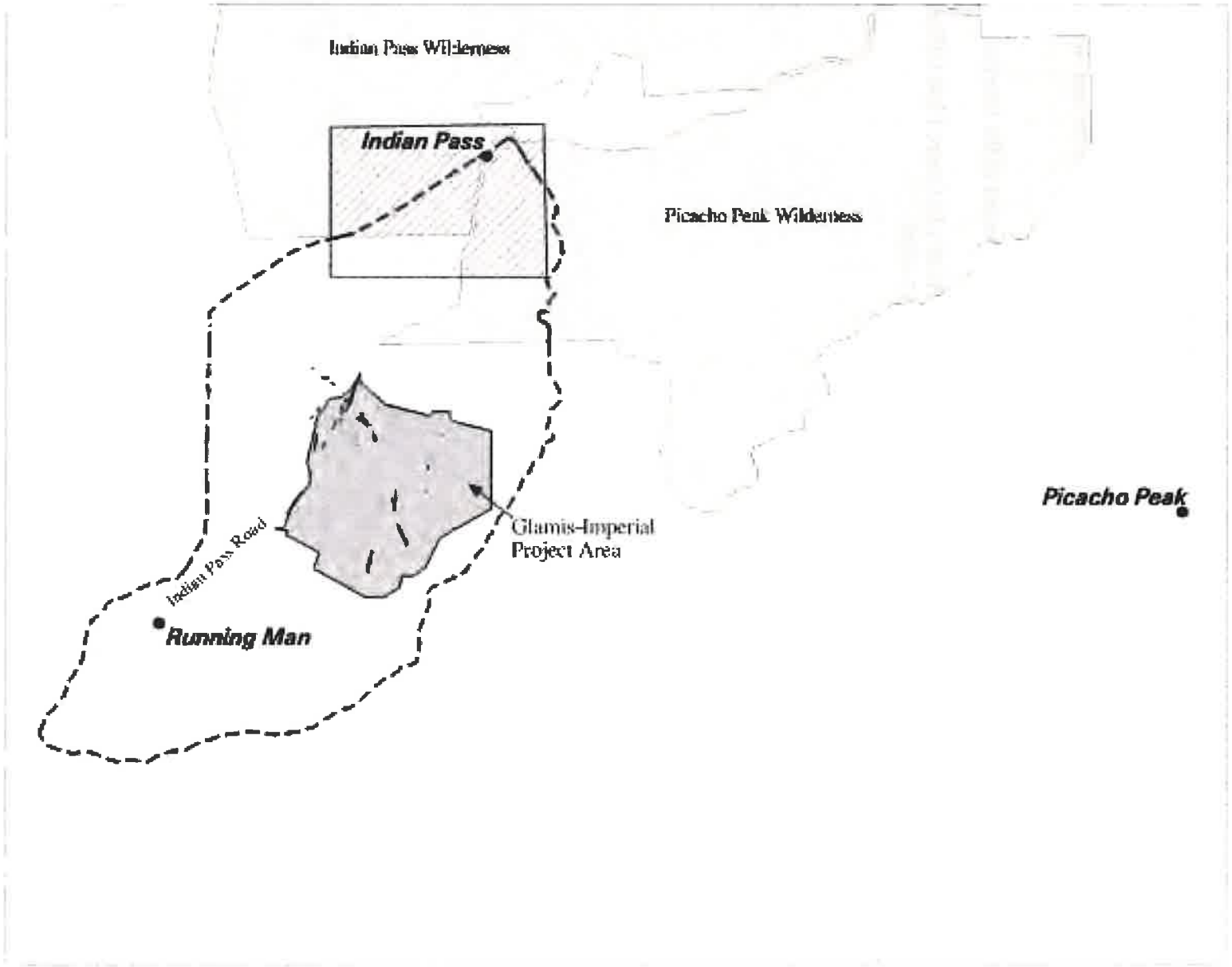
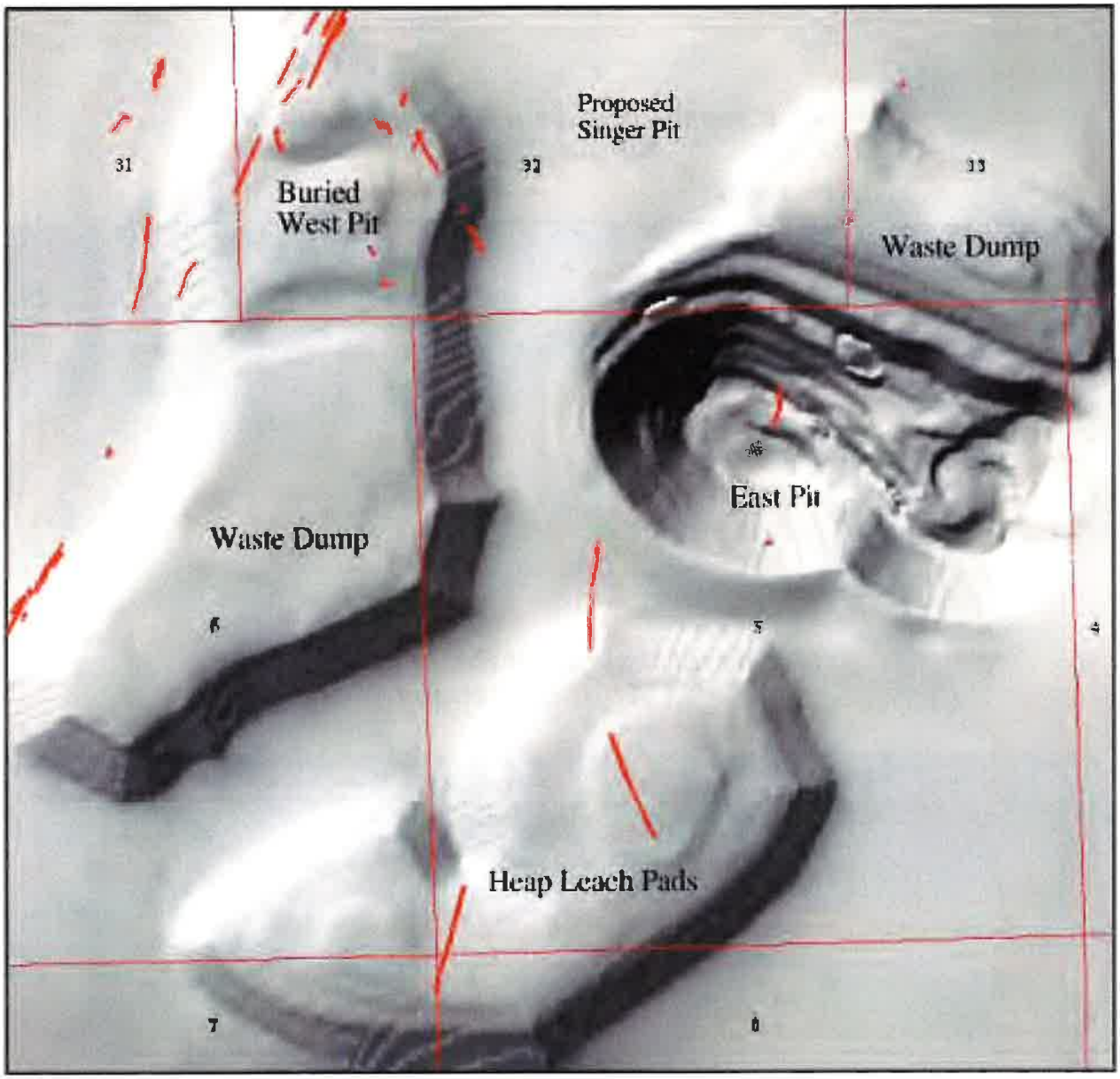


Figure 1

Proposed Imperial Project Area

Modeled Pit and Waste Dumps



Section Lines

Ancient Trails

Figure 2

Proposed Imperial Project Area
Before/After Simulation View

December 2000

Northeast View from Running Man Trail
Before Operations

Northeast View from Running Man Trail
After Operations

Figure 3

DECISION

After extensive analysis, public review and comment, and application of pertinent Federal laws and policies, it is the decision of the Department of the Interior, based upon the recommendation of the BLM, not to approve the plan of operations for the Imperial Project. This represents the No Action alternative as specified in the FEIS/EIR published jointly by BLM and Imperial County on November 17, 2000.

This decision is based upon the following key factors determined to be unique to this particular proposal:

- the proposed project is located in an area determined to have nationally significant Native American values and historic properties and would cause unavoidable adverse impacts to these resources.
- the proposed project will result in unavoidable adverse impacts to visual quality in this substantially undisturbed landscape.
- the impacts of the proposed project cannot be mitigated to the point of meeting the statutory requirement in FLPMA that BLM must prevent "undue impairment" of the public lands in the CDCA.
- the proposed project is inconsistent with the CDCA plan.
- the identified unavoidable and adverse environmental impacts resulting from the project override the possible economic benefits that might be derived from the project.
- the proposed project fails to meet the overall statutory requirement in FLPMA that BLM must prevent "unnecessary or undue degradation" of the public land resources.

RATIONALE

The proposed project would cause significant and unavoidable adverse impacts to values of critical importance to Native American Tribes.

The proposed project would significantly damage the network of Native American trail segments and related cultural resources associated with the nationally significant Indian Pass-Running Man Area of Traditional Cultural Concern (ATCC) (see Figure 1 and Appendix D). The Indian Pass-Running Man ATCC is recognized by the Department as having values of critical religious, cultural, and educational importance to the Colorado River Indian Tribes, Ft. Mojave Indian Tribe, and particularly the Quechan Tribe. Development and operation of the proposed gold mine would significantly diminish the integrity and spiritual qualities of the ATCC as a place of solitude, knowledge, and power to the tribes.

The proposed project would destroy portions of the Trail of Dreams, other trails, and related ceremonial areas providing a spiritual pathway between Pilot Knob, 25 miles from the site, and Newberry Mountain, 115 miles away. The Quechan and the other tribes believe the project would impair the ability to travel, both physically and spiritually, along the Trail of Dreams; to make ceremonial use of the prayer circles, rock alignments, and other cultural features in the project area; to gain protection from metaphysical dangers; and to continue to use the project area for vision quests and teaching tribal youths about their culture.

In consideration of the scope and magnitude of the project's potential impacts to critical Native American values, BLM requested the advice of the Advisory Council on Historic Preservation. The Council's findings and recommendations were formally submitted to the Secretary on October 19, 1999 (see Appendix A). The Department has considered these recommendations and concurs with the following Council findings: 1) the values of the ATCC are of premier importance to the Quechan Tribe for sustaining their traditional religion and culture; 2) the ATCC has retained sufficient integrity of setting, feeling, and association to remain a critically important area for traditional uses; 3) the proposed mining operation would unduly degrade the ATCC; 4) concerned individuals and the Quechan Tribe have consistently voiced their overwhelming opposition to the project; and 5) mitigation measures proposed by Glamis Imperial Corporation are not adequate to compensate for the loss of Native American values and historic properties if the mining project were approved.

Approval of the proposed project would not be in conformance with Executive Order 13007 on Indian Sacred Sites. The proposed project would not conform to Executive Order 13007 because the project would destroy access to and the ceremonial use of sacred sites by the Quechan and would significantly harm the integrity of sacred sites. While direct physical damage could be reduced on some sites through mitigation proposed by Glamis Imperial Corporation, according to the Quechan, the overall loss of the integrity of the ATCC and its spiritual value to the Quechan could not be offset. Further, the Quechan have stated financial or off-site mitigation measures

would not compensate for these adverse impacts. This conclusion is supported by the Council, the California State Historic Preservation Office, and the California Native American Heritage Commission.

Approval of the proposed project would result in disproportionate adverse impacts to Native Americans, and thus would also not conform with Executive Order 12898 on Environmental Justice. The Quechan have consistently expressed concern over the cumulative impacts of the proposed project. When combined with the impacts from existing mines, interstate highway development, and other land development in their traditional territory, the impacts of the proposed project would result in an increase in the already significant loss of values to the Quechan. Archaeological surveys and historic records over the past 20 years have documented Native American values and historic properties lost to the Quechan as a result of various Federal and State projects. The Quechan have stated that other substantial unrecorded losses have also occurred.

The proposed project would cause significant and unavoidable adverse impacts to historic properties determined eligible for the National Register of Historic Places.

The proposed project would have an adverse effect on 55 historic properties determined eligible for listing in the National Register of Historic Places, including the Indian Pass-Running Man Area of Traditional Cultural Concern. The eligible properties also include significant Native American trail segments and other historic properties such as geoglyphs, rock rings, ceremonial quartz and ceramic scatters, and cleared circles, both inside and outside the footprint of the proposed project. The eligible properties would be disturbed or destroyed through excavation of the open pits and construction and operation of the leach pad, waste rock and soil stockpiles, diversion channels, haul and access roads, and associated processing and support facilities. In addition to the direct physical effects, mining related noise and visual impacts of the project would further diminish the quality of the eligible properties. In its letter of July 21, 1998, the State Historic Preservation Office has concurred with BLM's determination of adverse effects (Appendix D).

Mitigation measures would reduce but not eliminate adverse effects to 23 of the 55 historic properties determined eligible for the National Register of Historic Places. In the November 1997 draft EIS/EIR, the project proponent modified the initial proposal to provide for mitigation of adverse effects to these resources. The company redesigned the mining plan to reduce impacts including reduction in the heights of the waste rock and stockpiles as well as other design modifications. The company also agreed to undertake an archaeological data recovery program to preserve archeological materials and compensate the Quechan through enhancement of the existing Quechan heritage preservation program, including the acquisition and preservation of off-site archaeological resources.

However, the mitigation measures proposed by Glamis Imperial Corporation would not be effective in reducing adverse effects on 32 of the 55 historic properties. Even after implementing the mitigation measures, characteristics relating to integrity of setting, feeling, and association,

which qualify the properties for listing to the National Register of Historic Places, would be irreversibly disturbed by mining activities: integrity of the Trail of Dreams, other prehistoric trails, and related ceremonial areas would be impaired; the existing natural landscape would be permanently altered; opportunities for solitude would be diminished; and the overall spiritual value of the ATCC would be irreversibly damaged. The Council, after reviewing the company's proposed mitigation measures and carefully evaluating the potential impacts, stated in its October 19, 1999 letter to the Secretary of the Interior (see Appendix A) that the mitigation measures would "do little to reduce the devastating impacts on the historic properties and their environment and fall short of compensating for the loss of traditional, religious, and cultural values of the ATCC." The Department agrees with the Advisory Council's conclusion.

The proposed project would cause significant and unavoidable adverse impacts to visual quality.

The project would result in significant long-term change to the area's sensitive visual quality. It would, therefore, not conform to the CDCA plan's applicable visual resources management rating, which provides for the existing landscape character to be maintained (see Appendix C).

An open 880-foot deep East Pit, and 280-foot high waste rock stockpiles and heap would remain as permanent substantial changes to the existing undisturbed natural landscape (see Figures 2 and 3). The level of contrast would gradually diminish after backfilling of the Singer and West Pits, regrading and replanting native vegetation, and overall reclamation of the site following completion of mining. However, the substantial visual contrast would remain after final reclamation is completed.

The project would result in significant visual impacts, specifically: (1) disruption of the existing landscape with new man-made land forms, including waste rock and leach piles which would be 100-150 feet higher than any existing natural features in the vicinity; (2) alteration of surface color, texture, and vegetation cover on approximately 1,300 acres; and (3) adverse effects to a landscape which includes Picacho Peak, Indian Pass, and other unique natural landmarks that are also historically important to Native American culture and the general public. These visual impacts would be clearly visible from the Indian Pass Road and other routes of travel in the immediate vicinity of the project area.

The proposed project would permanently alter the character of a visually sensitive area. The factors that cause the project site to be sensitive to changes in visual quality include: (1) the existing visual quality of the proposed project area and surrounding landscape is substantially undisturbed; (2) the existing topography of gently sloping ground and low rolling ridges provides little opportunity to screen or blend the project within the surrounding landscape; and (3) the 5-10 mile distance between the mine site and the surrounding mountains creates broad depth of field in which the proposed project site is visible from various public vantage points.

The overall effect of significant and unavoidable adverse impacts would cause undue impairment to the CDCA.

The overall effect of significant and unavoidable adverse impacts on Native American values, historic properties, and visual quality would significantly diminish the "scenic, scientific, and environmental values" of the CDCA, values BLM is required by Section 601 of FLPMA to protect. Specifically, the Quechan Tribe's ability to practice sacred traditions as an integral part of the Quechan culture would be irreparably damaged; 55 traditional historic properties which are eligible for listing in the National Register of Historic Places, including the Running Man/Indian Pass ATCC, would effectively be destroyed; and the scenic quality of a substantially undisturbed area would be irreversibly altered. Despite efforts by Glamis Imperial Corporation to reduce adverse impacts through mitigation, no effective means were found to prevent the significant level of destruction to important CDCA values. Finally, as stated earlier, approval of the project would not conform with Indian Sacred Sites and Environmental Justice Executive Orders. The severity of these combined impacts would be so great, and of such scope and magnitude, that undue impairment would result.

The proposed project would not be in conformance with the CDCA plan.

The proposed project would not conform with the CDCA plan because the significant and unavoidable adverse environmental impacts discussed in this ROD would exceed the maximum level of impact allowed under the plan; thus, the project would result in undue impairment. Further, the scope and magnitude of these effects would be so great as to preclude consideration of a plan amendment to permit the project.

The CDCA plan's multiple use guidelines and the minerals management provisions of the plan would allow mineral development to be considered in this area. However, no effective means of mitigation were found to avoid significant and unavoidable adverse impacts. Such impacts would irreversibly and irretrievably harm important resources of an area designated in the CDCA plan in 1980 as Multiple Use Class L (Limited Use). Multiple Use Class L is specifically intended for the protection of "sensitive, natural, scenic, ecological, and cultural resource values" and provides for "generally lower-intensity, carefully controlled multiple use of resources, while ensuring that sensitive values are not significantly diminished." The proposed project would not achieve this required level of protection.

The Multiple Use Class L designation appropriately fits this area based on the sensitive and significant environmental resources in and around the proposed project site. Because of the identified significant resource values in this area, a plan amendment designating this area as Multiple Use Class M (Moderate Use) or Multiple Use Class I (Intensive Use) would not provide adequate protection and, thus, would not be warranted. On October 27, 2000, the Department of the Interior withdrew the project area and surrounding public lands, totaling 9,360 acres, from further mining to protect recognized historic properties, Native American values, and the visual quality of the ATCC; portions of the Indian Pass Area of Critical Environmental Concern; and portions of the Indian Pass and Picacho Peak Wilderness Areas.

The Department reviewed the records of permitted mines in the CDCA in comparison to the FEIS/EIR analysis of the proposed project. Although BLM has previously approved other large-scale gold mining operations in Multiple Use Class L areas, the unique combination of important environmental factors discussed in this ROD set this proposed project apart from those other projects. Six of the 12 existing CDCA mining operations were approved in Multiple Use Class L areas: America, Colosseum, Picacho, Morning Star, Castle Mountain, and Briggs mines (see Appendix E). Unlike the proposed project, no Native American values or historic property issues (other than preservation of the historic mining activities at some of these sites) were identified during project review for the American, Picacho, Morning Star, Colosseum, and Castle Mountain mines. Native American values or historic properties were identified at the Briggs mine; however, the two identified historic properties were avoided and fenced by the mine operator as a condition of approval of the plan of operations. All of the permitted mines, unlike the proposed project, were located on sites previously disturbed by mining activity. Even in the Briggs mine site, where the evidence of previous mining activity was considered minor, the surrounding mountains were close to the project site and reduced visual contrast to an acceptable level.

The identified unavoidable and adverse environmental impacts resulting from the project override the possible economic benefits that might be derived from the project.

It is the conclusion of the Department that the possible economic benefits that might be derived from the project, as described in the FEIS/EIR and summarized below, do not overcome the legal requirements to prevent undue impairment to public lands in the CDCA.

The Department recognizes the importance of developing public land resources and the economic and social benefits that mining has on the local, regional, and national economies of the United States. Glamis Imperial Corporation estimates that the proposed project would generate up to 120 local job opportunities through the life of the project and would incur approximately $48 million in initial capital expenditures. In addition, Glamis Imperial Corporation estimates that there would be continuing capital expenditures of $1.7 million per year and $26 million per year in non-capital expenditures, including payroll. The proposed project would be required to pay sales tax on all expenditures and pay local property taxes on mine assets. All these effects are possible economic benefits of the proposed project.

However, the mineral deposit involved in this proposed project by its nature requires considerable surface disturbance to support operations. The mineral deposit supporting the proposed project is one of the lowest gold grades for open-pit, dump heap leach operations in the United States (see Appendix F). From Glamis Imperial Corporation's estimates of an average reserve grade of 0.016 ounces of gold per ton, approximately 280 tons of rock would be mined, moved, processed, and stored for each ounce of gold produced. In addition, gold prices have fallen approximately 27 percent since the project was initially proposed in 1995. A decrease from approximately $384 per ounce in 1995 to an estimated $278 per ounce in 2000 has significantly reduced the potential of this project to be economically sustainable.

While it is the policy of the Department to consider the possible economic benefits of development of public land resources, that consideration must be made in the context of all other public land resource values, including environmental, historic, and other values. In this case, the overall adverse environmental impacts caused by the project would outweigh the possible economic benefits to be derived from mining a mineral deposit with an average reserve grade of 0.016 ounces of gold per ton.

The proposed project would cause unnecessary or undue degradation to public lands.

As discussed, the significant and unavoidable adverse environmental impacts of the project would result in "undue impairment" because approval of the project would not be in conformance with the CDCA plan and a plan amendment is not warranted. Further, it is determined that loss of the identified scenic, scientific and environmental values to the people of the United States would override the possible economic benefits that might be derived from the project.

By causing undue impairment to CDCA values, it is the conclusion of the Department that the project would result in unnecessary or undue degradation to the public lands.

ALTERNATIVES CONSIDERED

A. ALTERNATIVES TO THE PLAN CONSIDERED IN DETAIL

- Proposed Project (Glamis Imperial Corporation's proposed plan of operations)
- West Pit Alternative
- East Pit Alternative
- Complete Pit Backfill Alternative

Each alternative assumes use of the same environmental protection and reclamation measures as the proposed action.

1. Proposed Action

The proposed action, i.e., Glamis Imperial Corporation's plan of operations as presented to BLM, was to be located on 1,571 acres of unpatented mining claims and would encompass the mine and processing area, including open pits, waste rock and topsoil stockpiles, heap leach pads, administrative and maintenance facilities, a precious metal recovery plant, haul roads, an electrical substation, distribution lines, and associated facilities. Up to 150 million tons of ore would be mined and leached, and 300 million tons of waste rock would be mined and deposited on the site. Specifically, the plan proposed to backfill and reclaim the Singer and West Pits and leave the 880-foot East Pit open (see Figure 3). It also would create two waste dumps and a 280-foot heap leach pad.

The agency's preferred alternative as identified in both the 1996 and 1997 EIS/EIR drafts was the proposed action as presented by Glamis Imperial Corporation. However, the agency preferred alternative was changed to No Action in the November 2000 Final EIS/EIR, to reflect new information concerning historic properties and Native American values. In particular, information concerning historic and archaeological resources identified during expanded field survey and analysis in 1997, a report provided by the Advisory Council on Historic Preservation (see Appendix A), and consultation with the Quechan Tribe substantially increased agency awareness and understanding of the importance of the site to Native Americans. That new information was a significant factor in the agency's decision to change its initial preferred alternative to the No Action alternative, and ultimately in the Department's decision not to approve the Imperial Project.

2. West Pit Alternative

This alternative would create the least amount of total surface disturbance by mining only the West Pit and Singer Pit. Approximately one-third of the disturbance would be produced, compared to the proposed action, or about 40 percent of the ore and 30 percent of the waste rock. Total surface disturbance would be reduced to approximately 853 acres, or about 63 percent of the total 1,362 acres disturbed under the proposed action. Only a small part of the West Pit would be backfilled. The Singer Pit would not be backfilled, since the East Pit would not

be mined. The south waste rock stockpile and the heap leach pile would be about the same height as under the proposed action. Total project life for the West Pit Alternative would be about 10 years, compared to 20 years for the proposed action.

This alternative would slightly reduce the total area of disturbance but would not eliminate significant adverse impacts to Native American values, historic and archaeological resources, and visual quality. The density of historic or archaeological properties determined eligible for the National Register of Historic Places is higher on the west side of the project area, and includes the main trail segments and associated sites. This area would be disturbed under the West Pit Alternative. The remaining waste rock stockpile and heap would be substantially the same height and form as in the proposed action and would cause significant adverse impacts to visual quality, even after mitigation.

3. East Pit Alternative

Under this alternative, the East Pit and Singer Pit would be mined, producing a total of about 67 percent of the mined rock produced under the proposed action, or about 60 percent of the ore and 70 percent of the waste rock. Total surface disturbance under the East Pit Alternative would be reduced to approximately 1,126 acres, or about 83 percent of the total 1,362 acres disturbed under the proposed action. The Singer Pit would be completely backfilled with waste rock from mining the East Pit, and the East Pit would not be backfilled. The south waste rock stockpile and the east waste rock stockpile would still be about the same 300-foot height as the proposed action, but the heap leach pile would be a height of 250 feet. Total project life would be approximately 14 years, versus 20 years. Final reclamation might continue beyond the end of the 14 years. Indian Pass Road would not be relocated around the project mine and process area under the East Pit Alternative.

The East Pit Alternative would disturb 40 percent less surface area than the proposed action. It would not fully develop the identified mineral reserves. It would still require almost the same projected capital and annual operating costs of the East Pit Alternative. Glamis Imperial Corporation stated that this East Pit Alternative would not be an economically viable project, and would not be profitable.

The elimination of the West Pit and reduction in size of the south waste rock stockpile under this alternative would reduce the scope and magnitude of adverse impacts by avoiding the area of highest historic or archaeological site density. However, significant Native American values and historic properties would be destroyed under this alternative, including the overall integrity of the Indian Pass-Running Man ATCC. Impacts to visual quality would be slightly reduced but would also remain significant.

4. Complete Pit Backfill Alternative

The purpose of this alternative was to evaluate the feasibility of complete backfill of all three proposed pits. All available waste rock would be used to completely backfill to at least the

original grade. The East Pit would then be backfilled. Because mined rock occupies more volume than unbroken rock, all the rock from the pit would not fit back into the same pit. Surface disturbance would not be reduced by the Complete Pit Backfill Alternative. Refilling the East Pit could take more than four years, and cost $80 million to $100 million. This alternative would reduce the significance of adverse effects to visual resources by eliminating the waste rock stockpiles and the open pit. The heap leach pad would still remain. This alternative would also reduce the significant adverse visual effects to the Indian Pass-Running Man ATCC. The alternative would allow the full amount of discovered ore to be mined. Glamis Imperial Corporation states that the Complete Pit Backfill Alternative would not be an economically viable project, and would not be profitable.

B. ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

Several other alternatives identified in the FEIS were not analyzed in detail. These are summarized below.

1. Alternative Mine Locations

One alternative was to construct and operate a mine at an entirely different location than the proposed project area. However, such an alternative would fail to meet the objectives of the proposed action, to profitably recover the precious metals within the project site. Another alternative included potential off-site locations for the mine facilities, pits, heap leach pad, and waste rock stockpiles. However, there was no environmental advantage to this alternative as the disturbance would be greater in scope and equal in impact.

2. Alternatives to Relocate Road, Water Wells, and Utility Corridors

Since these alternatives did not substantially decrease any of the significant adverse effects of the proposed action, and because the cost would reduce conformance with the basic project objectives, these were eliminated from any further consideration.

3. Alternative Mining and Processing Methods

Although there are several variations on mining techniques, including underground mining or in-situ mining, none are feasible in this type of ore body because the deposits necessary to support such methods are not present.

Like mining, there are several potential alternative methods for processing ore other than cyanide heap leach. Considered were vat leaching, carbon in pulp, flotation, or a combination of these processes. None were technically feasible for the type of ore involved in the proposed project, and were eliminated from consideration.

PUBLIC INVOLVEMENT

Opportunities for Public Involvement

The BLM, as the lead Federal agency, and Imperial County, as the lead State agency, diligently involved the public throughout the joint Federal/State environmental review process. In response to Glamis Imperial Corporation submission of a mining plan of operations, BLM published a news release and a Notice of Intent in the Federal Register on March 24, 1995, announcing the company's mining proposal and the initiation of the NEPA process to prepare an EIS on the project. On April 5, 1995, Imperial County distributed its Notice of Preparation of an EIR initiating the California Environmental Quality Act process.

A Draft EIS/EIR was published on November 1, 1996 for public comment and review. Public hearings were held in La Mesa and Holtville, California. After the initial 60-day public review, BLM extended the public comment period twice, through March 24, 1997. More than 425 written comment letters were received, and 49 people testified at the two public hearings. After a review of the comments received, the BLM and Imperial County jointly announced on June 11, 1997 that a new Draft EIS/EIR for the Imperial Project would be prepared and recirculated.

On August 1, 1997, BLM formally withdrew the November 1996 Draft EIS and announced its intent to prepare another EIS for the Imperial Project. All comments on the 1996 draft were treated as scoping comments for the revised Draft EIS/EIR. Imperial County concurred in this decision.

A revised Draft EIS/EIR was published on November 28, 1997, and made available for public review through January 27, 1998. Public hearings were again held in La Mesa and Holtville, California. After the initial 60-day review, BLM extended the public comment period twice, through April 13, 1998. More than 541 comments were received, including public testimony at the two public hearings.

An additional public hearing by the Advisory Council on Historic Preservation, a Presidential advisory organization, was held in Holtville, California in March 1999. That hearing focused on the potential impacts of the project on cultural, historic, and archeological resources associated with the Quechan and other tribes.

BLM and Imperial County included in the FEIS/EIR, published on November 17, 2000, a summary of all general comments received and details on all substantive public comments received during two the public comment periods which cumulatively totaled approximately 10 months. The agencies' responses to all substantive comments received are included in that document.

In addition, BLM also accepted public comments on the FEIS/EIR for 30 days, through December 18, 2000. A total of 24 comments were received. Although many of the comments

were general, i.e., supporting or opposing the project, and none of the comments contained substantially new information, many raised issues seeking clarification or interpretation of data in the FEIS or its supporting documents. These issues were carefully considered in development of this ROD and are summarized, along with BLM's responses, in Appendix G.

Interagency/Intergovernmental Coordination

As part of the environmental review process, BLM and Imperial County consulted and coordinated with the U.S. Fish and Wildlife Service, the U.S. Environmental Protection Agency, the U.S. Geological Survey, the U.S. Army Corps of Engineers, the U.S. Bureau of Reclamation (Lower Colorado Division), the Advisory Council on Historic Preservation, the Governor's Office of Planning and Research, the California Department of Conservation, the California Department of Fish and Game, the California State Office of Historic Preservation, the California Native American Heritage Commission, the California Regional Water Quality Control Board, the Metropolitan Water District of Southern California, and the Southern California Association of Governments. In accordance with Section 106 of the National Historic Preservation Act, BLM also officially consulted with the Quechan Tribal Council, Fort Yuma Indian Reservation. In addition to correspondence from the Tribe and verbal discussions and tours, BLM held three formal government-to-government consultations with the Tribe: December 16, 1997; February 4, 2000; and November 27, 2000.

Coordination with the County of Imperial

BLM and the County of Imperial jointly prepared all the environmental review documents under the provisions of the National Environmental Policy Act and the California Environmental Quality Act. The County's draft EIR and BLM's draft EIS were released concurrently for public review. The County's role under the Surface Mining and Reclamation Act of 1975 is to determine the adequacy of the surface mining reclamation plan submitted by Glamis Imperial Corporation as part of the mining proposal. The Imperial County Planning and Building Department has taken no action on the proposed reclamation plan, pending issuance of BLM's decision regarding the plan of operations.

APPENDICES

Appendix A

Advisory Council on Historic Preservation, 10/19/99 letter
and BLM letter to ACHP, 8/25/98

Advisory Council On Historic Preservation

The Old Post Office Building
1100 Pennsylvania Avenue, NW #809
Washington, D.C. 20004

October 19, 1999

Honorable Bruce Babbitt
Secretary of the Interior
1849 C Street, NW
Washington D.C. 20240

Dear Secretary Babbitt:

In accordance with Section 106 of the National Historic Preservation Act and Stipulation 4 of the "Programmatic Agreement Regarding The Manner In Which The BLM Will Meet Its Responsibilities Under The National Historic Preservation Act," the Bureau of Land Management requested the comments of the Council on proposed plans by the Glamis Imperial Corporation to develop a 1600-acre precious metal mine on lands administered by the BLM in Imperial County, California. The proposed project will impact the Indian Pass-Running Man Area of Traditional Cultural Concern, which is archaeologically significant and retains critical religious, cultural and educational importance to the Colorado River Indian Tribes, Ft. Mojave Indian Tribe, and especially the Quechan Tribe. In response to that request, I am pleased to offer the following findings and recommendation by the Council.

Findings

The religious, cultural and educational values of the Indian Pass-Running Man Area of Traditional Cultural Concern (ATCC) are of premier importance to the Quechan Tribe for sustaining their traditional religion and culture. The ATCC encompasses an area of approximately 8.2 miles in length and up to 5.2 miles in width. It represents a concentration of archaeological remains indicative of ceremonial religious practices, including geoglyphs, petroglyphs, cleared circles, and trails linking this area to other areas of traditional cultural value. For the Quechan, this area represents a place of solitude, power, and a source of knowledge where scenic qualities, such as an unmarked landscape and unobstructed viewshed, contribute to the integrity of the historic resources and of the area's religious and cultural value. The ATCC figures prominently in their religious beliefs and functions as a "teaching area" where Quechan

practitioners are instructed in their religious and cultural traditions. Sixteen trails and trail segments have been recorded within the ATCC, including the Trail of Dreams which extends through the ATCC to Avikwaame, a mountain north of Needles, California, where, according to tradition, all Yuman-speaking people were created. Avikwaame is perhaps the single most important place in traditional Quechan culture and religion,

Supported by ethnographic studies and tribal testimony, BLM, in consultation with the California State Historic Preservation Officer, determined that properties within the ATCC are eligible for listing in the National Register under criterion A (those properties associated with Quechan traditional religious arid cultural practices), criterion C (those properties that embody distinctive characteristics of Native American built objects such as geoglyphs, petroglyphs and trails), and criterion D (those properties important for the information they can provide). The integrity of setting, feeling and association is of particular importance for those properties that qualify under criteria A and C.

Although the region has sustained several large mining operations and other extensive development projects, the ATCC has retained sufficient integrity of setting, feeling, and association to remain a critically important area for traditional uses. Some historic property types can be altered and still retain sufficient integrity to remain of value and use to those communities who hold them in high regard. However, the ATCC is comprised of historic properties whose traditional value is dependent on qualities of continuity and association which are extremely fragile. Trails connect places of religious and cultural significance and are also places where ceremonies are conducted along the route to ensure safe journeys. The scenic landscape along trails provides landmarks that enable the travelers to find their way as does the physical integrity of the trails. Ceremonies are conducted during the construction of certain trail features to protect travelers from metaphysical dangers, to prepare for the spiritual rigors of the journey, and to help ensure that they arrive at their destination in the proper mind set. At this time the Trail of Dreams and the ATCC retain sufficient integrity for continued traditional uses. The only significant intrusion into the area is the unpaved Indian Pass Road. Existing highways, power lines, mining operations and other types of development that may compromise setting are not readily visible from the project area. It remains a place of quiet solitude and substantial environmental integrity.

The proposed mine and its operation would unduly degrade the ATCC, introducing activities and intrusions incompatible with the historic area and its unique qualities. The Quechan have argued that the ATCC and vicinity are so central to the religious and cultural practices of the tribe that impacts from the proposed mine would essentially destroy the tribe's ability to practice and transmit to future generations the ceremonies and values that sustain their cultural existence. Within the project footprint all contributing elements to the ATCC would be destroyed. A 300' high stockpile would obscure Indian Pass viewsheds and the nearly 200 acre and 900' deep East Pit would remain a defacement on the landscape, irrevocably altering the historic environment. Other visual intrusions would result from proposed power lines, utility corridors and associated facilities. The integrity of the ATCC, particularly those values associated with the setting, feeling and

association of the historic properties, would be severely compromised and the charactcristics qualifying,the area for the National Register jeopardized.

The public and tribe have consistently voiced their overwhelming opposition to the proposed mine. The Council solicited comments and views of the public and the tribe regarding the impacts of the mine. The vast majority of respondents voiced their strong opposition to the mine. Overwhelming opposition to the project was also voiced by the public and tribes in the public comment record of the draft Environmental Impact Statement prepared by BLM. Many non-tribal commenters specifically identified the area's religious and cultural importance to the Quechan and defended the Quechan's fight to practice their traditional religion in this area as the basis for their opposition to the project. The Quechan have remained steadfast and unswerving in their opposition to the project because of the importance of the area to sustaining their traditional culture and religion. On November 8, 1998, the Quechan Tribal Council passed unanimously a resolution of opposition to the project. In our view, this consistent and overwhelming opposition to the project provides compelling evidence of the importance of this area to the public and the Tribe as a place for spiritual and cultural renewal.

Although the BLM and GIamis have attempted to devise mitigation measures responsive to the values of affected historic resources, they are not adequate to compensate for the loss. In an effort to minimize impacts, Glamis Imperial Corporation has redesigned certain aspects of the mine plan. Specifically, the proposed overburden stockpiles were moved and reduced in height, one stockpile was eliminated, haulage routes were altered, and the footprint of the leach pad was altered to reduce physical impacts on some cultural features. Furthcr, Glamis has expressed willingness to carry out a mitigation package. Such mitigation efforts might include archaeological data recovery of threatened sites and cultural features, backfilling two of the three open pits and reestablishing a trail corridor, establishing a "cultural land bank" away from the project to convey selected riparian lands to the tribe for cultural resource enhancement purposes, and relinquishing about 800 acres of nearby mining claims in the Indian Pass and Picacho Peaks Wilderness Areas. These mitigation efforts represent a laudable proposal by the company. However, in the Council's view, they do little to reduce the devastating impacts on the historic properties and their environment and fall short of compensating for the loss of the traditional religious and cultural values of the ATCC.

Conclusions and Recommendation

If implemented, the project would be so damaging to historic resources that the Quechan Tribe's ability to practice their sacred traditions as a living part of their community life and development would be lost. Overall, the Council is convinced that the cumulative impacts of the proposed mine on the ATCC, even with the mitigation measures proposed by the company, would result in a serious and irreparable degradation of the sacred and historic values of the ATCC that sustain the tribe. Therefore, the Council concludes that the Glamis Imperial Project would effectively destroy the historic resources in the project area, and recommends that Interior take whatever legal means available to deny approval for the project.

In accordance with Section 106, the Council provides these comments for your consideration as you take into account the impact that the Glamis Imperial Project will have upon these important historic properties. Since the final decision will be made and documented by you, as required by Section 110(l) of the National Historic Preservation Act, I request the opportunity to meet with you to discuss our concerns before final action is taken on the project. The Council's Executive Director will contact your office to arrange this.

Sincerely,

/s/ Cathryn Slater

Cathryn Buford Slater
Chairman

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
California State Office
2135 Butano Drive
Sacramento, California 95825-0451

AUG 25 1998

In Reply Refer To:

8130(P)
CA-930.5

Mr. John Fowler, Executive Director
Advisory Council on Historic Preservation
1100 Pennsylvania Avenue, NW
Washington, DC 20004

Dear Mr. Fowler:

The Bureau of Land Management (BLM) is considering a plan of operations submitted by Glamis Imperial Corporation pursuant to the Mining Act of 1872 (43 CFR 3809) for an open-pit, heap-leach, precious metal mine in eastern Imperial County, California. Referred to as the "Imperial Project," this undertaking would entail the development of three major components: (1) a 1,571-acre Project mine and process area which would disturb approximately 1,302 acres; (2) an ancillary area (water wells and utility corridors) which would disturb approximately 38 acres, and (3) an approximately 16-mile upgraded ("overbuilt") transmission line, which would disturb approximately 22 acres. More complete descriptions of the proposed Imperial Project ("Project") are provided in the "Summary" (pages S-2 through S-8) and Section 2.1 (pages 2-1 through 2-50) of the attached Draft Environmental Impact Statement/Environmental Impact Report (Draft EIS/EIR) prepared by the BLM and Imperial County to analyze the effects of the Project and alternatives on the environment.

A Class III inventory and evaluation of the Area of Potential Effects (APE) was conducted by KEA Environmental, Inc.(see enclosed report entitled *Where Trails Cross: Cultural Resources Inventory and Evaluation for the Imperial Project, Imperial County, California*). Additionally, a Native American consultation program was conducted by Tierra Environmental Services and is included as Appendix C of the KEA report. The Quechan Tribe has expressed strong cultural concerns for properties in the APE; accordingly, BLM has met repeatedly with the Quechan cultural committee regarding the Project and has been conducting an ongoing government-to-government consultation.

BLM has consulted with the California State Historic Preservation Officer (SHPO) (see enclosed letter dated February 25, 1998) regarding potential effects to historic properties. The

SHPO letter provides a summary of historic properties that would be affected by the Project. BLM and the SHPO have concurred that the Imperial Project would have an adverse effect on historic properties. All Project alternatives considered in the EIS/EIR other than the No Project alternative would also have an adverse effect on historic properties. BLM believes that Council review of this project would be appropriate under Paragraph 4.b.(3) of the Nationwide Programmatic Agreement.

The following paragraphs describe potential effects to historic properties. The Project mine and process area, where adverse effects would be most severe, is addressed first, followed by the Project ancillary area and overbuilt transmission line.

Project Mine and Process Area

Indian Pass-Running Man Area of Traditional Cultural Concern- KEA identified a historic district, measuring approximately eight miles long northeast to southwest and reaching up to five miles in width northwest to southeast. This district contains a concentration of sites and features of cultural concern to the Quechan Tribe. Material culture in the district includes Native American trails, geoglyphs, scratched petroglyphs, ceramics scatters, lithic scatters, rock circles, and a variety of other types of features. The Quechan have also expressed concern for landscape features within the district. According to knowledgeable representatives of the Quechan Tribe, the district was important in religious activities and in the training of traditional cultural leaders. Because the district is tied to several other areas of traditional cultural concern by a trail network and because the Quechan view this complex as inter-related, BLM and SHPO discussed whether there should be an evaluation of a single very large traditional cultural property (over 150 miles in length) encompassing this entire complex or a series of linked traditional cultural properties. The result of this discussion was the sense that the available information is not sufficient to decide this issue. As a consequence BLM is requesting that the ultimate boundaries of a traditional cultural property be left open, and asked KEA to describe and evaluate an "area of traditional cultural concern" (ATCC). KEA applied the evaluation methods described in *National Register Bulletin* 38 in evaluating the ATCC and recommended that it is eligible for the National Register as a district under Criteria A, C, and D. BLM and SHPO have concurred with this evaluation.

The BLM and SHPO have concurred that there would be an adverse effect to the district. The Project mine and process area is proposed to be located in the central portion of the district and would physically destroy between 15% and 20% of the area encompassed by it, including numerous contributing elements spanning the full range of feature types mentioned above. The Project would also introduce visual and aural components that are out of character with the remaining portions of the district. The Quechan have stated the belief that the operation of the mine and the presence of waste rock stockpiles, ore heap, and open mine pit after reclamation would destroy their ability to practice their traditional religion in the district and would have a devastating effect on the continuity of their traditional culture. The location of the ore body makes total avoidance of the district impossible if the Project goes forward. The mining company has redesigned certain Project components to reduce direct

physical disturbance of several features of traditional cultural concern, but numerous others would be destroyed. While two of the proposed open pits would be refilled, the mining company has stated that refilling the other major pit (which would partially reduce the ultimate visual impact of the Project) would be uneconomic and would make the Project infeasible.

Trail of Dreams - The Quechan Tribe has identified a major Native American trail connecting two highly sacred places, *Avikwlal* (Pilot Knob) and *Avikwaame* (Newberry Mountain). The straight-line distance between these places is approximately 170 miles. According to the Quechan, religious leaders and those seeking spiritual power would make pilgrimages along this trail. Additionally, dream travel is said to have occurred along the trail. Knowledgeable Quechan representatives have identified segments of this trail in the Project mine and process area. Recent archaeological reconnaissance by KEA confirms that extant trail segments identified as the Trail of Dreams are associated with distinct concentrations of features of potential symbolic significance as well as ceramics of the Patayan cultural tradition and retain good integrity. Alternative routes represented by other roughly parallel trail segments do not replicate segments identified as being part of the Trail of Dreams in these characteristics. Extant trail segments identified as being part of the Trail of Dreams have been incorporated into the Indian Pass-Running Man ATCC (district). Additionally, KEA evaluated these segments as individually eligible for the National Register under Criteria A, C and D. BLM and SHPO have concurred with these evaluations.

Portions of the Trail of Dreams outside of the ATCC have not been evaluated. The western mine pit would destroy an extant trail segment identified by the Quechan as being part of the Trail of Dreams. The Quechan have stated that this will cut-off their ability to make religious pilgrimages along the Trail of Dreams and to undertake dream travel along this route. The BLM and SHPO have concurred that there would be an adverse effect to this site. The western mine pit will be refilled during the operation of the Project. It might be possible to restore the destroyed segment of the Trail of Dreams as part of the reclamation effort.

Multicomponent Sites - Seven large multicomponent sites were identified within the Project mine and process area. These contain concentrations of cultural features connected by a low density scatter of individual artifacts. Features include a large number of lithic scatters and flaking stations, ceramics scatters, geoglyphs, rock features, and a few scratched petroglyphs. These sites have been included within the district and also evaluated as individually eligible for the National Register under Criteria D and A and/or C. Some of the multicomponent sites include historic period features associated with 20th century mining or World War II training. KEA recommended that these historic period features do not contribute to the eligibility of the district or the sites. BLM and SHPO have concurred with this evaluation. Each of the multicomponent sites would be physically disturbed in part or in whole by Project earthmoving activities. BLM and SHPO have agreed that there would be an adverse effect to these sites.

Trails - Sixteen prehistoric trail segments have been identified within the APE of the Project

mine and process area. In accordance with SHPO guidelines, prehistoric trail segments were recorded as separate archaeological sites. KEA evaluated these as contributing elements to the district. They have value under Criteria D and A and/or C. BLM and SHPO have agreed with these evaluations. Most, if not all, of these trail segments would be disturbed or destroyed by development of the Project mine and process area.

Project Ancillary Area and Transmission Line

The Project ancillary area is immediately south of the Project mine and process area and would contain water wells, a buried water pipeline, an new 92 kV electric transmission line, and utility access roads. Some of the same sites contained here are also contained within the area of the ATCC. In addition, approximately 16 miles of an existing utility wood-pole transmission line outside of the Project ancillary area would be upgraded from a voltage of 34.5 kV to 92 kV. Avoidance of ground-disturbing effects is more feasible in these areas than in the Project mine and process area.

The Running Man Site (CA-IMP-2727) - This large multicomponent site lies adjacent to the Project ancillary area. Two major Native American trails cross within this site, including the Trail of Dreams. Near the intersection lies the Running Man geoglyph, which appears to be a post-1930 Native American construction. Project facilities in the Project ancillary area have been located to avoid direct impacts to features of possible traditional cultural significance. However, the new 92 kV transmission line, located approximately 200 meters west of the Running Man geoglyph, will introduce an out-of-character visual element.

Aboriginal Trails - Ten prehistoric trails were identified in the Project ancillary area and along the route of the overbuilt transmission line. All have been determined eligible for the National Register under Criterion D, and those associated with the Trail of Dreams or with features of possible symbolic significance have been determined eligible under Criteria A and/or C as well. It appears that Project facilities, including the overbuilt transmission line, can be sited to avoid direct disturbance of these sites. However, construction of the new electric transmission line in the Project ancillary area will introduce out-of-character visual elements to trails evaluated as eligible under Criteria A and C, including a segment of the Trail of Dreams.

Geoglyph Sites - Twelve geoglyph sites and one possible geoglyph site have been recorded in the Project ancillary area and along the overbuilt utility transmission line route. These are mostly small circular designs tamped into desert pavement. Most lack associated artifacts. The geoglyph sites have been determined eligible for the National Register under Criteria C and D. It appears that direct impacts to these sites can be avoided; however, geoglyphs in the Project ancillary area would be subject to visual intrusion from out-of-character elements.

Ceramic Scatters - Seven ceramic scatters were recorded in the Project ancillary area and along the overbuilt utility transmission line route. It is noteworthy regarding ceramic scatters, including those within the Project mine and process area, that early archaeological work by

Malcolm Rogers in the vicinity of Indian Pass reported much higher frequencies of Native American pottery than is evident today. What is left is the last vestige of a once more abundant set of resources. The KEA report suggests that remaining ceramics can be compared to Rogers' extensive collections from the area and provide important new information regarding Native American prehistory. Accordingly, the ceramics scatters have been determined eligible for the National Register under Criterion D. It appears that impacts to these sites in the Project ancillary area and along the transmission line can be avoided through facility siting.

Flaked Stone Quarry - A small quartz quarry was found along the overbuilt utility transmission line route. This site has been determined eligible for the National Register under Criterion D. It appears that the site can be avoided during construction.

Camp Pilot Knob - This large site, several miles in length, is one of ten divisional camps established for the World War II era Desert Training Center. It has been determined eligible for the National Register under Criteria A, B and D. The existing transmission line passes across this site and existing would poles would be replaced with taller poles to support the overbuilt utility electric transmission line for the Project. However, most existing poles are immediately adjacent to an existing county road. With proper monitoring, KEA recommended that construction of the overbuilt transmission line should not effect qualities that make this site significant. However, BLM and SHPO have concurred that the effect of the Project would be adverse.

Mitigation

BLM would like to begin consultation regarding measures to avoid or reduce adverse effects. Pages 309 through 320 of the KEA report address potential mitigation measures. Many of KEA's suggestions are included in the Draft EIS/EIR as recommended mitigation measures. Glamis Imperial Corporation has also suggested certain mitigation measures in a letter to the Quechan Tribe. The Tribe has stated that only complete avoidance will adequately reduce the adverse effect and that they will remain opposed to the Project regardless of what mitigation measures, short of full avoidance, are proposed. From strictly a scientific point of view most of the sites can be satisfactorily mitigated. From the cultural viewpoint of the Quechan there are no identified measures that can eliminate the effect to the Quechan's cultural heritage. The paragraphs below summarize mitigation measures as discussed in the EIS/EIR. Following this, mitigation measures suggested by Glamis Imperial are summarized.

The following mitigation measures were proposed in the Draft EIS/EIR (they are numbered as they appear in that document) independent of the KEA report:

<u>Measures Incorporated by Project Design Which Avoid or Reduce Potentially Significant Impacts</u>

- 4.1.6-1: To reduce Project impacts on identified cultural resources, Project facilities

associated with the Project mine and process area shall be located consistent with those presented in the Plan of Operations (Revised September 1997). This shall include all of the Project revisions included since the previous Plan of Operation (Revised October 1996), including the revised boundary of the Project mine and process area, the reduction in the height of the waste rock stockpiles, the elimination of one (1) waste rock stockpile and two (2) soil stockpiles, and the reconfiguration of the remaining waste rock stockpiles, soil stockpiles, haul roads, and the heap leach pad.

Mitigation Measures Proposed to Avoid or Reduce Potentially Significant Impacts

- 4.1.6-2: Applicant shall designate a project contact representative (PCR) who would be responsible for overseeing Project compliance with the conditions and stipulations for cultural resources. The PCR shall have authority to halt all activities that are in violation of the stipulations. The PCR may be a project manager, company environmental coordinator, or other person identified as responsible by the Applicant. Applicant shall provide the name and contact information of the PCR to the BLM prior to construction.

- 4.1.6-3: Should previously unidentified cultural resources be discovered during project construction or operations, Applicant shall immediately cease all activities in the immediate vicinity of the discovery and notify the BLM. Activities shall not be reinitiated in the vicinity of the discovery until authorized by the BLM.

Suggested Mitigation Measures that Would Reduce Potentially Significant Impacts

The following are some of the proposed mitigation measures, some of which were identified in the Draft EIS/EIR. They have not been incorporated in the Project by the Applicant, but may be incorporated, in whole or in part, into BLM's Record of Decision for the Proposed Action following completion of on-going Section 106 consultation and on-going Government-to-Government consultation with the Quechan Tribe:

The following measures could partially mitigate the physical disturbance within the Project mine and process area which will occur to the features of religious-symbolic significance within the Indian Pass-Running Man ATCC:

- 4.1.6-4: Extant cultural features in the Indian Pass-Running Man ATCC should be avoided to the extent possible. KEA's GPS data base should be provided to Glamis Imperial to determine whether additional features can be avoided. The Running Man geoglyph is already listed on the National Register of Historic Places but needs to be rephotographed and the nomination for the Colorado Desert Geoglyphs will be "refreshed" with new data as a result of the project.

- 4.1.6-5: A professional archaeologist shall flag or fence avoided features near construction areas prior to initial site preparation. Environmental inspectors shall monitor avoidance. Flags outside of the perimeter fence should be removed immediately after construction of

that fence.

- 4.1.6-6: An archaeological data recovery program conforming to that recommended in Chapter 9 of the KEA report may be implemented and can include a description and analysis of the features and artifacts that would be destroyed by the project and a technical archaeological report.

- A treatment plan and agreement document betwen BLM and the ACHP will describe explicitly how much archaeological work will be undertaken.

- The treatment plan will make the determination which lands will be acquired for the archaeological bank which will be created as a result of the project. The exact acreage will be determined by using a formula which credits the amount of money that Glamis will
- spend for the physical mitigation of the archaeology against the amount spent to acquire lands with archaeological resources that will be preserved and replace the resources which will be adversely affected by the project.

- A determination will be made in the treatment plan as to who will hold the land and how the sites will be administered.

- All lands in the Indian Pass area will be segregated from mineral entry.

- Glamis Imperial will relinquish their mining claims in the Indian Pass Area of Critical Environmental Concern after BLM completes the withdrawl action.

- BLM will withdraw from mining all of the lands in the Indian Pass Area of Critical Environmental Concern.

The following measures could partially mitigate the physical disturbance within the Project mine and process area which will occur to significant Native American trails and will cut-off the ability of the Quechan to travel physically and spiritually along the Trail of Dreams:

- 4.1.6-7: In consultation with the Quechan, extant trails in the Indian Pass-Running Man ATCC should be field mapped and their significance to Native Americans ascertained. Low-level aerial photography and video photography should be used to document trails that will be destroyed. It appears from present information that certain trail corridors through the Indian Pass-Running Man ATCC west of the mine and process area can be preserved. Preserved segments with high Native American sensitivity should be nominated to the NRHP and a preservation plan prepared by a consultant and adopted by the BLM. The National Register documentation will be prepared by a consultant and reviewed and submitted to SHPO by the BLM.

The following measures could partially mitigate the physical disturbance and visual and aural

intrusions in and from the Project mine and process area into the Indian Pass-Running Man ATCC which will conflict with the Quechan traditional practices and inhibit the Quechan's ability to conduct traditional religious activities at the Indian Pass-Running Man ATCC:

- 4.1.6-8: In accordance with the current Plan of Operations, the height of the waste rock stockpiles and heap should be restricted to 300 feet.

- 4.1.6-9: The BLM will continue consultation with the Quechan to ensure continued access to the Indian Pass-Running Man ATCC during Project implementation and after Project closure.

The following measures could partially mitigate the disturbance created within the Project mine and process area which will inhibit or destroy the Quechan's ability to use the Indian Pass-Running Man ATCC for traditional cultural education programs:

- 4.1.6-10: Provide for a cultural educational program which would include a professional-quality video documentary of the Indian Pass-Running Man ATCC prior to disturbance; a full or part-time teaching/curatorial position for a Quechan tribal member for a period of three (3) to five (5) years; preconstruction cultural educational classes in the Indian Pass-Running Man ATCC; and a comprehensive report documenting Quechan history and prehistory written in part or in its entirety by the Quechan.

- 4.1.6-11: Delay or phase construction activities to allow the Quechan the opportunity to conduct traditional cultural education in the Indian Pass-Running Man ATCC prior to their loss of this resource.

- 4.1.6-12: A non-technical report should be written based on the archaeological and ethnographic studies written for the Quechan tribe, addressing the part of Quechan history that would be destroyed by the mine and distributed to the local media, school districts, communities, etc by Glamis Imperial on behalf of the Bureau of Land Management.

- 4.1.6-13: Provide for the expansion plan for the Quechan Museum and curation of artifacts from the Project in this facility.

The following measures could partially mitigate the cumulative adverse effects that the disturbance created by the Project mine and process area will have on traditional cultural sites in Quechan territory:

- 4.1.6-14: The Indian Pass-Running Man ATCC, the Trail of Dreams, Pilot Knob, Muggins Peak, and the Picacho Basin should be nominated to the NRHP as traditional cultural properties by Glamis for the BLM through their chosen consultant.

- 4.1.6-15: A recording and protection program for the concentration of scratched petroglyphs at Indian Pass should be implemented.

- 4.1.6-16: Consultation should be initiated with the Quechan to identify lands of traditional concern that could be acquired and protected. The purchase price of these lands will be discounted from the overall price of project mitigation.

In addition to the measures listed above to mitigate the adverse effects on the Indian Pass-Running Man ATCC, the following measures are proposed to mitigate the physical disturbance created by the Project mine and process area to all or parts of seven (7) multicomponent and twelve (12) trail sites, which will result in data loss and the destruction of historic context:

- 4.1.6-17: An archaeological data recovery program (in accordance with the recommendations provided in Chapter 9 of KEA's cultural resource report) may be implemented at sites that cannot be avoided.

The following measures are proposed to mitigate the physical disturbance to significant archaeological sites created by construction within the Project ancillary area.

- 4.1.6-18: No ground disturbance should be allowed within features that contribute to the significance of the Indian Pass-Running Man ATCC. In site CA-IMP-2727, the water pipeline should be rerouted to the area already disturbed by Indian Pass Road. Alternatively, boring could be utilized to avoid impacts to contributing features. All NRHP-eligible archaeological sites outside of the Indian Pass-Running Man ATCC should be avoided. Flagging and monitoring should be done in accordance with mitigation measure 4.1.6-5.

The following measures are proposed to mitigate the disturbance which could occur to features that contribute to the NRHP-eligibility of Camp Pilot Knob.

- 4.1.6-19: Prior to construction, a professional historical archaeologist should flag all features in the vicinity of existing poles that contribute to the NRHP eligibility of Camp Pilot Knob. Periodic archaeological monitoring should be conducted to ensure avoidance. In case of accidental damage, BLM will follow the stipulations in the 1998 Protocol with the SHPO. Oral history and archival research should be considered along with archaeological data recovery in case of such an eventuality.

- 4.1.6-20: If adverse effects cannot be avoided, an interpretive display should be developed to supplement the *E Clampus Vitus* sign that already exists on-site. This display should address the relationship of Camp Pilot Knob to the overall Desert Training Center operations and include historical photos of the camp during its period of significance.

The following measure is proposed to mitigate the disturbance which could occur to significant archaeological sites during the construction of the overbuilt 92 kV/34.5 kV transmission lines.

- 4.1.6-21: All NRHP-eligible sites should be flagged for avoidance of direct impacts prior to construction of the transmission line. Avoidance of flagged archaeological sites should be part of the overall environmental monitoring program for the Project. In addition, periodic monitoring by a professional archaeologist and Quechan representative should be conducted to ensure avoidance. In case of accidental damage, BLM will consult with SHPO. Oral history archival research, and ethnographic research should be considered as appropriate along with archaeological data recovery in case of such an eventuality.

Additional Mitigation Proposed by Glamis Imperial Corporation

In a letter to the Chairperson of the Quechan Cultural Committee dated September 5, 1997, Glamis Imperial proposed the following measures to help mitigate the Project's impacts to the ATCC and Trail of Dreams:

- Funding for an endowment to the Quechan Tribe for three years for the services of a tribal member to study cultural features in and around Indian Pass and to continue cultural education within the tribe. Provision of a new pickup truck for use in this cultural program.

- Up to $50,000 in funding to conduct a baseline study of the Native American rock art, geoglyphs and other cultural features at Indian Pass within the BLM-designated Indian Pass Area of Critical Environmental Concern (ACEC).

Additional Native American Concerns about Mitigation

While certain mitigation measures mentioned above might suggest the study and dissemination of information about traditional Quechan religion, BLM is sensitive to Native American concerns to protect the dignity and integrity of traditional culture. Quechan spiritual knowledge was gained traditionally through long-term commitment to a spiritual path and arduous training. The Quechan have long been reticent to reveal much about their traditional belief systems. Such knowledge is protected by its keepers and consequently is not shared readily. The following written statement provided by a knowledgeable Quechan representative exemplifies Quechan concerns:

> This area is a sacred landmark to living Quechan people, not a potential display or campfire talk subject. Sensationalizing its mysteries or exposing its secrets to an otherwise unprepared audience would entail, in effect, a showcasing of the religious beliefs of others rather than an understanding of them.

Any mitigation program involving the preservation of cultural knowledge should be planned under the direction of the Quechan themselves.

All mitigation undertaken will be through an open bid process. The BLM will assist Glamis Imperial in making the final selection of the consultants which will be hired for the various phases of the project.

This project has produced over 500 comments from interested publics including archaeologists, environmental groups, historic resources community members, and local Indian tribes. Staff of California SHPO visited the project site and attended a meeting with the BLM and Quechan Indian Tribe. The SHPO concurred that we had provided adequate information to them since the project will create an adverse effect to the resources even with all of the above proposed mitigation measures. Several public hearings have been held dealing with the overall project. Pursuant to 36 CFR 800.5 (3) we request that you expeditiously schedule at least one public informational meeting with to discuss the project, mitigation measures proposed, and the design of a treatment plan with full public/tribal involvement. The location of the meeting place should be determined after discussion with my Deputy Preservation Officer.

We look forward to future discussions with you regarding the Glamis Imperial Project's effects and measures that might reduce those effects. Please feel free to call Russell L. Kaldenberg, Deputy Preservation Officer (916-978-4635) to discuss this project.

Sincerely,

Ed Hastey
State Director

cc: (all without enclosures)
Director, WO-240, 204-LS
District Manager, CDD (Attn: Joan Oxendine)
Field Manager, El Centro
Advisory Council on Historic Preservation, Attn: Alan Stanfill, 12136 West Bayalud Ave., Suite 300, Denver, CO 80226
KEA Environmental, 1420 Kettner Blvd., Suite 620, San Diego, CA 92101
Environmental Mgt. Assoc., Inc., 1698 Greenbriar Lane, Suite 210, Brea, CA 92621-5919
Glamis Imperial Corporation, Steve Baumann, P.O. Box 758, Winterhaven, CA 92283
Southeast Information Center, Attn: Coordinator, P.O. Box 430, Ocotillo, CA 92259
State Office of Historic Preservation, P.O. Box 942896, Sacramento, CA 94296-0001
Tribal Chair Jackson, Quechan Tribe, Fort Yuma Reservation, P.O. Box 11352, Yuma, AZ 85364
Michael Baksh, Ph.D., Tierra Environmental Services, 9903 Businesspark Ave., Suite E, San Diego, CA 92131
Larry Myers, Executive Director, Native American Heritage Commission, 915 Capitol Mall, Room 364, Sacramento, CA 95814

Enclosures:

(1) EIS/EIR
(2) Letter to SHPO, dated 2/25/98
(3) SHPO Reply Letter, dated 4/23/98
(4) Letter to SHPO, dated 7/09/98
(5) SHPO Reply Letter, dated 7/21/98
(6) KEA Survey Report (*Where Trails Cross...*)
(7) KEA Trails Reconnaissance Reports

Appendix B

Solicitor's Opinion, Regulation of Hardrock Mining, 12/27/99

United States Department of the Interior

OFFICE OF THE SOLICITOR
Washington, D.C. 20240

IN REPLY REFER TO:

DEC 27 1999

Memorandum

To: Secretary
Acting Director, BLM

From: Solicitor

Subject: Regulation Of Hardrock Mining

I. Factual Background

The Glamis Imperial Gold Mine is proposed to be developed on mining claims in Imperial County, California, in the southeastern part of the California Desert Conservation Area designated by Congress. The mining company, Glamis Gold, has submitted a plan of operations for a cyanide heap-leach gold mine using three open pits on 1,650 acres. The Bureau of Land Management is in the process of preparing an environmental impact statement under the National Environmental Policy Act, 42 U.S.C. §4321 et seq., on the company's proposed plan of operations.

The Glamis proposal is typical of modern, fine-particle, heap-leach gold mining and recovery operations. It involves the disturbance of a large quantity of waste rock and low-grade ore in order to extract a comparatively tiny amount of gold. It would retrieve, on average, approximately one ounce of gold for every 422 tons of earth core and waste material disturbed – a ratio by weight of one to 13.5 million. See Memorandum from R.Waiwood, BLM, to the Office of the Solicitor (Dec. 1, 1999). Because the ore body is of a somewhat lower grade than that found at most operating mines, the ratio of metal recovered to material disturbed is lower than found in many other operations, particularly for a start-up operation.[1] The low grade of the ore may so affect the profit margin that the imposition of reasonable environmentally protective restrictions or mitigation measures may make the venture unprofitable.

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[1]It may be cost-effective for an established mine, with the necessary infrastructure and other capital investment already in place, to move to lower grade ore, when it may not be cost-effective for an initial investment to mine such a low grade.

The proposed mine has raised several regulatory questions; the most prominent arises from the fact that the proposed mine footprint is located in the Indian Pass-Running Man Area of Traditional Cultural Concern[2] on ancestral lands of the Quechan Tribe of Indians. Recently, at BLM's request, the Advisory Council on Historic Preservation[3] completed a review of the project, and advised BLM of its findings by letter dated October 19, 1999.

In summary, the Advisory Council advised that: (a) the "religious, cultural and educational values" in the area are "of premier importance to the Quechan Tribe for sustaining their traditional religion and culture"; (b) the proposed mine would "unduly degrade" the area, "introducing activities and intrusions incompatible with the historic area and its unique qualities"; and (c) no available mitigation measures are adequate to compensate for the loss. The Advisory Council concluded:

> If implemented, the project would be so damaging to historic resources that the Quechan Tribe's ability to practice their sacred traditions as a living part of their community life

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[2]An "Area of Traditional Cultural Concern" or ATCC is a term used here to describe the area potentially affected by the Glamis mining project. BLM first used this term when proposing a land withdrawal surrounding the Glamis project from operation of the Mining Law, subject to valid existing rights. See 63 Fed. Reg. 58752 (November 2, 1998).

[3]The National Historic Preservation Act (NHPA), 16 U.S.C. §470 et seq., created the Advisory Council on Historic Preservation. See 16 U.S.C. § 470i. The Council is an independent agency that, among other things, may comment with respect to the effect of any federal undertaking on any "site" or "object" included in or eligible for inclusion in the National Register of Historic Places. See 16 U.S.C. §§ 470f, 470j. If an undertaking does not have the potential to cause effects on historic or cultural properties, an agency has no further obligations under the NHPA. 36 C.F.R. §800.3(a)(1). If there is an effect on an historic property, the agency will further determine if the impact is adverse. Id. §800.5(a)(1). The Advisory Council has the option of entering the consultation on its own initiative, or it may be invited to do so by either the SHPO or the agency. Id. §800.5(c). BLM, the Advisory Council, and the National Conference of State Historic Preservation Officers entered into a nationwide Programmatic Agreement on March 26, 1997, outlining the manner in which BLM will meet its responsibilities under the NHPA.

The Glamis project is an undertaking falling under the NHPA. By letter dated August 25, 1998, BLM formally requested the Advisory Council's involvement, noting that BLM and the SHPO had concurred that the Glamis Project would have an adverse effect on historic properties, and also that the Advisory Council's review of the project was appropriate under Paragraph 4.b.(3) of the nationwide Programmatic Agreement since the Glamis project is a "highly controversial undertaking." The Advisory Council and BLM visited the proposed area for the Glamis project site on March 11, 1999. In a letter to Secretary Babbitt dated October 19, 1999, the Advisory Council made its formal recommendations regarding the Glamis project.

and development would be lost. Overall, the Council is convinced that the cumulative impacts of the proposed mine on the ATCC, even with the mitigation measures proposed by the company, would result in a serious and irreparable degradation of the sacred and historic values of the ATCC that sustain the tribe. Therefore, the Council concludes that the Glamis Imperial Project would effectively destroy the historic resources in the project area, and recommends that Interior take whatever legal means available to deny approval for the project.

Officials of Glamis Gold responded to the Advisory Council letter by a fourteen-page letter to the Secretary dated November 10, 1999, exploring the legal issues addressed here. We also have a December 14, 1999 letter from the Western Mining Action Project commenting on the legal arguments in Glamis Gold's November 10, 1999 letter.

This opinion responds to the Advisory Council's recommendations and Glamis Gold's letter, and addresses two questions:

What limits or obligations does the First Amendment to the U.S. Constitution place on the BLM in this context?

To what extent does the Federal Land Policy and Management Act authorize or oblige the BLM to protect the cultural and historic resources[4] of the ATCC in connection with the Glamis proposed plan of operations?

II. Statutory Background

A. The Mining Law

The Mining Law of 1872 allows miners to secure exclusive rights to mine public lands through the location of valid mining claims. Valid mining claims require, among other things, a "discovery" of a "valuable mineral deposit." See 30 U.S.C. §23. A "discovery" is not defined in the statute, but the Supreme Court has described it as having occurred "[w]here minerals have been found, and the evidence is of such a character that a person of ordinary prudence would be justified in the further expenditure of his labor and means, with a reasonable prospect of success, in developing a valuable mine. . . ." Chrisman v. Miller, 197 U.S. 313, 322 (1905). More recently, the Supreme Court has supplemented this "prudent person" test with a "marketability test," which holds that profitability is a critical factor in determining if a mineral deposit is

[4]In its letter dated October 19, 1999, the Advisory Council refers to the need for protection of "historic" properties. BLM's regulations and guidelines mainly refer to "cultural" resources and values. The resources that would be affected by the Glamis proposal are both cultural and historic, so we use the terms interchangeably in this memorandum.

marketable. United States v. Coleman, 390 U.S. 599, 602 (1968). Factors considered in determining whether a discovery exists under either test include the costs of extraction, processing, and transporting the minerals, including labor and equipment costs, and the cost of satisfying environmental requirements of applicable federal, state, and local laws and regulations. Great Basin Mine Watch et al., 146 IBLA 248, 256 (1998); U.S. v. Garner, 30 IBLA 42, 67 (1977); United States v. Pittsburgh Pac. Co., 84 I.D. 282, 285 (1977), affirmed, 462 F. Supp. 905 (D.S.D. 1978), 614 F.2d 1190 (8th Cir. 1980); United States v. Kosanke Sand Corp. (On Reconsideration), 80 I.D. 538, 551 (1973). This means that Glamis Gold's ability to comply with environmental protection requirements may affect whether it has discovered a valuable deposit of gold in accordance with the Mining Law and whether its mining claims are valid.

B. The Federal Land Policy and Management Act

In 1976, Congress enacted the Federal Land Policy and Management Act (FLPMA), 43 U.S.C. §§ 1701 et seq., providing the Secretary of the Interior with organic authority to manage the federal public lands, including those lands containing mining claims located under the Mining Law. FLPMA explicitly acknowledged the continued vitality of the Mining Law of 1872, but amended it in four respects. The last portion of 302(b) provides:

> Except as provided in section 1744, section 1782, and *subsection (f) of section 1781 of this title* and in the *last sentence of this paragraph*, no provision of this section or any other section of this Act shall in any way amend the Mining Law of 1872 or impair the rights of any locators or claims under that Act, including, but not limited to, rights of ingress and egress.

43 U.S.C. §1732(b) (emphasis added). The two italicized references are relevant to consideration of the Glamis operation. Taking them in reverse order, the last sentence of the paragraph states: "In managing the public lands the Secretary shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands." 43 U.S.C. §1732(b). This made clear Congress's intent that all public lands activities, including those conducted under the Mining Law of 1872, are subject to the unnecessary or undue degradation standard.

The reference to section 1781(f) relates to added protection Congress bestowed on public lands found within the California Desert Conservation Area (CDCA). Section 601 of FLPMA created the CDCA, 43 U.S.C. §1781(c), based on Congress's finding that its lands contain "historical, scenic, archeological, environmental, biological, cultural, scientific, educational, recreational, and economic resources" in need of special attention. 43 U.S.C. §1781(a)(1). This section continued, in pertinent part:

> Subject to valid existing rights, nothing in this Act shall affect the applicability of the United States mining laws on the public lands within the California Desert Conservation Area, except that all mining claims located on public lands within

> the California Desert Conservation Area shall be subject to reasonable regulations as the Secretary may prescribe to effectuate the purposes of this section. Any patent issued on any such mining claim shall recite this limitation and continue to be subject to such regulations. *Such regulations shall* provide for such measures as may be reasonable to *protect the scenic, scientific, and environmental values of the public lands of the California Desert Conservation Area against undue impairment, and to assure against pollution of the streams and waters within the California Desert Conservation Area.*

43 U.S.C. §1781(f) (emphasis added). As noted above, this section is explicitly referenced in FLPMA's § 302(b), reconfirming that it applies to mining claims located under the Mining Law.[5]

III. The Quechan Tribal Religion and the First Amendment

Because the Advisory Council has found that the proposed mining operations would have a very damaging effect on the tribe's "ability to practice their sacred traditions," questions have been raised as to BLM's responsibilities with respect to the First Amendment in this context. In Lyng v. Northwest Indian Cemetery Protective Ass'n, 485 U.S. 439 (1988), the Supreme Court held that the First Amendment's Free Exercise Clause did not prevent the Forest Service from permitting road construction or timber harvesting in a portion of a national forest traditionally used by members of California Indian tribes for religious purposes. Even though the majority noted that the logging and road-building could have "devastating effects on traditional Indian religious practices," the government was not in these circumstances required to "bring forward a compelling justification for its otherwise lawful actions." Id. at 450. The Supreme Court went on in Lyng to caution that:

> Nothing in [this] opinion should be read to encourage governmental insensitivity to the religious needs of any citizen. The Government's rights to the use of its own land, for example, need not and should not discourage it from accommodating religious practices like those engaged in by the Indian respondents.

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[5]The other two references in § 302(b) are not relevant here. One requires recordation of mining claims with the federal government, 43 U.S.C. § 1744, and the other incorporates protections for lands eligible for wilderness protection, 43 U.S.C. § 1782. This Office has issued several opinions on the latter. Interpretation of Section 603 of the Federal Land Policy Management Act of 1976 -- Bureau of Land Management (BLM) Wilderness Study, 86 I.D. 89 (1979); The Bureau of Land Management Wilderness Review and Valid Existing Rights, 88 I.D. 909 (October 5, 1981); Patenting of Mining Claims and Mill Sites in Wilderness Areas, M-36994 (May 22, 1998). The Glamis proposal does not involve wilderness study areas or issues.

Id. at 453-54. The Court noted with approval the Forest Service's effort to reroute the road to avoid impacting the most sacred areas, and to leave specific sites undisturbed. Id. at 454.

The teachings of Lyng control application of the First Amendment to the Glamis proposal. The Constitution does not compel rejection of the proposed mining plan on the basis of its potential impact on tribal religious practices. But, like the Forest Service in Lyng, the BLM here could make efforts to accommodate tribal interests through exercise of its regulatory authority.

Since Lyng was decided, the President has issued an Executive Order on Sacred Sites, E.O. 13007 (May 24, 1996), which mandates that federal land managers

> shall, to the extent practicable, permitted by law, and not clearly inconsistent with essential agency functions, (1) accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and (2) avoid adversely affecting the physical integrity of such sacred sites.

The Advisory Council makes clear that the Glamis proposal would affect the physical integrity of sacred sites as they are defined in the Order (see Order, § 1(b)(iii)). The Executive Order therefore guides BLM's administration of its responsibility to regulate hardrock mining on federal lands here in the CDCA, and directs BLM to a policy choice in favor of preserving the physical integrity of the sites unless such a choice is impracticable, forbidden by law, or clearly inconsistent with essential agency functions.

Finally, the Office of Legal Counsel in the Department of Justice has recently advised that the federal government "has broad latitude to accommodate the use of sacred sites by federally recognized Indian tribes" without violating the Establishment Clause of the First Amendment. See OLC Opinion, Memorandum for Bruce Babbitt Secretary of the Interior – Permissible Accommodation of Sacred Sites, September 18, 1996, p. 1; see also Morton v. Mancari, 417 U.S. 535 (1974); Rupert v. Director, U.S. Fish and Wildlife Serv., 957 F.2d 32 (1st Cir. 1992); Peyote Way Church of God, Inc. v. Thornburgh, 922 F.2d 1210 (5th Cir. 1991).

IV. Unnecessary or Undue Degradation

Section 302(b) of FLPMA directs that the Secretary "*shall* by regulation *or otherwise*, take *any* action necessary to prevent unnecessary *or* undue degradation of the lands." 43 U.S.C. §1732(b) (emphasis added). Cultural and historic resources are plainly within the ambit of the unnecessary or undue degradation standard. FLPMA itself recognizes protection of cultural resources as an important component of public land management.[6] The National Historic Preservation Act

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[6]See, e.g., 43 U.S.C. §1702(a) (defining "areas of critical environmental concern" to include public land areas "where special management attention is required . . . to protect and prevent

(NHPA), 16 U.S.C. §470 et seq., covers cultural and historic resources on public lands;[7] indeed, the Advisory Council's involvement in consideration of the Glamis proposal stems from that coverage. BLM's subpart 3809 regulations, implementing the "unnecessary or undue degradation" standard for hardrock mining, require BLM to "tak[e] into consideration the effects of operations on *other resources* and land uses, including those resource and land uses outside the area of operations." 43 C.F.R. §3809.0-5(k) (emphasis added). Other provisions of the regulations incorporate environmental laws, which include the NHPA. See, e.g., 43 C.F.R. §3809.2-2 (each operation "shall comply with all pertinent Federal and State laws"); 43 C.F.R. §3809.0-5(k) ("[f]ailure to comply with applicable environmental protection statutes and regulations thereunder will constitute unnecessary or undue degradation").

The conjunction "or" between "unnecessary" and "undue" speaks of a Secretarial authority to address separate types of degradation – that which is "unnecessary" and that which is "undue." That the statutory conjunction is "or" instead of "and" strongly suggests Congress was empowering the Secretary to prohibit activities or practices that the Secretary finds are unduly degrading, even though "necessary" to mining. Commentators agree that the "undue degradation" standard gives BLM the authority to impose restrictive standards in particularly sensitive areas, "even if such standards were not achievable through the use of existing technology." Graf, Application of Takings Law to the Regulation of Unpatented Mining Claims, 24 Ecology L.Q. 57, 108 (1997); see also Mansfield, On the Cusp of Property Rights: Lessons from Public Land Law, 18 Ecology L.Q. 43, 83 (1991). Further support for that interpretation is found in the fact that, in the 105th Congress, a mining industry-supported bill introduced in the Senate would have, among other things, changed the "or" to "and." S. 2237, 105th Cong. (1998); see 144 Cong. Rec. S10335-02, S10340 (September 15, 1998). See also Utah v. Andrus, 486 F.

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irreparable damage to important historic, cultural, or scenic values . . ."); 43 U.S.C. §1781(a) (California desert, considered further below).

[7]In 1966, Congress recognized that "the historic and cultural foundations of the Nation should be preserved . . . ." and through the NHPA, the Secretary of the Interior was "authorized to expand and maintain a National Register of Historic Places composed of districts, sites, buildings, structures, and objects significant in American history, architecture, archeology, engineering, and *culture*." Pub. L. No. 89-665, 80 Stat. 915 (emphasis added). In 1992, Congress amended the NHPA and clarified that "[p]roperties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization may be determined to be eligible for inclusion on the National Register." 16 U.S.C. §470a(d)(6)(A).

Originally the NHPA focused attention only on those properties officially listed on the National Register of Historic Places. In 1976, however, the statute was amended to include buildings and sites eligible for inclusion on the National Register. Pub. L. No. 94-422, 90 Stat. 1320. The NHPA was further amended in 1992 to require partnerships with States, Indian tribes, Native Hawaiians, and local governments. Pub. L. No. 102-575, 106 Stat. 4753.

Supp. 995, 1005 n.13 (D. Utah 1979) (quoting brief of the American Mining Congress).

This key sentence in § 302(b) gives the Secretary authority, by regulation "or otherwise," to spell out the requirements necessary to prevent such types of degradation. Finally, the sentence gives the Secretary a mandatory duty to take any action necessary to prevent such degradation.

The generally applicable portion of the definition of "unnecessary or undue degradation" in BLM's current regulations essentially codifies a "prudent operator" standard. That standard effectively focuses only on the directive to prevent "unnecessary" degradation, as opposed to "undue" degradation. The entire definition provides as follows:

> Unnecessary or undue degradation means surface disturbances greater than what would normally result when an activity is being accomplished by a prudent operator in usual, customary, and proficient operations of similar character and taking into consideration the effects of operations on other resources and land uses, including those resources and uses outside the area of operations. Failure to initiate and complete reasonable mitigation measures, including reclamation of disturbed areas or creation of a nuisance may constitute unnecessary or undue degradation. Failure to comply with applicable environmental protection statutes and regulations thereunder will constitute unnecessary or undue degradation. Where specific statutory authority requires the attainment of a stated level of protection or reclamation, such as in the California Desert Conservation Area, Wild and Scenic Rivers, areas designated as part of the National Wilderness System administered by the Bureau of Land Management and other such areas, that level of protection shall be met.

43 C.F.R. §3809.0-5(k). The "objectives" of subpart 3809 are stated as follows in §3809.0-2:

> (a) Provide for mineral entry, exploration, location, operations, and purchase pursuant to the mining laws in a manner that will not unduly hinder such activities but will assure that these activities are conducted in a manner that will prevent unnecessary or undue degradation and provide protection of nonmineral resources of the federal lands;
>
> (b) Provide for reclamation of disturbed areas. . . .

Putting the objectives together with the "unnecessary or undue degradation" standard, the Department's current regulations seek to "provide for mineral [activities] in a manner that will not unduly hinder" them, while at the same time to prevent disturbance "greater than what would normally result" from a prudent operation. The Interior Board of Land Appeals (IBLA) has read the regulations this way. See Bruce W. Crawford, 86 IBLA 350, 397 (1985) (the regulatory definition "clearly presumes the validity of the activity but asserts that [unnecessary or undue

degradation] results in greater impacts than would be necessary if it were prudently accomplished"); see also United States v. Peterson, 125 IBLA 72 (1993); Kendall's Concerned Area Residents, 129 IBLA 130, 140 (1994).

While BLM could have adopted (and indeed might be obliged to adopt) more stringent rules in order to ensure prevention of "undue degradation," it has so far chosen to circumscribe only harm outside the range of degradation caused by the customary and proficient operator utilizing reasonable mitigation measures.

The preamble to BLM's regulations states:

> There may exist several alternative ways to achieve a particular result which are reasonable and prudent from a business standpoint. However, an environmental assessment or environmental impact statement may show the authorized officer that the first alternative would have significant detrimental impacts not associated with the second alternative. Since both alternatives are reasonable and practical, it would either be necessary to adopt the second, or the authorized officer would attach conditions to his approval of the plan of operations on implementation of the first alternative so that the detrimental impacts would not occur. Similar reasoning applies with respect to determining whether a proposal will cause unnecessary or undue degradation.

45 Fed. Reg. 78905 (November 26, 1980).

Therefore, while BLM must ensure that the proposed operation is in conformance with the prudent operator standard, including consideration of "other resources" which may be particular to a site, it must also ensure that "reasonable and practical" mitigation is chosen that will best protect such resources. See also 45 Fed. Reg. 78906 (speaking of an obligation to prevent degradation of visual resources "only to the extent practicable"). Under this portion of the regulations, then, while BLM may mitigate harm to "other resources," it may not simply prohibit mining altogether in order to protect them.

The "unnecessary or undue degradation" standard does not by itself give BLM authority to prohibit mining altogether on all public lands, because Congress clearly contemplated that some mining could take place on some public lands. See, e.g., 43 U.S.C. § 1701(12) (policy statement that the public lands "be managed in a manner which recognizes the Nation's need for domestic sources of minerals . . . including implementation of the Mining and Minerals Policy Act of 1970 . . . as it pertains to the public lands"[8]); 43 U.S.C. § 1702(c) (the multiple uses for which the

[8]The Mining and Mineral Policy Act, 84 Stat. 1876, 30 U.S.C. §23a, expresses United States policy as encouraging the development of domestic minerals in an efficient, wise, and environmentally sound way.

public lands should be managed include "minerals"). Therefore, "undue degradation" under section 302(b) must encompass something greater than a modicum of harmful impact from a use of public lands that Congress intended to allow. See Sierra Club v. Clark, 774 F.2d 1406, 1410 (9th Cir. 1985) (rejecting an argument that an off-road vehicle race should not be allowed on federal lands because it would cause irreversible and therefore "undue" degradation, on the ground that accepting the argument "would result in a prohibition of ORV use because it is doubtful that any area could withstand such use without degradation . . . [yet] Congress has determined that ORV use is to be provided" on public lands, citing 43 U.S.C. §1781(a)(4)[9]). The question is not whether the proposed gold mine causes any degradation or harmful impacts, but rather, how much and of what character in this specific location.

Understanding the extent of BLM's authority with regard to the Glamis proposal requires that we also consider BLM's authority with respect particularly to the CDCA.

V. California Desert Conservation Area

The proposed Glamis mine is located on lands within the CDCA. As noted earlier, Congress explicitly amended the Mining Law in FLPMA to protect, among other things, enumerated values of importance in the CDCA. Also as noted earlier, Congress found that "the California desert contains historical, scenic, archeological, environmental, biological, cultural, scientific, educational, recreational, and economic resources that are uniquely located adjacent to an area of large population. . . ." 43 U.S.C. §1781(a)(1). The statute gives BLM an additional directive to "protect the scenic, scientific, and environmental values of the public lands of the California Desert Conservation Area against undue impairment, and to assure against pollution of the streams and waters within the California Desert Conservation Area." 43 U.S.C. §1781(f).

The three values named in subsection (f) -- scenic, scientific, and environmental -- are fairly read to include "archeological," "cultural" or "educational" resources of the type threatened by the Glamis proposal. These resources are of substantial interest to science, and may in many cases have scenic and environmental value as well. The fact that subsection (f) does not separately list these resources, while they are named in subsection (a)(1), cannot fairly be interpreted to limit BLM's authority under subsection (f) to prevent their undue impairment, when such resources are encompassed by the values enumerated in subsection (f). Indeed, it would defy common sense to construe "scientific" values as excluding "cultural," "historical" and "archaeological" resources. Any implication to the contrary in the IBLA's dicta in California Portland Cement

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[9]In a section of FLPMA dealing with the California Desert, Congress found "the use of all California desert resources can and should be provided for in a multiple use and sustained yield management plan to conserve these resources for future generations, and to provide present and future use and enjoyment, particularly outdoor recreation uses, including the use, where appropriate, of off-road recreational vehicles." 43 U.S.C. §1781(a)(4) (emphasis added).

Corp., 83 IBLA 11 (1984) is expressly disapproved.[10]

The issues raised by the Glamis proposal are (1) the extent to which the "undue impairment" standard gives BLM authority to protect the CDCA and the cultural and historic resources involved; and (2) whether BLM's authority is affected by the classification of the lands on which the proposed Glamis mine is found as Class L (Limited Use) in BLM's CDCA Management Plan.

A. Undue Impairment Standard

BLM's 1980 subpart 3809 regulations do not elucidate the undue impairment standard applicable in the CDCA, nor do they define the values contained in 43 U.S.C. §1781. Rather, they reiterate the statutory requirement:

> Where specific statutory authority requires the attainment of a stated level of protection or reclamation, such as in the California Desert Conservation Area, Wild and Scenic Rivers, areas designated as part of the National Wilderness System administered by the Bureau of Land Management and other such areas, that level of protection shall be met.

43 C.F.R. §3809.0-5(k).

The preamble to the 1980 rulemaking indicates that "[s]everal comments were received that suggest the promulgation of a separate rulemaking for the California Desert Conservation Area." 45 Fed. Reg. 78902, 78909 (Nov. 26, 1980). BLM rejected that suggestion on the ground that the regulation

> requires the filing of a plan of operations for any activity in the California Desert Conservation Area beyond that covered by casual use. The plan would be evaluated to ensure protection against "undue impairment" and against pollution of the streams and waters within the Area.

Id. This leaves implementation of the section 1781 standard to the stage of reviewing the plan of operations on a site-specific basis, which is where the Glamis proposal is now.

Subsection 601(f) says that mining claims in the CDCA "shall be subject to reasonable

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[10]In California Portland Cement, the IBLA suggested, without elaboration or discussion, that BLM had properly narrowed a stipulation in a mining patent in the California desert to assert authority only to protect "the scenic, scientific, and environmental values of the public lands" rather than explicitly referencing cultural and archeological resources, among others. The Board did not suggest that such resources lacked scientific, scenic or environmental interest.

regulations as the Secretary may prescribe to effectuate the purposes of this section," and that "[s]uch regulations shall provide for such measures as may be reasonable to protect the scenic, scientific, and environmental values of the public lands of the [CDCA] against undue impairment . . . " It might be argued that the Department's decision not to promulgate separate, detailed regulations to implement the "undue impairment" standard, but rather to adopt regulations that implement the directive on a case-by-case basis through the mining plan of operations approval process, is inconsistent with FLPMA's section 601(f). BLM's regulations require the filing of a plan of operations for any activity in the CDCA to be evaluated to ensure protection against "undue impairment." We believe the approach taken in BLM's regulations providing site-specific analysis and protection is an adequate implementation of the statute.[11]

The regulations allow BLM to prevent activities that cause undue impairment to the CDCA separate and apart from BLM's authority to prevent unnecessary or undue degradation. The IBLA has agreed that BLM's obligation to protect the three enumerated CDCA values from "undue impairment" supplements the unnecessary or undue degradation standard for CDCA lands. In Eric L. Price, James C. Thomas, 116 IBLA 210 (1990), the Board held:

> Under 43 C.F.R. §3809.0-5(k), a plan of operations must take "into consideration the effects of operations on other resources and land uses, including those resources and uses outside the area of operations" (emphasis added). Furthermore, a plan of operations affecting lands in the CDCA must take into consideration the specific objectives of section 601(f) of FLPMA, i.e., protecting the scenic, scientific, and environmental values of the affected lands against undue impairment, and to assure against pollution of affected streams and waters. As promulgated by BLM, the general standard contained in the definition of "unnecessary or undue degradation" is to be applied to CDCA lands in accordance with the imperatives of section 601(f) of FLPMA.

Id. at 218-19.[12] It follows that BLM's decision with respect to the Glamis proposal is governed by both the "undue impairment" standard of subsection 601(f)[13] and the "unnecessary or undue

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[11]This site-specific approach to providing protection has recently been endorsed by the National Research Council in a report entitled Hardrock Mining on Federal Lands (National Academy Press, 1999) (see discussion on pp. 120-121 regarding the protection of other resources).

[12]In Price, the IBLA upheld a BLM decision to deny a proposed mining plan of operations, primarily because the proposal caused "undue impairment" in connection with its visual impacts to the CDCA.

[13]The CDCA requirement that the Secretary "assure against pollution of the streams and waters with the California Desert Conservation Area," 43 U.S.C. §1781(f), also must be given

degradation" standard of section 302(b), as implemented by the subpart 3809 regulations.

Utah v. Andrus, 486 F. Supp. 995, 1004 n.14 (D. Utah 1979) is generally consistent with this approach, although it is not directly on point. The court there determined that the word "impairment" as used in FLPMA's wilderness review section (section 603(c), 43 U.S.C. §1782(c)), means something different from the "unnecessary or undue degradation" standard in 43 U.S.C. §1732(b):

> If the standard of undue degradation were not separate and distinct from the impairment standard contained in section 603(c), there would have been no need to include both the last sentence and reference to section 603(c) in section 302(b). By making distinct reference to both standards in 302(b), Congress indicated its intent to formulate two different approaches to management of the public lands.

Section 603(c) requires BLM to prevent "impairment of the suitability" of certain identified areas "for preservation as wilderness," subject to certain exceptions not pertinent here. It does not use the qualifiers "undue" or "unnecessary," except with regard to the exception for the preservation of existing mining and grazing uses. Thus the court was not confronted with the issue of whether "impairment" under section 601 equals "degradation." We do not need to decide that issue here either. We do note, however, that in carrying out its duty to prevent "undue impairment," BLM is not confined to restrictions that may be imposed on a "prudent operator in usual, customary and proficient operations of similar character." 43 C.F.R. §3809.0-5(k). Instead, BLM's mandate to protect the "scenic, scientific, and environmental values" of the land from undue impairment is distinct from and stronger than the prudent operator standard applied by the subpart 3809 regulations on non-CDCA lands.

Section 601(f) twice employs the adjective "reasonable" in the context of regulating hardrock mining operations in the CDCA. Specifically, mining claims are made "subject to reasonable regulations" prescribed by the Secretary, which shall "provide for such measures as may be reasonable to protect" environmental and other values in the CDCA. There is no indication that Congress meant anything by "reasonable" other than that the Secretary must not act arbitrarily in effectuating such regulations, and that they ought to be designed to accomplish their intended task of protecting the other values on the CDCA. BLM's regulations in subpart 3809 that address the CDCA are reasonable and reasonably related to the purposes of FLPMA. Therefore, BLM should examine each proposed plan of operation on a case by case basis and provide for such measures as may be reasonable to protect environmental and other values in the CDCA from undue impairment.

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independent meaning. The extent to which this standard may compel additional regulation of the proposed Glamis mine is beyond the scope of this memorandum. We have not been presented with any facts or questions regarding any "streams and waters" that might be affected by the proposed Glamis mine.

B. CDCA Management Plan

In 1980, the BLM adopted a Management Plan for the CDCA that, with a few minor amendments, is still in force today.[14] This Plan was prepared in response to the mandate of section 601(d), 43 U.S.C. §1781(d):

> The Secretary, in accordance with section 1712 of this title, shall prepare and implement a comprehensive, long-range plan for the management, use, development and protection of the public lands within the [CDCA]. Such plan shall take into account the principles of multiple use and sustained yield in providing for resource use and development, including, but not limited to, maintenance of environmental quality, rights-of-way, and mineral development.

The 1980 Plan placed most of the CDCA lands in four multiple-use categories.[15] The Plan describes itself as providing a "management framework" for, among other things, responding to "future specific land use requests." CDCA Plan, Chapter 3, at p. 21.

The lands where the projected Glamis mine would be located are designated by the CDCA Plan as Multiple Use Class L (Limited Use) land.[16] According to the Plan, Class L "protects sensitive, natural, scenic, ecological, and cultural resource values." CDCA Plan, Chapter 2, at p. 13.[17] This is the second most restrictive of the four categories. About half of the CDCA acreage

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[14]Generally, IBLA has rejected challenges to BLM's implementation of the CDCA Plan. Max Wilson, 131 IBLA 306, 310 (1994); David R. Hinkson, 131 IBLA 251, 254-55 (1994).

[15]Approximately 300,000 acres within the 12.1 million acre CDCA are unclassified. CDCA Plan, Chapter 2, at p. 13.

[16]The Plan designates other lands as: Class C (Controlled Use), which is the most restrictive category, consisting of those areas preliminarily recommended for wilderness designation; Class M (Moderate Use), which reflects "a controlled balance between higher intensity use and protection of public lands"; and Class I (Intensive Use), that provides for concentrated land and resource use to meet human needs. See CDCA Plan Chapter 2, at 13.

[17]There is no indication that the BLM, in crafting the CDCA Plan, understood or took account of the significance of the Indian interests in the lands subject to the Glamis proposal in designating the area as Class L. The Plan noted, at page 24, that only about 5% of the CDCA had, at the time the Plan was proposed, been inventoried for cultural resources. Last year BLM published a Notice of Proposed Withdrawal for the lands on which the proposed Glamis mine would be located. 63 Fed. Reg. 58752 (November 2, 1998). This has the effect of segregating the lands for a period of two years and preventing the location of new mining claims for that period, while not affecting valid existing mining claims.

is designated Class L. Id. According to the Plan, Class L lands are managed to "provide for generally lower-intensity, carefully controlled multiple use of resources, while ensuring that sensitive values are not significantly diminished." Id.

The CDCA Plan establishes "multiple-use class guidelines" which "describe land-use and resource-management guidelines for 19 land uses and resources" within each class. Id.[18] The four classes of land are managed by taking into account these various resources. The Plan acknowledges that:

> Within each multiple-use class designation residual conflicts will occur naturally, although they are most limited in Class C – the "Controlled Use" class – with its dedication to wilderness characteristics and values. The conflicts increase, however, in a Class L – "Limited Use" – designation, where judgment is called for in allowing consumptive uses *only up to the point that sensitive natural and cultural values might be degraded.* Class M – the "Moderate Use class – calls for subsequent tradeoffs between a number of acceptable uses. Even Class I – "Intensive Use" – designed to permit intensive and single uses, is still open to negotiation between those uses.

CDCA Plan, Chapter 3, at p. 21 (emphasis added). As this shows, the CDCA Plan contemplates that, in Class L lands, protection of resources can sometimes outweigh the proposed use of the land.[19]

Another part of the CDCA Plan is the "plan element," which is described as a "more specific application of the multiple use guidelines for a specific resource or activity about which the public has expressed significant concern." Id. at p. 21. The Plan notes that "[m]any uses in a given area will be mutually exclusive and require selective decisions to be made for that area," and that the task of the plan element is to "identify existing or possible conflicts and to assist the manager in resolution." Id.

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[18]A miner on public lands in the CDCA, regardless of the classification of the lands or the size of the proposed operation, must obtain approval of a plan of operations prior to commencement of mining. That is, the streamlined, so-called "notice" provisions of BLM's regulations that allow proposed smaller-scale mining activities on most other public lands to escape BLM's advance environmental approval do not apply in the CDCA. See 43 C.F.R. §3809.1-4(b)(1).

[19]The Plan calls for protection of cultural and Native American resources and values on all classes of CDCA lands. The Cultural and Paleontological Resources guidelines broadly state that "[a]rchaeological and paleontological values will be preserved and protected." Id. at p. 15.

The cultural resource element of the CDCA Plan begins:

> Prehistoric and historic remains within the California Desert are being depleted at a rate which approaches 1 percent per year. . . . These remains represent a national treasure with importance to the public, scientists, Native Americans, and others. Preservation and protection or proper data recovery is essential.

Id. at p. 22. The goals of the Plan's cultural resource element, as amended in 1985, are to "[p]rotect and preserve a representative sample of the full array of the CDCA's cultural resources" and to "[e]nsure that cultural resources are given full consideration in . . . management decisions." CDCA Plan, 1985 Amendment, at p. 14.[20] The Native American element of the Plan, also as amended in 1985, includes as a goal to "[g]ive full consideration to Native American values in all land-use and management decisions, consistent with statute, regulation and policy," and to "[m]anage and protect Native American values wherever prudent and feasible." Id.

Therefore, with respect to the proposed Glamis site, the CDCA Plan contemplates that multiple-use management decisions will be made with the goal of preserving archaeological and paleontological values. In working within the plan to meet that goal, BLM must also give full consideration to the Quechan's religious, cultural and educational values in the area, and must consider how important and unique the resources are that might be destroyed by the Glamis proposal.

The CDCA Plan contains references to the development of mitigation measures where resources cannot be protected. The Plan's guidelines for mineral exploration and development within Class L lands provide, in pertinent part: "Operations on mining claims are subject to the 43 C.F.R. § 3809 Regulations and applicable State and local law. . . . BLM will review plans of operations for potential impacts on sensitive resources identified on lands in this class. ***Mitigation, subject to technical and economic feasibility, will be required.***" CDCA Plan Chapter 2, at 18 ("Mineral Exploration and Development") (emphasis added). Additionally, the CDCA Plan states "[w]hen protection and/or preservation of cultural and paleontological resources cannot be achieved, mitigation through proper recovery or other means will be undertaken as developed through mitigation plans. . . Mitigation will be employed primarily in Classes M and I where resource protection measures cannot override the multiple-use class guidelines." CDCA Plan, Chapter 3, at p. 24.

Glamis has argued that the emphasized language on Mineral Exploration and Development

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[20]The 1985 amendment made minor word changes to the original 1980 Plan in response to a recommendation by a BLM team to rewrite the goals to make them less vague without changing the intent or purpose of the resource element. Record of Decision on 1985 Amendment, at p. 13.

subjects BLM's authority to prevent "undue impairment" of the CDCA's resources to an "economic feasibility" test. See Letter from Glamis Gold, Inc. to Secretary Babbitt (Nov. 10, 1999) at 4. The reference to feasibility in the Plan, however, occurs only in the context of mitigation measures where plans of operation are approved. It does not preclude BLM from deciding to deny approval of a plan of operations. In addition, section 601(f) of FLPMA is broader and has no such limitation. It refers to "measures" to protect the values of the CDCA against undue impairment, which can include things other than mitigation.

Glamis argues further that the mitigation language means that under section 601, as implemented by the CDCA Plan, conflicts between proposed mineral development activity and cultural and historic resources were not intended to be a basis to prevent mineral development from proceeding. Id. This argument ignores the further language suggesting that mitigation is only necessary in Classes M and I, because those are the areas where protection will not override other uses, thus implying that Class L areas will allow protection over other uses. Therefore, in Class L areas protection may at times be paramount and a proposed project can be rejected because it unduly impairs resources.

This conclusion is further supported by the language in the Plan regarding areas of critical environmental concern (ACEC). Glamis notes that such areas are not areas in which no development can occur. Id. (citing CDCA Plan, Chapter 3, at p. 124). However, that argument again fails to acknowledge the remainder of the paragraph, which states:

> Quite often development, when wisely planned and properly managed, will take place in these areas *if the basic intent of protection of historic, cultural, scenic, or natural values is assured.*

CDCA Plan, Chapter 3, at p. 124 (emphasis added). The emphasized language shows further that the CDCA Plan preserves BLM's authority to protect such values. There is no indication in the California Desert Plan itself, or in its formulation, that the Plan's framers intended to modify or relax the standards of existing law or regulations. General statements in the Plan should not be interpreted to place a fundamental limit on the authority of the Department to take all steps necessary to prevent undue impairment of CDCA resources.

"Undue impairment," as explained above, must mean something more than the prudent operator standard currently in the BLM definition of "unnecessary or undue degradation," but it cannot mean so much as vesting the Secretary with authority to prohibit all hardrock mining in the CDCA. Plainly the "undue impairment" standard would permit BLM to impose reasonable mitigation measures on a proposed plan of operations that threatens "undue" harm to cultural, historic or other important resources in the CDCA. Moreover, the reasonableness of those mitigation measures ought not to be judged by whether they make the particular operation uneconomic at current market prices for the mineral commodity proposed to be mined. Beyond that, the "undue impairment" standard might also permit denial of a plan of operations if the

impairment of other resources is particularly "undue," and no reasonable measures are available to mitigate that harm. As stated above, the CDCA Plan clearly appears to contemplate such a result.

VI. Conclusion

Whether the BLM may deny the Glamis plan approval under section 601(f) depends upon the particular facts, including the significance of the resources to be protected. The Advisory Council on Historic Preservation has found that the mitigation measures proposed by the company do not prevent destruction of the area's important cultural, historic and scientific values.[21] Thus, the ultimate question is what "undue impairment" may mean in the context of a mining proposal that would have this effect.

BLM is now in the process of compliance with the National Environmental Policy Act (NEPA) on Glamis's proposed plan of operations; a draft environmental impact statement was issued in November of 1997. That process is well-suited to ventilate the issues necessary to reach a decision on whether to approve the plan of operations. See Kendall's Concerned Area Residents, 129 IBLA 130 (1994) (reversing BLM's approval of a mine plan on the ground, inter alia, that the NEPA documents did not contain a discussion adequate to support a finding of no "unnecessary or undue degradation"). The Advisory Council has weighed in with its view that mitigation measures are unavailable to avoid great harm to the cultural resources of the area.[22]

The ultimate responsibility for making the decision on "undue impairment" is the BLM's. It must consider the Executive Order, the FLPMA standard, and the advice of the Advisory Council in deciding how to protect the CDCA values and resources from "undue" impairment. This is a difficult task, made more difficult by the impossibility of assigning monetary value to something as abstract as a cultural or historic resource. In the end, what is determined to be "undue" is

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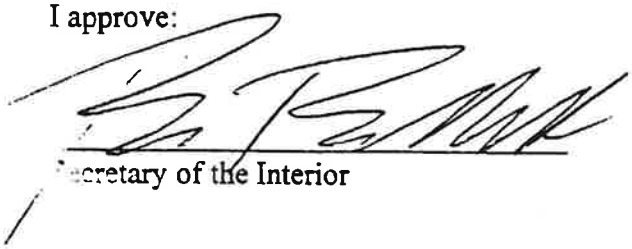
[21]The Advisory Council noted that Glamis had engaged in "laudable" efforts to minimize the impacts of its operation, including some redesign and reconfiguration. The company had indicated a willingness to go further, and to consider backfilling two of the three large open pits, establishing a cultural land bank, and taking other measures. The Advisory Council concluded that these efforts, while praiseworthy, "do little to reduce the devastating impacts on the historic properties and their environment and fall short of compensating for the loss of the traditional religious and cultural values of the ATCC."

[22]As Glamis points out in its letter, the Section 106 process is not intended to impose substantive obligations on BLM. We agree. BLM can, however, consider the recommendations of the Advisory Council in making its own decisions regarding whether to approve or disapprove the proposed mining operation, and whether or not it could cause "undue impairment" of CDCA resources.

founded on the nature of the particular resources at stake and the individual project proposal. If the BLM agrees with the Advisory Council, it has, in our view, the authority to deny approval of the plan of operations.

This Opinion was prepared with the substantial assistance of Elizabeth Rodke of the Division of General Law, Lisa Hemmer (formerly with the Division of Mineral Resources), Karen Hawbecker, and Joel Yudson of the Division of Mineral Resources, Mary Anne Kenworthy of the Division of Indian Affairs, John Payne, Office of the Regional Solicitor, Sacramento, California, Kay Henry, Associate Solicitor for Mineral Resources, Peter Schaumberg, Deputy Associate Solicitor for Mineral Resources and Liz Birnbaum, Special Assistant to the Solicitor.

I approve:



Secretary of the Interior

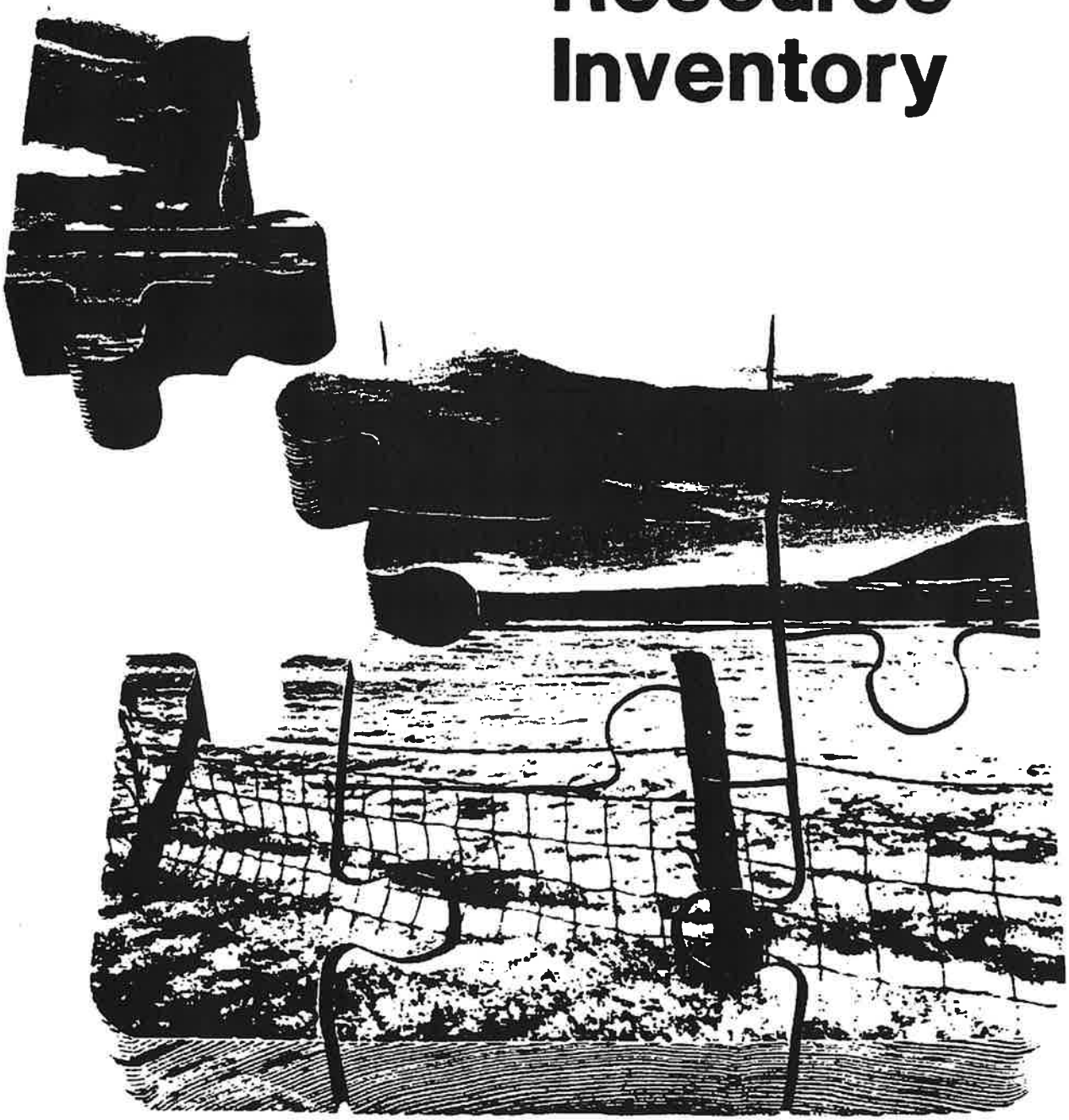
1/3/2000

DATE

Appendix C

Visual Resources Supporting Documents

Visual Resource Inventory



BLM Manual Handbook 8410-1

H-8410-1 - VISUAL RESOURCE INVENTORY

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H-8410-1 - VISUAL RESOURCE INVENTORY.

I. General Guidance.

A. Overview. The visual resource inventory process provides BLM managers with a means for determining visual values. The inventory consists of a scenic quality evaluation, sensitivity level analysis, and a delineation of distance zones. Based on these three factors, BLM-administered lands are placed into one of four visual resource inventory classes. These inventory classes represent the relative value of the visual resources. Classes I and II being the most valued, Class III representing a moderate value, and Class IV being of least value. The inventory classes provide the basis for considering visual values in the resource management planning (RMP) process. Visual resource management classes are established through the RMP process for all BLM-administered lands (see also Manual 1625.3). During the RMP process, the class boundaries are adjusted as necessary to reflect the resource allocation decisions made in RMP's. Visual management objectives are established for each class. (See Section VB.)

B. Implementation Options. The detail of the inventory will vary with the visual character of the landscapes being inventoried. For example, the flat, colorless, and barren mancos shale area in southeastern Utah should not be given the same treatment as the rugged and colorful formations of the Colorado River area. Sensitive areas such as those near major highways or communities or adjacent to national parks should be given special treatment. It may be necessary to modify or make adaptions to the inventory system in such places as Alaska where the resource characteristics and the land-use patterns are significantly different from those in the Western States. These adaptations must (1) provide a more cost-effective way to complete a quality inventory, and (2) keep the conceptual framework of the Visual Resource Management (VRM) system intact.

C. Material Storage. All visual resource inventory rating forms, overlays, slides, and written material should be filed in the Resource Area Office.

II. Scenic Quality Evaluation. Scenic quality is a measure of the visual appeal of a tract of land. In the visual resource inventory process, public lands are given an A, B, or C rating based on the apparent scenic quality which is determined using seven key factors: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications (see Illustrations 1, 2, 3, and 4). During the rating process, each of these factors are ranked on a comparative basis with similar features within the physiographic province. Use the physiographic provinces as delineated by Fenneman (see Illustrations 5 and 6) to the extent possible. The boundaries of these provinces may be refined to fit local situations. The "Ecoregions of the United States" by R. C. Bailey may be helpful in making these refinements. An important premise of the evaluation is that all public lands have scenic value, but areas with the most variety and most harmonious composition have the greatest scenic value. Another important concept is that the evaluation of scenic quality is done in relationship to the natural landscape. This does not mean that man-made features within a landscape necessarily detract from the scenic value. Man-made features that compliment the natural landscape may enhance the scenic value. Evaluations should avoid any bias against man-made modification to natural landscape.

A. Delineating Scenic Quality Rating Units (SQRU's). The planning area is subdivided into scenic quality rating units for rating purposes. Rating areas are delineated on a basis of: like physiographic characteristics; similar visual patterns, texture, color, variety, etc.; and areas which have similar impacts from man-made modifications. The size of SQRU's may vary from several thousand acres to 100 or less acres, depending on the homogeneity of the landscape features and the detail desired in the inventory. Normally, more detailed attention will be given to highly scenic areas or areas of known high sensitivity. Map and number each SQRU on an overlay as shown in illustration 7.

B. Evaluating Scenic Quality. It is recommended that an interdisciplinary team do the evaluations. Ideally, one team member should have an environmental design arts background. All participants should have an understanding of the visual resource inventory system and be familiar with the areas to be evaluated. Evaluate each SQRU by observing the area from several important viewpoints. Scores should reflect the evaluator's overall impression of the area. After evaluating all the SQRU's, show the scenic ratings on the scenic quality overlay (see Illustration 7). Record the ratings on the Scenic Quality Rating Summary - Bureau Form 8400-5 (see Illustration 4). Bureau Form 8400-1 (see Illustration 3) may be used as a worksheet for completing each scenic quality evaluation. A photographic record should be maintained for the area. Photographs and completed evaluation forms should be filed for future reference.

III. Sensitivity Level Analysis. Sensitivity levels are a measure of public concern for scenic quality. Public lands are assigned high, medium, or low sensitivity levels by analyzing the various indicators of public concern.

A. Factors to Consider.

1. Type of Users. Visual sensitivity will vary with the type of users. Recreational sightseers may be highly sensitive to any changes in visual quality, whereas workers who pass through the area on a regular basis may not be as sensitive to change.

2. Amount of Use. Areas seen and used by large numbers of people are potentially more sensitive. Protection of visual values usually becomes more important as the number of viewers increase.

3. Public Interest. The visual quality of an area may be of concern to local, State, or National groups. Indicators of this concern are usually expressed in public meetings, letters, newspaper or magazine articles, newsletters, land-use plans, etc. Public controversy created in response to proposed activities that would change the landscape character should also be considered.

4. Adjacent Land Uses. The interrelationship with land uses in adjacent lands can effect the visual sensitivity of an area. For example, an area within the viewshed of a residential area may be very sensitive, whereas an area surrounded by commercially developed lands may not be visually sensitive.

5. Special Areas. Management objectives for special areas such as Natural Areas, Wilderness Areas or Wilderness Study Areas, Wild and Scenic Rivers, Scenic Areas, Scenic Roads or Trails, and Areas of Critical Environmental Concern (ACEC), frequently require special consideration for the protection of the visual values. This does not necessarily mean that these areas are scenic, but rather that one of the management objectives may be to preserve the natural landscape setting. The management objectives for these areas may be used as a basis for assigning sensitivity levels.

6. Other Factors. Consider any other information such as research or studies that includes indicators of visual sensitivity.

B. Delineation of Sensitivity Level Rating Units (SLRU's). There is no standard procedure for delineating SLRU's. The boundaries will depend on the factor that is driving the sensitivity consideration. Consequently, a thorough review of the factors referred to in IIIA should be completed before any attempt is made to delineate SLRU's. Distance zone may also play an important role in identifying the SLRU boundaries.

C. Documentation Requirements.

1. Narrative. Prepare a summary statement with the essential facts and rationale to support the conclusions reached on sensitivity levels. The format for presenting this information is optional. As a minimum, the summary data must be entered on Form 8400-6 (see Illustration 8). Backup information used to evaluate each of the factors should be maintained with the inventory record.

2. Map Overlay. Prepare an overlay (see Illustration 9) showing the sensitivity rating units and ratings.

D. Completion of Sensitivity Rating. The instructions for completing the sensitivity ratings are shown in Illustration 8. Ideally, the rating should be done as a team effort involving the Area or District VRM Coordinator, Area Manager, and at least one other staff person. If timing or funding will not allow this approach, the rating may be done by the VRM coordinator and reviewed by the Area Manager. Management should be in agreement on the summary rating for each SLRU.

IV. Distance Zones. Landscapes are subdivided into 3 distance zones based on relative visibility from travel routes or observation points. The 3 zones are: foreground-middleground, background, seldom seen. The foreground-middleground (fm) zone includes areas seen from highways, rivers, or other viewing locations which are less than 3 to 5 miles away. Seen areas beyond the foreground-middleground zone but usually less than 15 miles away are in the background (bg) zone. Areas not seen as foreground-middleground or background (i.e., hidden from view) are in the seldom-seen (ss) zone.

A. Mapping Distance Zones. Prepare a distance zone overlay (see Illustration 10) using a base map common to the scenic quality base map. Distance zones are determined in the field by actually traveling along each route and observing the area that can be viewed. If the route is a highway or trail, it should be traveled in both directions, unless it is a one-way route. River use usually is one way; however, if there is up-river travel, it too should be evaluated from both directions. If a vehicle or boat is used for this field survey, it is best to have both a driver and an observer. Distance zones should be mapped for all areas. While they are not necessary to determine classes in Class A scenic areas or for areas with low sensitivity levels, distance zones can provide valuable data during the RMP process when adjustments to VRM classes are made to resolve resource allocation conflicts.

1. Foreground-Middleground Zone. This is the area that can be seen from each travel route for a distance of 3 to 5 miles where management activities might be viewed in detail. The outer boundary of this distance zone is defined as the point where the texture and form of individual plants are no longer apparent in the landscape. In some areas, atmospheric conditions can reduce visibility and shorten the distances normally covered by each zone. Also, where the foreground-middleground zone from one travel route overlaps the background from another route, use only the foreground-middleground designation.

2. Background Zone. This is the remaining area which can be seen from each travel route to approximately 15 miles. Do not include areas in the background which are so far distant that the only thing discernible is the form or outline. In order to be included within this distance zone, vegetation should be visible at least as patterns of light and dark.

3. Seldom-Seen Zone. These are areas that are not visible within the foreground-middleground and background zones and areas beyond the background zones.

B. Coordinating Distance Zones Delineation and Sensitivity Level Analyses. It is recommended that distance zones be delineated before the sensitivity analysis is done. The distance zone delineations provide valuable information that can be very useful in the sensitivity analysis. For example, the foreground-middleground zones are more visible to the public and changes are more noticeable and are more likely to trigger public concern. Also, the boundaries of the distance zones are very useful in helping to establish sensitivity rating units.

V. Visual Resource Classes and Objectives.

A. Purposes of Visual Resource Classes. Visual resource classes are categories assigned to public lands which serves two purposes: (1) an inventory tool that portrays the relative value of the visual resources, and (2) a management tool that portrays the visual management objectives. There are four classes (I, II, III, and IV).

1. Visual Resource Inventory Classes. Visual resource inventory classes are assigned through the inventory process. Class I is assigned to those areas where a management decision has been made previously to maintain a natural landscape. This includes areas such as national wilderness areas, the wild section of national wild and scenic rivers, and other congressionally and administratively designated areas where decisions have been made to preserve a natural landscape. Classes II, III, and IV are assigned based on a combination of scenic quality, sensitivity level, and distance zones. This is accomplished by combining the 3 overlays for scenic quality, sensitivity levels, and distance zones and using the guidelines shown in Illustration 11 to assign the proper class. The end product is a visual resource inventory class overlay as shown in Illustration 12. Inventory classes are informational in nature and provide the basis for considering visual values in the RMP process. They do not establish management direction and should not be used as a basis for constraining or limiting surface disturbing activities.

2. Visual Resource Management Classes. Visual resource management classes are assigned through RMP's. The assignment of visual management classes is ultimately based on the management decisions made in RMP's. However, visual values must be considered throughout the RMP process. All actions proposed during the RMP process that would result in surface disturbances must consider the importance of the visual values and the impacts the project may have on these values. Management decisions in the RMP must reflect the value of visual resources. In fact, the value of the visual resource may be the driving force for some management decisions. For example, highly scenic areas which need special management attention may be designated as scenic Areas of Critical Environmental Concern and classified as VRM Class I based on the importance of the visual values. A map is developed in each RMP showing the approved visual resource management classes.

B. Objectives for Visual Resource Classes.

1. Class I Objective. The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.

2. Class II Objective. The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

3. Class III Objective. The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

4. Class IV Objective. The objective of this class is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

C. Rehabilitation Areas. Areas in need of rehabilitation from a visual standpoint should be flagged during the inventory process. The level of rehabilitation will be determined through the RMP process by assigning the VRM class approved for that particular area.

D. Interim VRM Classes and Objectives. Interim visual management classes are established where a project is proposed and there are no RMP approved VRM objectives. These classes are developed using the guidelines in Section I to V and must conform with the land-use allocations set forth in the RMP which covers the project area. The establishment of interim VRM classes will not require a RMP amendment, unless the project that is driving the evaluation requires one.

Visual Resource Contrast Rating

BLM Manual Handbook 8431-1

H-8431-1 - VISUAL RESOURCE CONTRAST RATING

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H-8431-1 - VISUAL RESOURCE CONTRAST RATING

I. Introduction.

A. Overview. The contrast rating system is a systematic process used by the Bureau of Land Management (BLM) to analyze potential visual impacts of proposed projects and activities. It is primarily intended to assist Bureau personnel who are not formally trained in the design arts to apply the basic principles of design in the resolution of visual impacts. It is not intended to be the only means of resolving these impacts. It should be used as a guide, tempered by common sense, to ensure that every attempt is made to minimize potential visual impacts. The basic philosophy underlying the system is: The degree to which a management activity affects the visual quality of a landscape depends on the visual contrast created between a project and the existing landscape. The contrast can be measured by comparing the project features with the major features in the existing landscape. The basic design elements of form, line, color, and texture are used to make this comparison and to describe the visual contrast created by the project. This assessment process provides a means for determining visual impacts and for identifying measures to mitigate these impacts.

II. Steps in the Contrast Rating Process.

A. Obtain Project Description. To effectively evaluate the visual impacts of a proposed project, a detailed project description is needed. Appendix 1 provides guidance on the type of information needed. The level of detail required in the description should be commensurate with the type of project proposed. This information is usually supplied by the project sponsor for BLM-initiated projects or by the applicant for non-Bureau of Land Management initiated projects.

B. Identify VRM Objectives. Use the RMP generated objectives when available. Where there are no RMP approved objectives, interim Visual Resource Management (VRM) classes will be developed using the guidelines in Handbook H-8410-1 except: (1) The inventory will be limited to the area affected by the project; and (2) the VRM classes will reflect the management decision made in existing RMP's. An RMP amendment is not required unless the project that is driving the evaluation requires an amendment.

C. Select Key Observation Points (KOP's). The contrast rating is done from the most critical viewpoints. This is usually along commonly traveled routes or at other likely observation points. Factors that should be considered in selecting KOP's are; angle of observation, number of viewers, length of time the project is in view, relative project size, season of use, and light conditions (see Section IIID2b for a more detailed description of these factors). Linear projects such as powerlines should be rated from several viewpoints representing:

- Most critical viewpoints, e.g., views from communities, road crossings.
- Typical views encountered in representative landscapes, if not covered by critical viewpoints.
- Any special project or landscape features such as skyline crossings, river crossings, substations, etc.

D. Prepare Visual Simulations. Visual simulations are an invaluable tool in effectively evaluating the impacts of a proposed project (see Illustration 1). Simulations are strongly recommended for potentially high impact projects. The level of sophistication should be commensurate with the quality of the visual resource and the severity of the anticipated impact. Simulations are extremely important to portray the relative scale and extent of a project. They also help public groups visualize and respond to development proposals, making public participation in the planning process more effective. The BLM publication Visual Simulation Techniques should be consulted for the appropriate simulation methods.

E. Complete the Contrast Rating. Complete contrast rating from key observation point(s) using Bureau Form 8400-4 - Visual Contrast Rating Worksheet (see Illustration 2).

III. Requirements for Completing the Contrast Rating Worksheet.

A. Project Information (Section A). Complete the background information requested. It is important to precisely record the location of the KOP. A sketch of the KOP/project location should be shown in the "location" block. If several different key observation points are used for the project evaluation, give each viewpoint a separate number for reference purposes.

B. Descriptions (Sections B and C). To properly assess the contrasts between the proposed and existing situation, it is necessary to break each down into the basic features (i.e., landform/water, vegetation, and structures) and basic elements (i.e., form, line, color, and texture) so that the specific features and elements that cause contrast can be accurately identified. When describing the project, be sure to include approved mitigating measures. Refer to Illustrations 3, 4, 5, and 6 for the suggested vocabulary for describing characteristic landscapes and the proposed projects.

C. Categorizing Projects Under Features (Sections B and C). It is sometimes difficult to determine which type feature a project fits under. Use the following as a guide to categorize projects:

Landform/Water Features	Vegetative Features	Structural Features
Roads	Timber Harvests	Transmission Lines
Mining	Grazing Systems	Generation Plants
Gravel Pits	Vegetative Manipulations	Oil and Gas Developments
Landfills		Recreation Facilities
Water Impoundments		Water Tanks
		Microwave Stations
		Buildings

D. Contrast Rating (Section D). The actual rating should be completed in the field from the KOP(s). It can be done as a team effort or individually, depending on the sensitivity and impacts of the project and the availability of personnel (see Manual Section 8431.12). If done as a team, it is best to do the ratings individually and then compare ratings. A simulation should be available to show scale, relative placement of disturbing features, and other important information necessary to complete an objective rating.

1. Selecting the Timeframe. Projects may be rated on either a short-term or long-term basis. Short-term is through the first 5 years and long-term is through the life of the project. If the project has significantly different short-term and long-term effects, two contrast ratings should be completed using two separate forms. Check the appropriate block under section D on the rating form to indicate the term of the rating.

2. Rating the Degree of Contrast (Section D1). Using the matrix provided in section D of the form, rate the degree of contrast. Be sure to include the proposed mitigating measures and standard stipulations in the rating. The rating is completed by determining the degree of contrast (i.e., strong, moderate, weak, or none) for each element. Use the following general criteria and factors when rating the degree of contrast:

a. Degree of Contrast Criteria.

Degree of Contrast	Criteria
None	The element contrast is not visible or perceived.
Weak	The element contrast can be seen but does not attract attention.
Moderate	The element contrast begins to attract attention and begins to dominate the characteristic landscape.
Strong	The element contrast demands attention, will not be overlooked, and is dominant in the landscape.

b. Factors to be considered. Consider the following factors when applying the criteria (see also Illustrations 3, 4, 5, and 6):

(1) Distance. The contrast created by a project usually is less as viewing distance increases.

(2) Angle of Observation. The apparent size of a project is directly related to the angle between the viewer's line-of-sight and the slope upon which the project is to take place. As this angle nears 90 degrees (vertical and horizontal), the maximum area is viewable.

(3) Length of Time the Project Is in View. If the viewer has only a brief glimpse of the project, the contrast may not be of great concern. If, however, the project is subject to view for a long period, as from an overlook, the contrast may be very significant.

(4) Relative Size or Scale. The contrast created by the project is directly related to its size and scale as compared to the surroundings in which it is placed (see Illustration 7).

(5) Season of Use. Contrast ratings should consider the physical conditions that exist during the heaviest or most critical visitor use season, such as snow cover and tree defoliation during the winter, leaf color in the fall, and lush vegetation and flowering in the spring.

(6) Light Conditions. The amount of contrast can be substantially affected by the light conditions. The direction and angle of lighting can affect color intensity, reflection, shadow, form, texture, and many other visual aspects of the landscape. Light conditions during heavy use periods must be a consideration in contrast ratings.

(7) Recovery Time. The amount of time required for successful revegetation should be considered. Few projects meet the VRM management objectives during construction activities. Recovery usually takes several years and goes through several phrases (e.g., bare ground to grasses, to shrubs, to trees, etc.). It may be necessary to conduct contrast ratings for each of the phases that extend over long time periods. Those conducting contrast rating should verify the probability and timing of vegetative recovery.

(8) Spatial Relationships. The spacial relationship within a landscape is a major factor in determining the degree of contrast (see Illustration 8).

(9) Atmospheric Conditions. The visibility of projects due to atmospheric conditions such as air pollution or natural haze should be considered.

(10) Motion. Movement such as waterfalls, vehicles, or plumes draw attention to a project.

c. General Guidance for Accessing Contrast.

(1) Form. Contrast in form results from changes in the shape and mass of landforms or structures. The degree of change depends on how dissimilar the introduced forms are to those continuing to exist in the landscape.

(2) Line. Contrasts in line results from changes in edge types and interruption or introduction of edges, bands, and silhouette lines. New lines may differ in their subelements (boldness, complexity, and orientation) from existing lines.

(3) Color. Changes in value and hue tend to create the greatest contrast. Other factors such as chroma, reflectivity, color temperature, may also increase the contrast.

(4) Texture. Noticeable contrast in texture usually stems from differences in the grain, density, and internal contrast. Other factors such as irregularity and directional patterns of texture may affect the rating.

3. Determining Whether VRM Objectives are Met (Section D2). Compare the contrast ratings with the objectives for the approved VRM Class (see Appendix 2 for definitions of VRM classes). For comparative purposes, the four levels of contrast (i.e., none, weak, moderate, and strong) roughly correspond with classes I, II, III, and IV, respectively. This means that a "strong" contrast rating may be acceptable in a class IV area but probably would not meet the VRM objectives for a class III area. In making these comparisons, one must also look at the cumulative effect of all the contrast ratings. Certain combinations of ratings may indicate there is a stronger overall contrast than the individual ratings show. For example, several "moderate" ratings when viewed in combination may warrant an overall "strong" rating. This is a judgmental call that must be documented on the back side of the form. If the rater checks the "no" block on the form, indicating the VRM objectives are not met, the reasons for not meeting the objectives must also be documented on the back of the form.

4. Developing Additional Mitigating Measures (Section D3). Since the overall VRM goal is to minimize visual impacts, mitigating measures should be prepared for all adverse contrasts that can be reduced. This includes reduction of contrast in projects which have met the VRM objectives. Mitigating measures should be written so they can easily be extracted and used as stipulations in leases, permits, contracts, etc. When preparing mitigating measures, keep in mind the concepts of strategic location (in less visible and less sensitive areas), minimizing disturbance, and repetition of the basic elements (form, line, color, and texture). Also make sure that mitigating measures are realistic (i.e., do not propose revegetation where the probability of success is very low). Other suggestions for reducing contrast are shown in Appendix 3. The publications listed in the bibliography of Manual Section 8400 also provide additional guidance on mitigating measures.

Appendix D

National Historic Preservation Act Section 106 Documents

National Historic Preservation Act
Description of Section 106 Review Process

An intensive, pedestrian inventory for and evaluation of cultural/archaeological resources was completed for the proposed mine and process area, ancillary area, overbuilt 92 kV/34.5 transmission line corridor, and buffer areas. During the inventory, which was conducted by KEA Environmental with assistance by members of the Quechan Tribe, 88 sites associated with Native American and/or EuroAmerican activities were identified. Results of the inventory and evaluation may be found in the report by KEA Environmental for the Bureau of Land Management (BLM), which is titled, "Where Trails Cross: Cultural Resources Inventory and Evaluation for the Imperial Project, Imperial County, California," October 1997, and in the EIS/EIR.

The resource sites were evaluated according to criteria of eligibility to the National Register of Historic Places. The criteria for eligibility are significance in American history, architecture, archeology, engineering and culture; as well as integrity of location, design, setting, materials, workmanship, feeling, and association; and (A) association with events that have made a significant contribution to the broad patterns of our history, or (B) association with the lives of persons significant in our past, or (C) embodiment of the distinctive characteristics of a type, period, or method of construction, or representation of the work of a master, or possession of high artistic values, or representation of a significant and distinguishable entity whose components may lack individual distinction, or (D) yield or potential to yield information important in prehistory or history.

Properties evaluated for eligibility to the National Register of Historic Places may reflect significance in architecture, history, archeology, engineering, and culture. One kind of cultural significance refers to the beliefs, customs, and practices of a living community of people that have been passed down through the generations, usually orally or through practice, and that are important in maintaining the continuing cultural identity of the community. Like any other property, a traditional cultural property is evaluated against the standards for integrity and four basic National Register Criteria.

Quechan tribal members identified the project vicinity as a traditional cultural property. They emphasized that the project vicinity is extremely important to their cultural values and integrity, and any destruction of the area would result in destruction of their present and future heritage. An area defined by the distribution of Native American trail segments and other cultural features including geoglyphs, broken quartz, broken ceramic pots, and cleared circles, and which included the project area, was identified as the Indian Pass-Running Man Area of Traditional Cultural Concern (ATCC).

The California State Historic Preservation Officer concurred with BLM that the ATCC met criteria for eligibility to the National Register. The ATCC was designed to focus on the undertaking and the Area of Potential Effect (APE), as identified in the KEA report, which was defined as the power line access rights-of-way and one-quarter of a mile on all sides of the footprint of the project.

STATE OF CALIFORNIA — THE RESOURCES AGENCY

PETE WILSON, Governor

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July 21,1998

Reply to: BLM980227A

Carl Rountree, Deputy State Director
Bureau of Land Managment
California State Office
2135 Butano Drive
SACRAMENTO CA 95825-0451

Subject: Glamis Imperial Corporations Open-Pit Heap Leach Precious Metal Mine, Imperial County

Dear Mr. Rountree:

Thank you for the additional information submitted in response to my letter date April 23, 1998.

The Bureau of Land Management (BLM) has clarified my concern over whether the agency had fully taken into account the effects of this undertaking on historic properties. It is evident that the full spectrum of historic properties have been considered in terms of the project effects.

Thank you for the diligent effort to comply with the National Historic Preservation Act during the planning project for this undertaking.

Sincerely,

Ms. Cherilyn E. Widell
State Historic Preservation Officer

Appendix E

Comparison of Permitted Mines within Multiple Use Class L (Limited Use) Areas of the California Desert Conservation Area

Mine	Operator	County/ Area	Date of Approval / Closure	Evidence of Previous Mining Activity	Mine Facility Physiography	Native American/NRHP Issues
America Mine	America Mine Joint Venture	San Bernardino Bullion Mountains BLM POO-Yes	1984 1988	Yes	mine-mountains waste dumps-mountains leach pads- slope	No
Colosseum Mine	Bond Gold	San Bernardino Clark Mountains BLM POO-Yes	1986 1992	Yes	mine-mountains waste dumps-mountains tailings- mountains	No
Picacho Mine	Glamis Gold	Imperial County Picacho Mountains BLM POO-Yes	1986 1998	Yes	mine-mountains waste dumps-mountains leach pads- slope	No
Morning Star Mine	Vanderbuilt Gold Corp.	San Bernardino Southern Ivanpah Range BLM POO-Yes	1986 1990	Yes	mine-mountain waste dumps-foothills leach pads-foothills	No
Castle Mountain	Viceroy Gold	San Bernardino Castle Mountains BLM POO-Yes	1990 --	Yes	mine-mountains waste dumps-mountains leach pads-slope	No
Briggs Mine	Canyon Resources	Inyo County Panamint Mountains BLM POO-Yes	1996 –	Yes (minor)	mine-mountains waste dumps-mountains leach pads-slope	Yes, but plan of operations modified to avoid substantial impacts

Appendix F

Deposit Grade and Reserve Comparisons, U.S.

Deposit Grade and Reserves Comparison for various gold deposits in the United States*

DEPOSIT	PROCESSING MODEL	TONNAGE (1,000 tons)	AVERAGE RESERVE GRADE (Ounce/Ton)	RECOVERY RATE	OUNCES RECOVERED
North Star-NV	Dump Leach	1,000	0.015	65%	9,750
Pinson-NV	Dump Leach	1,300	0.029	93%	35,061
Getchell-NV	Dump Leach	1,900	0.026	75%	37,050
Yankee-NV	Dump Leach	2,000	0.045	70%	63,000
Picacho-CA	Dump Leach	2,900	0.038	75%	82,650
Kinsley-NV	Dump Leach	3,400	0.032	75%	81,600
Gold Quarry-NV	Dump Leach	3,500	0.016	65%	36,400
Mac-NV	Dump Leach	5,400	0.014	65%	49,140
Pete-NV	Dump Leach	6,400	0.026	65%	108,160
Dee-NV	Dump Leach	8,300	0.025	72%	149,400
Tusc-NV	Dump Leach	8,700	0.019	65%	107,445
Bald Mountain-NV	Dump Leach	11,400	0.076	75%	649,800
Bear Track-NV	Dump Leach	22,800	0.034	75%	581,400
Golden Sun-NV	Dump Leach	32,400	0.026	75%	631,800
Post/Betze-NV	Dump Leach	33,900	0.020	90%	610,200
Twin Creeks-NV	Dump Leach	40,900	0.024	65%	638,040
Mesquite-CA	Dump Leach	52,800	0.021	70%	776,160
Rand-CA	Dump Leach	55,200	0.023	75%	952,200
Imperial Project-CA	**Dump Leach**	**95,200**	**0.016**	**80%**	**1,216,000**
Round Mtn-NV	Dump Leach	254,400	0.020	55%	2,798,400

*Table modified from Roger Haskins, Senior Mining Law Specialist, Bureau of Land Management, Washington, DC (1998)

Appendix G

Responses to Comments on FEIS

Public Comments to Final EIS/EIR (Significant Issues Raised and Department/BLM Response)

Of the 24 comments received by BLM on the FEIS, most voiced general opposition to the proposed project and supported the No Action alternative. A few voiced general or specific support of the project. Of those addressing specific issues, either positive or negative to this decision, the following were identified as significant and warranting description and response by the Department of the Interior and BLM.

Issue: The California State Native American Heritage Commission, an official State agency, endorsed the No Action alternative, citing adverse effects to sensitive Native American archeological and cultural resources. **Response:** The resources specified in the Commission's letter were recognized in the FEIS and are noted in the ROD as rationale for the decision not to approve the project.

Issue: A number of comments cited the newly published BLM mining regulations (43 Code of Federal Regulations, Part 3809) as supporting authority for denying the project. **Response:** While the final regulations were published on November 21, 2000, they do not become effective until January 20, 2000 and, therefore, cannot be used as a basis for this decision.

Issue: Two comments addressed the issue of the strategic importance of gold as a decision factor. Comments stated that gold is currently not listed as strategic mineral and should have no impact on BLM's decision. **Response:** Gold's strategic mineral status was not specifically addressed in the FEIS/EIR. However, the ROD discusses the conclusion of the Department that significant and unavoidable adverse environmental impacts outweigh the possible economic benefits of gold mining under the proposed project. As the comments indicate, gold is not currently listed as a strategic mineral by the Defense National Stockpile Center of the Department of Defense.

Issue: Two letters from the Quechan Tribe provide substantial information about the history of the Tribe and an official, government-to-government statement that the mine would "damage sacred sites and trails . . . ." **Response:** This information is considered to be consistent with the Tribe's earlier cultural data provided to BLM, already contained in the FEIS, and is reflected in the ROD.

Issue: The Quechan Tribe also presented further information that the proposed project interferes with the Tribe's First Amendment rights regarding their ability to practice their traditional religion. The Tribe disagrees with the Solicitor's Opinion of December 27, 1999, and its interpretation of this issue in context of the Lyng case, and requests this issue be used in the ROD to deny the mine. **Response:** The Department and BLM have reviewed the legal information and citations provided the Tribe, and conclude that the interpretation in the December 27, 1999 Opinion is still accurate and represents the Department's legal position in this matter.

Issue: Comments indicated that the Imperial Project would not be consistent with the current management direction provided in the Northern and Eastern Colorado Desert Plan (NECO). **Response:** Because NECO will not likely be completed before the second half of 2001, any

application of NECO to the proposed project would be premature, and NECO is not used in this decision.

Issue: Several comments requested that the decision be signed by the "highest level" possible so any challenges can be addressed quickly in Federal Court. **Response:** Given the nature and importance of this decision, and considering the Department of the Interior's trust responsibility to Native American tribes, the Secretary has decided to sign the ROD.

Issue: Several comments noted the withdrawal of 9,360 acres (which includes the proposed project) by Secretarial Order on October 27, 2000 and stated it should be a factor in the decision. **Response:** The withdrawal is a separate agency decision and does not substantially affect existing claims in this area on which the Glamis Imperial proposed mining project is based. Therefore, the withdrawal cannot be a rationale for this decision.

Issue: Comments requested that BLM's visual resources policy documents be included in the ROD. **Response:** Supporting documentation on visual resources is included in the appendices of the ROD.

Issue: Several comments requested that the entirety of the FEIS/EIR be attached to the ROD; other comments requested specific sections be attached, including section 6.2 regarding impairment of CDCA values. **Response:** The attachment of the FEIS/EIR to the ROD is not necessary as the ROD is the decision document issued as a result of the analysis in the FEIS/EIR. The FEIS/EIR was prepared as a tool to assist in the decision making process. Copies of the FEIS/EIR may be obtained from BLM, subject to availability, or may be accessed on the Web at http://www.ca.blm.gov/elcentro/imperial_project.html.

Issue: Several comments challenged the conclusion of the FEIS/EIR that no significant cumulative impacts would result from the proposed project. One comment specifically identified the need to consider potential cumulative impacts such as the future development of the new Town of Felicity. **Response:** With regard to the first statement, BLM agrees, and this ROD reflects consideration of the combined adverse impacts to Native American values, historic properties, and visual quality. As for the proposed Town of Felicity, the development is too speculative at the present time to consider in this ROD.

Issue: One comment indicates that the Section 106 process was not completed in a manner consistent with the regulations in Part 800 of Title 36 of the Code of Federal Regulations. **Response:** BLM followed the requirements of the 1991 Programmatic Agreement with the California SHPO and the Advisory Council on Historic Preservation; adhered to its responsibilities to consult with tribes on a government-to-government basis; followed the MOU with the California Native American Heritage Commission; and applied the requirements of the Sacred Sites Executive Order. The SHPO concurs with BLM's consideration of Section 106 and its determination of adverse effects (see Appendix D).

Issue: A comment indicated that BLM had not consulted with the necessary tribes because the Quechan Tribe is only one of several Yuman speaking tribes that use the area. **Response:** During the collection of the ethnographic data for the EIS/EIR and according to applicable Federal government records, the Quechan Tribe is explicitly identified as the federally recognized tribal government in this particular area. However, other affected tribes were notified by BLM of the project, testified at the Advisory Council's public hearing in Holtville in support of the Quechan, and deferred to the Quechan as the tribal contact with BLM regarding the project.

Issue: One comment stated that the BLM's designation of the Indian Pass-Running Man Area of Traditional Cultural Concern (ATCC) was an administrative determination of BLM and did not represent the entire spectrum of Native American concerns. **Response:** The ATCC was a collaborative determination of the Quechan and BLM. It was identified to provide a basis for analysis in the EIS/EIR of potential effects of the proposed project on sacred sites. The Quechan and BLM understood that the ATCC did not include the entire spectrum of Native American concerns but was of sufficient scope to provide a reasonable basis of analysis. The SHPO concurred with the ATCC as a reasonable approach.

Issue: One comment questioned whether, given a 60-year hiatus in use of the Trail of Dreams, if a mine with the life of 20 years would constitute an unresolvable adverse effect, particularly considering that Interstate 10 crosses the trail. **Response:** The Tribe did not say that its members have not used the area for 60 years, only that they have not used the area regularly during that period. Further, the Quechan have consistently expressed concern over the cumulative impacts of development, such as Interstate 10, on their traditional cultural values.

Issue: Comments raised the issue of environmental justice if the project were approved. **Response:** The FEIS/EIR discussed applicability of Executive Order 12898 on Environmental Justice. Although the FEIS/EIR suggests the proposed project is consistent with Executive Order 12898, the Department's decision not to approve the project is based in part on the finding of disproportionate adverse impacts to the Quechan as further discussed in this ROD.

Issue: A comment stated that the cultural and religious factors to the Quechan should stand alone as a rationale for denial. **Response:** The decision of the Department not to approve the project is based on consideration of the combined environmental impacts of the project compared to the possible economic benefits of mining under the project in light of applicable statutory standards. The environmental effects to the Native American values, historic and archaeological resources and visual quality are closely interrelated.

Issue: Comments stated that the proposed Imperial Project is different from other gold mines previously approved by BLM in the CDCA. **Response:** The Department reviewed the records of permitted mines in the CDCA in comparison to the FEIS/EIR analysis of the proposed project. The comparison demonstrates that the proposed project involves a unique combination of environmental conditions not present in other mines (see Appendix E).

Issue: One comment cited outdated information in the FEIS/EIR, mostly pertaining to dates and other supporting data (including formal government to government consultations conducted with the Quechan Tribe) referenced in the document and requests correction of those dates in the ROD. **Response:** The Quechan consultation dates have been updated and included in the ROD, as well as dates pertaining to the Indian Pass withdrawal.

Issue: One comment stated that BLM has underestimated the significance of the Native American values and historic properties at the project site. **Response:** The ROD directly quotes the Council's views on this matter. The ROD also relies on the Council's determination that this area contains nationally significant historic properties and Native American values as one of the basic rationales for the decision not to approve the project.

Issue: A few comments, both for and against the proposed project, asserted that the Solicitor's Opinion of December 27, 1999, provides a basis for denial of other mining operations, both in the California Desert and throughout the West. **Response:** The Solicitor's Opinion was specifically requested by BLM to address the proposed Glamis Imperial project and its location in a Multiple Use Class L area of the California Desert Plan and an Area of Traditional Cultural Concern with the significant historic properties and Native American values documented as present at the site. However, determining whether the legal analysis of the Opinion may be applicable to other sites is beyond the scope of this ROD.

Issue: One comment takes issue with the conclusion of the Solicitor's Opinion that the Section 106 process under the National Historic Preservation Act (NHPA) is not intended to impose substantive obligations on BLM (see p. 18, footnote 22 of the Opinion) and asserts that a recent court decision (Muckleshoot v. US Forest Service, 1999) interprets this authority more accurately. **Response:** The Department has reviewed the referenced court decision and has determined the Solicitor's Opinion represents the legal position of the Department in this matter. The Federal Land Policy and Management Act, not the NHPA, was the primary legal authority on which the Solicitor based his conclusion that BLM has authority to deny approval of a plan of operations within the CDCA if the plan would impair other resources unduly and no reasonable measures are available to mitigate that harm.

Issue: One comment asserted that the Solicitor's Opinion represents a "new rule" directing a BLM decision and exceeds the statutory authority and intent of the Federal Land Policy and Management Act and the California Desert Protection Act. It further asserts that any decision to deny the mine would be inconsistent with the agency's longstanding practice involving mine development projects in the CDCA. **Response:** The Department has reviewed the information provided and disagrees with the commenter's interpretation. The United States District Court for the District of Southern California has already rejected the argument that the Solicitor's Opinion directs BLM to make a particular decision.

Issue: Some comments stated that the lack of economic benefits of mining must be a rationale for denial. **Response:** It is not the policy of the BLM or the Department to determine whether a business is to be judged by its value to the economy. Rather it is the policy to consider the

possible economic benefits of development of public land resources in the context of all other public land resource values, including environmental, historic, and other values. In this case, the overall adverse environmental impacts of mining a mineral deposit with an average reserve grade of 0.016 ounces of gold per ton were found to outweigh the possible economic benefits to be derived from the proposed project.

Issue: Several comments raised hazardous materials related issues about the project. **Response:** The FEIS/EIR addressed these issues adequately and the proponent, if authorized, would be required to comply with all applicable State and Federal laws pertaining to hazardous materials.

Issue: One comment raised the issue of a pending lawsuit regarding the Endangered Species Act filed against BLM by the Center for Biological Diversity and others, and questions whether that suit affects the Indian Pass area. **Response:** While the complaint filed by the Center addresses the entire CDCA, it does not specifically cite the Indian Pass area (including the proposed mining project). The settlement agreements filed with the court as of the date of this ROD do not involve the Indian Pass area.

Issue: Some comments challenged the adequacy of the FEIS/EIR, stating that the FEIS/EIR does not support project approval or approval of alternatives other than No Action. **Response:** The decision of the Department is not to approve the project. The FEIS/EIR supports this decision.

Attachment 4

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Ridgecrest Field Office
300 S. Richmond Road
Ridgecrest, CA 93555
www.ca.blm.gov/ridgecrest

In Reply Refer To:
CACA-56495
3809(P)
LLCAD05000.51

March 09, 2022

Mojave Precious Metals, Inc.
Attn: Steven Swatton
1020-800 Pender Street W
Vancouver, BC V6C 2VC

Dear Mr. Swatton,

After a thorough review of the Plan of Operations modification that you submitted on behalf of Mojave Precious Metals, Inc. (MPM), the BLM has determined that it will analyze the potential impacts in accordance with the National Environmental Policy Act by preparing an Environmental Impact Statement (EIS). The EIS will analyze the following resources in detail: wildlife, vegetation, special status species, noxious weeds, cultural and Native American resources, special land use designations, recreation, water, soil, and visual resources (and potentially transportation and access). MPM's original Plan of Operations was analyzed in an Environmental Assessment (EA) and the BLM issued its Finding of No Significant Impact (FONSI) and Decision Record in May 2018. In that decision, the BLM approved the alternative that authorized access via helicopter only and created a surface disturbance of 0.2 acres. The current proposed plan modification calls for access via overland travel and road construction and could disturb over 12 acres. Based on the resource concerns expressed by the public, Tribes, and agencies during scoping, the increased surface disturbance of the proposed plan modification, and the increase to 30 drill locations with a total of 120 hole, the BLM has determined that an EIS is warranted.

The BLM also considered the following factors when determining that it will prepare an EIS for the proposed plan modification:

1. The Joshua Tree is now a candidate species under the California Endangered Species Act.
2. The area is considered to be Lands with Wilderness Characteristics (WIU #124-1).
3. Red Ochre clay for which the Timbisha Tribe is named was unearthed during the first drilling project.
4. The largest known population of Inyo thread plant (*Nemacladus inyoensis*) in the southern Inyo Mountains was observed growing in and adjacent to the reclaimed access road. This plant species is new to science as of 2020 and is currently undergoing a California Rare Plant Rank status review (proposed status 1B.2).

5. On a field visit to engage in government-to-government consultation, Tribes told the BLM that the proposed plan modification could impact the holistic value of the area. Tribes explained that the area contains historic trails and sites where men of the tribe would gather for various reasons.
6. Under the Desert Renewable Energy Conservation Plan, portions of the area are designated as Areas of Critical Environmental Concern and California Desert National Conservation Lands.
7. The proposed plan modification would cause an increase in water use, which may result in potential impacts on quantity and quality to water supplies, seeps, springs, streams or water reservoirs. There could also be indirect impacts from water withdrawal, transport, and storage on air quality, dust generation, and traffic.

If you have any questions, please contact me at (760)384-5400 or Randy Porter at (760)384-5452 and rporter@blm.gov.

Respectfully,

CARL SYMONS

Digitally signed by CARL SYMONS
Date: 2022.03.09 10:16:34 -08'00'

Carl Symons
Ridgecrest Field Manager

Attachment 5

BLM

U.S. Department of the Interior
Bureau of Land Management

Finding of No Significant Impact

DOI-BLM-NV-B020-2020-0017-EA

Silicon Exploration Project Plan of Operations
Nevada Reclamation Permit Application

PREPARING OFFICE

U.S. Department of the Interior
Bureau of Land Management
Tonopah Field Office, Nevada

Finding of No Significant Impact

NEPA: DOI-BLM-NV-B020-2020-0017-EA

Case Files: NVN-097820 (Plan)

I have reviewed Environmental Assessment (EA) DOI-BLM-NV-B020-2020-0017-EA dated July 2020. The EA analyzes the Exploration Plan of Operations. After consideration of the environmental effects as described in the EA (and incorporated herein), I have determined that the Proposed Action will not significantly affect the quality of the human environment, individually or cumulatively with other actions in the general area. No environmental effects meet the definition of significance in context or intensity as described in 40 Code of Federal Regulations (CFR) 1508.27; therefore, preparation of an Environmental Impact Statement (EIS) is not required per Section 102(2) (c) of the National Environmental Policy Act (NEPA).

DOI-BLM-NV-B020-2020-0017-EA has been reviewed through the interdisciplinary team process and has been posted for public comment for 45 days.

It has been determined that the Project is in conformance with the approved Tonopah Resource Management Plan, and its amendments, and is consistent with the plans and policies of neighboring local, county, state, tribal, and federal agencies and governments. This finding and conclusion is based on my consideration of the Council on Environmental Quality's (CEQ) criteria for significance (40 CFR 1508.27), both with regard to the context and the intensity of impacts described in the EA.

Context

In September 2019, AngloGold Ashanti North America (AGA) submitted an Exploration Plan of Operations (EPO) for the proposed Silicon Exploration Project (Proposed Action) in southcentral Nevada. This EPO would include the exploration activities on the claim blocks held by AGA and Renaissance Gold Inc. The EPO, baseline reports, and Supplemental Environmental Reports (SERs) used in the preparation of this EA are on file and available for public review at the Bureau of Land Management (BLM) in Tonopah, Nevada, during regular business hours (Monday through Friday, excluding holidays from 7:30 AM to 4:30 PM PST) by appointment.

The BLM has evaluated the EPO titled *Silicon Exploration Project Plan of Operations NVN-097820/Nevada Reclamation Permit Application,* and has prepared an EA, DOI-BLM-NV-B020-2020-0017-EA, that analyzes the affected environment, environmental impacts, and identifies environmental protection measures associated with the Project. The final EPO was submitted April 21, 2020, in accordance with the BLM Surface Management Regulations 43 Code of Federal Regulations (CFR) 3809, as amended. It has been assigned BLM case file number NVN-097820.

The EPO is located approximately seven miles northeast of Beatty in Nye County, Nevada. The legal description of the EPO Area is provided in the table below. The EPO Area encompasses approximately 3,630 acres of public lands administered by the BLM Battle Mountain District Office. The proposed Silicon EPO Area is underlain by 305 lode claims that are owned or controlled by AGA or Renaissance Gold Inc. (EPO, Appendix C, Claim Information).

Project Legal Description*

Townships	Ranges	Sections
11 South	47 East	13, 23 through 27
11 South	48 East	8 through 10, 14 through 22, 27 through 33
12 South	47 East	12 through 17, 23, and 24
12 South	48 East	4 through 7

*Mt. Diablo Base and Meridian, Nevada

AGA is currently acknowledged to conduct 4.75 acres of surface disturbance, including access road and drill site construction, within the Project Area under an Exploration Notice, BLM case file number NVN-095843. AGA proposes to conduct phased mineral exploration-related activities within a 3,630-acre Project Area, that would create up to approximately 150 acres of new surface disturbance for a total Project-related disturbance of approximately 155 acres. Exploration activities would be conducted in phases, with approximately 55 acres of new surface disturbance occurring under Phase I, including up to five acres of Notice-level disturbance. An additional 100 acres of surface disturbing activities would occur under subsequent phases. Under the existing Notice NVN-095843, AGA could conduct up to five acres of disturbance. The proposed surface disturbing activities are anticipated to occur over a period of approximately ten years.

Pursuant to NEPA and the Council on Environmental Quality regulations on implementing NEPA, the EA identifies, describes, and evaluates environmental protection measures (EPMs) that would mitigate the possible impacts of the preferred alternative. The short- and long-term impacts as disclosed in the EA are not considered to be significant to the human environment. The short-term impacts from implementation of the Project are local; they are not regional or national in nature. The long-term impacts resulting from the Project would be mitigated by concurrent reclamation during the life of the Project and meeting all reclamation requirements prior to ending the Project.

Intensity

1. ***Impacts that may be both beneficial and adverse.***

   Potential impacts to the environment as identified in Section 3 of the EA include the following:

   Lands and Realty

   The Proposed Action would not result in effects or changes to land ownership and would not result in conflicts, substantial modifications, or termination of the rights-of-way (ROWs) or land use authorizations within the EPO Area. Effects of the Proposed Action on lands and realty would be minor, short-term, and localized.

   Lands with Wilderness Characteristics

   The Project would result in up to 155 acres of surface disturbance, which could occur anywhere in the Project Area, and potentially within the Yucca Mountain LWC unit. Phase I activities would not occur within the LWC unit, but locations of disturbance under subsequent phases are unknown. These activities, in combination with the February 2020 wilderness characteristics inventory update findings of identifying three Wilderness Inventory Roads within the LWC unit, could eliminate the unit's qualifying wilderness characteristics including naturalness and solitude, by bisecting the LWC unit and consequently reducing the LWC unit to less than 5,000 acres. The three identified Wilderness Inventory Roads experience a variety of uses, and during

the February 11, 2020, field work, one drill rig, two water trucks, and several pick-up trucks associated with the drilling activities were seen driving on one of the three Wilderness Inventory Roads.

The wilderness characteristics of the lands within the unit, particularly "solitude," would be impacted by vehicles associated with Project activities using the three Wilderness Inventory Roads, as mineral exploration activities would likely be seen, heard, and felt by visitors within the LWC unit, as well as other activity (e.g., recreation) on the three roads.

Migratory Birds

Direct or indirect adverse effects to migratory birds from the Proposed Action are not anticipated. Direct effects resulting from the destruction of active nests or disturbance to breeding behavior are considered negligible, short-term, and localized. Indirect effects resulting from the temporary loss of potential foraging and breeding habitat are considered minor, short-term, and localized. The EPM in Section 2.2.6.5 of the EA and reclamation of 155 acres of surface disturbance would minimize any potential adverse effects to migratory birds.

Noxious Weeds, Invasive and Non-native Species

Adverse effects to vegetation resources from noxious weeds, invasive and non-native species could include the spread and establishment of these species during surface disturbing activities, including travel and maintenance of the Project Access Roads. Potential adverse effects from the spread and establishment of noxious weeds, invasive and non-native species would be minimized by the EPM in Section 2.2.6.7 of the EA and concurrent reclamation; potential adverse effects are considered minor, short-term, and localized.

Recreation

Project Area roads would remain open during Project activities, and there would be no fencing to preclude use, except for fences around sumps to protect wildlife. There is other similar land available to dispersed recreational visitors in the vicinity of the Project Area. The organized OHV races contain stipulations for road repairs, and some have stipulations for notifications being sent to area stakeholders prior to the event. Any adverse effects to recreation would be minor, short-term, and localized.

Soils

Soils in the Project Area have a primarily low erosion hazard from water and a moderate erosion hazard from wind. Potential impacts to soils would be reduced by the EPMs outlined in Section 2.2.6.12 requiring the use of BMPs to minimize stormwater erosion. As a result of reclamation of all drill sites, sumps, overland travel, and road construction, the post-exploration topography is expected to be like pre-Project conditions, which would reestablish the site characteristics of slope and aspect of soil associations within the Project Area. As a result of the implementation of the EPMs in Section 2.2.6.12 of the EA and concurrent reclamation efforts, soil loss due to the surface disturbing activities associated with implementation of the Proposed Action would be minor, long-term, and localized.

Special Status Species

Exploration activities, including the construction of roads and overland travel, could disturb special status wildlife species due to the presence of humans and by creating noise and dust. However, foraging activities within the Project Area could continue since the proposed surface disturbance activities only cover approximately four percent of the entire Project Area (155 acres out of a total of 3,630 acres). Indirect, localized, long-term adverse effects to foraging activities would occur due to the temporary loss of vegetation as a result of Project-related surface disturbance.

Two populations of black woollypod were identified during the NNHP data request. The first identified reference area had one *Astragalus* species, but that species lacked the dense, silvery hairs borne on the stems and leaflets that is characteristic of black woollypod and its look-alikes.

One individual in transition to the second identified reference area had dense silvery hairs, but the flowers and fruits that indicate the defining characteristics of black woollypod were not present, so no positive identification was possible. The second identified reference area had approximately ten individuals of the target milkvetch species. These individuals were in varying life stages, but several had flowers and fruits. These were positively identified as black woollypod.

The terrain around the positively identified black woollypod reference population was that of loose talus hillsides of approximately 25 percent slope. The soil underneath the loose talus had a sandy clayey consistency, which appeared to be the limiting factor for the presence of black woollypod.

Four locations were chosen via desktop analysis to review habitat characteristics in relation to black woollypod: two that had characteristics consistent with those of the reference site (e.g., areas of greater than 25 percent slope and with Zibate-Zyplar-Dedas soil association) and two contrasting sites that did not have these characteristics.

Neither of the recon points (Recon Points 1 and 3) for potential positive habitat to support black woollypod had the characteristics observed within the reference population. Both recon points had slopes greater than or equal to 25 percent but had minimal talus present and the soils lacked the clay content necessary to support this species. Recon Point 1 also appeared to have been recently burned from a wildfire and as such had a much higher cover of annual grasses and exposed soils.

The recon points (Recon Points 2 and 5) selected for potential negative habitat lacked all the characteristics necessary to support black woollypod. The slopes were less than 25 percent, talus was not well developed, bare ground was present, and the soils lacked the necessary clay content.

Brewer's sparrow (*Spizella breweri*), loggerhead shrike (*Lanius ludovicianus*), LeConte's thrasher (*Taxostoma lecontei*), and golden eagle were observed during the migratory surveys. Potential adverse effects to breeding from the Project could include possible direct loss of nests (e.g., crushing) or indirect effects (e.g., abandonment) from increased noise and human presence within close proximity to an active nest site. Implementation of the EPM outlined in

Section 2.2.6.5 of the EA for migratory birds would ensure that prior to surface disturbance, a nesting survey for migratory birds (including BLM sensitive avian species) would be conducted and nests avoided if exploration activities occur during the avian breeding season. Vegetation removal would result in a reduction of breeding habitat for BLM sensitive avian species in the Project Area. This acreage would not all be disturbed at one time due to incremental disturbance and concurrent reclamation of the surface exploration disturbance. Potential adverse effects to migratory birds would be minor, long-term, and localized.

There was one golden eagle nest and five possible golden eagle nests within one mile of the Project Area. None of the nests were occupied during 2019 field surveys; however, one nest was active during 2020 field surveys. To avoid impacts to those nests, AGA would implement the EPM in Section 2.2.6.10 that states Project activities would not be conducted between January 1 and August 31 within one mile of a nest. However, if that is not practicable, a survey would be conducted after March 21 at eagle nest sites that are within one mile of the Project Area to determine occupancy. The timing of the surveys may be adjusted due to winter weather conditions and is subject to approval from the NDOW based on consideration of bighorn sheep (*Ovis canadensis*) lambing activity. If a nest has a bird in an incubating/brooding posture, it would be assumed that the nest is active that year, and a one-mile disturbance buffer would be applied until August 31, or until it has been determined that 1) the nest has failed; or 2) the young have fledged and are no longer dependent on the nest. The buffer sizes may be reduced with approval from the US Fish and Wildlife Service (USFWS). If the nest is not active at the time of the surveys, the one-mile buffer would not apply and Project activities could commence.

Survey data collected for this Project indicate high and moderate levels of bat use (defined as roost sites with high acoustic activity and/or moderate to high maternity use) at sites NY-0328, NY-0334, NY-0335, NY-1496, NY-1499, NY-2002, NY-2843, and NY-2844. To minimize potential adverse effects to bats, AGA would implement and follow the EPM outlined in Section 2.2.6.10 of the EA and avoid conducting drilling activities within a 200-yard buffer of the adit opening throughout the life of the Project. Potential adverse effects to bats are considered minor, long-term, and localized.

BLM sensitive big game species, such as bighorn sheep, may avoid the Project Area due to noise and other anthropogenic disturbances generated by the Project. These potential adverse effects would temporarily reduce the available habitat area for BLM sensitive big game species. Potential adverse effects to these BLM sensitive big game species would be considered minor, short-term, and localized. Additionally, sumps associated with drill sites would be built with an incline on one end to allow for egress/ingress for humans and fenced when necessary to preclude access. Implementation of the EPM outlined in Section 2.2.6.13 of the EA would help minimize impacts to BLM sensitive big game species.

Surface and Groundwater Resources

Potential adverse effects to surface water quality would result from spills and sedimentation or erosion from surface disturbing activities. The potential adverse effects to surface water quality from spilled petroleum products would be minimized by the implementation of the Spill Response and Contingency Plan included as Appendix D of the EPO. The potential adverse effects to surface water quality from sedimentation would be minimized by the implementation

of the EPMs outlined in Section 2.2.6.12 of the EA. Therefore, potential adverse effects to surface water resources would be considered negligible, long-term, and localized.

Potential adverse effects to groundwater resources are not anticipated. The proposed Project includes 109 drill pads and drill holes during Phase I activities. The planned breakdown of drilling is approximately 70 RC drill holes (ranging between 60 to 79) and 39 core holes (ranging between 30 and 49). Phase I activities would be implemented over approximately two years. The yearly implementation (approximately 35 RC holes and approximately 19 core holes) is similar to the Notice-level program and can be expected to have the similar net neutral to positive effect on the water resources. Subsequent phases of drilling are not yet planned, but are expected to have similar yearly implementations as the Phase I activities.

AGA has no plans to apply for water rights with NDWR in the Project Area. AGA's intent is to continue to source drill injection waters with annual temporary water right permits with NDWR, in conjunction with BWSD.

The water resources (springs and water rights) along the Amargosa River valley are greater than 3.5 miles away from the recent Notice-level and proposed Project drilling. Due to the net positive water balance observed in the area of the Notice-level drilling and the remote distance of the nearest receptors, impacts to groundwater resources are considered minor, long-term, and localized.

Vegetation

Approximately 155 acres would be disturbed over the ten-year Project life as a result of implementation of the Proposed Action. Approximately 150 acres of proposed disturbance is associated with phased surface exploration activities that could occur in any of the ecological sites in the Project Area. However, since the blackbrush dominated community occurs in almost the entire Project Area, it is anticipated that all proposed disturbance would occur in this community. The surface disturbance associated with exploration activities within the Project Area would be reclaimed and reseeded concurrently whenever feasible. Any surface disturbance related to the Proposed Action would not result in the loss of any unique vegetation community but would still result in a temporary loss of vegetation. Reclamation associated with the Proposed Action would begin upon completion of Project activities using a BLM-approved seed mixture. Monitoring activities are included in the Proposed Action, which would ensure that the revegetation meets reclamation standards. Potential adverse effects to vegetation as a result of surface disturbing activities associated with implementation of the Proposed Action would be minor, long-term, and localized.

Wildlife

Adverse direct effects to wildlife would consist of disturbance from human activity, noise, and potential mortality from vehicle collisions, and indirect impacts would consist of temporary habitat loss and potential infestation of noxious weeds that would reduce the quality of the habitat. Approximately 155 acres of proposed disturbance associated with surface exploration activities could occur anywhere within the Project Area and would be created incrementally over the potential ten-year Project life.

During exploration, sumps associated with drill sites would be constructed with a sloped end for egress and when necessary, fenced, backfilled, or covered within 30 days of construction completion to preclude access. After exploration activities have been terminated, reclamation would involve regrading disturbed areas related to this Project to their approximate original contour, and reseeding with a BLM-approved weed free seed mix. Reclamation would be completed no later than two years after the completion of activities under the Proposed Action, with monitoring for revegetation success continuing until revegetated areas are released. Invasive, non-native species reduce the quality of habitat for wildlife. Project-related activities increase the potential for the spread of these species further reducing the quality of wildlife habitat in the Project Area. AGA would implement EPMs for noxious weeds, outlined in Section 2.2.6.7 of the EA, which would mitigate or reduce the potential adverse effects of noxious weeds and invasive species to wildlife habitat. Potential adverse effects associated with the loss of wildlife habitat are considered minor, long-term, and localized.
Due to surface disturbing activities, there would be a potential of direct mortality to small mammals (e.g., being crushed by vehicles or equipment). Surface disturbing activities would also impact small mammal habitat by removing vegetation and rocks and potentially disturbing burrows. Disturbed habitat would be reseeded with a reclamation seed mix that would include forage species for small mammals. Although mortality of small mammals could occur, potential adverse effects would be considered minor, short-term, and localized.

Large mammals, such as mule deer, may avoid the Project Area due to noise generated by the Project. These potential adverse effects would temporarily reduce the available habitat area for large mammals. Potential adverse effects to these large mammals would be considered minor, short-term, and localized. Additionally, as outlined in the EPM in Section 2.2.6.13 of the EA, sumps associated with drill sites would be constructed with a sloped end for egress and when necessary, fenced, backfilled, or covered within 30 days of construction completion to preclude access.

Reptiles would be impacted by surface disturbing activities, which would remove vegetation and disturb soil. Surface disturbance would remove potential areas for the sagebrush lizard and western whiptail to lay their eggs or could destroy eggs laid within disturbance areas. Loss of vegetative cover and burrows could result in greater mortality due to predators. Temporary disturbance would reduce the foraging area but would be restored through reclamation. Potential adverse effects to reptiles would be minor, short-term, and localized.

2. ***The degree to which the proposed action affects public health and safety.***

The effects of the Project on both public health and safety would not have significant adverse impacts as AGA would be required to follow the Mine Safety and Health Administration regulations along with maintaining all equipment and facilities in a safe and orderly manner.

Through adherence to EPMs, and Best Management Practices (BMPs), the Project would not result in potentially substantial or adverse impacts to public health and safety. Public safety would be maintained throughout the life of the Project. A complete list of EPMs can be found in Section 2.2.6 of the EA.

3. ***Unique characteristics of the geographic area such as proximity of historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.***

AGA would conduct exploration activities in accordance with applicable state and federal regulations. As part of the baseline data collection to support the NEPA analysis for this proposed Project, a Class III cultural resources inventory was conducted in the entire Project Area, to identify cultural sites and sites that are eligible for the National Register of Historic Places (NRHP).

AGA would notify the BLM-authorized officer, by telephone, and with written confirmation, immediately by telephone and in writing within 72 hours upon the discovery of human remains, funerary objects, sacred objects, or objects of cultural patrimony. AGA would immediately stop all activities within 100 meters of the discovery and not commence again until a notice to proceed is issued by the BLM-authorized officer.

Any undiscovered cultural resources identified by AGA, or any person working on their behalf, during the course of activities on federal land would immediately be reported to the authorized officer by telephone and in writing within 72 hours. The permit holder would suspend all operations within 100 meters of such discovery and protect it until an evaluation of the discovery can be made by the authorized officer.

There are no park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas in the Project Area or vicinity.

4. ***The degree to which the effects on the quality of the human environment are likely to be highly controversial.***

The Project is not expected to have effects on the quality of the human environment such that they are highly controversial. The parameters of the Project activities, along with associated reclamation are well established. The Project Area is isolated from human habitations. Except for mineral exploration, wildlife habitat, and recreation uses, the Project Area is typically uninhabited.

Reclamation measures would return the Project Area to its pre-Project uses of wildlife habitat and dispersed recreation.

5. ***The degree to which the possible effects on the human environments are highly uncertain or involve unique or unknown risks.***

There are no known effects of the Project identified in the EA that would be considered highly uncertain or involve unique or unknown risks. Project activities similar to what has been included in the Project have been conducted numerous times over many years on BLM-administered land and the effects are well understood. This is demonstrated through the effects analysis in Section 3 of the EA.

6. ***The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.***

The Project will not establish a precedent for future actions with significant effects or represent a decision about a future consideration. Completion of the EA does not establish a precedent for other assessments or authorization of other development Projects including additional actions in the Project Area. Any future Projects within the area or in surrounding areas will be analyzed on their own merits, independent of the actions currently selected.

7. ***Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.***

Direct and indirect impacts of the Proposed Action were analyzed in Section 3 (Environmental Consequences) of the EA. None of the environmental impacts disclosed under item 1 above and discussed in detail in Section 3 of the EA are considered significant. Past, present, and reasonably foreseeable future actions as identified in Section 4 of the EA have been considered in the cumulative impacts analysis within Section 4 of the EA. The cumulative impacts analysis examined all the affected resources and all other appropriate actions within the Cumulative Effects Study Areas and determined that the Project would not incrementally contribute to any significant impacts. In addition, for any actions that might be proposed in the future, further site-specific environmental analysis, including assessment of cumulative impacts, would be required.

8. ***The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historic resources.***

Adverse effects to cultural resources would not occur, as AGA has committed to avoiding all sites eligible for listing on the NRHP by a buffer of 30 meters, as outlined in the EPM in Section 2.2.6.2 of the EA. Adherence to the EPM would result in a "no historic properties effected" determination.

9. ***The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.***

The USFWS, the Nevada Natural Heritage Program (NNHP), and Nevada Department of Wildlife were contacted to obtain a list of threatened, endangered, and sensitive species that have the potential to occur within the Project Area. In addition, the most recent BLM Sensitive Status Species List, which includes threatened and endangered species, was evaluated to determine if any species had the potential to occur within the Project Area and vicinity.

The USFWS indicated the following two endangered and one threatened species that may be affected by Project activities: southwestern willow flycatcher (*Empidonax traillii extimus*), Endangered; Yuma clapper rail (*Rallus longirostris yumaensis*), Endangered; and desert tortoise (*Gopherus agassizi*), Threatened. There were no critical habitats identified in the Project Area. The NNHP reported that the Funeral Mountain milkvetch (or BLM-preferred naming of black woollypod) (*Astragalus funereus*), a global and state ranked Imperiled and BLM sensitive species, has been recorded in the Project Area.

The southwestern willow flycatcher and Yuma clapper rail were not observed during the 2019 field surveys; the Project Area does not contain suitable habitat for either species as they are riparian obligate species.

Focused desert tortoise protocol-level 100 percent coverage presence/absence surveys were conducted in the Project Area March 1, 2019, to June 5, 2019. Vegetation in the Project Area consisted of mixed desert shrub communities mostly dominated by blackbrush (*Coleogyne ramosissima*). Other common shrubs included spiny menodora (*Menodora spinescens*), Mexican bladdersage (*Salazaria mexicana*), winterfat (*Krascheninnikovia lanata*), jointfir (*Ephedra* sp.), desert-thorn (*Lycium* sp.), Mojave indigobush (*Psorothamnus arborescens*), and Mojave woodyaster (*Xylorhiza tortifolia*). Scattered Joshua trees (*Yucca brevifolia*), creosote bush (*Larrea tridentata*), burrobush (*Ambrosia dumosa*), and sagebrush (*Artemisia* sp.) were also present. Abundant native annuals included phacelia (*Phacelia* sp.), fiddleneck (*Amsinckia* sp.), pincushion (*Chaenactis* sp.), desertdandelion (*Malacothrix* sp.), lupine (*Lupinus* sp.), and milkvetch (*Astragalus* sp.). The invasive grass red brome (*Bromus rubens*) was observed throughout the Project Area. During surveys, there were several areas that biologists determined were not suitable to survey because of the steep terrain and loose rock that made the areas treacherous. After adjusting for the removed areas, biologists surveyed a total length of 533.7 miles of transects and encountered 194 burrows, none of which were definitively identified as constructed by desert tortoise (Class 1, 2, or 3). No live tortoises or tortoise signs were observed during surveys of the Project Area. However, two adult tortoises were encountered incidentally outside of official surveys. One adult female tortoise was encountered approximately two miles south of the Project Area while the survey crew was leaving the Project. The second tortoise was an adult of unknown sex observed by one of the AGA geologists on the western edge of the Project Area. AGA geologists/drilling teams also encountered two carcasses and a live tortoise while undertaking surface mapping and sampling activities within their claims in 2018, which AGA reported to the BLM via email on May 23, 2018.

USFWS formal consultation in compliance with Section 7 of the Endangered Species Act of 1973, as amended (ESA) was completed on November 25, 2019 (08ENVS00-2020-F-0017 and 1-5-01-F-570). The USFWS concluded that the Project is not likely to jeopardize the continued existence of the threatened Mojave desert tortoise (*Gopherus agassizi*). The Proposed Action was appended to the Tonopah Programmatic Biological Opinion.

10. Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environments.

The Project will not violate or threaten to violate any federal, state, or local law or requirement imposed for the protection of the environment.

Perry B. Wickham
Field Manager
Tonopah Field Office

July 24, 2020
Date

Attachment 6

U.S. Fish and Wildlife Service

Environmental Assessment

for the Issuance of an Eagle Take Permit for the Silicon Exploration Project

---

Nevada

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Appendix A Eagle Conservation Plan
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ACRONYMS AND ABBREVIATIONS

ACEPM	Applicant-Committed Environmental Protection Measure
AGA	AngloGold Ashanti North America
Applicant	AngloGold Ashanti North America
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
Eagle Act	Bald and Golden Eagle Protection Act
EA	Environmental Assessment
EIS	Environmental Impact Statement
EMU	Eagle Management Unit
ESA	Endangered Species Act of 1973
LAP	Local Area Populations
mph	miles per hour
NDOW	Nevada Department of Wildlife
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
PEIS	Programmatic Environmental Impact Statement
Plan	Plan of Operations
Project	Silicon Exploration Project
Project area	Silicon Exploration Project Plan of Operations Boundary and a Surrounding Four-mile Radius
REA	Resource Equivalency Analysis
Service	United States Fish and Wildlife Service
SWReGAP	Southwest Regional Gap Analysis Project
U.S.C.	United States Code

1.0 Introduction

This Environmental Assessment (EA) analyzes the environmental consequences of the United States (U.S.) Fish and Wildlife Service (Service) issuing an incidental take permit for the take of golden eagles (*Aquila chrysaetos*) associated with the Silicon Exploration Project (Project) pursuant to the National Environmental Policy Act (NEPA) (42 United States Code [U.S.C.] §§ 4321–4347). Issuance of an eagle take permit by the Service for take that is incidental to otherwise lawful activities under the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. §§ 668–668d and 50 Code of Federal Regulations [CFR] § 22.26) constitutes a discretionary federal action that is subject to NEPA. This EA assists the Service in ensuring compliance with NEPA, and in making a determination as to whether any "significant" impacts could result from the analyzed actions that would require preparation of an Environmental Impact Statement (EIS). This EA evaluates the effects of alternatives for the Service's decision whether to issue an eagle take permit.

The Eagle Act authorizes the Service to issue eagle take permits only when the take is compatible with the preservation of each eagle species, defined as "consistent with the goals of maintaining stable or increasing breeding populations in all eagle management units and the persistence of local populations throughout the geographic range of each species" (50 CFR 22.3).

The Applicant, AngloGold Ashanti North America (AGA, Applicant), is requesting Eagle Act take coverage for resource exploration associated with the Project and has submitted an incidental eagle take permit application to the Service. The Project's Eagle Conservation Plan (ECP) (**Appendix A**) is the foundation of the application from the Applicant.

The Applicant is requesting a permit for reoccurring disturbance to and loss of annual productivity from breeding golden eagles for up to 10 times over no more than 10 years. This EA evaluates whether issuance of the incidental eagle take permit would have significant impacts on the existing human environment. "Significance" under NEPA is defined by regulation at 40 CFR 1508.27, and requires short- and long-term consideration of both the context of a proposal and its intensity.

This proposal conforms with, and carries out, the management approach analyzed in, and adopted subsequent to, the Service's Programmatic Environmental Impact Statement (PEIS) for the Eagle Rule Revision, December 2016 (USFWS 2016a). Project-specific information not considered in the PEIS has been considered in this EA as described below. Based on this Project-specific analysis and application of the criteria provided in the PEIS, the Service has determined that an EA is the appropriate level of review.

1.1 Purpose and Need

The Service's purpose in considering the proposed action is to fulfill their authority under the Eagle Act (16 U.S.C. §§ 668–668e) and its regulations (50 CFR § 22). Applicants whose otherwise lawful activities may result in take of eagles can apply for eagle incidental take permits so that their projects may proceed without potential violations of the Eagle Act. The Service may issue eagle take permits for eagle take that is associated with, but not the purpose of, an activity. Such permits can be issued by the Service when the take that is authorized is compatible with the Eagle Act preservation standard; it is necessary to protect an interest in a particular locality; it is associated with, but not the purpose of, the activity; and it cannot be practicably avoided (50 CFR § 22 and 81 Federal Register 91494).

The need for this action is a decision on an eagle incidental take permit application from AGA. The decision must comply with all applicable regulatory requirements and be compatible with the preservation of eagles.

1.2 Authorities

Service authorities are codified under multiple statutes that address management and conservation of natural resources from many perspectives, including, but not limited to the effects of land, water, and energy development on fish, wildlife, plants, and their habitats. This analysis is based on the Eagle Act (16 U.S.C. 668–668e) and its regulations (50 CFR 22). The PEIS (USFWS 2016a) has a full list of authorities that apply to this action (USFWS 2016a: Section 1.6, pages 7-12), which are incorporated by reference here.

1.3 Background

AGA's Plan of Operations (Plan) has been approved by the BLM Battle Mountain District Office, Tonopah Field Office (BLM 2020). Under the Plan, AGA is approved to conduct exploration drilling within the Project Plan boundary (**Figure 1-1**). The Project is located approximately seven miles northeast of Beatty, Nevada in Nye County and can be accessed in two directions from Beatty, Nevada: 1) traveling south 1.3 miles on U.S. Highway 95 (US 95) and approximately 8.9 miles up Fluorspar Canyon Road (Nye County Road 249) and Tate's Wash Road (Nye County Road 926019); and 2) traveling 3.6 miles north on US 95 and approximately 4.1 miles east on the North Beatty Wash Road (Nye County Road 926026) that connects to the Beatty Wash Road (Nye County Road 926025) at the Project.

The Project includes conducting an exploration drilling program within the approximately 3,630-acre Plan boundary to determine the extent and quality of a mineral resource within the approximately. Surface-disturbing activities are approved for up to 155 acres, and consist of an existing road network for Project access, reverse circulation and core drilling from constructed drill sites, road construction and overland travel, bulk sampling, geotechnical auger holes and geological test pits, geologic and geophysical mapping, water monitoring well and water

extraction well installation, and construction of a meteorological station. The disturbance occurs in phases, and Phase I consists of approximately 50 acres of surface disturbance in addition to five acres of Notice-level surface disturbance for a total of approximately 55 acres. The remaining 100 acres of disturbance will occur under subsequent phases (155 acres total) over approximately 10 years. Exploration activities may occur year-round and 24 hours per day, with up to four drill rigs operating at one time and up to 20 personnel present.

Within the vicinity of the BLM-approved drilling, six nest sites (SI-301, SI-302, SI-303, SI-304, SI-305, and SI-502), thought to represent one breeding pair's territory, are located on natural features. The location of the ore body occurs in the immediate proximity of the nest sites.

The Project area (Silicon Exploration Project Plan of Operations boundary and a surrounding four-mile radius) includes various rock outcrops that serve as potential eagle nesting areas. Vegetation communities are dominated by Mojave Mid-Elevation Mixed Desert Scrub, Sonora-Mojave Creosotebush-White Bursage Desert Scrub, and Inter-Mountain Basins Semi-Desert Shrub Steppe, which provide habitat of varying ranges for golden eagle prey base. Limited water sources are present in the Plan boundary, and the majority of seeps and springs in the Project area are present along the Amargosa River, which is approximately three miles west of the nest sites. In addition, paved and non-paved roads are located in the Project area, including US 95, that provide carrion for eagles and represent potential scavenging habitat.

1.4 Scoping, Consultation, and Coordination

This EA incorporates by reference the scoping performed for the PEIS (USFWS 2016a: Chapter 6, page 175). A draft of this EA, the Applicant's ECP, and a draft Finding of No Significant Impact was made public on the Service's Pacific Southwest Region webpage (https://www.fws.gov/cno/conservation/MigratoryBirds/EaglePermits.html) for 30 days to solicit public comments beginning December 20, 2022. The Service received one public comment letter on the draft EA and revisions were incorporated into the EA as a result of substantive comments, as appropriate. Public comments and responses are included in **Appendix B.**

1.5 Tribal Coordination

Tribal participation is an integral part of the NEPA and the National Historic Preservation Act (NHPA) process, as well as a key component of determining whether to issue an eagle take permit. Cultural and religious concerns regarding eagles were analyzed in the PEIS (USFWS 2016a), and tribal consultation was conducted for the PEIS (USFWS 2016a). The PEIS (USFWS 2016a) identified tribal coordination as an important issue for subsequent analysis, given the cultural importance of eagles to the tribes. In accordance with Executive Order 13175, Consultation and Coordination with tribal governments (65 Federal Register 67249, November 9, 2000), the NHPA Section 106 (36 CFR 800) and the Service's Native American Policy, the Service consults with Native American tribal governments whenever actions taken under the

authority of the Eagle Act may affect tribal lands, resources, or the ability to self-govern. This coordination process is also intended to ensure compliance with the American Indian Religious Freedom Act.

The Service sent letters to eight federally recognized tribal governments located within 109 miles (the natal dispersal distance of golden eagles, thought to adequately define the species local area population [LAP]) of the Project informing them of the received permit application and preparation of this EA, and offering the opportunity for formal consultation regarding potential issuance of the permit. In addition, comments from Tribes are also encouraged and welcomed during the 30-day comment period on the EA.

2.0 Proposed Action and Alternatives

In this analysis, and in our consideration of take authorization to the Applicant, each incident of "take" results in loss of productivity for a single season for a single eagle breeding pair. Take that may result in injury or mortality of eagles is not expected nor would it be authorized under this permit. While the available data indicates one breeding territory is most likely to be impacted by activities, as these pairs have nests located in the vicinity of the Project Area, eagle populations are dynamic with shifting territory boundaries and eagle pairs may establish new nest locations. New territories and new nesting locations may be identified in the Project Area or its vicinity over the life of the permit. To allow for operational flexibility, the Applicant may utilize the 10 take authorizations for no more than ten years and as needed should nesting locations differ within the Project Area. Effects of up to ten incidents of take over ten years is expected to be the same, regardless of exact location.

2.1 Alternative 1: Proposed Action

The Service proposes to issue an incidental eagle take permit, with associated conditions, to the Applicant for disturbance to and loss of annual productivity of breeding golden eagles, as allowed by regulation (Proposed Action). The permit would be issued for up to 10 incidents of take over no more than 10 years.

Under this alternative, all monitoring and adaptive management measures, minimization measures, and detection and reporting measures outlined in Section 2.11-2.13 would be permit requirements. Monitoring associated with the permit would be conducted as outlined in Table 2-1 and by a third party monitor as required by our regulations.

2.1.1 Compensatory Mitigation

Compensatory mitigation would be conducted within the Pacific Flyaway Eagle Management Unit (EMU). The Applicant would provide the compensatory mitigation at the required 1.2:1 ratio by retrofitting electric utility poles, as discussed in the 2016 PEIS. The intent would be to minimize the potential for eagle electrocutions and ensure that the effects of eagle incidental take

are offset at the population level. The amount of compensatory mitigation required for the lost productivity has been determined through the Service's Golden Eagle Resource Equivalency Analysis (REA) (USFWS, 2013). The permit would require 90 to 207 electric utility poles to be retrofitted to offset the impacts to golden eagle breeding territories. The exact number of retrofits depends on the longevity of each pole's retrofit. Simple retrofits are accomplished by placing plastic covers on electric components. As plastic covers are a temporary solution, once retrofitted, the power pole is considered "eagle safe" for 10 years. If a pole is reframed or reconstructed, the pole is made permanently safe for eagles because adequate spacing is provided between electrical components. The Service gives a 30-year credit for this type of retrofit (USFWS, 2013).

AGA would provide compensatory mitigation for five incidents of take no later than 30 days after permit issuance. At the five-year review, the Service and AGA would consult and evaluate the amount of mitigation owed or credited for the remainder of the permit authorization period.

2.1.2 Adaptive Management

Continued monitoring will inform the Applicant on the status of existing nests as well as if new nests are being constructed near the Project and its associated activities. If monitoring determines that multiple take events may occur in a given year, and that the Proponent is approaching their take permit limits (i.e., up to 10 takes over no more than 10 years), adaptive management would be implemented. First, the Applicant would apply avoidance buffers on in-use/occupied nests to prevent incidental take (no surface-disturbing activities within one mile of an in-use/occupied nest during breeding season including early courtship through post fledging nest dependency (i.e., December 15 through July 15). If avoidance is not practicable, the Proponent may request a permit amendment from the Service. During annual monitoring, should a bald eagle nest be discovered in the project area, the Applicant would implement protective buffers and coordinate with the Service.. Additionally, at the five-year review of the permit, the Service may consider additional adaptive management strategies, if necessary, in coordination with the Applicant.

2.1.3 Eagle Nest Monitoring

The Applicant will monitor eagle nest sites annually using independent, third party monitors that report directly to the Service. The project area eagle nest monitoring will inform the applicant and agencies when golden eagle nests are in-use in the project area in order to validate the number of take incidents that occur, and ensure compliance with the permit authorization.

2.1.4 Five Year Review

Long term eagle incidental take permits require we conduct five year reviews. During the five year review process, we would evaluate if take occurred for each known breeding territory in each year. For example, should disturbance occur within one mile of a golden eagle nest during the courtship phase, or egg laying period of the breeding season (January 15 – April 1), the

Service would assume project activities prevented eagles from breeding and a take incident occurred. If the applicant's data validates no disturbance occurred within one mile of a breeding pair's nest site until after April 1 in a given year, and monitoring confirms nests are not in-use, the Applicant could proceed with their Project activities and the Service would determine no take occurred. We would take into consideration any alternate nests used within a given territory when evaluating the Project data and making these determinations.

After assessing how many take incidents occurred during the first five years, we would then evaluate how much compensatory mitigation might be either credited or owed for the remainder of the 10 year permit duration.

2.2 Alternative 2: No Action Alternative

Under the No Action Alternative, the Service would take no further action on AGA's permit application. However, the Service must take action on the permit application and determine whether to deny or issue the permit. Accordingly, this alternative is considered because Service policy requires evaluation of a No Action Alternative and it provides a clear comparison of any potential impacts to the human environment from the Proposed Action. The No Action Alternative in this context analyzes predictable outcomes of the Service not issuing a permit. Should a Permit not be issued, compensatory mitigation would not be required. Thus, for purposes of analyzing the No Action Alternative, the conservation measures proposed in the Permit application package would not be required. The Applicant may choose to voluntarily implement some, none, or all of those conservation measures. Under this alternative, it is assumed that the Applicant would take reasonable steps to avoid taking eagles, but AGA would not be protected from enforcement for violating the Eagle Act should take of an eagle occur.

2.3 Common to All Alternatives

This section describes components of the Project that are the same for the Proposed Action and No Action Alternative whether or not a permit is issued. If a permit is issued, these measures would become permit requirements.

2.3.1 Monitoring

The Applicant will implement all measures required by other agencies and jurisdictions to conduct the activity at this site, including applicant-committed Environmental Protection Measures (ACEPMs). The applicant will implement all conservation measures and commitments summarized below. Monitoring will be implemented over the life of the Project. **Table 2-1** presents a summary of the ACEPMs with monitoring and a schedule for implementation per the existing BLM NEPA document (BLM 2020).

Table 2-1 ACEPM Monitoring Schedule

ACEPM	Monitoring Actions	Duration
ACEPM 1	A nest survey would be conducted by a qualified biologist prior to any surface disturbance associated with exploration activities during the avian breeding season (March 1 through July 31) for raptors and other migratory birds. Pre-disturbance surveys for migratory birds are only valid for 14 days. If the disturbance for the specific location does not occur within 14 days of the survey, another survey would be needed. If active nests are located, or if other evidence of nesting (i.e., mated pairs, territorial defense, carrying nest material, transporting food), a protective buffer (the size depending on the habitat requirements of the species) would be delineated after consultation with the BLM resource specialist. Source: BLM 2020	Annually as needed for the life of the Project.
ACEPM 2	Annual surveys would be conducted at golden eagle nest sites that are within one mile of the Project Area to determine nest status. The timing of the surveys may be adjusted due to winter weather conditions and is subject to approval from the Nevada Department of Wildlife (NDOW) based on consideration of bighorn sheep (Ovis canadensis) lambing activity. Source: BLM 2020	Annually as needed for the life of the Project.
ACEPM 3	Vehicle speeds on undeveloped access roads shall not exceed 15 miles per hour (mph) and 25 mph on more improved main access roads. Source: BLM 2020	For the life of the Project.

Source: BLM 2020

2.3.2 Minimization Measures

AGA is implementing the following measures and will continue to implement the measures to minimize impacts to golden eagles from the Project.

Carcass Management: Staff will remove carcasses from all roadways within the Plan boundary when on site and dispose of them appropriately to reduce the risk of vehicle collisions.

Employee Awareness and Training Program: Staff and contractors working on the Project will be provided training on reducing risks to eagle collisions, reporting eagle and nest observations, and any Service requirements provided within the eagle permit.

2.3.3 Detection and Reporting Measures

Eagle injuries, mortalities, and previously undocumented eagle nests may be detected through incidental observations by AGA personnel and contractors. To improve the probability that injuries and mortalities do not go undetected, AGA field staff will be advised to remain alert for eagles within exploration areas and access roads at all times. The detection of any new nest sites will occur through incidental observations and any monitoring that occurs.

In the event that a new nest is detected within proximity to exploration activities, the AGA Environmental Department or designee will record the circumstances and conditions associated with the observation. Among the information recorded and reported to the Service will be the

date and time of the detection, the Global Positioning System location (North American Datum 83), the status of the nest, and if possible, the species.

When AGA personnel or their contractors encounter a golden eagle injury or mortality within the Plan boundary, they must report the incident to the AGA Environmental Representative. Personnel must not handle dead or injured eagles unless specifically directed to do so by the Service. In the event of an eagle injury, AGA's Environmental Representative will notify the Service and NDOW immediately (the same business day) and in the event of mortality, notification will occur by the next business day.

2.4 Other Alternatives Considered but Not Evaluated in this Environmental Assessment

The Service considered other alternatives based on communication with the Applicant but concluded that these alternatives did not meet the purpose and need underlying the action because they were impracticable for the Applicant to carry out or did not adequately address the risk of take at the Project. Therefore, the Service did not assess the potential environmental impacts of those alternatives. Below is a summary of the alternatives considered but eliminated from further review.

2.4.1 Alternative 3: Deny Permit

Under this alternative, the Service would deny the permit application because the Applicant falls under one of the disqualifying factors and circumstances denoted in 50 CFR 13.21, the application fails to meet all regulatory permit issuance criteria and required determinations listed in 50 CFR 22.26, or because the Service determined that the risk to eagles is so low that a take permit is unnecessary.

Our permit issuance regulations at 50 CFR 13.21(b) set forth a variety of circumstances that disqualify an Applicant from obtaining a permit. None of the disqualifying factors or circumstances denoted in 50 CFR 13.21 apply to AGA. Next, the Service considered whether the Applicant meets all issuance criteria for the type of permit being issued. For eagle take permits, those issuance criteria are found in § 22.26(f). AGA's application meets all the regulatory issuance criteria and required determinations (50 CFR 22.26) for eagle take permits.

When an Applicant for an eagle take permit is not disqualified under 50 CFR 13.21 and meets all the issuance criteria of 50 CFR 22.26, denial of the permit is not a reasonable option. Therefore, this alternative, denial of the permit, was eliminated from further consideration.

3.0 Affected Environment

This section describes the current status of the environmental resources and values that are affected by the Proposed Action and alternatives.

3.1 Golden Eagles

General information on the population trends, distribution, and habitat of golden eagles are detailed in the PEIS (USFWS 2016a: Sections 3.3 and 3.4). This section more specifically describes the golden eagle population in the Project area.

3.1.1 Project Area Habitat

Foraging Habitat

Vegetation communities in the Project area have been mapped by the Southwest Regional Gap Analysis Project (SWReGAP) in land cover files (USGS 2011). The SWReGAP mapping shows 24 vegetation communities occurring within the four-mile radius of the Plan boundary (**Table 3-1**). Three are mapped as over five percent of the Project area: Mojave Mid-Elevation Mixed Desert Scrub (46 percent), Sonora-Mojave Creosotebush-White Bursage Desert Scrub (30 percent), and Inter-Mountain Basins Semi-Desert Shrub Steppe (13 percent). Each of the remaining 21 communities account for approximately 11 percent of the Project area. The potential foraging value of the various habitat types present in the region has not been quantified, but in general, they support golden eagle prey base at varying degrees which supports golden eagle foraging. Cliffs, canyons, and outcrops have the potential to support nesting golden eagles.

Table 3-1 SWReGAP Vegetation Communities within the Project Area

Vegetation Community	Acres	Percent
Agriculture	138	0.12%
Developed, Open Space - Low Intensity	651	0.55%
Great Basin Foothill and Lower Montane Riparian Woodland and Shrubland	6	0.01%
Great Basin Pinyon-Juniper Woodland	178	0.15%
Great Basin Xeric Mixed Sagebrush Shrubland	1,065	0.90%
Inter-Mountain Basins Big Sagebrush Shrubland	474	0.40%
Inter-Mountain Basins Cliff and Canyon	36	0.03%
Inter-Mountain Basins Greasewood Flat	42	0.04%
Inter-Mountain Basins Mixed Salt Desert Scrub	1,199	1.01%
Inter-Mountain Basins Montane Sagebrush Steppe	105	0.09%
Inter-Mountain Basins Semi-Desert Grassland	9	0.01%
Inter-Mountain Basins Semi-Desert Shrub Steppe	**15,443**	**13.04%**
Invasive Annual and Biennial Forbland	2	0.00%
Invasive Annual Grassland	11	0.01%
Mojave Mid-Elevation Mixed Desert Scrub	**54,305**	**45.85%**
North American Arid West Emergent Marsh	27	0.02%
North American Warm Desert Bedrock Cliff and Outcrop	5,653	4.77%
North American Warm Desert Lower Montane Riparian Woodland and Shrubland	266	0.22%
North American Warm Desert Playa	608	0.51%
North American Warm Desert Volcanic Rockland	634	0.54%
North American Warm Desert Wash	26	0.02%
Recently Mined or Quarried	233	0.20%

Vegetation Community	Acres	Percent
Sonora-Mojave Creosotebush-White Bursage Desert Scrub	**35,485**	**29.96%**
Sonora-Mojave Mixed Salt Desert Scrub	1,840	1.55%
Total	**118,438**	**100.00**

*Bold denotes dominant habitat types.

Other habitat types that are believed to represent golden eagle foraging habitats in the region include roads and natural water sources. Paved (e.g., US 95) and non-paved roads are located within the Project area. Golden eagles frequently feed on roadkill and other carrion (especially during winter) even when live prey is available; golden eagles consume fresh carrion during the nesting season (Kochert and Steenhof 2002). Roads within the Project area, particularly improved roads that allow vehicles to travel at higher speeds, represent golden eagle scavenging habitat (note, however, that they also present a substantial hazard to golden eagles, which are at risk of being killed or injured by vehicle strikes). Springs provide a reliable water source for eagle prey and, therefore, have the potential to allow for higher concentrations of eagle prey in those areas. There are multiple seeps and springs and intermittent and ephemeral drainages along the Amargosa River approximately three miles west of the nest sites. Riparian habitats, agricultural pivots, and pastures in the Project area also support populations of rodents and lagomorphs.

Nesting Habitat

Golden eagle nesting habitat includes cliff and rock outcrops in Beatty Wash, the Yucca Mountains to the and east, and the Bare Mountains to the south Golden eagles may nest in trees if available.

Other Topographic Features Attractive to Eagles

Tops of slopes oriented perpendicular to prevailing winds or near ridge crests of cliff edges are features that are conducive to slope soaring and are attractive features for eagles. Mountainous areas that include ridgelines and slopes with a variety of aspects, such that winds from multiple directions would create deflection currents, are also suitable for soaring. Saddles or low points on ridge lines or near riparian corridors may serve as flight paths.

3.1.2 Project Area Golden Eagle Population

The golden eagle nesting territories within the four-mile radius of the Project were delineated based on surveys conducted in 2019 and 2020, as well as information provided by NDOW. A total of four distinct territories were delineated based on proximity of nests to one another and concurrent use of adjacent nests. **Appendix C** summarizes the golden eagle territories and status of nests within the Project area. **Figure 3-1** shows the nest locations in the Project area and vicinity. There is limited data for fledged young in the Project area. One of four territories within the Project area was documented by NDOW as fledging young in 2014 (SWCA 2019). The

nesting rate for 2019 was zero percent (none of four territories in-use) and for 2020 was 25 percent (one of four territories in-use).

3.1.3 Territories Within the Project's Plan Boundary

One known territory occurs within the Plan boundary (**Figure 3-2**). There are six nest sites within the territory (SI-301, SI-302, SI-303, SI-304, SI-305, and SI-502) with five located inside of the Plan boundary and one outside. These nests are within 1.2 miles of each other and have not been simultaneously in use. The territory was documented as occupied and fledged an eaglet in 2014, and was not occupied in 2015, 2018, or 2019 (SWCA 2019). This territory was occupied again in 2020 with an incubating eagle observed on SI-301 (SWCA 2020). The next closest territory is approximately three miles to the southwest.

3.1.4 Project Eagle Population Stressors

Exploration Activities

Exploration activities include preparation of drill pads, development of roads, and drilling. Risks to golden eagles include unintentional disturbance from activity near nest sites, such as noise and visual irritation from surface disturbance, vehicular traffic on roads, and drilling.

Roads

Mobile equipment (i.e., vehicles) used in operations at the Project or traveling to or from the Project could strike and injure or kill wildlife. Road-killed wildlife may attract scavenging eagles, which in turn could be injured or killed by vehicle collision. AGA has speed limits placed on equipment and vehicles operating at the Project. Vehicle speeds on undeveloped access roads shall not exceed 15 mph and 25 mph on more improved main access roads. The greater risk for vehicle mortality is on area roads outside of the Project (e.g. US 95), which are outside of AGA's control, due to higher speeds and additional traffic.

Utilities

Electrical utility infrastructure present in the Project area includes power poles, power lines and guy wires, and transformers. These utilities present risks to eagles from electrocution and collision. Electrical transmission and distribution lines that do not include sufficient spacing between energized lines or between energized lines and ground wires represent an electrocution hazard to large birds. The Project is not authorized to construct additional electrical utility infrastructure; therefore, additional electrical utility infrastructure would not be constructed by the proponent within the Project area.

3.2 Bald Eagles

Bald eagles (*Haliaeetus leucocephalus*) are known to occur in the region, but are not expected to be affected by exploration activities associated with the Project; therefore, disturbance and loss of territory of bald eagles are not expected to result from the Project (BLM 2020).

3.3 Migratory Birds

Effects to migratory birds have been analyzed in the PEIS (USFWS 2016a). A variety of migratory birds have been identified in the Plan boundary; however, issuance of the proposed permit is not anticipated to affect one or more species of migratory birds. Additionally, AGA has ACEPMs to reduce potential impacts to migratory birds within the Plan boundary (BLM 2020).

3.4 Species Listed under the Endangered Species Act

The Mojave desert tortoise (*Gopherus agassizii*), a federally threatened species listed under the Endangered Species Act of 1973 (ESA), as amended (ESA) (16 U.S.C. §§ 1531-1544), has the potential to occur within the Plan boundary (BLM 2020). The Service consultation in compliance with Section 7 of the ESA was completed on November 25, 2019 (08ENVS00-2020-F-0017). The Service concluded that the Project is not likely to jeopardize the continued existence of the threatened Mojave desert tortoise, and the Applicant would implement desert tortoise minimization measures outlined during the consultation. The Service's decision regarding an eagle take permit would not alter the physical footprint of the Project and therefore would not alter the Project impacts to federally threatened and endangered species in the Plan boundary, including the Mojave desert tortoise.

3.5 Coordination with Tribal Governments

Bald and golden eagles are important symbols of U.S. history and sacred to many Native American cultures. Some Native American cultures utilize eagles, eagle feathers, and other eagle parts for religious practices and cultural ceremonies. Outside of rituals and practices, wild eagles as live beings are deeply important to many tribes (Lawrence 1990, as cited by USFWS 2016a). Numerous tribes confirmed the importance of wild eagles during scoping and tribal consultation for the PEIS (Service 2016).

Tribal participation is an integral part of the NEPA and the National Historic Preservation Act (NHPA) process, as well as a key component of the Service's decision whether to issue an eagle take permit. Cultural and religious concerns regarding eagles were analyzed in the PEIS (Service 2016), and tribal consultation already conducted for the PEIS is incorporated by reference into this EA. The PEIS identified tribal coordination as an important issue for subsequent analysis, given the cultural importance of eagles to the tribes. In accordance with Executive Order 13175, Consultation and Coordination with Tribal Governments (65 FR 67249), the NHPA Section 106 (36 CFR § 800) and the Service's Native American Policy, the Service consults with Native

American tribal governments whenever our actions taken under the authority of the Eagle Act may affect tribal lands, resources, or the ability to self-govern. This coordination process is also intended to ensure compliance the American Indian Religious Freedom Act.

To notify Tribes regarding potential issuance of the requested Permit, the Service sent letters to the eight federally-recognized tribal governments located within 109 miles (the natal dispersal distance of golden eagles thought to adequately define the local area population of the eagles) of the Project informing them of the received Permit application and preparation of this EA.

As of the start of the 30-day comment period, no tribes provided comment during scoping and tribal outreach for this EA. The Proposed Action or considered alternatives would not impact cultural or socioeconomic interests beyond the impacts already discussed in the PEIS. Therefore, cultural and socioeconomic interests has not been analyzed further in this EA.

3.6 Climate Change

Climate change was considered in the PEIS (USFWS 2016a; Section 3.9, page 144), and is not analyzed further in this EA.

4.0 Environmental Consequences

This section summarizes the effects on the environment of implementing the Proposed Action or alternatives to the action. The discussion of overall effects to the environment of the eagle take permit program is provided in the PEIS (USFWS 2016a). This section of this EA analyzes only the effects that were not analyzed in the PEIS (USFWS 2016a) that may result from the issuance of an eagle take permit for this Project.

4.1 Alternative 1: Proposed Action

In determining the significance of effects of the Project on eagles, the Service screened the Proposed Action of issuing an eagle take permit for the take of golden eagles against the analysis provided in the PEIS (USFWS 2016a) and the Service's 2016 report, *Bald and Golden Eagles Population Demographics and Estimation of Sustainable Take in the United States, 2016 Update* (USFWS 2016b). The Service assessed Project effects to eagles at the project, local, and regional scales.

4.1.1 Direct and Indirect Effects

Under the Proposed Action, the Applicant is requesting authorization for disturbance to and loss of annual productivity from breeding golden eagles for up to 10 take incidents for no more than 10 years from the date of the issuance of the permit. Within one mile of authorized surface disturbance activities, there is thought to be one breeding pair occupying a territory that consists of six nest sites (SI-301, SI-302, SI-30, SI-304, SI-305, and SI-502) (**Figure 3-2**) which are

located on natural outcrops. During implementation of exploration activities, it is most likely that eagles associated with this territory are the most likely to be the breeding pair impacted. However, there is some potential for a second breeding pair to nest within one mile of surface disturbance that could also be impacted. As such, the Proposed Action would authorize the disturbance to and loss of annual productivity for up to 10 take incidents to breeding golden eagles over a 10 year period regardless of which territory might be disturbed. We acknowledge that the take incidents could occur such that one breeding pair is disturbed per year, or multiple breeding pairs could be disturbed in any given year. Regardless, the Applicant could not exceed 10 take incidents over the 10 year authorization period.

The Proposed Action would have a direct impact to the golden eagles through the presence of drilling in close proximity to their nests, thus causing potential negative impacts to golden eagle breeding and nesting activities.

Disturbance of an occupied golden eagle territory is assumed to result in loss of annual productivity (i.e., number of young reared) from that territory. The Service uses an estimate of 0.59 golden eagle young fledged per occupied nesting territory per year (USFWS 2016c) to estimate loss of annual productivity.

Along with the monitoring and minimization measures outlined in Section 2, the Applicant would provide compensatory mitigation to offset the expected take. To determine the amount of mitigation required, the Service's Golden Eagle REA was used (USFWS 2018) as described in Section 2 of this EA.

The Eagle Act regulations require compensatory mitigation to be conducted in the same Eagle Management Unit (EMU) in which the take occurs. The Project is located in the Pacific Flyway EMU. The site of power poles to be retrofitted has not yet been determined but would be in the Pacific Flyway.

In addition, the Proposed Action incorporates adaptive management and minimization measures as described in Section 2. The proposed ACEPMs would continue to be implemented but as permit stipulations to further reduce the risk of Project-related injury or mortality hazards to eagles within the Project boundary.

The Proposed Action meets the purpose and need as it is consistent with the Eagle Act and its regulations and adequately addresses the risk of take at the Project.

Bald Eagles

Because the Project has not changed in scope, timing, or duration, no significant adverse effects are foreseen to bald eagles as a result of the Project (BLM 2020). Although take of bald eagles is not expected to occur at this Project and take of bald eagles would not be permitted, bald eagles

in the region may benefit from avoidance and minimization measures established to reduce the risk to golden eagles. Bald eagles may benefit from compensatory mitigation actions provided to offset the take of golden eagles under the Proposed Action.

Migratory Birds

Because the Project has not changed in scope, timing, or duration, no significant adverse effects to migratory bird populations are expected as a result of the Project (BLM 2020). Issuance of an eagle take permit to the Project may also provide benefits to migratory birds. Power pole retrofits completed as compensatory mitigation for the eagle take permit may minimize electrocution risk for raptors and other migratory birds, just as with eagles.

Species Listed under the Endangered Species Act

The Mojave desert tortoise (Gopherus agassizii), a federally threatened species listed under the Endangered Species Act of 1973 (ESA), as amended (ESA) (16 U.S.C. §§ 1531-1544), has the potential to occur within the Plan boundary (BLM 2020). The Service consultation in compliance with Section 7 of the ESA was completed on November 25, 2019 (08ENVS00-2020-F-0017). The Service concluded that the Project is not likely to jeopardize the continued existence of the threatened Mojave desert tortoise, and the Applicant would implement desert tortoise minimization measures outlined during the consultation (BLM 2020). The effects of authorizing incidental eagle take is not expected to have effects to species protected by the ESA, including the Mojave desert tortoise.

4.1.2 Cumulative Effects

The purpose of this cumulative effects evaluation is to identify situations where the eagle take proposed under the Proposed Action, combined with take from other present or foreseeable future actions and sources, may be approaching levels that are biologically problematic or that cannot reasonably be offset through compensatory mitigation. Effects of take may be cumulative at the project scale, at the local-area eagle population scale, and at the EMU scale.

At the Project scale, the alteration of the eagle habitat from Project development could cause shifting in eagle pair territory boundaries in the vicinity of the Project, which could cause increased antagonistic interactions with surrounding eagle pairs, potentially creating a ripple-effect of impacts to eagles in areas surrounding the Project.

To ensure that eagle populations at the local scale are not depleted by cumulative take in the local area, the Service analyzed in the PEIS (USFWS 2016a) the amount of take that can be authorized while still maintaining LAP of eagles. The LAP scale is defined for eagles as the median natal dispersal distance for the given species, which for golden eagles is a 109-mile radius (USFWS 2016b). In order to issue a permit, cumulative authorized take must not exceed five percent of a LAP unless the Service can demonstrate why allowing take to exceed that limit

is still compatible with the preservation of eagles. The eagle take permit regulations require the Service to conduct an individual LAP analysis for each permit application as part of the application review.

Therefore, the Service considered cumulative effects to the LAP surrounding the Project Plan boundary (**Figure 4-1**) to evaluate whether the take to be authorized under this permit, together with other sources of permitted take and unpermitted eagle mortality, may be incompatible with the persistence of the Project's LAP. Data provided by AGA, data on other eagle take authorized and permitted by the Service, and other reliably documented unauthorized eagle mortalities has been incorporated to estimate cumulative impacts to the LAP. The cumulative effects analysis was conducted as described in the Service's Eagle Conservation Plan Guidance (USFWS 2013).

The LAP for the Project was estimated to be 365.44 golden eagles. The five percent benchmark for authorized take of that LAP is 18.27 eagles, while current authorized take in the LAP, including that estimated to occur at the Project, is 4.77 golden eagles or 1.31 percent of the LAP per year. The take that would be authorized by this permit for the Project does not exceed one percent of the LAP, so it would not significantly impact the LAP.

Additionally, take of eagles has the potential to affect the larger eagle population. Accordingly, the 2016 PEIS analyzed the cumulative effects of permitting take of golden eagles in combination with ongoing unauthorized sources of human-caused eagle mortality and other present or foreseeable future actions affecting golden eagle populations. As part of the analysis, the Service determined sustainable limits to permitted take within each EMU. The take that would be authorized by this permit would be offset by the compensatory mitigation that would be provided by the Applicant, so it would not significantly impact the EMU eagle population. The minimization measures that would be required under the permit, along with the additional adaptive management measures, are designed to further ensure that the permit is compatible with the preservation of golden eagles at the regional EMU population scale.

4.2 Alternative 2: No Action Alternative

4.2.1 Direct and Indirect Effects

The Service assumes the level of take is the same under the Proposed Action and No Action Alternative, but under the No Action Alternative, the Service would take no action on the permit application. A permit would not be issued, and compensatory mitigation would not be required. Under this alternative, direct impacts of the Project on the golden eagle population would be assumed to be loss of productivity at one nest site in one golden eagle breeding pair's territory, over ten years, and this take would not be offset by compensatory mitigation. The Applicant would continue to implement the monitoring and avoidance measures for the Project as described in Section 2; however, additional measures outside of those referenced in Section 2, including compensatory mitigation, would not be implemented.

This alternative does not meet the purpose and need for the action because, by regulation (50 CFR 13.21), when in receipt of a completed application, the Service must either issue or deny a permit to the Applicant. The No Action Alternative also does not meet the purpose of and need for the action because it would result in the adverse, unmitigated effects to golden eagles described above, and these effects are not compatible with the preservation of golden eagles.

Bald Eagles

Under the No Action Alternative, benefits that bald eagles might incur from minimization measures established under a golden eagle take permit to reduce the risk to golden eagles, as well as from compensatory mitigation actions provided to offset the take of golden eagles, would not occur.

Migratory Birds

Any incidental benefits to migratory birds from minimization measures and compensatory mitigation required under an eagle take permit would not be realized under the No Action Alternative.

Species Listed under the Endangered Species Act

Any incidental effects to federally threatened and endangered species from minimization measures and compensatory mitigation required under an eagle take permit would not be realized under the No Action Alternative.

4.2.2 Cumulative Effects

Cumulative impacts are defined as incremental impacts of the action on the environment when added to other past, present, and reasonably foreseeable future actions. The geographic extent of for the analysis of cumulative impacts is within a 175-kilometer (109-mile) radius surrounding the Project LAP, which represents the average natal dispersal distance of golden eagles (USFWS 2016a). There is incomplete information available regarding the level of unpermitted golden eagle take in the region; thus, golden eagle take in the past, present, and foreseeable future is not fully known. Over the past 25 years, the Service knows of 142 golden eagles killed by a variety of causes. This information suggests that approximately 5.68 golden eagles are killed per year in the LAP. Thus, the known annual unpermitted take suggests an anticipated unpermitted take of approximate 1.52 percent per year for the LAP. Two permits have been previously issued within the LAP (#00542B and 23857D) which have authorized take of 4.18 golden eagles each year. The Service is currently reviewing one additional permit application 20776D, and if issued, take would be fully offset by the compensatory mitigation that would be provided by the permit holder. Overlap of take from pending permit applications (#20776D) within the LAP is approximately 0.59 estimated eagles per year.

The total anticipated cumulative take would be 2.99 percent per year for the LAP. The loss of productivity authorized by permits would be fully offset by the compensatory mitigation that would be provided by the permit holders. The anticipated unpermitted take of approximate 1.52 percent per year for the LAP would not be offset by compensatory mitigation.

4.3 Comparison of Effects of Alternatives

The main differences between the Proposed Action and the No Action Alternative are the issuing of a permit with compensatory mitigation requirements to offset the permitted take under the Proposed Action and the level of concurrent and post-construction monitoring that would occur (**Table 4-1**). The Service assumes the level of take is the same under the Proposed Action and No Action Alternative, but under the No Action Alternative, compensatory mitigation would not be required.

The Proposed Action is likely to have no significant impacts on golden eagles as there is no unmitigated take, and it meets all regulatory requirements and the conservation standard set forth in the 2016 PEIS (USFWS 2016a).

Table 4-1 Comparison of the Proposed Action and No Action Alternative

	Alternative 1: Proposed Action	Alternative 2: No Action Alternative
Eagle Take Levels	Loss of productivity from breeding golden eagles up to 10 incidents over 10 years.	Loss of productivity from breeding golden eagles up to 10 incidents over 10 years.
Avoidance and Minimization	Applicant will continue to implement the measures to minimize impacts to golden eagles (Section 2) at the Project including: vehicle speed limits; employee awareness/training programs; and carcass management.	Same as detailed under the Proposed Action, as the applicant is committed to these measures even without issuance of a permit.
Compensatory Mitigation	Retrofitting of power poles to offset the loss of annual productivity from breeding golden eagles for up to 10 take incident for no more than 10 years from the date of the issuance of the permit.	None provided.
Detection and Reporting	Applicant will continue to meet their BLM requirements from the 2020 EA, implement the measures to minimize impacts to golden eagles (Section 2) including the reporting and detection system to ensure that personnel adhere to the appropriate actions should a previously unidentified nest, injured eagle, or deceased eagle be identified.	Same as detailed under the Proposed Action.
Unmitigated Eagle Take	None.	Loss of productivity from breeding golden eagles up to 10 take incidents over 10 years.

	Alternative 1: Proposed Action	Alternative 2: No Action Alternative
Adaptive Management	If continued monitoring determines that there are multiple takes occurring in a given year and that the Proponent is approaching their take permit limits, adaptive management would be implemented. First, the Applicant would apply avoidance buffers on in-use/occupied nests to prevent incidental take. If avoidance is not practicable, the Proponent may request a permit amendment from the Service. Additionally, at the five-year review of the permit, the Service and the Applicant may consider additional adaptive management strategies.	None.
Data Collection/Monitoring	A qualified third party biologist will monitor golden eagle nests within one mile of the Project annually to determine nest status. Applicant will also document any eagle mortality identified while working at the Project.	AGA will conduct annual nest status monitoring for the Project, as the applicant is committed to these measures even without issuance of a permit.
Company Liability for Eagle Take	None	Yes.

5.0 Mitigation

The Proposed Action incorporates measures to minimize and avoid impacts to the maximum degree practicable, as required by regulation. To ensure that regional eagle populations are maintained consistent with the preservation standard, regulations require that any golden eagle take that cannot practicably be avoided and is above EMU take limits must be offset by compensatory mitigation at a 1.2 to 1 ratio. As golden eagle take limits for all EMUs were determined to be zero (USFWS 2016a), compensatory mitigation is necessary to offset any authorized take of golden eagles. The 1.2 to 1 ratio for compensatory mitigation achieves a net benefit to golden eagle populations, ensuring that regional eagle populations are maintained consistent with the preservation standard of the Eagle Act despite indications of declines in golden eagle populations (USFWS 2016a). As this would fully offset the estimated take, as well as provide an additional net benefit to eagle populations, there would be no significant effects to eagle populations from issuing an eagle take permit under the Proposed Action. Section 2 provides details of the compensatory mitigation and minimization measures that would be completed under the Proposed Action.

6.0 List of Preparers and Reviewers

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- Stephen Fettig, Wildlife Biologist, U.S. Fish and Wildlife Service
- Heather Beeler, Wildlife Biologist, U.S. Fish and Wildlife Service

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FIGURES

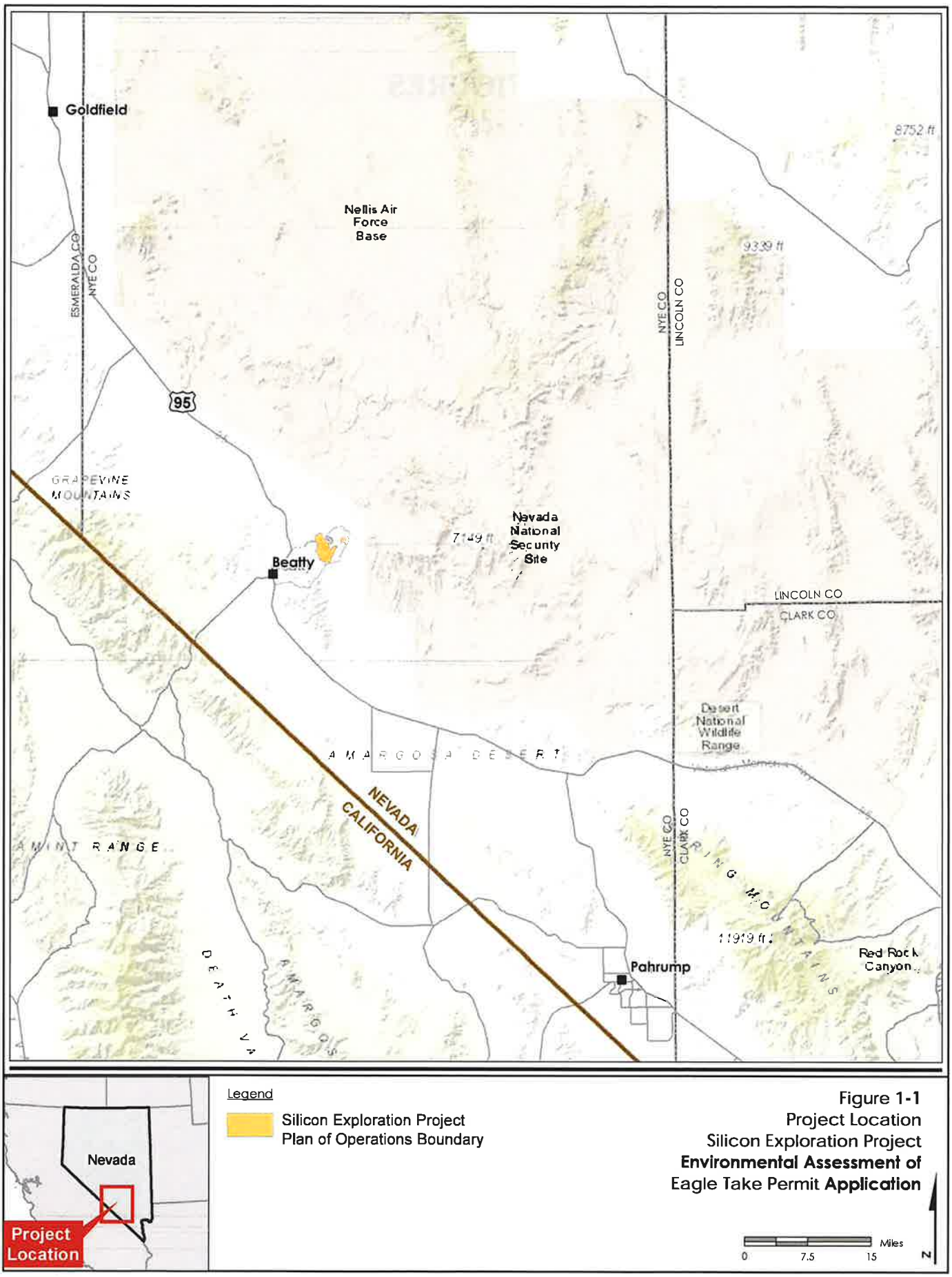

Figure 1-1
Project Location
Silicon Exploration Project
Environmental Assessment of
Eagle Take Permit **Application**

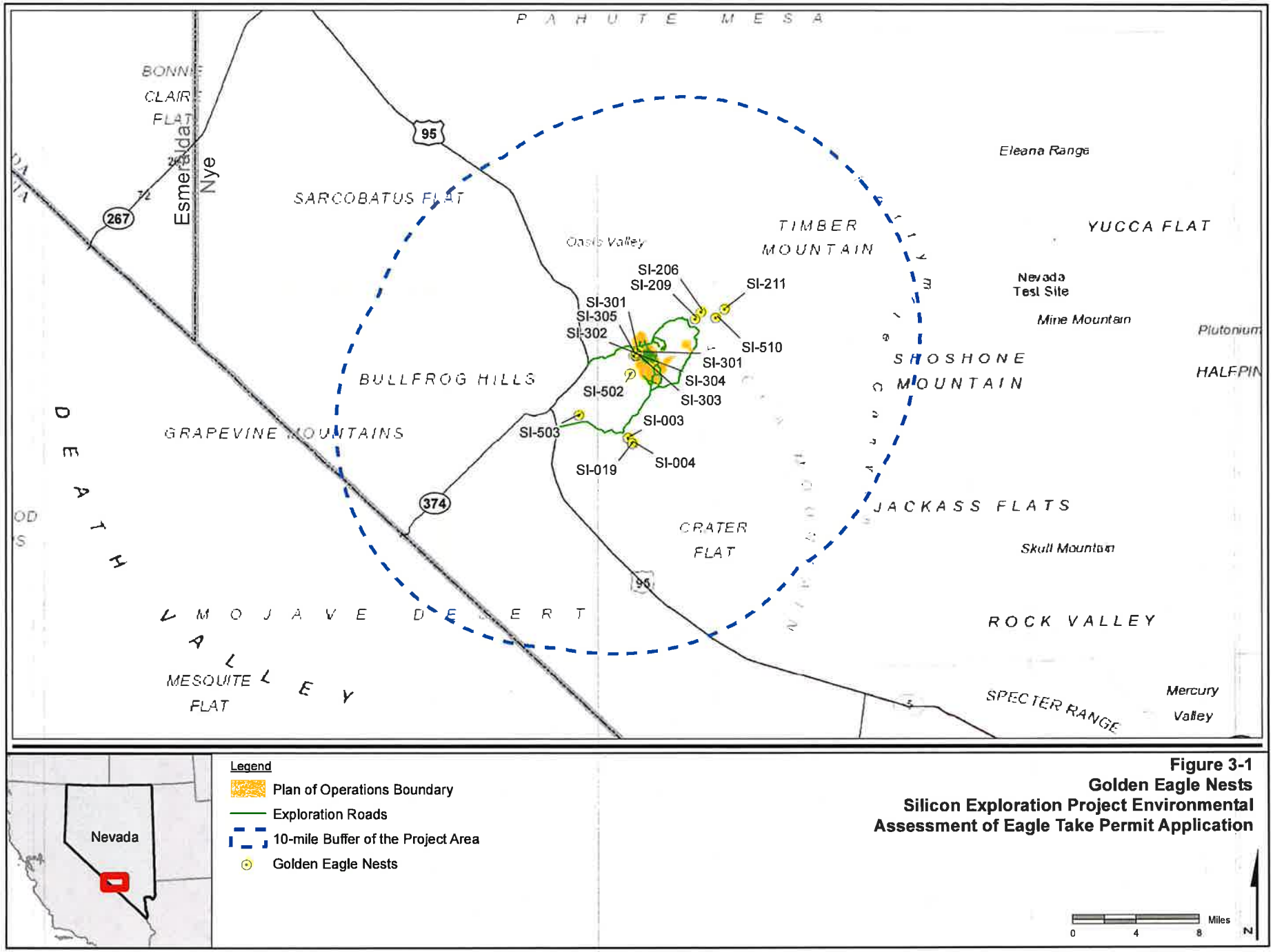

Figure 3-1
Golden Eagle Nests
Silicon Exploration Project Environmental Assessment of Eagle Take Permit Application

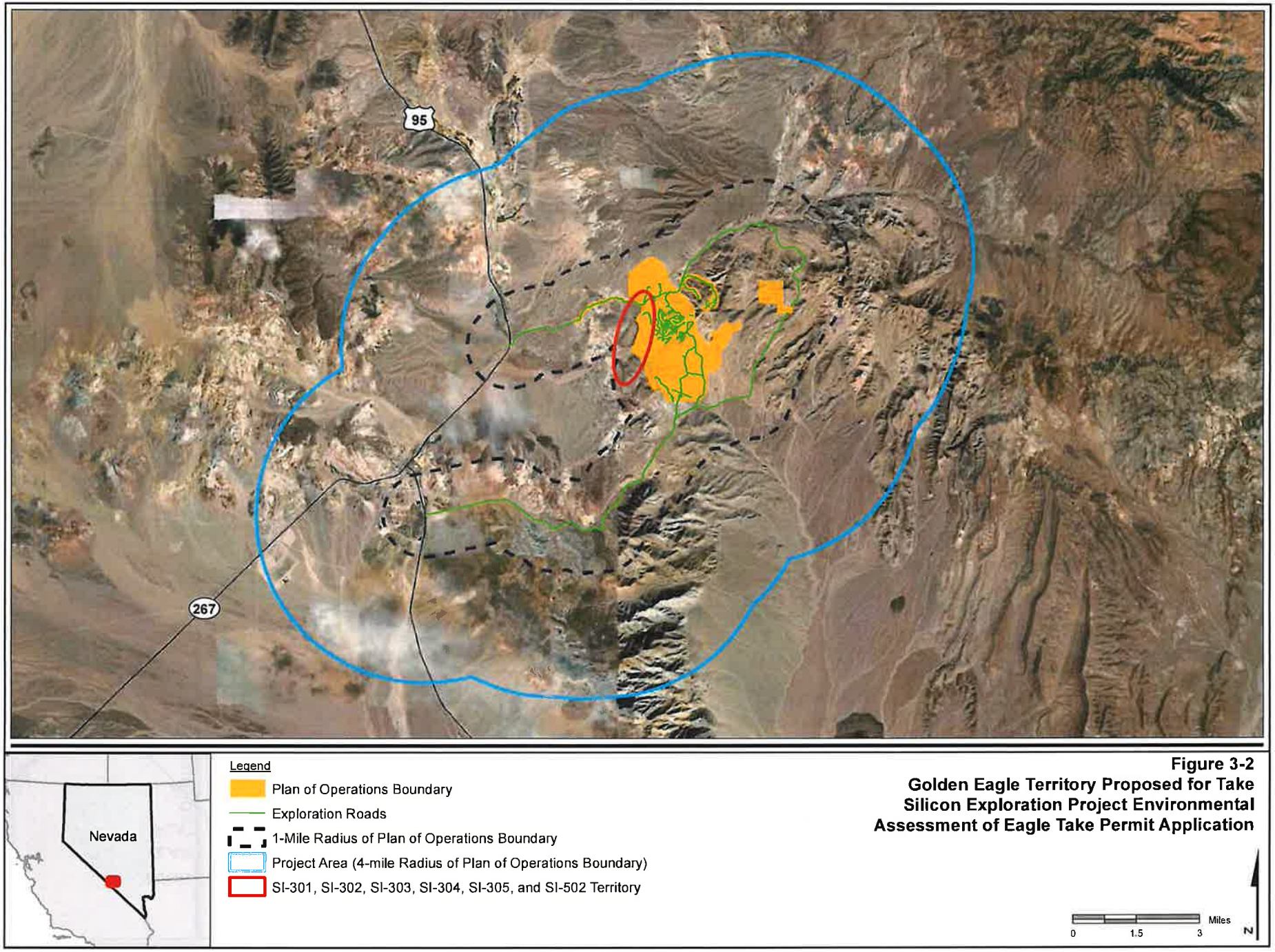

Figure 3-2
Golden Eagle Territory Proposed for Take
Silicon Exploration Project Environmental Assessment of Eagle Take Permit Application

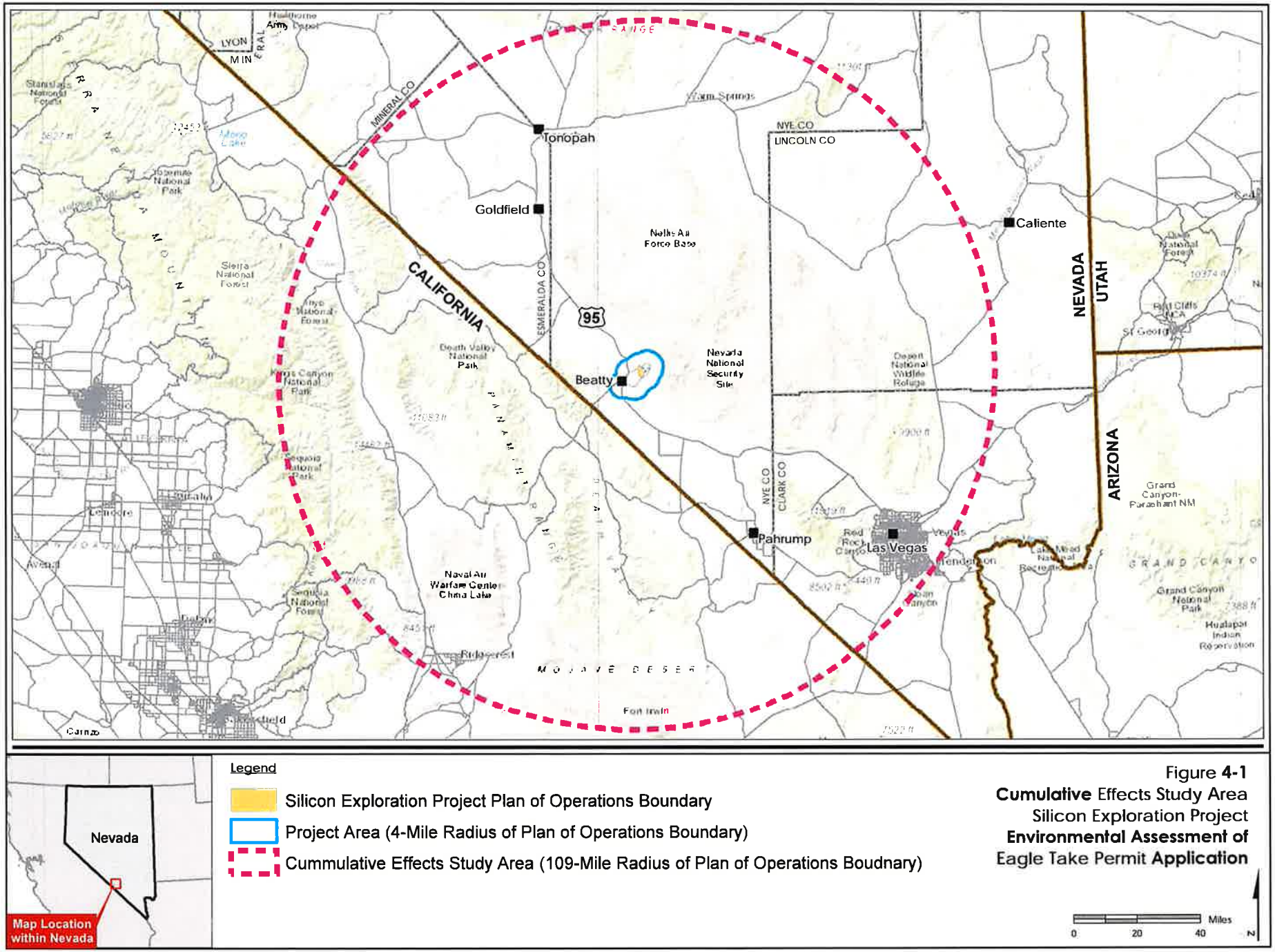

Figure **4-1**
Cumulative Effects Study Area
Silicon Exploration Project
Environmental Assessment of
Eagle Take Permit **Application**

APPENDIX A

Eagle Conservation Plan

EAGLE CONSERVATION PLAN
SILICON EXPLORATION PROJECT
NYE COUNTY, NEVADA

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November 11, 2021

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ACRONYMS AND ABBREVIATIONS

ACEPM	Applicant-committed Environment Protection Measure
AGA	AngloGold Ashanti North America
BGEPA	Bald and Golden Eagle Protection Act of 1940, as amended
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
ECP	Eagle Conservation Plan
km	Kilometer
NDOW	Nevada Department of Wildlife
Plan	Plan of Operations
Project	Silicon Exploration Project
study area	Project Footprint and a Surrounding Four-mile Buffer Area
SWReGAP	Southwest Regional Gap Analysis Project
USFWS	United States Fish and Wildlife Service

1.0 PURPOSE OF THIS PLAN

The purpose of this Eagle Conservation Plan (ECP) is to support an application for a golden eagle (*Aquila chrysaetos*) nest take permit under the permit regulations of the Bald and Golden Eagle Protection Act of 1940, as amended (BGEPA). Specifically, AngloGold Ashanti North America (AGA) is requesting a take permit issued by the United States Fish and Wildlife Service (USFWS) under 50 Code of Federal Regulations (CFR) § 22.26 for the incidental take of golden eagles from otherwise lawful activities associated with the Silicon Exploration Project (Project). The Project is located approximately six miles (10 kilometers [km]) northeast of the town of Beatty, Nevada (**Figure 1**). The Project is a mineral exploration project authorized by the Bureau of Land Management (BLM) Battle Mountain District, Tonopah Field Office in Nye County, Nevada.

The BGEPA (as amended) prohibits the "take" of bald and golden eagles. BGEPA defines "take" to include "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb," and prohibits take of individuals and their parts, nests, or eggs. Permitting regulations (50 CFR Part 22) were issued in 2009 and revised in 2016. Known as the "Eagle Permitting Rule," these regulations allow the USFWS to administer a permit program allowing for the lawful take of eagles and nests.

AGA has prepared this ECP to support their application for a BGEPA eagle "take" permit. This ECP provides information and materials to support an eagle nest take permit application and demonstrates that the proposed take is compatible with the preservation of golden eagles and the issuance criteria in 50 CFR § 22.26. There are six golden eagle nest sites (SI-301, SI-302, SI-303, SI-304, SI-305, and SI-502) associated with one territory within the one-mile buffer of authorized Project disturbance. This ECP supports the eagle nest take permit application that has been submitted by AGA requesting authorization for reoccurring disturbance to and loss of annual productivity from breeding golden eagles no more than 10 times up to 10 years (2022-2032).

An application for a take permit under 50 CFR § 22.26 requires the information listed below. Also provided is a reference to where in this ECP the information is provided.

- The duration of the Project for the permit is 10 years (see Section 1);
- A description of approved activities at the Project and surrounding area (Section 2);
- A discussion of eagle habitat, as it relates to foraging, nesting, and topography, found in the four-mile radius of the Project area (Section 3);
- A brief description of the golden eagle nesting population within a four-mile radius of the proposed Plan of Operations (Plan) boundary and territories proposed for take (Section 4);
- An assessment of the risks to golden eagles posed by the Project (Section 5);
- A review of practicable avoidance and minimization measures that AGA could and are employing to abate the potential risk (Section 6); and
- Monitoring and adaptive management of eagle populations (Section 7).

2.0 INTRODUCTION AND BACKGROUND

2.1 LOCATION AND EXPLORATION HISTORY

The project is located on the western end of the Yucca Mountains and is located approximately six miles (10 km) northeast of the town of Beatty in Nye County, Nevada. The Project can be assessed in two directions from Beatty, Nevada: 1) traveling south 1.3 miles (2.1 km) on U.S. Highway 95 (US 95) and approximately 8.9 miles (14.3 km) up Fluorspar Canyon Road (Nye County Road 249) and Tate's Wash Road (Nye County Road 926019); and 2) traveling 3.6 miles (5.8 km) north on US 95 and approximately 4.1 miles (6.6 km) east on the North Beatty Wash Road (Nye County Road 926026) that connects to the Beatty Wash Road (Nye County Road 926025) at the Project. AGA submitted a notice of intent (Notice N-95843) in 2019, the Plan was approved by BLM in 2020 (NVN-097820) (BLM, 2020a), and a Finding of No Significant Impact and Decision Record were issued by the BLM on July 24, 2020 (BLM, 2020b).

2.2 AUTHORIZED AND PROPOSED FACILITIES

AGA is authorized to conduct phased mineral exploration-related activities within a 3,630-acre area (Project Area) to determine the extent and quality of a mineral resource. Surface-disturbing activities are approved for up to 155 acres. The following are authorized disturbances that could occur as a result of the Project, which are also shown on **Figure 2**: reverse circulation and core drilling from constructed drill sites, road construction and overland travel, bulk sampling, geotechnical auger holes and geological test pits, geologic and geophysical mapping, water monitoring well and water extraction well installation, and construction of a meteorological station. Some of these features have not yet been constructed, and these disturbances occur in phases. Phase I consists of approximately 50 acres of surface disturbance in addition to five acres of Notice-level surface disturbance for a total of approximately 55 acres. The remaining 100 acres of disturbance will occur under subsequent phases over approximately 10 years. Exploration activities may occur year-round and 24 hours per day, with up to four drill rigs operating at one time and up to 20 personnel on site. In addition to AGA's authorized disturbance, there is an existing road network throughout the Project area used for Project access.

3.0 AREA HABITATS

The Eagle Conservation Plan Guidance Module 1 – Land-based Wind Energy, Version 2 recommends that an analysis of potential impacts on nesting golden eagles include the Project footprint itself (Plan boundary) and a surrounding four-mile buffer area (study area) (**Figure 1**). Although this guidance was designed for wind energy, no such guidance exists for mining, and is the best available guidance for analysis of potential impacts.

3.1 FORAGING HABITAT

Vegetation communities in the study area have been mapped by the Southwest Regional Gap Analysis Project (SWReGAP) in land cover types (**Figure 3**) (USGS, 2011). The SWReGAP mapping shows 24 vegetation communities occurring within the study area. **Table 1** presents the total acres of the vegetation communities within the study area. Three vegetation communities are mapped as over five percent of the Project area: Mojave Mid-Elevation Mixed Desert Scrub (51 percent), Sonora-Mojave Creosotebush-White Bursage Desert Scrub (24 percent), and Inter-Mountain Basins Semi-Desert Shrub Steppe (16 percent). Each of the remaining 21 communities account for approximately nine percent of the study area. Golden eagle prey species, such as black-tailed jackrabbits (*Lepus californicus*), mountain cottontails (*Sylvilagus nuttallii*), and larger diurnal rodents (i.e., yellow-bellied marmots [*Marmota flaviventris*]), are commonly found within many of the vegetation communities present in the study area. The potential foraging value of the various habitat types present in the region has not been quantified, but in general, they are believed to represent high-value native foraging habitats.

Other habitat types that are believed to represent important golden eagle foraging habitats in the region include roads and natural water sources. Paved (e.g., US 95) and non-paved roads are located within the study area. Golden eagles frequently feed on roadkill and other carrion (especially during winter) even when live prey is available; golden eagles consume fresh carrion during the nesting season (Kochert and Steenhof, 2002). Roads within the Project area, particularly improved roads that allow vehicles to travel at higher speeds, represent potentially high-value golden eagle scavenging habitat. Springs provide a reliable water source for eagle prey and, therefore, have the potential to allow for higher concentrations of eagle prey in those areas. There are multiple seeps and springs and intermittent and ephemeral drainages along the Amargosa River approximately three miles west of the nest sites. Riparian habitats, agricultural pivots, and pastures in the Project area also support populations of rodents and lagomorphs.

3.2 NESTING HABITAT

Within the study area, various rock outcrops were identified as areas with nesting golden eagles. In 2020, there was one in-use/occupied golden eagle nest (SI-301) documented in the study area, which was on a rock outcrop. Golden eagle nesting habitat includes cliff and rock outcrops in Beatty Wash, the Yucca Mountains to the north and east, and the Bare Mountains to the south. Golden eagles may nest in tree if available.

3.3 TOPOGRAPHIC FEATURES ATTRACTIVE TO EAGLES

Tops of slopes oriented perpendicular to prevailing winds or near ridge crests of cliff edges are features that are conducive to slope soaring and are attractive features for eagles. Saddles or low points on ridge lines or near riparian corridors may serve as flight paths. Nearby perch and roost sites may also attract eagles. As described above, the area surrounding the Project represents golden eagle potential foraging habitat, though the value of this habitat varies in quality.

Cliffs and outcrops occur in the Beatty Wash, the Yucca Mountains to the north and east, and the Bare Mountains to the south. Mountainous areas that include ridgelines and slopes with a variety of aspects, such that winds from multiple directions would create deflection currents, are suitable for soaring. Habitats surrounding the Project include perch and roost sites, and the area is suitable golden eagle nesting and foraging habitat as described above.

Table 1 SWReGAP Vegetation Communities within the Study Area (Four-mile Radius)

Vegetation Community	Acres	Percent
Developed, Open Space - Low Intensity	66	0.09
Great Basin Foothill and Lower Montane Riparian Woodland and Shrubland	6	0.01
Great Basin Pinyon-Juniper Woodland	165	0.23
Great Basin Xeric Mixed Sagebrush Shrubland	1,009	1.39
Inter-Mountain Basins Big Sagebrush Shrubland	376	0.52
Inter-Mountain Basins Cliff and Canyon	35	0.05
Inter-Mountain Basins Greasewood Flat	37	0.05
Inter-Mountain Basins Mixed Salt Desert Scrub	822	1.13
Inter-Mountain Basins Montane Sagebrush Steppe	3	<0.01
Inter-Mountain Basins Semi-Desert Grassland	9	0.01
Inter-Mountain Basins Semi-Desert Shrub Steppe	**12,119**	**16.65**
Invasive Annual and Biennial Forbland	2	<0.01
Invasive Annual Grassland	10	0.01
Mojave Mid-Elevation Mixed Desert Scrub	**37,014**	**50.86**
North American Arid West Emergent Marsh	26	0.04
North American Warm Desert Bedrock Cliff and Outcrop	892	1.23
North American Warm Desert Lower Montane Riparian Woodland and Shrubland	266	0.37
North American Warm Desert Playa	364	0.5
North American Warm Desert Volcanic Rockland	612	0.84
Recently Mined or Quarried	233	0.32
Sonora-Mojave Creosotebush-White Bursage Desert Scrub	**17,212**	**23.65**
Sonora-Mojave Mixed Salt Desert Scrub	1,491	2.05
Total	**72,771**	**100**

*Bold denotes dominant habitat types.

4.0 TERRITORIES PROPOSED FOR TAKE

A major component of the risk assessment is to identify Project activities that could result in a take. Those territories proposed for take are those that have been identified within the Plan boundary and are in the USFWS's one-mile buffer of surface disturbance activities. Golden eagle surveys have been conducted around the Project area in 2019, 2020, and 2021 (SWCA, 2019, 2020, 2021), and additional data regarding the Beatty Wash Territory was provided by Nevada Department of Wildlife (NDOW) for 2014, 2015, and 2018 (SWCA, 2019). Inventory and monitoring efforts of 2019, 2020, and 2021 have followed Pagel et al. (2010), which is the standard golden eagle survey protocol accepted by the USFWS. In 2019 and 2020, surveys were ground based due to restricted airspace of the Nevada Test and Training Range, and NDOW had previously expressed concern of potential impacts of aerial surveys to desert bighorn sheep (*Ovis canadensis nelsoni*) during the lambing season. These two surveys (2019 and 2020) focused on completing a thorough inventory of nests within a four-mile radius and capturing information regarding nest occupancy, productivity, and success. The 2021 survey was ground-based but only focused eight nests from two territories (Beatty Wash and Upper Beatty Wash) that were considered in-use/occupied during 2019 and 2020.

The 2019 surveys were conducted between January 10-25 and March 12-17, and the 2020 surveys were conducted between January 15-24 and February 20-27. The 2021 surveys were conducted between January 13-16 and March 2-22.

A total of 14 golden eagle nest sites have been documented within four-mile radius of the study area during six surveys over the last eight years (2014, 2015, 2018, 2019, 2020, and 2021). During these six surveys, two nests (SI-301 and SI-510) were considered in-use/occupied by golden eagles (**Table 2**). In addition to the current nests known to occur and breeding pairs using the four-mile radius, there is potential for additional nests, territories, and breeding pairs to nest in the area.

One in-use/occupied nest (SI-301) and five alternative nests (SI-302, SI-303, SI-304, and SI-305) are less than one-mile of the proposed surface disturbance and within the Project boundary. The remaining alternate nest (SI-502) is within one mile of the proposed surface disturbance and located outside Project boundary. These six nests have been considered a territory referred to as Beatty Wash. As such, the potential impacts of the Project include the indirect take of the Beatty Wash territory. A viewshed analysis has been conducted using proposed disturbance, topography, and Geographic Information System tools for each nest to illustrate the portions of anthropogenic activity that are within line-of-sight from the golden eagle nests subject to take (**Figure 4**). Due to their sensitive nature, nest locations are not shown in this figure.

Table 2 Golden Eagle Nests Within the Vicinity of the Project and Status (2014-2021)

Territory	Nest ID	Year and Territory Status						Number of Seasons Territory was In-Use /Occupied	Territory Occupancy Rate
		2014[1]	2015[1]	2018[1]	2019[1]	2020[2]	2021[3]		
Beatty Wash	SI-301	In-Use/Occupied	Unoccupied	Unoccupied	Unoccupied	In-Use/Occupied	Unoccupied	2	0.33
	SI-302								
	SI-303								
	SI-304								
	SI-305								
	SI-502								
Upper Beatty Wash	SI-206	--	--	--	In-Use/Occupied	Unoccupied	Unoccupied*	1	0.5
	SI-209								
	SI-211								
	SI-510								
Fluorspar Canyon	SI-503	--	--	--	Unoccupied	Unoccupied	--	0	0
Specie Spring	SI-003	--	--	--	Unoccupied	Unoccupied	--	0	0
	SI-004								
	SI-019								
Total Number of In-Use/Occupied Territories/Total Territories Surveyed		1/1	0/1	0/1	1/4	1/4	0/1		
Territory Occupancy Rate		1	0	0	0.25	0.25	0		

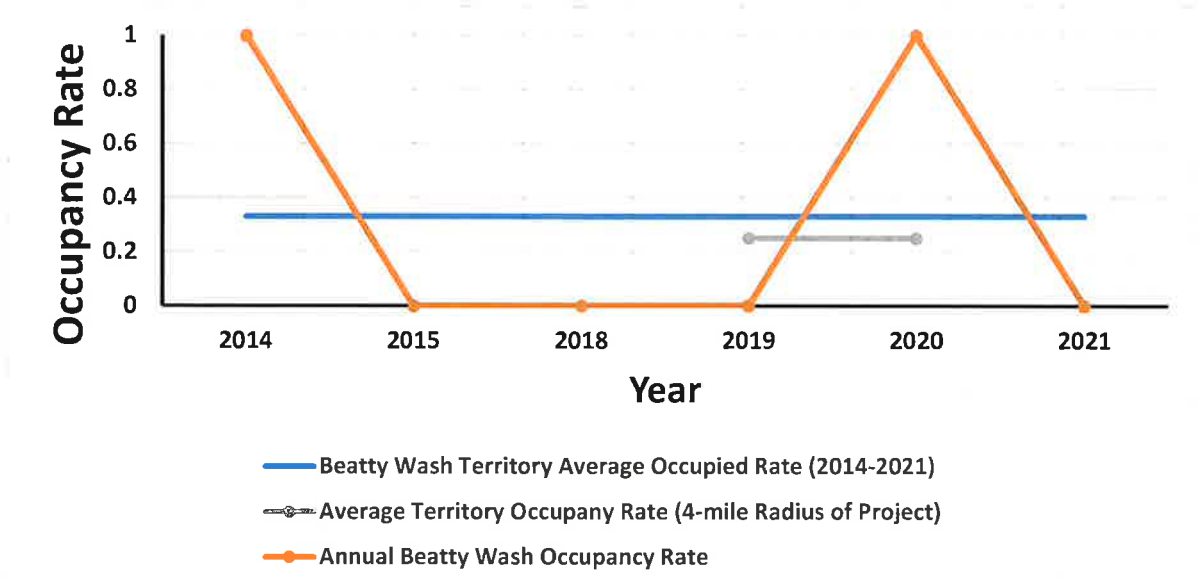
Bold territory is proposed for take
[1] SWCA, 2019 – No specific-nest information provided for 2014, 2015, and 2018 surveys
[2] SWCA, 2020
[3] SWCA, 2021
*Only SI-211 and SI-510 were monitored
In-Use/Occupied = an eagle (bald or golden) nest characterized by the presence of egg(s), dependent young, or an adult on the nest in the past 10 days during the breeding season
Unoccupied (alternative nest) = one of potentially several nests within a nesting territory that is not an in-use/occupied nest at the current time. When there is not an in-use/occupied nest, all nests in the territory are alternate nest

4.1 BEATTY WASH TERRITORY: SI-301, SI-302, SI-303, SI-304, SI-305, AND SI-502

The Beatty Wash territory consists of six nests (SI-301, SI-302, SI-303, SI-304, SI-305, and SI-502) on the western of the Project boundary along Beatty Wash on the western portion of the Yucca Mountains. These nests are within 1.1 miles of each other and have not been simultaneously in use. The closest nest (SI-003) is 4.1 miles southwest of SI-502, and the next closest nest (SI-503) is 4.2 miles to the southwest of SI-502. Both closest nests are thought to be part of a separate territory.

All six nests were surveyed from 2019 to 2021, and these nests were found and identified as golden eagle nests in 2019. However, NDOW data suggests that one nest within the territory was in-use/occupied (in-use) in 2014 (SWCA, 2019); therefore, some of these nests in Beatty Wash territory were potentially identified earlier than 2019. Because nest-specific data is not available for 2014 to 2018, occupancy was calculated for individual nests using the 2019 to 2021 data and it should be recognized that the actual occupancy per nest is likely different. During this period, SI-301 was in-use/occupied in 2020 resulting in an occupancy rate of 33 percent. All other nests within Beatty Wash territory were never in-use/occupied resulting in an occupancy rate of zero percent. Overall, the territory was documented as in-use/occupied in 2014 and 2020 resulting in a territory occupancy rate of 33 percent. The territory is above the average occupancy when compared to territories within the study area (average occupancy per territory per year is 16.7 percent). **Graph 1** presents the Beatty Wash territory status per year compared to the average for the territories defined with the study area.

Graph 1 Beatty Wash Territory Occupancy Rate Compared to Average Territory Occupancy Rates of Study Area



5.0 RISK ASSESSMENT

A major component of the risk assessment is to identify project activities that could result in a take. This section presents a discussion of the assessment of the level of risk from the Project to the golden eagle breeding population in the vicinity of the Project. Principal risks to golden eagles from mineral exploration are generally low, and include activities associated with exploration drill pads, drilling, and exploration roads, and other proposed/authorized mining activities listed in Section 2.0. The greatest risk-factor to golden eagles associated with a mineral exploration project is likely occur during the courtship, nesting, and fledging season. This is especially true when golden eagle breeding territories are located within one mile of surface activity.

A summary of proposed take to golden eagles anticipated from activities associated with Project is provided in **Table 3**. Discussion of the risk that could be posed by the Project to golden eagles is described below.

Table 3 Summary of Impacts to Eagles at the Silicon Exploration Project

Eagle Impact	Silicon Impacts
Direct take (mortality)	Sections 5.2 and 5.3: None anticipated, low risk
Indirect take (loss of productivity from disturbance)	Section 4.0: Breeding Golden Eagles and Associated Territories No More than 10 times for up to 10 years
Habitat loss	Section 5.1
Territory loss (number of territories)	Section 4.0: Breeding Golden Eagles and Associated Territories No More than 10 times for up to 10 years
Nest removal (number of nests for each territory involved)	None

5.1 HABITAT-RELATED RISKS

The Project is approved for total surface disturbance of up to 155 acres. Reduction of habitat because of direct exploration disturbance has the potential to impact golden eagles. Specifically, impacts to functional shrublands that support jackrabbit populations could influence prey availability to golden eagles, especially during the breeding season when adults are foraging routinely to provide adequate food for their young. However, due to the extensive amount of available foraging habitat within the four-mile buffer of the Project (**Table 1** and **Figure 3**), scarcity of food because of direct loss of habitat is not likely to be a limiting factor to the local golden eagle breeding population.

5.2 VEHICLE COLLISION-RELATED RISKS

Mobile equipment (i.e., vehicles) used in operations at the Project or traveling to or from the Project could strike and injure or kill wildlife. Road-killed wildlife may attract scavenging eagles, which in turn could be injured or killed by vehicle collision. Because AGA already implements conservation measures associated with reducing road mortality risk (see Section 6.0), the potential for eagle mortality due to vehicle collision at the Project is low. Additional traffic controls can be implemented by AGA as necessary through direct communication regarding road hazards.

6.0 AVOIDANCE AND MINIMIZATION MEASURES

AGA currently employs conservation measures associated with the authorized Plan, including applicant-committed Environmental Protection Measures (ACEPMs). The applicant will implement all conservation measures and commitments summarized below. Upon issuance of a take permit, monitoring would be conducted as required per permit stipulations, including being conducted by a third party over the life of the Project. **Table 4** presents a summary of the ACEPMs with monitoring and a schedule for implementation. Although not specific to golden eagle protection, the implementation and continuation of the following plans will continue to benefit golden eagle conservation: 1) noxious weed control, 2) solid and hazardous wastes 3) management, reclamation, 4) carcass management on roadways; 5) employee awareness and training program, and 6) detection and reporting measures.

Table 4 Golden Eagle Protection Measures

ACEPM	Monitoring Actions	Duration
ACEPM 1	A nest survey would be conducted by a qualified biologist prior to any surface disturbance associated with exploration activities during the avian breeding season (March 1 through July 31) for raptors and other migratory birds. Pre-disturbance surveys for migratory birds are only valid for 14 days. If the disturbance for the specific location does not occur within 14 days of the survey, another survey would be needed. If in-use/occupied nests are located, or if other evidence of nesting (i.e., mated pairs, territorial defense, carrying nest material, transporting food), a protective buffer (the size depending on the habitat requirements of the species) would be delineated after consultation with the BLM resource specialist. Source: BLM, 2020a	Annually as needed for the life of the Project.
ACEPM 2	Annual surveys would be conducted at golden eagle nest sites that are within one mile of the Project Area to determine occupancy. The timing of the surveys may be adjusted due to winter weather conditions and is subject to approval from NDOW based on consideration of bighorn sheep (*Ovis canadensis*) lambing activity. Source: BLM, 2020a	Annually as needed for the life of the Project.
ACEPM 3	Vehicle speeds on undeveloped access roads shall not exceed 15 miles per hour and 25 miles per hour on more improved main access roads. Source: BLM, 2020a	For the life of the Project.

7.0 MONITORING AND ADAPTIVE MANAGEMENT

Upon issuance of a take permit, AGA will conduct aerial and ground surveys of the eagle population within the one-mile radius of the Plan boundary for the duration of exploration operations following Pagel et al. (2010) using a third-party contractor. Monitoring objectives include: 1) to track occupancy, productivity, and success of nests within the Plan boundary; and 2) to further delineate and refine the understanding of eagle territories within the one-mile radius. As needed, golden eagle nests within proximity to active mining will be monitored to document nest occupancy. Reports associated with this monitoring will be prepared and provided as specified in the take permit conditions.

For adaptive management purposes, verification of implemented avoidance and minimization measures, as provided in Section 6.0, is necessary. AGA currently has a monitoring and reporting system for incidents related to wildlife fatality. Any incident that results in wildlife fatality or death must be reported to NDOW. Any golden eagle injuries or mortalities must be reported to NDOW and the USFWS.

AGA will continue to monitor the area golden eagle population for additional golden eagle nests. During the life of the Project, AGA recognizes the possibility for new construction of golden eagle nests within the Plan boundary and one-mile radius. Continued monitoring will inform the Applicant on the status of existing nests as well as if new nests are being constructed near the Project and its associated activities. If monitoring determines that there are multiple takes occurring in a given year and that the Proponent is approaching their take permit limits (i.e., up to 10 takes over no more than 10 years), adaptive management would be implemented. First, the Applicant would apply avoidance buffers on in-use/occupied nests to prevent incidental take (no surface-disturbing activities within one mile of an in-use/occupied nest during breeding season including early courtship through post fledging nest dependency (i.e., December 15 through July 15). If avoidance is not practicable, the Proponent may request a permit amendment from the Service. Additionally, at the five-year review of the permit, the Service may consider additional adaptive management strategies, if necessary, in coordination with the Applicant.

8.0 REFERENCES

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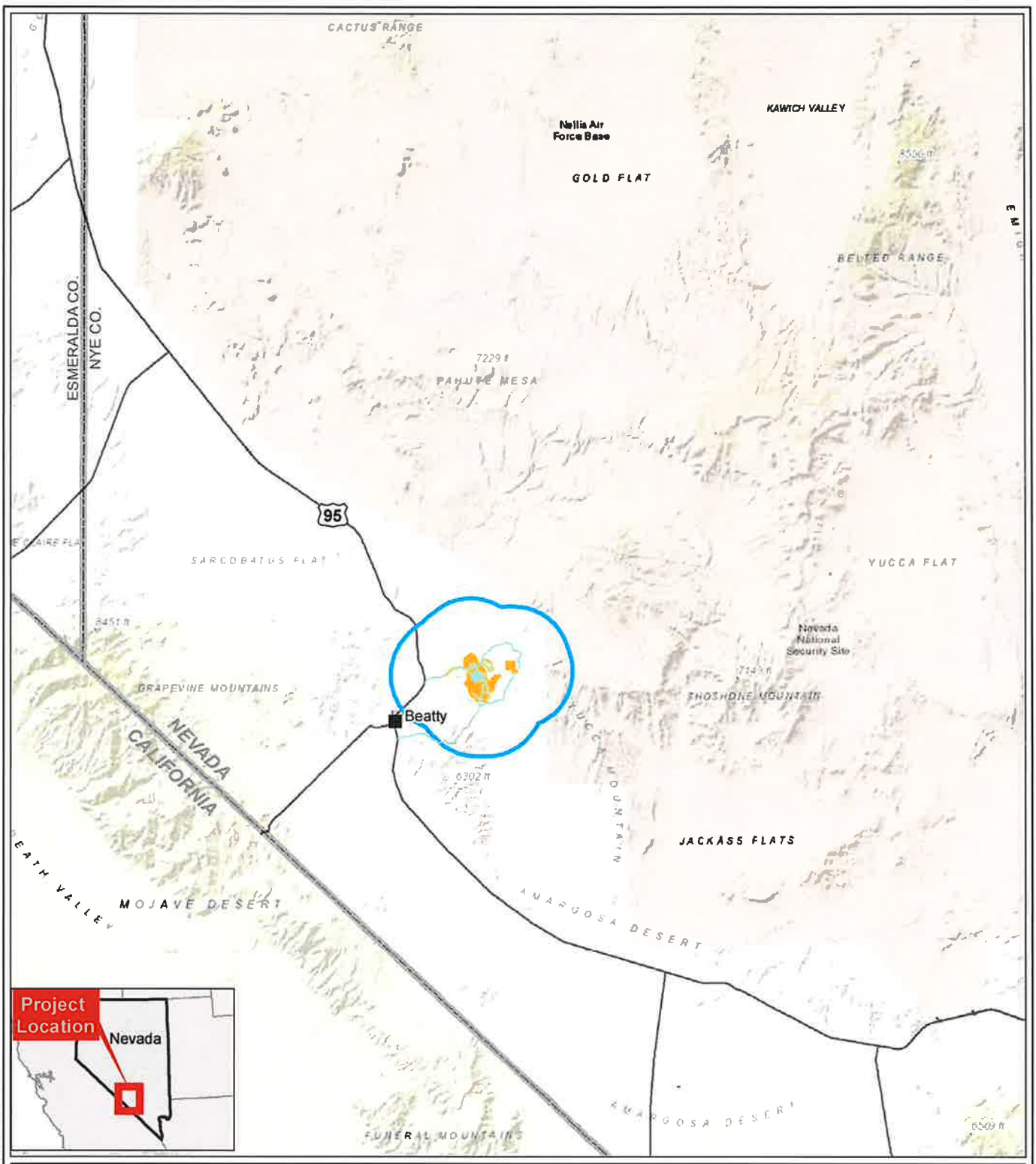
FIGURES



Legend

- Silicon Project Boundary
- Raptor Survey Area (4-Mile Radius)
- Exploration Roads

N

Stantec

Miles

0 5 10 1 in = 10 miles

Nye County, NV
NAD 1983 UTM Zone 11N

DRAWN BY: CJ	1ST REVIEW: BT	2ND REVIEW: JE
DATE: 7/6/2021	PROJECT NO: 203722317	

Anglo Ashanti North America
Eagle Conservation Plan
Silicon Exploration Project

Figure 1
Project Location and Study Area

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Service Layer Credits: Source: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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Legend

- Silicon Project Boundary
- Raptor Survey Area (4-mile Radius)
- Exploration Roads

N

Stantec

0 1.5 3 Miles

1 in = 3 miles

Nye County, NV
NAD 1983 UTM Zone 11N

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DATE: 7/6/2021	PROJECT NO: 2037222317	

Anglo Ashanti North America
Eagle Conservation Plan
Silicon Exploration Project

Figure 2
Existing and Proposed Facililties

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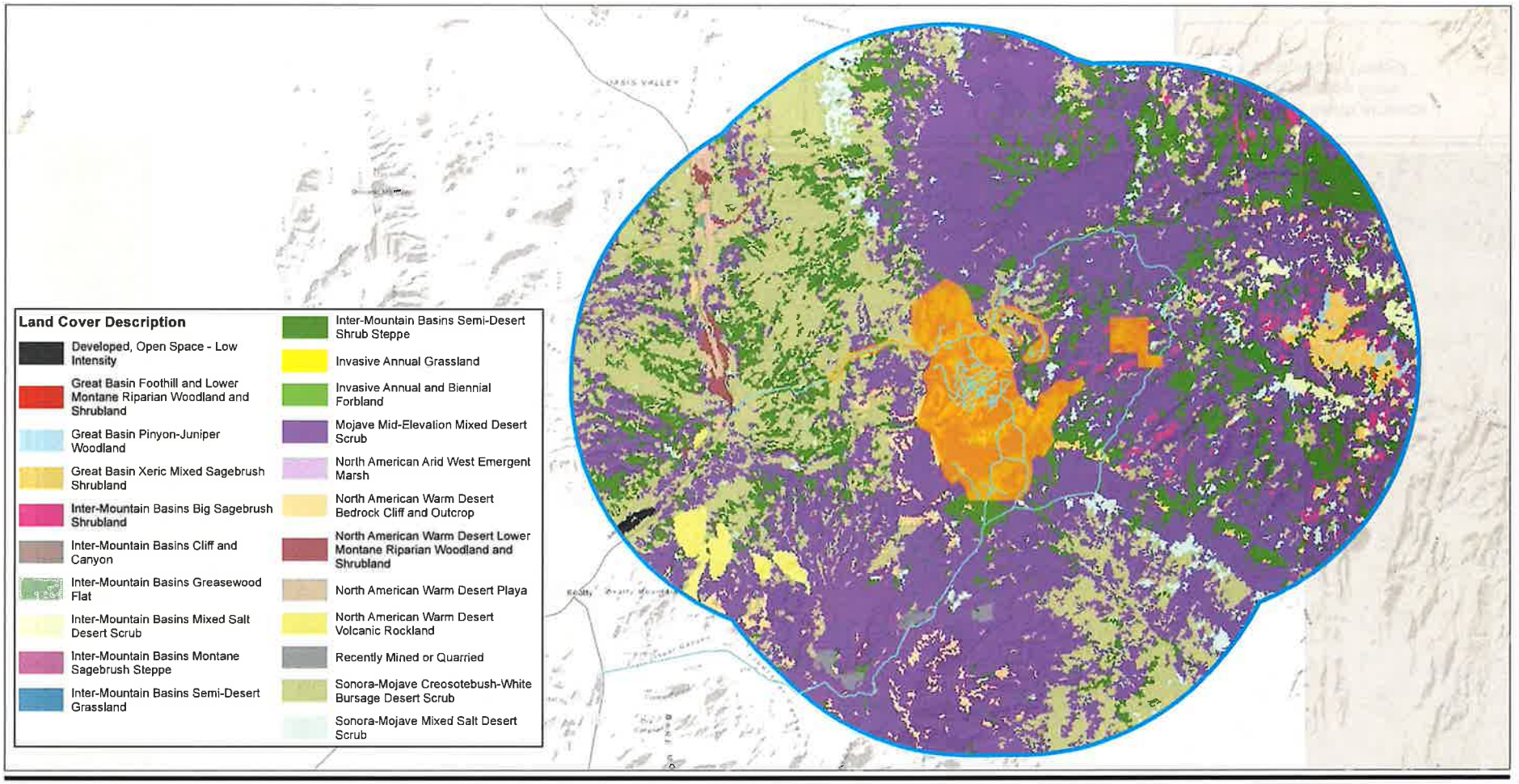

Legend

- Silicon Project Boundary
- Raptor Survey Area (Alternate 4-Mile Radius)
- Exploration Roads

Stantec

0 4,100 8,200 Feet

1 in = 8,000 feet

Nye County, NV
NAD 1983 UTM Zone 11N

DRAWN BY: CJ	1ST REVIEW: BT	2ND REVIEW: JE
DATE: 7/6/2021	PROJECT NO: 2037222317	

Anglo Ashanti North America
Eagle Conservation Plan
Silicon Exploration Project

Figure 3
Foraging Habitat Within Study Area

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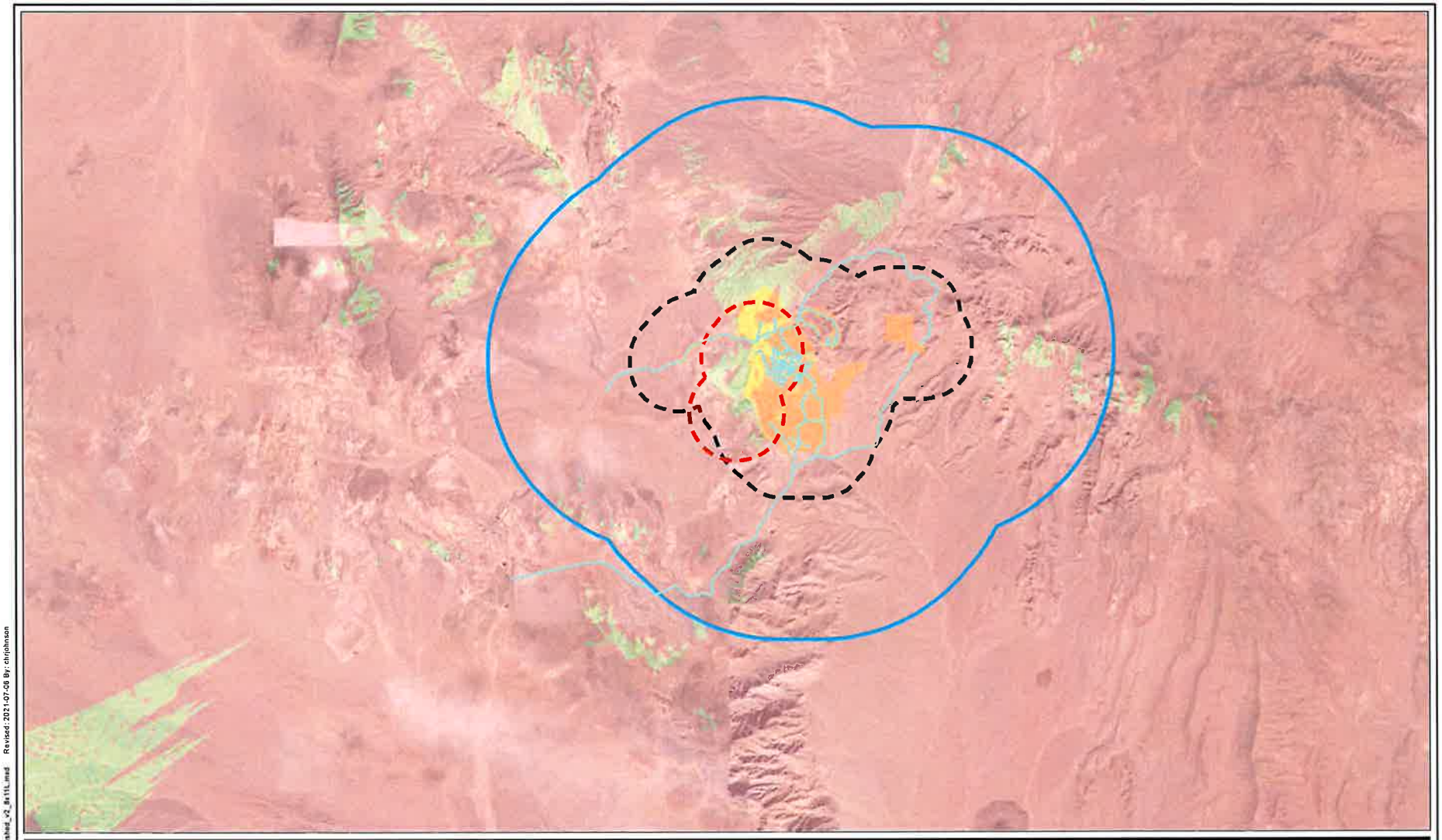

Legend

- Silicon Project Boundary
- Raptor Survey Area (4-mile Radius)
- Exploration Roads
- Golden Eagle Territory
- Project Boundary 1-mile Radius

Viewshed

- Not Visible
- Visible

N

Stantec

0 1.5 3 Miles

1 in = 3 miles

Nye County, NV
NAD 1983 UTM Zone 11N

DRAWN BY: CJ | 1ST REVIEW: BT | 2ND REVIEW: JE

DATE: 7/6/2021 | PROJECT NO: 2037222317

Anglo Ashanti North America
Eagle Conservation Plan
Silicon Exploration Project

Figure 4
Golden Eagle Nests Viewshed

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APPENDIX B

Public Comments and Responses

Silicon Exploration Project Eagle Take Permit Application
Draft Environmental Assessment Public Comments and Responses

Letter ID #	Comment ID #	Name/Entity	Comment	Response
1	1.1	Basin and Range Watch/Western Watersheds Project/Center for Biological Diversity	We would like to request that the permit only be issued for 5 Takes instead of ten.	Comment noted. Under Alternative 1: Proposed Action, the Service has analyzed the impacts of 10 incidents of take per the application submitted by the Applicant for the Project and we will make a decision for the requested permit based on our analysis as presented in the EA.
1	1.2	Basin and Range Watch/Western Watersheds Project/Center for Biological Diversity	Members of Basin and Range Watch and Western Watersheds Project live within 4 miles of the Silicon Exploration Project and have watched nearly in a daily basis, their operation and mitigation violations that happen sometimes.	Concerns regarding the Applicant's compliance with the BLMs applicant committed environmental protection measures (ACEPMs) and mitigation are beyond the scope of this EA; however, these concerns have been shared with the BLM Tonopah Field Office as they are the under purview of the BLM Decision Record and their EA for the Project.
1	1.3	Basin and Range Watch/Western Watersheds Project/Center for Biological Diversity	We request this because AngloGold Ashanti North America has not been within adequate compliance with the regulations of the Bureau of Land Management Decision Record mitigation which approved the Silicon Exploration Project. In particular, the drillers for the company have not complied with the regulations to mitigate night lighting or noise. The exploration project runs on a 24/7 schedule and for safety reasons, the exploration sites have been extensively illuminated. The BLM Environmental Assessment for the project in 2020 required that night lighting be mitigated to a point of less intensity.	Concerns regarding the Applicant's compliance with the BLMs applicant committed environmental protection measures (ACEPMs) and mitigation are beyond the scope of this EA; however, these concerns have been shared with the BLM Tonopah Field Office as they are the under purview of the BLM Decision Record and their EA for the Project. In addition we will continue our coordination with the BLM and the industry to consider and evaluate best management practices for birds when using night lighting
1	1.4	Basin and Range Watch/Western Watersheds Project/Center for Biological Diversity	We have observed golden eagles regularly across this region, including over the hills where gold exploration is occurring, as well as foraging over adjacent creosote desert rolling terrain and Oasis Valley. We have viewed nests with binoculars on the nearby Bare Mountains.	Comment noted. The existing environment and baseline data for known presence of golden eagles and foraging habitat are discussed within Chapter 3.0 Affected Environment of the EA, noting the current existence of territories and individual nests observed and documented within the area of analysis.
1	1.5	Basin and Range Watch/Western Watersheds Project/Center for Biological Diversity	**Lights:** Since August of 2020, members of Basin and Range Watch have complained to the BLM about 8 different times asking that AngloGold's requirement to mitigate light pollution be enforced. The fall out of compliance about every other month. The BLM EA states:	Concerns regarding the Applicant's compliance with the BLMs ACEPMs and mitigation are beyond the scope of this EA. However, we shared the commenter's concerns about lights with the BLM Tonopah Field Office as they are the under purview of the BLM Decision Record and their EA for the Project. We also discussed the commenters concerns with the Applicant focused on understanding potential measures available to

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Letter ID #	Comment ID #	Name/Entity	Comment	Response
			"To minimize effects from lighting, AGA would utilize hooded stationary lights and light plants. Lighting would be directed onto the pertinent site only and away from adjacent areas not in use, with safety and proper lighting of the active work areas being the primary goal. Lighting fixtures would be hooded and shielded as appropriate. AGA would utilize lighting designed to reduce the impacts to night skies." At any given time, there can be as many as 5 different bright lights on the mountain they are exploring on. Some of the lights are pointed west as well as east and are brighter than moonlight. The complaints have been mostly based on aesthetics, but these lights are clearly too bright to mitigate impacts to wildlife. These lights most likely are attracting and impacting eagles, other migratory birds and bats. The problems do commonly occur in winter during eagle nesting seasons.	implement lighting Best Management Practices to minimizing impacts to birds. The Service will continue to coordinate with the BLM, the Applicant, and the industry to understand current practices and to explore opportunities for improvements.

1	1.6	Basin and Range Watch/Western Watersheds Project/Center for Biological Diversity	**Noise:** The drill rigs are very loud. They must drill bits down hundreds of feet. They also continuously change the drill bits which makes a very loud "clink" noise. The noise can be heard as far as three miles away but becomes more intense about one mile away. The acoustic environment has a major influence in shaping animal behavior. A growing number of studies quantify the impact of nonlethal human disturbance on the behavior and reproductive success of animals. Most researchers agree that noise can effect an animal's physiology and behavior, and if it becomes a chronic stress, noise can be injurious to an animal's energy budget, reproductive success and long-term survival. In draft guidelines for human disturbance of breeding golden eagles, Hansen et al. (2017) state that ground disturbance and noise can be more significant than aerial noise to raptors: In general, animals appear to be more responsive to louder sounds than to quieter ones (Bowles 1995). For example, Mexican spotted owls only flushed in response to helicopters and chainsaws when sound energy was above certain levels (chainsaws: 46 dBA, helicopters: 92 dBA; Delaney et al. 1999). Awbry and Bowles (1990:21 cited in USFWS 2006) stated that "what little published literature (on raptors) is available suggests that noise begins to disturb most birds at around 80–85 decibels (dB) sound levels and that the threshold for the flight response is around 95 dB." The Service (USFWS 2006) noted in its review of effects of human disturbance on northern spotted owls that raptors tend to be more sensitive to visual disturbances than to auditory ones. However, auditory and visual stimuli from human activities may often interact synergistically in their effects on wildlife (USFWS 2006). This synergistic effect could be responsible for findings that raptors are often more strongly affected by terrestrial activities than aerial activities (USFWS 2006; e.g., Fraser et al. 1985, Delaney et al. 1999, Grubb et al. 2010). The Service (USFWS 2006) recommended an injury threshold for northern spotted owls of 46 dBA for terrestrial	Comment noted. The Service acknowledges the potential for noise to affect eagles, as is reflected in our regional buffer guidance that recommends a 1 mile no disturbance buffer for most activities, and a 2 mile buffer for blasting. If buffers are not practical for a project to implement, in most situations we recommend the project proponent apply for an incidental eagle take permit.. We evaluated the Applicant's request for an eagle incidental take permit accordingly in this EA, considering potential for disturbance to eagles from Project exploration activities including noise. Under the Bald and Golden Eagle Protection Act permit regulations (50 CFR 22.26) we must consider, among other things, if an eagle take request is necessary to protect a legitimate interest in a particular locality. As the BLM had previously authorized the Project's exploration activities, these activities are a legitimate interest. Therefore, our EA analyzed the Applicant's eagle take request as allowed by our regulations. If issued an incidental eagle take permit, the Applicant's impacts to golden eagles would be offset through required compensatory mitigation. To address long term population concerns, our Regional Migratory Bird Program is actively engaged in coordination efforts with the other agencies, including the BLM, industries, researchers, and non-government organizations in our efforts to manage for sustainable populations of eagles and birds throughout Nevada..

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Letter ID #	Comment ID #	Name/Entity	Comment	Response
			activities due to the potential for stronger effects of ground-based activities than of aerial activities. Road traffic by trucks, water trucks, and heavy machinery can impact eagles. In wildlife considerations in planning and managing road corridors little attention has been given to the effects of disturbance by traffic on populations of breeding birds. Recent studies, however, show evidence of strongly reduced densities of many species of woodland and open habitat in broad zones adjacent to busy roads. The density reduction is related to a reduced habitat quality, and traffic noise is probably the most critical factor. Because density can underestimate the habitat quality, the effects on breeding populations are probably larger than have been established (Reijnen et al. 1997). Long-term disturbance could lead to declines in animal populations, including eagles. We recommend that heavy and loud mining and traffic activities should not be allowed 1.2 km from an active golden eagle nest during the period January 1 to August 1.	
1	1.7	Basin and Range Watch/Western Watersheds Project/Center for Biological Diversity	Mining activities that produce extremely loud noises should be avoided within 1/2 mile of active nests (or within 1 mile in open areas), unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.	In general, we recommend that a project may demonstrate compliance with the Eagle Act in two ways, by either implementing no disturbance buffers recommended by the Service, or by applying for an eagle incidental take permit. As described in the EA, we would authorize disturbance incidental to the project's activities, thereby alleviating the need for the project to implement nest buffers. The comment is noted and will be retained in our records.
1	1.8	Basin and Range Watch/Western Watersheds Project/Center for Biological Diversity	Nests should be monitored during the mining activity.	Per Table 2-1 of the Service's EA (page 6-7), annual nest surveys are to be conducted by a qualified biologist prior to surface disturbing activities during the avian breeding season (March 1 through July 31) for the life of the Project. Additionally, annual surveys are to be conducted at golden eagle nests documented within one mile of the Project.
1	1.9	Basin and Range Watch/Western Watersheds Project/Center for Biological Diversity	**Loss of Foraging Habitat:** About 40 percent of the main ridge AngloGold is exploring on has been impacted. Many plant communities have been removed including creosote/bursage, Joshua tree, blackbrush and several others.	Concerns regarding the Applicant's compliance with the ACEPMs for mitigation of impacts to golden eagle foraging habitat are beyond the scope of this EA; however, these concerns have been shared with the BLM Tonopah Field Office as they are the under purview of the BLM Decision Record and their EA for the Project.

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Letter ID #	Comment ID #	Name/Entity	Comment	Response
			According to the BLM EA: *"The depth of cut for newly constructed exploration roads would be minimal. During reclamation activities at the Project, potential growth media stored in the form of berms and push piles, created during construction activities, would be distributed over surface disturbance areas. Distribution of the salvaged growth media during the earthwork portion of reclamation would support effective recontouring and seedbed preparation prior to seeding. Soil amendments are not considered necessary in those areas where sufficient growth media are available."* Very few of these mitigation measures have been implemented to minimize damage to foraging habitat.	
1	1.10	Basin and Range Watch/Western Watersheds Project/Center for Biological Diversity	**Bald Eagles:** The BLM EA stated that: *Bald eagles (Haliaeetus leucocephalus) are known to occur in the region, but are not expected to be affected by exploration activities associated with the Project; therefore, disturbance and loss of territory of bald eagles are not expected to result from the Project (BLM 2020).* Members of Basin and Range Watch have sited bald eagles a number of times at the Parker Ranch, which is included in the Silicon "project area" defined by the eagle report from the EA. Cunningham observed an immature bald eagle on January 3, 2022, roosting on a cottonwood in Oasis Valley in the morning within view of the Silicon Mine project; it flew off. The area may be a migration corridor and foraging habitat for bald eagles given that some artificial ponds and lakes are stocked with bass.	The Service's determination that disturbance and loss of territory of bald eagles is not anticipated as a result of Project activities is based on baseline data collected and annual monitoring survey results within the area of analysis. While bald eagles are known to occur in the region, territories and individual nests have not been documented within the area of analysis; therefore, we determined take of bald eagles is not likely under the proposed project. Section 2.1.2 of the EA (page 5) includes adaptive management measures that would apply to bald eagles.
1	1.11	Basin and Range Watch/Western Watersheds Project/Center for Biological Diversity	**Conclusion:** Please do not issue ten takes for eagles for this company. They are just trying to make their lack of compliance legal. Please only issue 5 Takes for the next ten years.	Comment noted. We have considered the applicant's permit request as allowed under our Eagle Act incidental take permit regulations (50 CFR 22.26). We have determined that issuance of a permit to the Applicant allowing for up to 10 incidents of take from disturbance over 10 years is appropriate and would not result in population level impacts.

APPENDIX C

Project Area Golden Eagle Territories and Nest Data Summary

Appendix C Project Area Golden Eagle Territories and Nest Data Summary

Annual golden eagle ground surveys have been conducted within a four-mile radius of the Project in 2019 and 2020. Additionally, some data from earlier years is available from Nevada Department of Wildlife (NDOW). A summary of golden eagle nest survey data for nests within four miles of the Project from 2019 and 2020 is presented in **Table 1**.

Table 1 Summary of Nest Surveys from 2019 and 2020

Year	2019	2020
Golden Eagle (or Possible Golden Eagle) Nests Surveyed	14	14
In-use[1] Golden Eagle Nests	0	1
Not in-use[2] Golden Eagle (or Possible Golden Eagle) Nests	14	13

[1] In-use Nest – A nest used for breeding in the current year by a pair of golden eagles.
[2] Not in-use – Those nests not selected by golden eagles for use in the current nesting season.
Sources: SWCA 2019 and 2020

In addition, the golden eagle nesting territories within the four-mile radius of the Project were delineated (SWCA 2019). Four distinct territories were delineated based on proximity of nests to one another, concurrent use of adjacent nests, alternating use (from year to year) of adjacent nests, and nearest available quality nesting substrate obtained from surveys and monitoring at the Project. Figure 3 from SWCA's 2019 report displays the four golden eagle nesting territories relative to the Project area and the 14 nest sites. This figure has not been included in this document due to the sensitive nature of eagle nest locations. **Table 2** summarizes the golden eagle territories and use within the Project area.

Of the four territories delineated, the survey area and methods are only consistent in the Project area for 2019 and 2020 data, and there is limited data available for the Project area from 2014, 2015 and 2018. Data available for 2014, 2015 and 2018 were provided to SWCA by NDOW (SWCA 2019). Of the territories delineated, one was in-use in 2014, none were in-use in 2015, 2018, or 2019, and one was in-use in 2020. In 2014, NDOW identified that one of the nests in the Beatty Wash territory successfully fledged eaglets (SWCA 2019). There is no additional data available for fledging success of the territories surveyed.

Table 2 Territories within the Project Area and Status

Territory	Nest ID	Year and Territory Status					Number of Seasons Territory was In-use	Territory Use Rate
		2014	2015	2018	2019	2020		
Beatty Wash	SI-301	In-use	Not In-use	Not In-use	Not In-use	In-use	2	0.40
	SI-302							
	SI-303							
	SI-304							
	SI-305							
	SI-502							
Upper Beatty Wash	SI-206	--	--	--	Not In-use	Not In-use	0	0.00
	SI-209							
	SI-211							
	SI-510							
Fluorspar Canyon	SI-503	--	--	--	Not In-use	Not In-use	0	0.00
Specie Spring	SI-003	--	--	--	Not In-use	Not In-use	0	0.00
	SI-004							
	SI-019							
Total Number of In-use Territories/Total Territories Surveyed		1/1	0/1	0/1	0/4	1/4		
Territory Use Rate		1.00	0.00	0.00	0.00	0.25		

Note: Of the four territories delineated, the survey area and methods are only consistent in the Project area for 2019 and 2020.
Source: SWCA 2019 and 2020

References

SWCA Environmental Consultants. 2019. Silicon Exploration Project Golden Eagle Nest Survey Report. Prepared for AngloGold Ashanti north America and Bureau of Land Management Tonopah Field Office. July 2019.

SWCA Environmental Consultants. 2020. Silicon Exploration Project Golden Eagle Nest Follow-up Occupancy Survey, Proposed Silicon Exploration Project, Nye County, Nevada. August 5, 2020.

Attachment 7

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Exploring the Boundaries of Historic Landscape Preservation

Cari Goetcheus

Eric MacDonald

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Exploring the Boundaries
of Historic Landscape Preservation

Proceedings of the Twenty-ninth Annual Meeting
of the Alliance for Historic Landscape Preservation 2007

AHLP
The Alliance for Historic Preservation

Sunshine Point Alders by Jonathan Higgins

Exploring the Boundaries of Historic Landscape Preservation

The Alliance for Historic Landscape Preservation is dedicated to the preservation and conservation of historic landscapes in all their variety, from formal gardens and public parks to rural and natural expanses. It is an interdisciplinary professional organization that provides a forum for communication and exchange of information regarding landscape change.

The Alliance was founded in 1978, when a small group of people from diverse backgrounds met at New Harmony, Indiana, to share their mutual interests and concerns about the growing field of landscape preservation. From this initial symposium came recognition of the need for increased commitment to the interdisciplinary nature of the field.

Today the Alliance is an international organization with members from more than 30 U.S. states, several Canadian provinces and Europe. Members include educators, private practitioners and representatives from non-profit organizations and government agencies. Geography, history, horticulture, landscape architecture, planning, public administration and architecture are just some of the professional specialties represented. This multi-faceted character is one of the great strengths of the Alliance (www.ahlp.org).

Exploring the Boundaries of Historic Landscape Preservation

Proceedings of the Twenty-ninth Annual Meeting
of the Alliance for Historic Landscape Preservation 2007
Athens, Georgia

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Georgia O'Keeffe, *Red Hills with the Pedernal (Pedernal with Red Hills),* 1936, oil on linen, 19 3/4" x 29 3/4" inches. Collection of the Museum of Fine Arts, New Mexico. Bequest of Helen Miller Jones, 1986. Every effort has been made to trace all copyright-holders, but if any have been inadvertently overlooked, the publisher will be pleased to make the necessary arrangement at the first opportunity.

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Ethnographic Trail Systems as Large-Scale Cultural Landscapes: Preservation and Management Issues

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Abstract

Native American belief systems do not distinguish geographic boundaries for revered landscapes, and the appropriate scale at which to assess ethnographic landscapes may not be readily apparent, as they range greatly from small scale to large. The cultural landscape associated with the *Xam Kwatcan* trail in California, Arizona and Nevada is 160 miles in length. It incorporates extant trails, associated ceremonial sites, and highly revered geographic places. This vast size raises management concerns, but Native American cultural perspectives can be clearly described and taken into account under relevant federal laws (i.e., Section 106 of the National Historic Preservation Act) using ethnographic interviews. Landscape scale is a useful construct in understanding that a place may be simultaneously significant on several scales.

Key Words

Ethnographic landscapes, Native American trails, regional-scale landscapes, southwestern United States

Introduction

It is well known that Native American ethnographic landscapes can encompass relatively large geographic expanses (Hardesty 2000; Parker and King 1992). Sacred mountains, such as Mt. Shasta in California, San Francisco Peak in Arizona, and Devils Tower in Wyoming, are examples. What is less widely appreciated is that Native American belief systems often not only refrain from delineating geographic boundaries with respect to specific revered landforms, such as mountains, but also insist on a critical interconnection among what might otherwise be considered separate landscapes. Boundary definition can be problematic for all types of cultural landscapes, but this problem can seem even more daunting when specific locations such as mountain peaks, intermontane basins, river valleys, and residential areas are inextricably interconnected through a complex belief system. In the case of Native American ethnographic landscapes, song cycles and other sacred texts often weave huge geographies together to form an interconnected whole—a whole seen by modern tribes as critical to their cultural continuity. Because of these widespread interconnections, scales for ethnographic landscape assessments can range from the relatively local to the regional and trans-regional. As a result, the appropriate scale of assessment may not be readily

apparent to non-native resource management agencies or cultural resource professionals who are not trained specialists.

This paper focuses on a large-scale regional cultural landscape associated with a trail system in the arid southwestern United States. Trails of cultural significance to Native Americans in this region range from relatively short ceremonial pathways (Hedges and Hamann 1992; Van Vlack and Stoffle 2006) to trans-regional trails that are closely tied to epic accounts of tribal history, tribal identity, and cultural continuity. A well-known example of a regional trail system is the Chacoan Road network (Hardesty 2000). Lesser-known examples, but equally daunting in scale, are the Salt Song Trail of the Paiute and Chemehuevi tribes and the *Xam Kwatcan* trail system of the Quechan Tribe. The Salt Song Trail traverses southwestern Utah, southern Nevada and much of southern California. The "Salt Song" tells of the trail and its surrounding landscape:

> It's telling about different landmarks, different mountains, the beauty of this mountain, what it stands for, what medicines are found in that mountain. The Salt Song tells all of that. If you understood it, you'd be a scholar (Eddy 2004).

The *Xam Kwatcan* trail system, the primary focus of this paper, is 160 miles or more in length, encompasses portions of three states (California, Arizona, and Nevada), and traverses the traditional territory of multiple Native American tribes. It incorporates extant trails still visible on the desert surface, associated ceremonial sites, and elements of the natural landscape, including highly revered geographic places. A component of this trail system is currently a focus of legal action under the North American Free Trade Agreement (NAFTA), which challenges the impact of a large open-pit mine on such a vast landscape.

The present paper concludes that when adequate ethnographic interviews have been undertaken, Native American cultural perspectives can be clearly described and taken into account under the U.S. National Historic Preservation Act (NHPA).

As defined by the National Park Service, an ethnographic landscape is an area containing a variety of natural and cultural resources, including plant and animal communities that associated people define as heritage resources (USDI, NPS-28 1998). Further, the NHPA defines a traditional cultural property (TCP) as one that is eligible for inclusion in the National Register of Historic Places (National Register) because of its association with cultural practices or beliefs of a living community that are (a) rooted in that community's history, and (b) important in maintaining the continuing cultural identity of the community (USDI, NPS, NRB 1998). By these definitions, the *Xam Kwatcan* trail system can be considered a significant ethnographic landscape and a traditional cultural property. Beyond these definitions, what about its scale?

The concept of landscape scale must include the understanding that a specific ethnographic landscape may be significant because it operates simultaneously on several scales – local, regional, and trans-regional. "Region" is a tricky word that may connote a variety of geographic scales, depending on the context. In this paper, I use the term "regional-scale ethnographic landscape" to denote an area that has geographic unity in terms of its natural and cultural environment and corresponds to a verifiable ethnographic construct. While a local-scale landscape might entail a particular valley or mountain range and vary in

size up to a few hundred square miles, a regional-scale landscape might encompass several mountain ranges and valleys and range up to an area of a few thousand square miles.

The *Xam Kwatcan* Trail System and the Trail of Dreams

Ethnographically, the Native American tribes who occupied most of western Arizona and southeastern California were speakers of related languages of the Yuman family. (Figure 1) The lowland Yuman tribes, including the Quechan, Mojave, Kamia, Cocopah, Halchidhoma, and Maricopa shared many cultural elements, including mythic traditions, cosmology, and religion. They strongly resisted missionization and continued to practice their traditional life ways through the mid-nineteenth century.

The regional environment was strongly dichotomous—the hyper-arid Sonora desert, crossed by the "linear oasis" of the Colorado River (Stone 1991). Structured by this environment, the economy was based on floodplain agriculture, fishing, and harvesting of wild plant foods. For most lowland tribes, hunting was decidedly a secondary subsistence activity. These groups traveled widely across the desert for purposes of social visitation, religious pilgrimages, trade, alliance building, and warfare (Altschul and Ezzo 1994; Forbes 1965; Forde 1931; Kroeber 1925). The construction of a regional trail system was a key component of this cultural system (Baksh 1997; Cleland and Apple 2003; Johnson 1985, 2001; Rogers 1936; Von Werlhof 1987).

The regional trail system plays an important role in the origin legends and the religious practice of the Yuman peoples. According to Quechan cultural tradition:

> In the beginning ... [the Creator] Kwikumat ... created real people. … The several Yuman tribes all descended from the top of Avikwame[Spirit Mountain near Laughlin, Nevada] and spread to their respective territories. The Quechan, however, took a special trail called xam kwatcán ('another going down'). As a result, the Quechan adopted their tribal name, which is a form of the word kwatcán (Forbes 1965, 3-4).

Thus, contemporary tribal identity is directly tied to the *Xam Kwatcan* trail.

For the lowland Yuman groups, dreaming is considered the primary road to spiritual knowledge and wisdom. Dreams are acquired during sleep, but are interpreted via mythological narratives. It is noteworthy that dreaming is also directly tied in with the regional trail system. A contemporary Quechan put it this way:

> They [Quechan] were taught that dreaming enabled them to have direct contact with various supernatural beings in order to gain advice and teaching on how to solve the problems of the living. While dreaming, their souls returned [following trails] to the time of creation to learn. … So the mountains along the Colorado River region are highly significant in regional Native American cultural and ethnic identity. Spiritual activities and events are deeply associated with numerous intaglios, petroglyphs, trails, lithic scatters, and cleared circles present along the Colorado River and surrounding hills (Cachora 1994, 14).

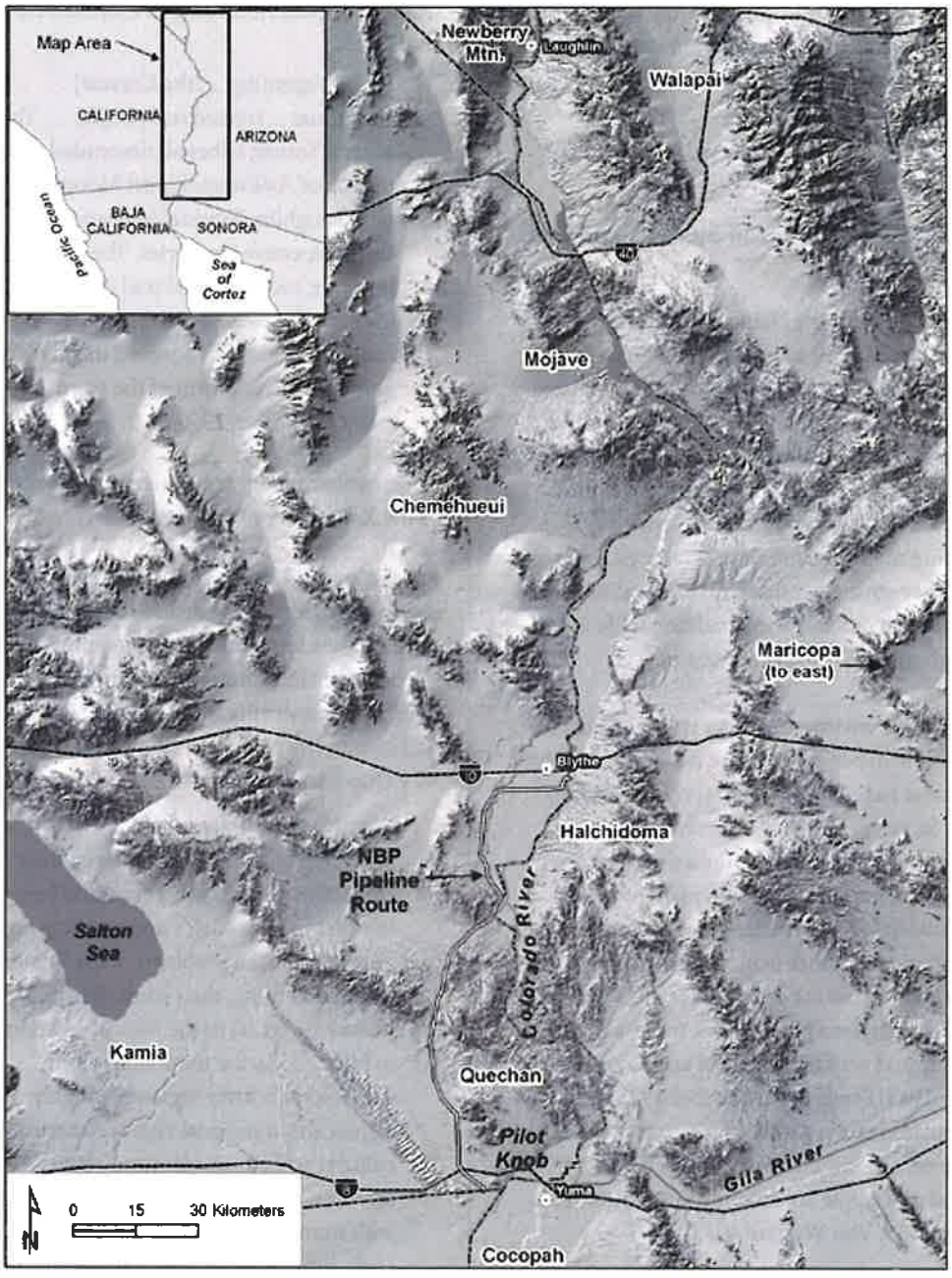

Figure 1. Native American tribes of the Lower Colorado River. (Kroeber 1925)

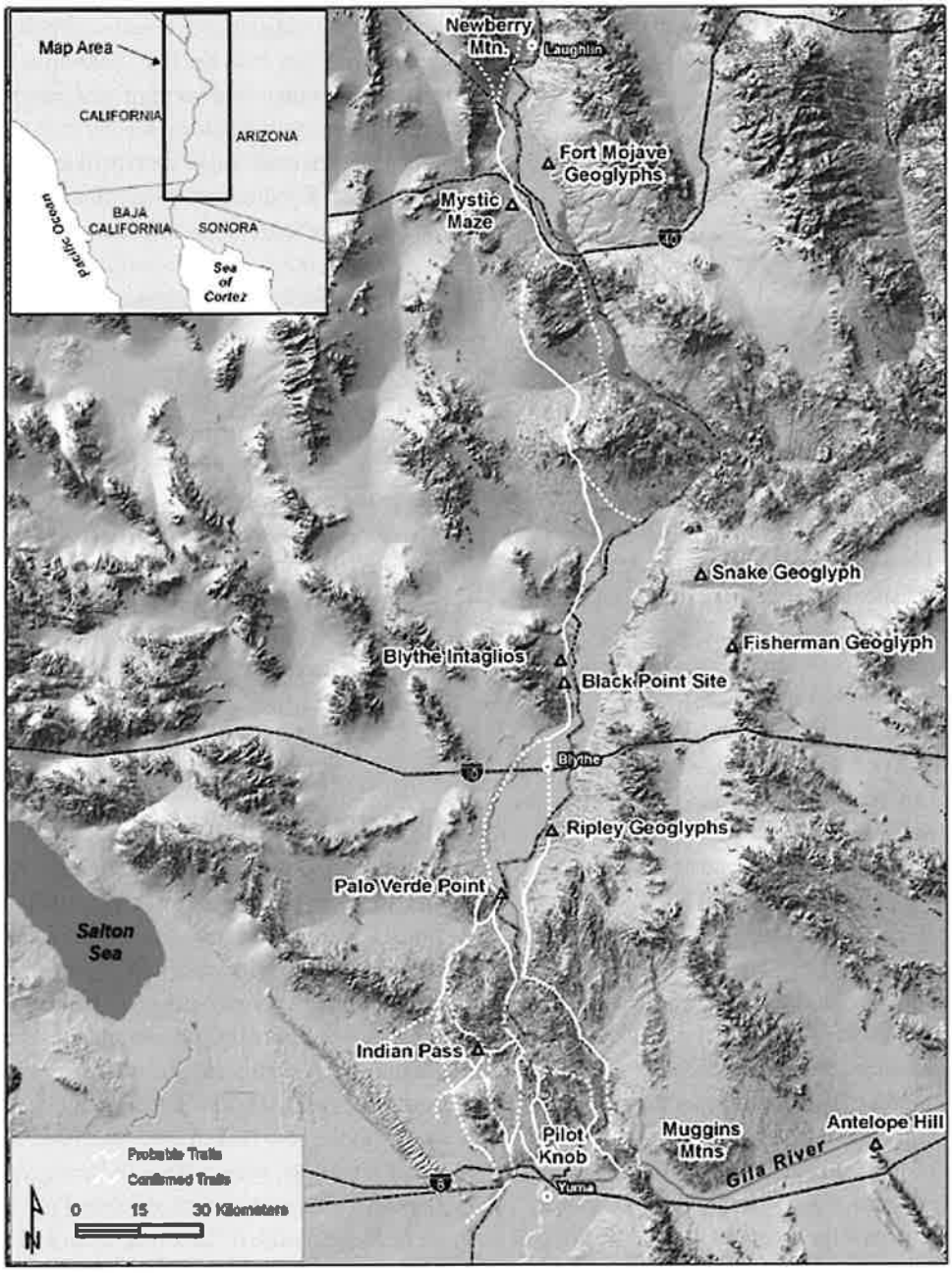

Figure 2. Map of Xam Kwatcan Trail and related places. (Baksh, 1995, 1997; Johnson 1985, 2001; Raven and Raven 1986)

Writing of the Mojave at the turn of the twentieth century, Kroeber (1925, 454-455) wrote:

> [A] Mohave can not tell a story or a dream without *naming the exact spot at which each character journeyed or slept or stood or looked about* [emphasis added]...

The naming and description of distant places on the vast desert landscape was a common thread in the lowland Yuman narrative tradition, reinforcing and facilitating the culture of long-distance travel. Kroeber continued about the important connection between dreaming and narrative:

> Dreams, then are the foundation of Mohave life; and dreams throughout are cast in a mythological mold. There is no people whose activities are more shaped by this psychic state... and none *whose civilization is so completely, so deliberately, reflected in their myths.*

Thus, myth and dreams are somewhat interchangeable but are set in real space on the landscape—a respected dreamer usually related his dreams in terms of mythic traditions, and as Kroeber noted, these mythic traditions molded lowland Yuman culture to an exceptionally high degree.

Another important connection between the trail system and traditional religious practice was the *keruk,* or cremation ceremony. The *keruk* was the most important religious ceremony and often the occasion for relatively large social gatherings (Altschul and Ezzo 1994; Forbes 1965; Forde 1931). Pilot Knob near Yuma was the site of the mythic first cremation – the cremation of the Creator god – and served as an ongoing location for major *keruks.* Following completion of the keruk, people seeking spiritual guidance would undertake a pilgrimage from Pilot Knob to Avikwame, the creation mountain and home of the Creator, near Laughlin, some 160 miles to the north. It is said that a pilgrim could make the trip in four days, quite a feat of endurance, and a tribute to the quality of the trail system. The *Xam Kwatcan* trail system connected Pilot Knob with the creation mountain (Forbes 1965; Johnson 1985; Raven and Raven 1986) and was used in the *keruk* pilgrimage.

According to contemporary Quechan, there were two major branches of the *Xam Kwatcan* trail leading north from Pilot Knob. (Figure 2) The more easterly branch is referred to as the Medicine Trail and the more westerly branch is referred to as the Trail of Dreams (Baksh 1997). The two branches merge near a major rock art complex (Figure 3) near Palo Verde Point on the Colorado River.

Character-Defining Elements of the Contemporary Cultural Landscape

In the lower Colorado River culture area, Native American groups continue to occupy their traditional territories and maintain exceptionally strong cultural continuity, as evidenced in contemporary culture by the unbroken use of native languages, the maintenance of oral history and traditional oral narratives, the continued practice of certain ritual and ceremonial activities, and a strong identification with the land (Baksh 1997; Bee 1981; Raven and Raven 1986; Woods 2001). A strong identification with the land is typical of cultural persistence throughout southern California (Bean and Vane 1978). Tribes continue to occupy their pre-contact homeland and express a close personal affinity with

Figure 3. One of many petroglyph panels at Palo Verde Point. (Hedges in Cleland and Apple 2003)

the places of their ancestors. For many of the desert groups, not only are places in or near reservations remembered and revered, but quite distant places continue to have cultural meaning and importance. As an example, Avikwame, the creation mountain, is over 150 miles from the Quechan Reservation, but remains central in narrative, ceremony, and identity.

Lowland Yuman cultural authorities stress the interconnectedness of places and recoil from regulatory imperatives to divide the landscape and assess the resulting parts individually:

> The sites in that area tie in with something that is bigger in the long run. As I've said before, the whole area along the Colorado River is sacred (Baksh 1997, 21).

> The Quechan note that all the sites in their traditional range are connected spatially, culturally, and spiritually. They should not, therefore, be considered as isolated occurrences, but rather as part of a greater network of cultural heritage. As such, effects to one site create effects on all the others (Woods 2001, 20).

This point of view can be appreciated by recalling Kroeber's remark that every story and dream is manifested at specific places within the desert landscape, and that stories and dreams are central to the Yuman cultural experience.

Constructed Elements

Traditional cultural activities, some of which are ongoing, have left a coherent body of material remains on the desert landscape, connected by a largely extant trail system (Figure 4). The trail system connects cultural and natural elements, such as specific mountains, which the Lower Colorado groups identify as culturally significant. Many trails were intentionally created and are not simply a result of repeated use (Johnson 1985; von Werlhof 1987). The Native American trail system

Figure 4. Recording a portion of the Xam Kwatcan trail system. (Photo by author)

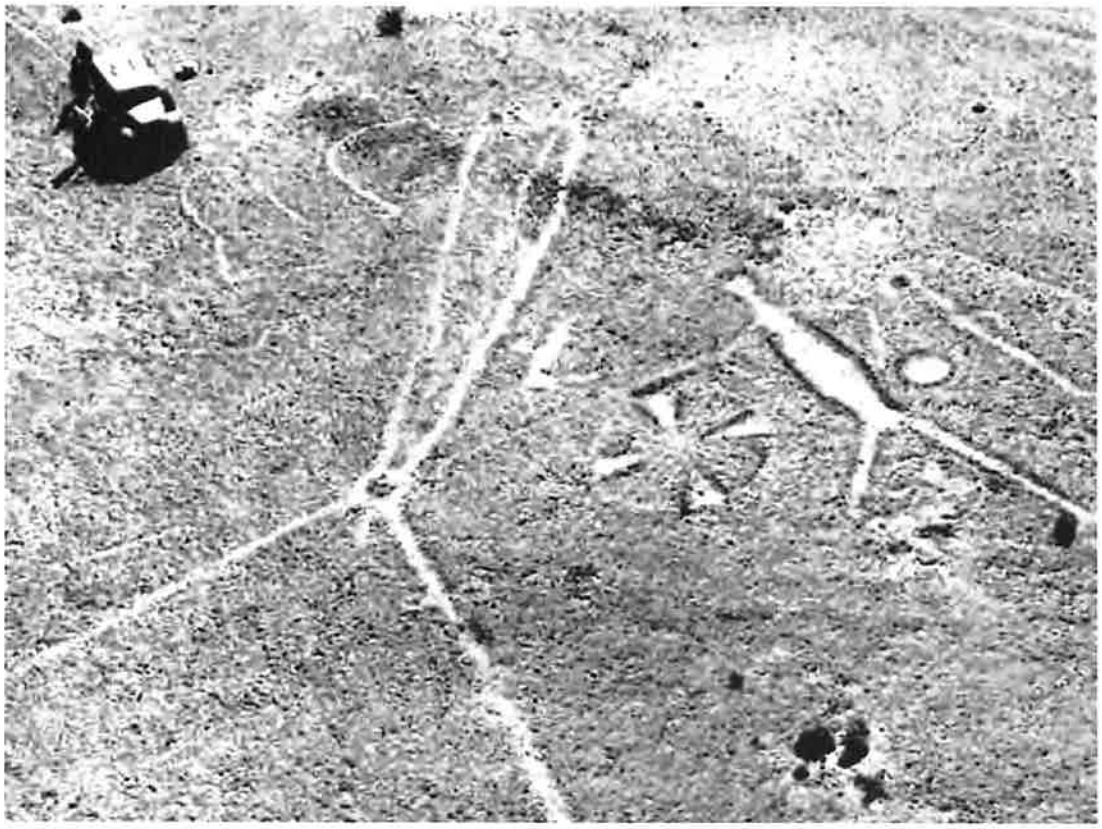

Figure 5: Historic aerial photograph of an expansive geoglyph associated with the Xam Kwatcan Trail. (Setzler and Stewart 1952)

clearly reflects the distribution of prehistoric sites in the region. A recent large-scale survey revealed that 40 percent of the 120-plus recorded prehistoric sites had trail features.

Geoglyphs and rock features constitute other important types of Native American landscape construction. (Figure 5) Geoglyphs (sometimes referred to as intaglios) are naturalistic abstract figures typically incised into the surface of the desert so that the lighter colored subsurface is exposed, creating light-on-dark images. These figures are unique to the Sonora and southern Mojave deserts and can be expansive in scale with individual elements exceeding 30 m (100 ft.) in length (Johnson 1985). Others may measure only a meter or two across. Sonora Desert archaeologists (Johnson 1985; Von Werlhof 2004) have made a convincing case that some anthropomorphic geoglyphs represent mythological characters and events. These constructions are concentrated at locations of particular traditional significance (Altschul and Ezzo 1994; Baksh 1995; Pigniolo et al. 1997; Raven and Raven 1986). Cleared circles

and other cleared areas on desert pavements constitute another key type of cultural landscape construction encountered in areas of high cultural significance.

Elements of the Natural Landscape

Mojave historical narratives (e.g., Kroeber 1925; Kroeber and Kroeber 1973) make it clear that the lowland Yuman groups "catalogued" and remembered the names of many distant places (Kroeber and Kroeber 1973). Forde (1931) noted that the Quechan, too, remembered a vast array of named places, but did not record many of them individually. These named places had varying prominence within the core narrative literature and its correlated belief system. Not every named place rises to the same level of significance.

Several mountains had particular importance, but not all highly revered places were topographic prominences. The Indian Pass area, where two major trails (including the Trail of Dreams) crossed, was particularly esteemed as a teaching place where initiates were brought to learn arcane cultural traditions considered critical to the maintenance of Quechan culture. Mesas surrounding important peaks (Pilot Knob Mesa, for example) are considered especially sensitive and contain high frequencies of constructed cultural elements such as geoglyphs, rock rings, and cleared circles (Ezzo and Altschul 1993; Raven and Raven 1986).

Beyond the physiography of place, lowland Yuman tradition puts significant emphasis on the plants and animals native to each place. Speaking of the culturally-related Chemehuevi, Halmo (2001) noted:

> Given the intimate interrelationship between plants, animals, soil and water, Chemehuevi concerns for these resources are clear. Plants and animals are considered sacred resources that must be used appropriately. … As mentioned, all traditional Chemehuevi territory is perceived to be a sacred homeland given to the people by their Creator. Any inappropriate treatment of the land is viewed as upsetting the balance with adverse consequences.

In sum, traditional Yuman cultural beliefs interact to create the need to address an integrated cultural landscape comprised of archaeological sites, natural formations, the biotic community, and trails that is truly regional in scale. The National Park Service originally defined an ethnographic landscape as a "landscape containing a variety of natural and cultural resources that associated people define as heritage resources" (Birnbaum 1994). Contemporary Native American consultants and ethnographic testimony gathered in the early twentieth century agree that the associated people (in this case existing Yuman tribes) define an expansive, holistic landscape across the desert as an important heritage resource.

Management Issues

The immensity of regional-scale ethnographic landscapes and the insistence by many contemporary Native American spokespeople on the interconnectedness of the natural and cultural elements of these landscapes raises serious management issues. Can such a landscape be considered a cultural property under U.S. laws and regulations? If so, how would its boundaries be

determined and whose responsibility would it be to define the boundaries? Then, there is the issue of integrity. Typically, any regional-scale ethnographic landscape would have already been subject to some severe disturbance. How would one even begin to assess whether historical values still exist? In the case of the ethnographic landscape associated with the Xam Quechan trail system, three east-west Interstate highways cross it, several modern cities have been developed within it, and the once wild Colorado River has been tamed by dams and levees, and irrigated agricultural fields have replaced wetlands and sloughs.

Having faced these issues on several major projects involving land-management decisions within this regional-scale landscape, I have come to the conclusion that most of the objections to considering regional landscapes result from a too-rigid set of assumptions as to what U.S. regulations actually say and require. Through experience, I have come to understand that current laws, regulations, and guidelines contain most of the tools necessary to come to reasonable and balanced land-management decisions that take into account Native American values.

To put this conclusion into perspective, I will examine an ongoing NAFTA claim (U.S. Department of State 2007) by a Canadian mining company denied the right to develop a massive open-pit gold mine that would have impacted the Trail of Dreams and a specific place—Indian Pass as well as the regional ethnographic landscape as a whole. The issues and regulatory processes at issue in this case are exceedingly complex, and I will only attempt to summarize some of the cultural resources issues. This could be a precedent-setting case, and its high profile is underscored by the fact that the National Trust for Historic Preservation put Indian Pass on its most endangered list in 2002.

Indian Pass had been known since the 1920s as an area rich in archaeological material, as evidenced by surface collections and excavations conducted by Malcolm Rogers (1936, 1939, 1966; Waters 1982). However, Rogers' work was never fully reported, and many archaeologists remained unaware of the value of the area. And, no one had thought to ask the Native American tribes what they thought until the Glamis Imperial Mine was proposed.

Native American values for the area started to come to light during public scoping meetings held by Bureau of Land Management (BLM) under the auspices of the National Environmental Policy Act (NEPA). Native American representatives voiced strong opposition to the project. BLM then retained the services of a cultural anthropologist who had previous experience with lowland Yuman tribes to assess the basis of this opposition. Ethnographic interviews revealed that many Quechan were concerned about all ancestral sites in their traditional territory; too many had already been destroyed. The Trail of Dreams passes through the proposed mine area, while the Medicine Trail was already cut-through by another open-pit gold mine. The Quechan believe that the construction of the proposed mine would preclude their ability to perform the pilgrimage from Pilot Knob to the creation mountain, physically and in dreams. The Indian Pass area is also of special significance. It is a "strong" place and ancestral spirits are thought to dwell there. Landscape features were of importance, as were aspects of the constructed environment. The intersection of

the two trails is an important aspect. Additionally, and of critical importance, the Indian Pass area is a teaching place that must be visited to learn traditional cultural practices. It is the first in a series of such places. The other places would be useless if the first place were destroyed. No mitigation could lessen the cultural damage that would be done if the mine were to proceed.

My company (EDAW, Inc.) conducted the archaeological survey required to conform to both NEPA and Section 106. Suffice it to say, the archaeological data supported the Quechan claims. The proposed site for the mine was found to hold a high concentration of features of probable ceremonial significance, and these features probably span at least a thousand-year period (Pigniolo et al. 1997). A trail associated with many ceremonial features can still be seen on the ground extending from the major trail intersection through the proposed open pit mine. This trail has been identified in the field by Native Americans as the Trail of Dreams. Based partly on the impacts to traditional cultural properties, the Department of the Interior denied the permit application in January 2001. This denial was subsequently reversed, but the State of California also moved to block the project.

Attorneys and an expert witness for the mining company have been critical of some of the cultural resources findings, raising issues of fact as well as procedural issues (Sebastian 2006). Of most importance for present purposes is the issue of scale. The mining company argues that since the Native Americans are concerned about a cultural landscape that is regional in scale, the impact of the mine itself would have to be considered relatively minor, only a few square miles out of many thousands (McKee 2005).

How valid is this criticism? I think it is fair to say that it would be impossible to stop all development in a regional scale landscape just because it would adversely impact that landscape. As noted above, the area in question contains modern towns and numerous modern transportation routes. If all projects are not stopped, why would one project be singled out for denial while another is allowed to go forward? This question underscores one of the major points I want to make. In the Imperial Mine case, if the regional-level landscape was the only issue, then it is doubtful that the government would have blocked the project. Rather, it was the confluence of landscapes on several scales at the proposed mine site that led to the government's decision. Not only was there a regional issue, there was the issue of the Indian Pass area itself and the local manifestation of the Trail of Dreams within that more restricted landscape. Although I cannot speak for Native Americans, my experience on other projects is that strident objections to projects are not raised based solely on regional concerns. While many Native Americans would prefer to see all new development restricted to previously disturbed areas, it is only when a project severely affects a more localized landscape of particular concern that the level of opposition raises to criticality.

Conclusions and Recommendations

In a more general sense, then, how is a regional scale landscape to be dealt with and managed? There might be a tendency either to panic and say "Oh, it's just too big, we can't possibly deal with it," or to shrug and say "Well, if everything is important, what difference does it make?" Neither of these reactions can be justified under current

Federal regulations and guidelines. My recommendation is to take regional cultural landscapes seriously first by acknowledging the existence of such landscapes for purposes of full disclosure. If a good case can be made for the existence of a regional scale landscape, it only makes sense that land managers and cultural resources professionals should take it into account in decision-making. Moreover, in the case of ethnographic landscapes, federal guidelines are quite clear that the concerns of the affected cultural group should be sought out and considered (Parker and King 1992). However, does this mean that a regional scale landscape should be formally evaluated for National Register eligibility as a TCP or ethnographic landscape? In my view, little would be gained in most cases by such an effort. In a rare case, such an assessment might become necessary to avoid a legal challenge, but this would not normally be the case.

What then is the proper format for taking a regional-scale landscape into account? In case of a federal undertaking subject to NEPA, impacts to the regional landscape would have to be addressed separately in the required cumulative impact assessment. This is a point that attorneys for Native American groups are beginning to recognize and advocate for. In addition, undertakings under Section 106 would address the regional landscape in the consultation documents, either in an agreement document like a memorandum of agreement or in agreeing that there would be no effect. Finally, in long-term land management programs, regional scale landscape concerns can be addressed with a formal plan for stewardship. Regional thinking would help lead the cultural resources profession toward large-scale planning similar to the ecosystem-management approach that is gaining popularity relative to rare and endangered species.

In conclusion, the idea of scale in cultural landscape analysis helps to illuminate and explain varying kinds of traditional cultural concerns: concerns dealing on the one hand with holistic regional landscapes and on the other with more localized places and their roles within the larger regional landscapes. This approach serves better to integrate Native American concerns and guide appropriate, informed management decisions. Issues of boundary determination and scale are more readily conceived and resolved within the context of a holistic landscape analysis than within a more partitive approach.

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Attachment 8

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Prepared in cooperation with the Bureau of Reclamation

Update of the Accounting Surface Along the Lower Colorado River

Scientific Investigations Report 2008–5113

U.S. Department of the Interior
U.S. Geological Survey

FRONT COVER—Looking upstream at Palo Verde Dam on the Colorado River near Blythe, California.
Photo taken by Sandra J. Owen-Joyce, July 25, 2007.

Update of the Accounting Surface Along the Lower Colorado River

By Stephen M. Wiele, Stanley A. Leake, Sandra J. Owen-Joyce, and Emmet H. McGuire

Prepared in cooperation with the Bureau of Reclamation

Scientific Investigations Report 2008–5113

U.S. Department of the Interior
U.S. Geological Survey

U.S. Department of the Interior
KEN SALAZAR, Secretary

U.S. Geological Survey
Suzette M. Kimball, Acting Director

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Conversion Factors and Datum

Inch/Pound to SI

Multiply	By	To obtain
	Length	
foot (ft)	0.3048	meter (m)
mile (mi)	1.609	kilometer (km)
	Volume	
acre-foot (acre-ft)	1,233	cubic meter (m^3)
acre-foot (acre-ft)	0.001233	cubic hectometer (hm^3)
	Flow rate	
foot per day (ft/d)	0.3048	meter per day (m/d)
cubic foot per second (ft^3/s)	0.02832	cubic meter per second (m^3/s)

Vertical coordinate information is referenced to the "National Vertical Geodetic Datum of 1929 (NGVD 29)."
Horizontal coordinate information is referenced to the "North American Datum of 1927 (NAD 27)."
Elevation, as used in this report, refers to distance above the vertical datum.

Update of the Accounting Surface Along the Lower Colorado River

By Stephen M. Wiele, Stanley A. Leake, Sandra J. Owen-Joyce, and Emmet H. McGuire

Abstract

The accounting-surface method was developed in the 1990s by the U.S. Geological Survey, in cooperation with the Bureau of Reclamation, to identify wells outside the flood plain of the lower Colorado River that yield water that will be replaced by water from the river. This method was needed to identify which wells require an entitlement for diversion of water from the Colorado River and need to be included in accounting for consumptive use of Colorado River water as outlined in the Consolidated Decree of the United States Supreme Court in *Arizona v. California*. The method is based on the concept of a river aquifer and an accounting surface within the river aquifer. The study area includes the valley adjacent to the lower Colorado River and parts of some adjacent valleys in Arizona, California, Nevada, and Utah and extends from the east end of Lake Mead south to the southerly international boundary with Mexico. Contours for the original accounting surface were hand drawn based on the shape of the aquifer, water-surface elevations in the Colorado River and drainage ditches, and hydrologic judgment. This report documents an update of the original accounting surface based on updated water-surface elevations in the Colorado River and drainage ditches and the use of simple, physically based ground-water flow models to calculate the accounting surface in four areas adjacent to the free-flowing river.

Introduction

The accounting-surface method was developed in the 1990s by the U.S. Geological Survey (USGS), in cooperation with the Bureau of Reclamation (Reclamation), to identify wells outside the flood plain of the lower Colorado River that yield water that will be replaced by water from the river (Wilson and Owen-Joyce, 1994; Owen-Joyce and others, 2000). Prior to the development of the accounting-surface method, water pumped from many wells outside the flood plain was not included when accounting for consumptive use of river water. A method was needed to identify which wells pump water that will be replaced by water from the Colorado River and need to be included in accounting for consumptive use of Colorado River water as outlined in the Consolidated Decree of the United States Supreme Court in *Arizona v. California*, 547 U.S.150 (2006). The method is based on the concept of a river aquifer and an accounting surface within the river aquifer. The study area includes the valley adjacent to the lower Colorado River and parts of some adjacent valleys in Arizona, California, Nevada, and Utah and extends from the east end of Lake Mead south to the southerly international boundary with Mexico (fig. 1). Nearly 15 years have passed since the development of the original accounting surface. Prior to the issuance of a proposed rule to define the accounting procedure, an update of the accounting surface is needed for use in the process of Decree accounting for the following reasons:

1. The original accounting surface was generated on the basis of water-surface profiles of the lower Colorado River computed for the highest median monthly projected discharge for 1992–2001 and assuming delivery of full allocations of river water to users in the United States. Since that time, historical data are available that represent the current and anticipated future operation of the Colorado River for the delivery of full allocation of river water to users in the United States and treaty deliveries to Mexico.

2. The original water-surface profiles were generated with a surface-water model representing river-channel conditions surveyed between 1980 and 1988. More recent river stage information is available, and the target elevations for Lakes Mohave and Havasu have changed slightly since the original accounting surface was developed.

3. The original accounting surface in parts of the Parker and Palo Verde areas was based on water-surface elevations in drainage ditches or wells along the edge of the flood plain that represented regulated flow conditions of the late 1980s and early 1990s. Furthermore, the elevations from the drainage ditches used in the Palo Verde Valley were based on a nonstandard vertical datum, adding an error to the elevation of the accounting surface in that area.

4. Improved ground-water flow modeling is now available that will allow efficient construction of an accounting surface tied to the river in reaches not adjacent to reservoirs. An accounting surface computed with a physically

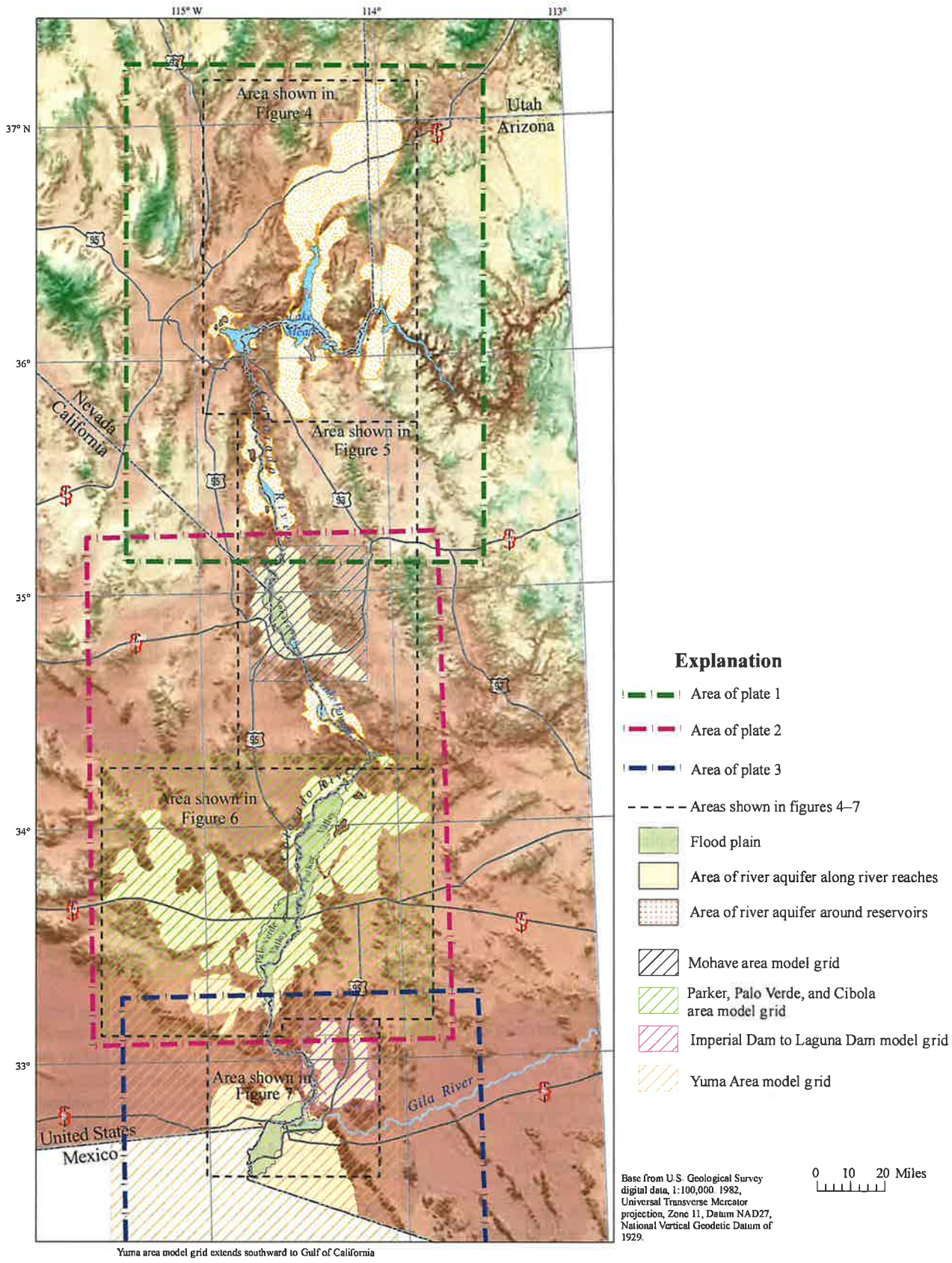


Figure 1. Map showing the lower Colorado River and areal extent of the river aquifer.

based model is an improvement on the original accounting surface, which was hand-drawn based on hydrologic judgment, and can be easily replicated and quickly updated as required.

Legal Framework

The Colorado River Compact of 1922 apportions the waters of the Colorado River between the upper basin and the lower basin (U.S. Congress, 1948, p. A17-A22). The requirement for participation of the USGS and Reclamation is stated in Article V:

> The chief official of each signatory State charged with the administration of water rights, together with the Director of the United States Reclamation Service and the Director of the United States Geological Survey shall cooperate, ex-officio:
>
> (a) To promote the systematic determination and coordination of the facts as to flow, appropriation, consumption, and use of water in the Colorado River Basin, and the interchange of available information in such matters.

Water in the lower Colorado River is apportioned among the States of California, Arizona, and Nevada by the Boulder Canyon Project Act of December 21, 1928 (U.S. Congress, 1948, p. A213–A225) and confirmed by the Consolidated Decree (U.S. Supreme Court, 2006) in terms of consumptive use. The decree is specific about the responsibility of the Secretary of the Interior to account for consumptive use of water from the mainstream. Consumptive use is defined to include "water drawn from the mainstream by underground pumping." Article V of the Consolidated Decree (U.S. Supreme Court, 2006) states in part:

> The United States shall prepare and maintain, or provide for the preparation and maintenance of, and shall make available, annually and at such shorter intervals as the Secretary of the Interior shall deem necessary or advisable, for inspection by interested persons at all reasonable times and at a reasonable place or places, complete, detailed and accurate records of: * * *
>
> * * * (B) Diversions of water from the mainstream, return flow of such water to the stream as is available for consumptive use in the United States or in satisfaction of the Mexican treaty obligation, and consumptive use of such water. These quantities shall be stated separately as to each diverter from the mainstream, each point of diversion, and each of the States of Arizona, California, and Nevada; * * *

Article I of the decree defines terminology and states in part:

> (A) "Consumptive use" means diversions from the stream less such return flow thereto as is available for consumptive use in the United States or in satisfaction of the Mexican treaty obligation;
>
> (B) "Mainstream" means the mainstream of the Colorado River downstream from Lee Ferry within the United States, including the reservoirs thereon;
>
> (C) Consumptive use from the mainstream within a state shall include all consumptive uses of water of the mainstream, including water drawn from the mainstream by underground pumping, and including but not limited to, consumptive uses made by persons, by agencies of that state, and by the United States for the benefit of Indian reservations and other federal establishments within the state; * * *

Ground water in the river aquifer beneath the flood plain is considered to be Colorado River water, and water pumped from wells on the flood plain is presumed to be river water and is accounted for as Colorado River water. Drainage ditches that lie along the edge of the flood plain contain a mixture of river water (recharged on the flood plain from the application of diverted irrigation water) and tributary water.

Purpose and Scope

This report documents the updates to the data and method used to generate the accounting surface in previous reports (Wilson and Owen-Joyce, 1994; Owen-Joyce and others, 2000) and presents the updated accounting surface needed to identify wells outside the flood plain of the lower Colorado River that yield water that will be replaced by water from the Colorado River. The report describes the process to update the accounting surface using simple, physically based ground-water flow models and contains maps (figs. 4–7 and plates 1–3) that show the elevation and contours of the updated accounting surface. Site-specific data were collected where needed to update the accounting surface.

Data Collection

The USGS collected hydrologic data for the study during 2007–08. Most field work was done along the drainage ditches on the flood plain in Parker and Cibola Valleys in Arizona, in Palo Verde Valley in California, and in the Yuma area in Arizona and California. Additional data were collected along reaches of the river between Parker and Headgate Rock Dams and from upstream of Imperial Dam to the northerly international boundary (NIB) with Mexico. Water-surface elevations in drainage ditches were determined by use of Global Positioning System (GPS) surveys (Remondi, 1985). The data are stored in a database of the Arizona Water Science Center of the U.S. Geological Survey, Tucson, Arizona.

Precise GPS was used to collect water-level elevation data in the drainage ditches of agricultural areas along the

lower Colorado River in Parker, Cibola, and Palo Verde Valleys and in the Yuma area. Field collection of data for the Palo Verde Valley drainage-ditch survey was conducted during the weeks of August 13 and 27, 2007. Data for the drainage ditches in Parker Valley were collected during the weeks of August 27 and September 10, 2007. Data for the Cibola Valley drainage ditches were collected during the week of November 5, 2007. Data for the drainage ditches in the Yuma area were collected January 30–31, 2008. Precise GPS was also used to collect data for specific reaches along the Colorado River. Data for the river between Parker Dam and Headgate Rock Dam were collected January 24, 2008. Data for the river in the Yuma area were collected the week of February 4, 2008.

Survey methods included collecting survey data by using Real-Time Kinematic (RTK)-Infill and static GPS. RTK GPS was used to collect edge-of-water or staff-gage elevations in the drainage ditches. RTK base-station positions were located at higher topographic locations near the drainage ditches. The base-station positions were selected by virtue of line-of-sight capability with the area of the drainage ditch to be surveyed. Because most survey points within the drainage ditches were obscured from the base station by the embankments, two technicians conducted the survey for safety and to ensure line-of-site radio link between the RTK base station and rover unit. One technician entered the drainage ditch to place the rover GPS antenna pole at the edge of water or, when available, on top of a staff gage, while the second technician remained at the top of the drainage ditch with the rover radio receiver. Down-to-water measurements were made from the top-of-staff gage or other measuring-point positions.

Static GPS methods included the occupation of surrounding survey benchmarks that have coordinates published by the National Geodetic Survey (NGS). Data collected from the static occupations were used to tie-in, correct, and check the coordinates of individual RTK base-station positions for each of the individual drainage-ditch surveys. In addition, individual base-station positions from each of the drainage ditches were surveyed to a single benchmark located just west of the right bank cableway tie-back at the Colorado River below Palo Verde Dam (USGS 09429100) streamflow-gaging station. Selected top-of-staff measuring points and surrounding NGS benchmarks, when available, were reoccupied with RTK GPS to check for survey accuracy and repeatability. The accuracy of the surveyed elevations was ±0.20 feet.

Various precise GPS methods were used to collect water-level elevation data depending on the conditions that existed in those areas. Traditional RTK and faststatic techniques were not feasible due to line-of-sight problems and the absence of an established faststatic base station in the area between Parker and Headgate Rock Dams. Data were collected at eleven points along this reach of the river by treating each point as a base station and obtaining an Online Positioning User Service (OPUS) solution for each point. In the Yuma area, where there is an established base station surveyed in at the Yuma USGS office, data were collected at 28 points in drainage ditches and at 6 wells using the faststatic technique. Along the river in the reach upstream from Laguna Dam, 15 elevation points were collected by using the faststatic technique with the Yuma base station at the USGS office. Along the river in the Yuma area downstream from Laguna Dam to the NIB with Mexico, the RTK technique was used to collect data at 14 points by using both the AMVD and COCO base stations, which are developed benchmarks established by the City of Yuma.

Previous Investigations

The accounting-surface method is described for two areas in separate reports—the area upstream from Laguna Dam in Wilson and Owen-Joyce (1994) and the area downstream from Laguna Dam in Owen-Joyce and others (2000). Previous geohydrologic studies of the lower Colorado River valley from Davis Dam to Yuma defined and described the formations that constitute the river aquifer, discussed the geologic structures and framework of the lower Colorado River valley, and described the occurrence and movement of ground water (Metzger, 1965, 1968; Metzger and Loeltz, 1973; Metzger and others, 1973; Olmsted and others, 1973). The major emphasis of these studies was the ground-water flow system beneath the flood plain and its relation to the Colorado River because few wells were available outside the flood plain to provide water levels or samples for chemical analysis. Refinement of the hydrogeologic framework, updated maps of ground-water flow, estimates of ground-water storage in the mound under Yuma Mesa, water-chemistry analyses, and water-budget components are topics covered in a recent study of the Yuma area (Dickinson and others, 2006). Additional work to develop procedures to apply the accounting-surface method to water-level data from wells applied geographic information system (GIS) methods to identify areas where wells pump water that will be replaced by water from the Colorado River (Spangler and others, 2007).

Acknowledgments

Jeffrey C. Addiego, Douglas B. Blatchford, William B. Greer, Ruth M. Thayer, Shana G. Tighi, and Dennis E. Watt of the Bureau of Reclamation provided information regarding discharges and water-surface profiles in the Colorado River and guidance concerning the use of drainage ditches in the ground-water modeling. The Colorado River Indian Tribes kindly provided access to their reservation. Palo Verde Irrigation District provided maps and water-level data for their staff gages in drainage ditches.

Accounting-Surface Method

The accounting-surface method was developed to identify wells outside the flood plain of the lower Colorado River that yield water that will be replaced by water from the river (Wilson and Owen-Joyce, 1994; Owen-Joyce and others, 2000). The method is based on the concept of a river aquifer

and an accounting surface within the river aquifer. The method provides a uniform criterion for all users pumping water from wells by determining whether the elevation of the static water table at a well is above or below the accounting surface. The elevation of the static water table at a well is determined by measuring the elevation of the static water level in the well. The static water level is the level of the water in a well that is not being affected by ground-water withdrawal or the level to which water will rise in a tightly cased well under its full pressure head. Wells that have a static water-level elevation equal to or below the accounting surface are presumed to yield water that will be replaced by water from the river. Wells that have a static water-level elevation above the accounting surface are presumed to yield water that will be replaced by water from precipitation and inflow from tributary valleys (fig. 2). Ground water in the river aquifer beneath the flood plain is considered to be Colorado River water regardless of water levels. Water pumped from wells on the flood plain is presumed to be river water and is accounted for as Colorado River water.

The accounting surface is defined to represent the elevation and slope of the static water table in the river aquifer outside the flood plain and the reservoirs of the Colorado River that would exist if the water in the river aquifer were derived only from the river (Wilson and Owen-Joyce, 1994). The accounting surface extends outward from the edges of the flood plain or a reservoir to the subsurface boundary of the river aquifer. Initial attempts to compare the water level in wells to the accounting surface were stymied by the inability to obtain water levels in every well (Spangler and others, 2007). Consequently, a method was devised by Spangler and others (2007) to estimate the water surface from available data and a new category—near the accounting surface—was added to the existing categories of well water levels—at, below, or above the accounting surface. GIS methods were used to create maps from measured water-level data that were then used to delineate areas where the water levels in wells were above or below the accounting surface. Estimations of water elevation can be made for wells without a measured water level (Spangler and others, 2007) from these maps. Water levels in wells were measured with calibrated steel or electrical tapes that are accurate to within tenths or hundredths of a foot. A differential GPS was used to determine land-surface elevations to within an operational accuracy of ±0.43 ft, resulting in calculated water-level elevations having a 95-percent confidence interval of ±0.84 ft. GIS interpolation tools were used to delineate areas within the river aquifer where water-level elevations are presumed to be above, below, and near (within ±0.84 ft at the 95-percent confidence interval) the elevation of the accounting surface.

The criterion in the accounting-surface method for all users pumping water from wells was changed by Spangler and others (2007) to determining whether the elevation of the static water table at a well is above, near, or below the accounting surface. Wells that have a static water-level

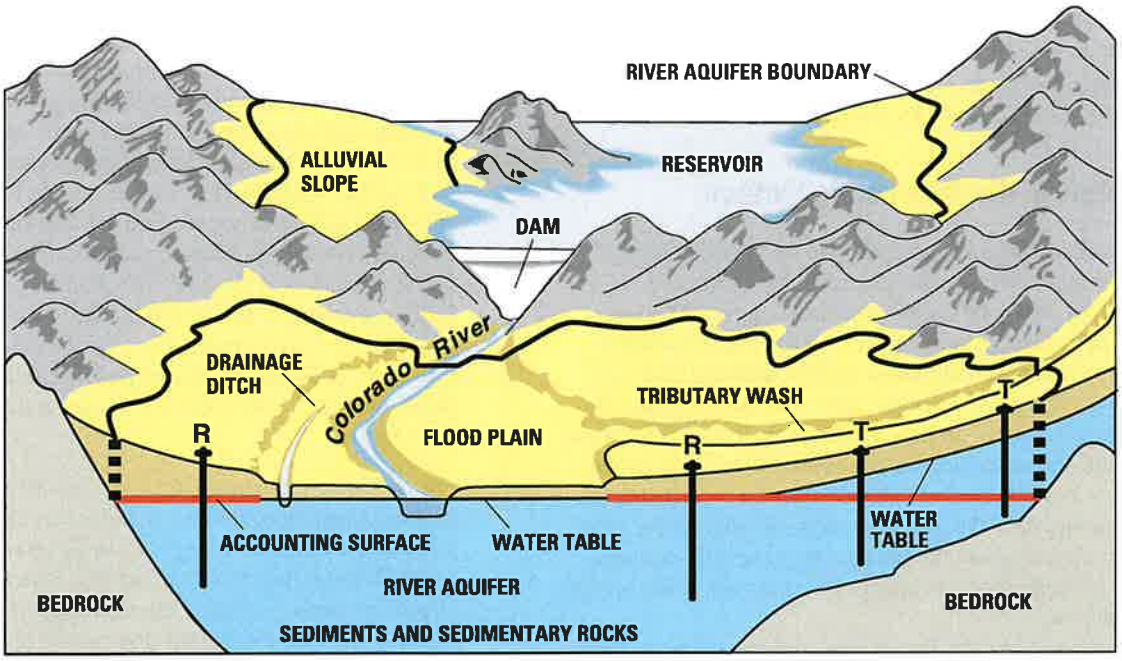


Figure 2. Schematic diagram showing the river aquifer and accounting surface (red line) of the lower Colorado River. Wells labeled "R" have a static water-level elevation equal to or below the accounting surface and are presumed to yield water that will be replaced by water from the river. Wells labeled "T" have a static water-level elevation above the accounting surface and are presumed to yield water that will be replaced by water from precipitation and inflow from tributary valleys (Modified from Wilson and Owen-Joyce, 1994).

elevation near, equal to, or below the accounting surface are presumed to yield water that will be replaced by water from the river. Wells that have a static water-level elevation above the accounting surface are presumed to yield water that will be replaced by water from precipitation and inflow from tributary valleys.

River Aquifer

The boundary of the area that contains the accounting surface was defined as the river aquifer and delineated in the previous studies (Wilson and Owen-Joyce, 1994; Owen-Joyce and others, 2000). The river aquifer consists of permeable, partly saturated sediments and sedimentary rocks that are hydraulically connected to the Colorado River so that water can move between the river and the aquifer in response to withdrawal of water from the aquifer or differences in water-level elevations between the river and the aquifer. The subsurface limit of the river aquifer is the nearly impermeable bedrock of the bottom and sides of the basins that underlie the Colorado River valley and adjacent tributary valleys, which is a barrier to ground-water flow. For this study the boundary of the river aquifer remains the same as defined previously (fig. 1).

The river aquifer beneath the area where the accounting surface exists can be divided into two areas. The first area is where the water table is controlled by reservoirs, and the second area is where the water table is controlled by the Colorado River, drainage ditches on the flood plain, or both. In areas controlled by reservoirs, the accounting surface is set at a constant elevation defined by a representative reservoir level specified by Reclamation. In areas controlled by the Colorado River, drainage ditches, or both, the accounting surface varies depending on the shape of the aquifer and the surface-water elevations.

Generation of the Accounting Surface

The accounting surface adjacent to free-flowing reaches of the river between reservoirs published by Wilson and Owen-Joyce (1994) and Owen-Joyce and others (2000) was represented by hand-drawn contours based on surface-water profiles. In Parker and Palo Verde Valleys, drainage ditches or wells along the edge of the flood plain were used to define the level of the accounting surface. Reclamation considers the water levels in the drainage ditches to represent the level of Colorado River water beneath the flood plain. Adjacent to reservoirs, the accounting surface is flat, and is set to an elevation of the adjacent reservoir defined by the annual high water-surface elevation used by Reclamation to operate the reservoirs under normal flow conditions.

The general strategy for updating the accounting surface was as follows:

1. The extent of the river aquifer and area over which the accounting surface was defined by Wilson and Owen-Joyce (1994) and Owen-Joyce and others (2000) was retained.
2. Water-surface profiles of the Colorado River and drainage ditches used in defining the accounting surface were updated using the most recent information available. Drainage ditches were used in Parker, Palo Verde, and Cibola Valleys in defining the accounting surface.
3. Water-surface elevations in reservoirs were updated on the basis of current operating conditions for Lakes Mead, Mohave, and Havasu.
4. Contours of the accounting surface adjacent to free-flowing reaches of the Colorado River were generated using simple steady-state ground-water models that simulate two-dimensional flow, using a constant transmissivity value, with river and drainage-ditch elevations as boundary conditions.

The discharges along the free-flowing reaches of the Colorado River and the water-surface elevations in reservoirs used to define the accounting surface were specified by Reclamation. Implementation of this general strategy is discussed in more detail in the following sections.

Criteria for Establishing Reservoir Water-Surface Elevations and Colorado River Flow Conditions Used to Generate the Accounting Surface

The water-surface elevations in the Colorado River, reservoirs, and drainage ditches satisfy the following criteria (Jeffrey C. Addiego, Bureau of Reclamation, written commun., 2007):

- The Colorado River is flowing under normal operating conditions. Normal operating conditions exist when releases from the reservoirs are being made to accommodate downstream requirements where each State is using its full apportionment (consumptive use in Arizona + California + Nevada equals 7.5 million acre-feet) and a treaty-specified 1.5 million acre-feet is being delivered to Mexico (approximately 1.36 million acre-feet at the NIB with Mexico and 0.14 million acre-feet at the land boundary near San Luis). Flow and (or) river stage values can be either historical or modeled values, and should exclude flood flows from the lower basin tributaries and side-wash inflows.
- The hydraulic influence of the Colorado River under normal operating conditions is defined by the mean stage of the Colorado River (excluding reservoirs) during the highest flow month of the year (the flow that should be used to calculate the river stage is the mean monthly flow for the highest flow month of the year).
- The elevations used for the reservoirs (Lakes Mohave and Havasu) are the high monthly target elevation for the year used when operating under normal operating conditions—644 feet for Lake Mohave and 448.7 feet for Lake Havasu.

- The maximum elevation of the accounting surface for Lake Mead is the top of the spillway gates in their fixed (down) position (1,205.4 feet). This elevation corresponds to an elevation (and corresponding area) in the vicinity of Lake Mead where a well would have the potential to pump Colorado River water. Whether a well would be considered to pump Colorado River water in the Lake Mead area would depend upon the actual lake elevations during the accounting year.
- The flows and river stage values account for major diversions from and return flows to the river at their respective locations. These diversions and return flows include, at minimum, the diversion at Headgate Rock Dam and major drainage ditches from the Colorado River Indian Reservation, the diversion at Palo Verde Diversion Dam and major drainage ditches from the Palo Verde Irrigation District, the diversions from Lake Havasu by the Central Arizona Project and the Metropolitan Water District canals, the diversions at Imperial Dam and major returns below Imperial Dam. As many diversions and return flow points are used as practical given the available data and the practical influence upon the resultant values.

Table 1. Discharges used to determine the water-surface elevation of the Colorado River used in the ground water-flow models.

[River miles start at the southerly international boundary with Mexico and increase upstream (Bureau of Reclamation, 2001)]

Colorado River gaging station	River mile	Discharge, in cubic feet per second
Below Hoover Dam	342.0	17,634
Below Davis Dam	275.5	17,069
At Big Bend	264.7	19,567
Below Parker Dam	192.2	12,370
Forebay at Headgate Rock Dam	177.7	11,402
At Parker	175.3	11,970
At Water Wheel	151.5	11,157
Below Palo Verde Diversion Dam	132.7	10,924
At Taylor Ferry	106.4	9,825
At Lower Cibola Bridge	86.9	10,399
Above Imperial Dam	49.2	10,222
Below Imperial Dam	49.2	549
Below Laguna Dam	41.7	716
Below Yuma Main Canal Wasteway	29.4	1,527

Areas of the River Aquifer Controlled by Reservoirs

The accounting surface elevations in the river aquifer surrounding Lake Havasu, Lake Mohave, and Lake Mead are determined by the reservoir levels. Reclamation has determined that the accounting-surface elevations are 448.7 ft for Lake Havasu, 644.0 ft for Lake Mohave, and 1205.4 ft for Lake Mead.

Areas of the River Aquifer Controlled by the Colorado River, Drainage Ditches, or Both

River Reaches

Along reaches of the Colorado River without irrigation on the flood plain where the river loses water to the aquifer, the accounting surface is determined by the water surface of the Colorado River. Under predevelopment conditions and where the flood plain is not irrigated with diverted river water, groundwater levels in areas outside the flood plain that are higher than the Colorado River are caused only by tributary ground-water inflow. In this case, the river controls the elevation of the water table under the flood plain, and the accounting surface would be lower than the higher water level caused by tributary groundwater inflow. Water pumped from a well with a static water level above the accounting surface would be deemed tributary water, and an entitlement would not be needed.

A calibrated and documented step-backwater model was not available for the study area, and development of such a model was beyond the scope of this study. Reclamation

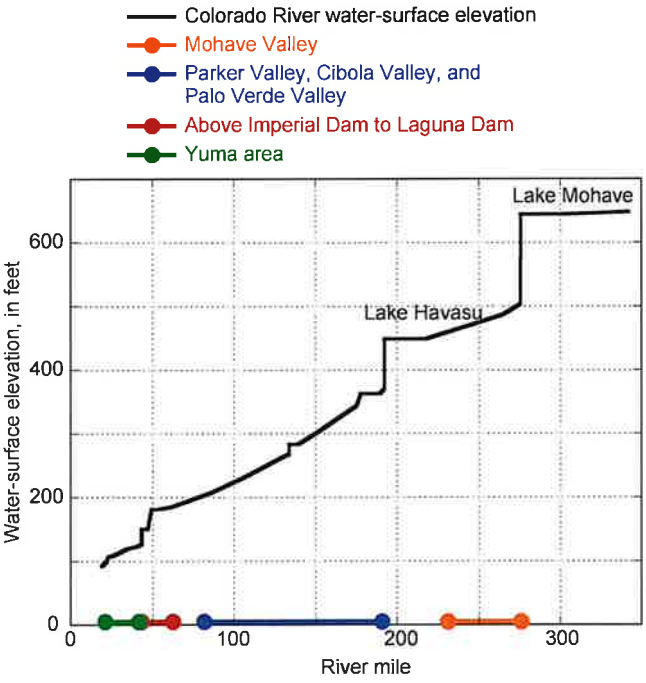


Figure 3. Water surface profile of the Colorado River used in the ground-water flow models. The approximate extent of the accounting surface in each of the four modeled areas is also displayed as a function of river mile. River miles (Bureau of Reclamation, 2001) start at the southerly international boundary with Mexico and increase upstream.

Table 2. Streamflow-gaging station data used to define the water-surface elevation used in the ground-water flow models.

[Agency: USGS, U.S. Geological Survey; Reclamation, Bureau of Reclamation; IBWC, International Boundary and Water Commission]

Colorado River gaging station	UTM coordintate[1], in meters		Elevation, in feet	River mile	Agency
	Easting	Northing			
Below Davis Dam (09423000)	721369	3895914	503.17	275.40	USGS
Big Bend	717750	3884573	486.60	264.70	Reclamation
Below Needles Bridge	721649	3855318	462.20	243.30	Reclamation
RS41 (below Topock Marsh)	731394	3844023	454.14	233.60	Reclamation
Below Parker Dam (09427500)	763366	3798537	370.45	192.20	USGS
Forebay at Headgate Rock Dam	750315	3783939	362.62	177.70	Reclamation
Parker	748190	3781783	344.00	175.30	Reclamation
Water Wheel	728171	3756367	302.63	151.50	Reclamation
Below Palo Verde Diversion Dam	732289	3732777	267.02	132.70	Reclamation
Taylor Ferry (TFLC)	720531	3701245	231.57	106.40	Reclamation
Lower Cibola Bridge	716492	3676582	208.38	86.90	Reclamation
Below Imperial Dam (09429500)	736985	3640727	180.72	49.20	USGS
Below Laguna Dam (0942600)	732742	3633016	127.06	41.7	USGS
Below Yuma Main Canal Wasteway (09521100)	720849	3623858	113.22	29.50	USGS
Above Rockwood Weir	713707	3622116	106.80	23.10	IBWC
Above Morelos Dam	712976	3620783	105.00	22.10	IBWC
Below Morelos Dam	712939	3620723	100.20	22.11	IBWC
Eleven-mile gage	711163	3616163	92.20	18.80	IBWC

[1] Universal Transverse Mercator, Zone 11 coordinates, North American Datum of 1927.

reevaluated the discharges below dams and streamflow-gaging stations along the river used to establish the water-surface elevations according to the criteria described above (Douglas B. Blatchford, Bureau of Reclamation, written commun., 2007) and produced the discharges in table 1. The water-surface profile of the Colorado River was based on a profile linearly interpolated between streamflow-gaging stations that was provided by Reclamation (Shana G. Tighi, written commun., 2008) that included streamflow data collected at gaging stations operated by Reclamation, USGS, and the International Boundary and Water Commission (IBWC). That profile was modified by additional water-surface elevation measurements made by the USGS. Water-surface measurements were made where the linearly interpolated profile deviated significantly from the profiles used in the previous studies (Wilson and Owen-Joyce, 1994; Owen-Joyce and others, 2000). The water-surface profile of the Colorado River used in the ground-water flow models is shown in figure 3. Data from streamflow-gaging stations and USGS measurements are listed in tables 2 and 3. Tables containing the water-surface elevations in the drainage ditches, the path of the Colorado River in Universal Transverse Mercator (UTM) coordinates, and the digitized surface elevations used to represent the Colorado River south of Eleven-mile gage are in the appendixes (available only online at http://pubs.usgs.gov/sir/2008/5113/appendixes/).

Mohave Valley—The water-surface profile was determined from the stage-discharge relations at four streamflow-gaging stations at river miles 275.4 (Colorado River below Davis Dam), 264.7 (Colorado River at Big Bend), 243.4 (Colorado River below Needles Bridge), and 233.6 (Colorado River near Topock [at RS41]), and the elevation of Lake Havasu.

Parker Valley and Palo Verde Valley—The linearly interpolated profile was based on streamflow-gaging station data at river miles 192.2 (Colorado River below Parker Dam), 177.7 (Colorado River Forebay above Headgate Rock), 175.3 (Colorado River at Parker), 151.5 (Colorado River at Water Wheel), 132.7 (Colorado River below Palo Verde Diversion Dam), 106.4 (Colorado River at Taylor Ferry), and 86.9 (Colorado River at Lower Cibola Bridge) and Reclamation GIS coverages of the extent of the Palo Verde Dam and Headgate Rock Dam forebays (Shana Tighi, Bureau of Reclamation, written commun. 2008). Water-surface elevation measurements were made between

Table 3. Colorado River water-surface elevation measurements used to define the water-surface elevation used in the ground-water flow models.

River mile	UTM Coordinates[1], in meters		Elevation, in feet
	Easting	Northing	
191.74	763447	3798135	368.3
190.77	763714	3796614	367.1
189.00	763681	3794281	362.2
188.56	763001	3794254	365.1
187.31	761528	3793982	365.0
186.14	760340	3793027	364.9
184.34	758613	3790855	365.2
182.92	757106	3789138	365.0
181.33	755824	3787245	364.8
179.68	754201	3785508	364.8
178.07	752000	3784263	365.0
47.86	736669	3639365	156.2
47.72	736624	3639178	150.8
46.81	736281	3638125	150.8
44.43	735168	3635338	150.8
40.98	731882	3631582	[2]122.9
38.47	731591	3627923	[2]121.3
35.93	731039	3624107	[2]119.8
34.46	729226	3622800	[2]118.6
34.31	728990	3622783	[2]118.4
33.39	727531	3622993	[2]117.7
31.55	724802	3623457	[2]114.7
31.41	724567	3623385	[2]114.8
30.98	723908	3623357	[2]114.1
29.70	721982	3623768	[3]112.0
28.88	720667	3623899	[3]111.1
28.20	719580	3623936	[3]110.1
26.69	717318	3624355	[3]108.5
25.83	716056	3624828	[3]107.7

[1] Universal Transverse Mercator, Zone 11 coordinates, North American Datum of 1927.

[2] These elevations were increased by 0.8 ft for use in the ground-water model to account for difference in discharge specified for the accounting surface and the discharge during the stage measurements. See the section *Yuma Area* for further explanation.

[3] These elevations were increased by 1.2 ft for use in the ground-water model to account for difference in discharge specified for the accounting surface and the discharge during the stage measurements. See the section *Yuma Area* for further explanation.

Parker Dam and Headgate Rock Dam during this study because the interpolated profile showed the forebay behind Headgate Rock Dam extending upstream to around river mile 189, whereas the earlier profile had a sloping water surface, resulting in higher water-surface elevations. The measurements supported the extent of the forebay represented in the interpolated profile.

Above Imperial Dam to Laguna Dam—The linearly interpolated profile was based on a streamflow-gaging station at river mile 49.2 (Colorado River below Imperial Dam) and Reclamation GIS coverages of the Imperial and Laguna Dam forebays. Water-surface elevation measurements were made above Imperial Dam and showed that the linearly interpolated profile overestimates the extent of the forebay. The measurements, which show a sloping water surface, were used in the ground-water model. The measurements were made at a discharge of about 6,000 ft^3/s, whereas the discharge specified for the accounting surface in this reach was 10,222 ft^3/s. Stage-discharge relations were not available for this reach and a correction for the difference between the two discharges was not made. Water-surface measurements made between Imperial Dam and Laguna Dam supported the linearly interpolated profile drawn from the Reclamation GIS coverage of the Laguna Dam forebay.

Yuma area—The following six streamflow-gaging stations were used for this reach: Colorado River below Laguna Dam, below Yuma Main Canal Wasteway, above Rockwood Weir at the NIB (International Boundary and Water Commission (IBWC) 095-219.00), immediately above Morelos Dam (IBWC 09-5220.21), immediately below Morelos Dam (IBWC 09-5220.41), and at Eleven-mile gage (IBWC 09-5221.00). The previous water-surface profile (Owen-Joyce and others, 2000) showed considerable variability in the water-surface profile between Laguna and Morelos Dams that was not represented by the linearly interpolated profile, so water-surface elevation measurements were made in this reach. The measurements were made at lower discharges than specified for the updated accounting surface. Corrections to water-surface elevations that account for the differences in discharge were estimated from the stage-discharge rating curves at the below Laguna Dam streamflow-gaging station and the below Yuma Main Canal Wasteway streamflow-gaging station. Between Laguna Dam and the below Yuma Main Canal Wasteway streamflow-gaging station, the updated accounting surface discharge was 716 ft^3/s, whereas the discharge measured during the water-surface elevation measurements was 440 ft^3/s. The water-surface profile between Laguna Dam and the below Yuma Main Canal Wasteway streamflow-gaging station was defined in the ground-water model by the measurements plus a correction of 0.8 ft, based on the stage-discharge rating curve at the below Laguna Dam streamflow-gaging station. In the reach between the below Yuma Main Canal Wasteway streamflow-gaging station and Morelos Dam, the discharge specified for the updated accounting surface was 1,526 ft^3/s. The discharges measured during the water-surface elevation measurements were 670 and 778 ft^3/s. The water-surface profile between the below Yuma Main Canal Wasteway streamflow-gaging station and the above Rockwood Weir streamflow-gaging

station was defined in the ground-water model by the measurements plus a correction of 1.2 ft, based on the stage-discharge rating curve at the below Yuma Main Canal Wasteway streamflow-gaging station and the average of the measured discharges in that reach. An analysis of streamflow-gaging station records by Jeffrey C. Addiego (Bureau of Reclamation, written commun., 2008) provided the water-surface elevation at the above Rockwood Weir streamflow-gaging station. Just above and below Morelos Dam and at the Eleven-mile gage (at river mile 18.8), the average monthly high stages at the IBWC streamflow-gaging stations were used to establish the water-surface elevations. Below Eleven-mile gage, the land surface digitized along the path of the Colorado River was used as the water-surface boundary condition in the ground-water flow model.

Drainage Ditch Reaches

Along reaches of the Colorado River where water is diverted for irrigation on the flood plain, drainage ditches intercept return flow to the river and the river gains water from the aquifer. In these reaches, the accounting surface is defined by using the water-surface elevation in the drainage ditches along the edge of the flood plain. Flood-plain irrigation with diverted Colorado River water causes a higher ground-water level under the flood plain because irrigation water not consumptively used by crops percolates down to the water table and causes the water table to rise. There is a constant flow of irrigation with diverted river water, percolation to the drainage ditches or river, and flow in the drainage ditches to the river. Interception of the percolated irrigation water by a network of drainage ditches connected to the Colorado River keeps the water table from rising up into the root zone and this level is higher than it would be if controlled by the river. Because water in the drainage ditches is considered Colorado River water for accounting surface purposes, it warrants the same level of protection from depletion without an entitlement as water in the Colorado River and stored in reservoirs. Where drainage ditches intercept percolated irrigation water, the water-surface elevations in the drainage ditches were used to define the accounting surface. Drainage ditches along the edge of the flood plain could not be used in the Yuma area because the elevation of the water surface is controlled mainly by recharge from the unlined canals that are above the flood-plain elevation and run parallel to the edge of the flood plain rather than by percolation from irrigation on the flood plain. Water-surface elevations in the drainage ditches were determined from USGS measurements in 2007 and 2008.

Ground-Water Flow Models

In the previous studies, the accounting surface was hand-drawn using hydrologic judgment to extend water-surface elevations into the river aquifer based on the shape of the river aquifer. This study refines that procedure by using simple physically based steady-state numerical models to calculate the updated accounting surface.

The river aquifer was represented as a single model layer of uniform aquifer thickness and spatially invariant or constant transmissivity. Because transmissivity is the product of the aquifer thickness and hydraulic conductivity, hydraulic conductivity in the model also is constant. With the assumption of a spatially invariant or constant transmissivity throughout the model domain, the governing equation of steady-state flow in two dimensions is:

$$\frac{\partial^2 h}{\partial x^2} + \frac{\partial^2 h}{\partial y^2} = 0 \qquad (1)$$

where h is hydraulic head and x and y represent Cartesian coordinates along orthogonal axes. Aquifer thickness and conductivity are not present in equation 1; the distribution of heads in the modeled river aquifer depends only on the aquifer boundaries and the specified water-surface elevations in the drainage ditches in the flood plain and in the Colorado River. Flow rates through the aquifer would depend on the aquifer transmissivity, but flow rates are not considered in this study.

The river aquifer adjacent to the Colorado River is unconfined. The assumption of constant transmissivity neglects spatial variations in transmissivity that would arise from the spatial variations in the vertical position of the water table. The assumption also neglects variations in transmissivity that occur from variations in the vertical position of the aquifer bottom as well as spatial variations in hydraulic conductivity. A more rigorous approach would be to use the nonlinear Boussinesq equation instead of the simpler linear Laplace equation (equation 1). That approach, however, would have required unavailable information on aquifer geometry and hydraulic properties. Use of equation 1 is in keeping with a long history in the field of ground-water hydrology of using simple linear equations with the assumption of homogeneous properties to approximate ground-water conditions and responses and is consistent with the overall parsimonious approach taken in the concept, definition, and application of an accounting surface.

The accounting surface in the four areas was modeled with MODFLOW 2000 (Harbaugh and others, 2000) using the water-surface elevations in the Colorado River and drainage ditches as constant-head boundaries. The grid spacing in the models was 0.25 mi along model rows and columns. General characteristics of the model grids are given in table 4 and the extent of the model grids is shown in figure 1. The path and distribution of Colorado River and drainage ditch water-surface elevations were established on the model grids using the RIVGRID program (Leake and Claar, 1999). The water-surface elevations defined by RIVGRID were then incorporated into the models as nodes with a constant head.

Areas of the river aquifer adjacent to the Colorado River for which the accounting surface was modeled include (1) Mohave Valley; (2) Parker, Palo Verde, and Cibola Valleys; (3) Imperial Dam to Laguna Dam; and (4) the Yuma area. Each area was modeled with a single horizontal layer of cells of thickness 500 ft and hydraulic conductivity 39.2 ft/day; however, as pointed out in the discussion of equation 1, the model predictions of the accounting surface are independent of thickness and hydraulic

conductivity. Tests were carried out by varying hydraulic conductivity and thickness to verify that computed head distributions were independent of these parameters. Rows and columns of the model grids were oriented in east-west and north-south directions in the UTM, Zone 11, coordinate system.

Updated Accounting Surface

The accounting surface around reservoirs was updated using a reservoir elevation. The accounting surface is set at its maximum possible level of 1,205.4 ft in the river aquifer around Lake Mead (fig. 4 and plate 1) and has not changed from the original accounting surface. The accounting surface is set at 644.0 ft in the river aquifer around Lake Mohave (fig. 5 and plate 1), and at 448.7 ft in the river aquifer around Lake Havasu (fig. 5 and plate 2), the current high monthly target elevations for these reservoirs. These elevations are slightly different from the high monthly target elevation used for the original accounting surface. In the river aquifer between the major reservoirs, ground-water flow models with boundary conditions set by Colorado River and drainage ditch water-surface elevations were used to contour the accounting surface. The models computed water-level elevations over the entire river aquifer; however, only contours in the river aquifer where the accounting surface exists are shown for modeled areas (figs. 4–7 and plates 1–3). The updated accounting surface is shown on maps for Mohave Valley and adjacent tributary areas (fig. 5 and plate 2); for Parker, Palo Verde, and Cibola Valleys and adjacent tributary areas (fig. 6 and plate 2); and for the Yuma area upstream and downstream from Laguna Dam and adjacent tributary areas (fig. 7 and plate 3). The model grid in the Yuma area extends to the south of the accounting surface, but only contours in the area with the accounting surface are shown.

Summary

An update of the accounting surface developed in the 1990s to identify wells outside the flood plain of the lower Colorado River that yield water that will be replaced by water from the river was required as a result of changes in the ground and surface water systems and a datum correction to the water surface elevations in drainage ditches. The updated accounting surface will be used to identify which wells need an entitlement for diversion of water from the Colorado River and need to be included in accounting for consumptive use of Colorado River water as outlined in the Consolidated Decree of the United States Supreme Court in Arizona v. California, 547 U.S.150 (2006). Contours of the original accounting surface were hand drawn based on the shape of the aquifer, water-surface elevations in the Colorado River and drainage ditches, and hydrologic judgment.

The original accounting surface was updated based on updated water-surface elevations in the Colorado River and drainage ditches, and the use of a simple, physically based ground-water flow model to calculate the accounting surface. The water-surface elevation of the Colorado River was determined for discharges specified by Reclamation. The water-surface elevations were derived from a linearly interpolated profile between USGS and Reclamation streamflow-gaging stations and supplemented by IBWC streamflow-gaging stations downstream from the northerly international boundary with Mexico. In addition, water-surface elevations were measured where the linearly interpolated profile deviated significantly from the water-surface profile used to develop the original accounting surface. The USGS also measured water-surface elevations in drainage ditches in the Parker, Palo Verde, and Cibola Valleys.

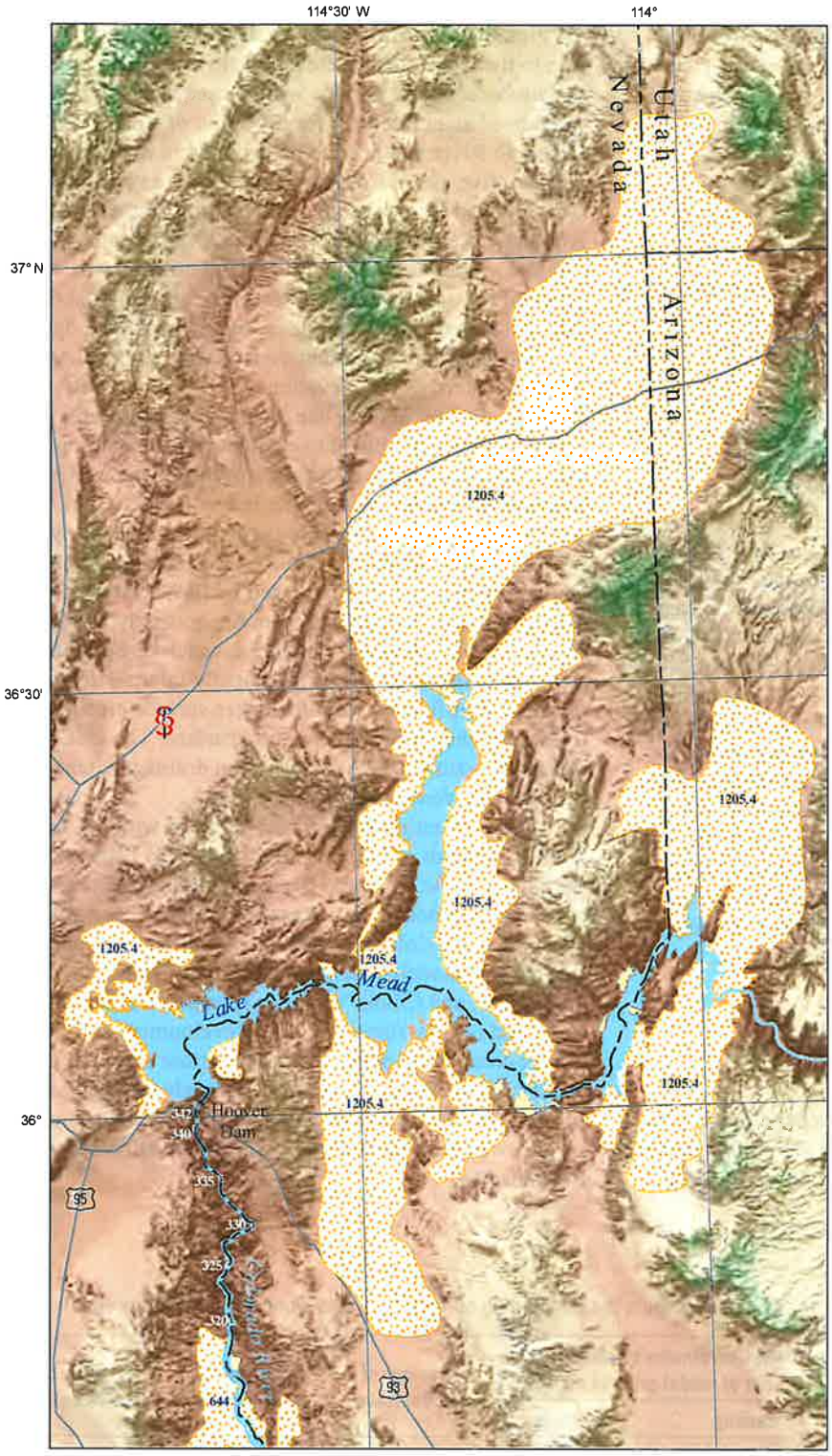
The accounting surface was modeled with MODFLOW 2000 (Harbaugh and others, 2000) using the water-surface elevations in the Colorado River and drainage ditches as constant-head boundaries. Reaches of the river aquifer adjacent to the Colorado River for which the accounting surface was modeled include (1) Mohave Valley, (2) Parker, Palo Verde, and Cibola Valleys, (3) Imperial Dam to Laguna Dam, and (4) the Yuma area. The development and application of computer models will make further updating of the accounting surface, if necessary, a straightforward task. In the river aquifer adjacent to reservoirs, the accounting surface was determined by a reservoir elevation specified by Reclamation.

Table 4. Properties of ground-water flow models used to compute the accounting surface for areas along the lower Colorado River.

Area modeled	UTM Coordinates of northwest corner of model grid[1], in meters		Number of model rows	Number of model columns	Number of active cells[2]
	Easting	Northing			
Mohave Valley	706260.7	3897829.0	160	139	13,264
Parker, Palo Verde, and Cibola Valleys	636449.1	3797916.0	329	388	87,176
Imperial Dam to Laguna Dam	730975.8	3672261.3	103	88	4,702
Yuma Area	640414.6	3691950.0	511	340	69,814

[1] Universal Transverse Mercator, Zone 11 coordinates, North American Datum of 1927.

[2] Includes cells with computed head and constant-head cells used to represent water-surface features.



Explanation

315 E River mile

1205.4 Area of river aquifer around reservoirs – number is the elevation of the accounting surface, in feet.

0 4 8 Miles

Base from U.S. Geological Survey digital data, 1:100,000. 1982. Universal Transverse Mercator projection, Zone 11, Datum NAD27, National Vertical Geodetic Datum of 1929.

Figure 4. Map showing the accounting surface in the areas surrounding Lake Mead, Arizona, Utah, and Nevada.

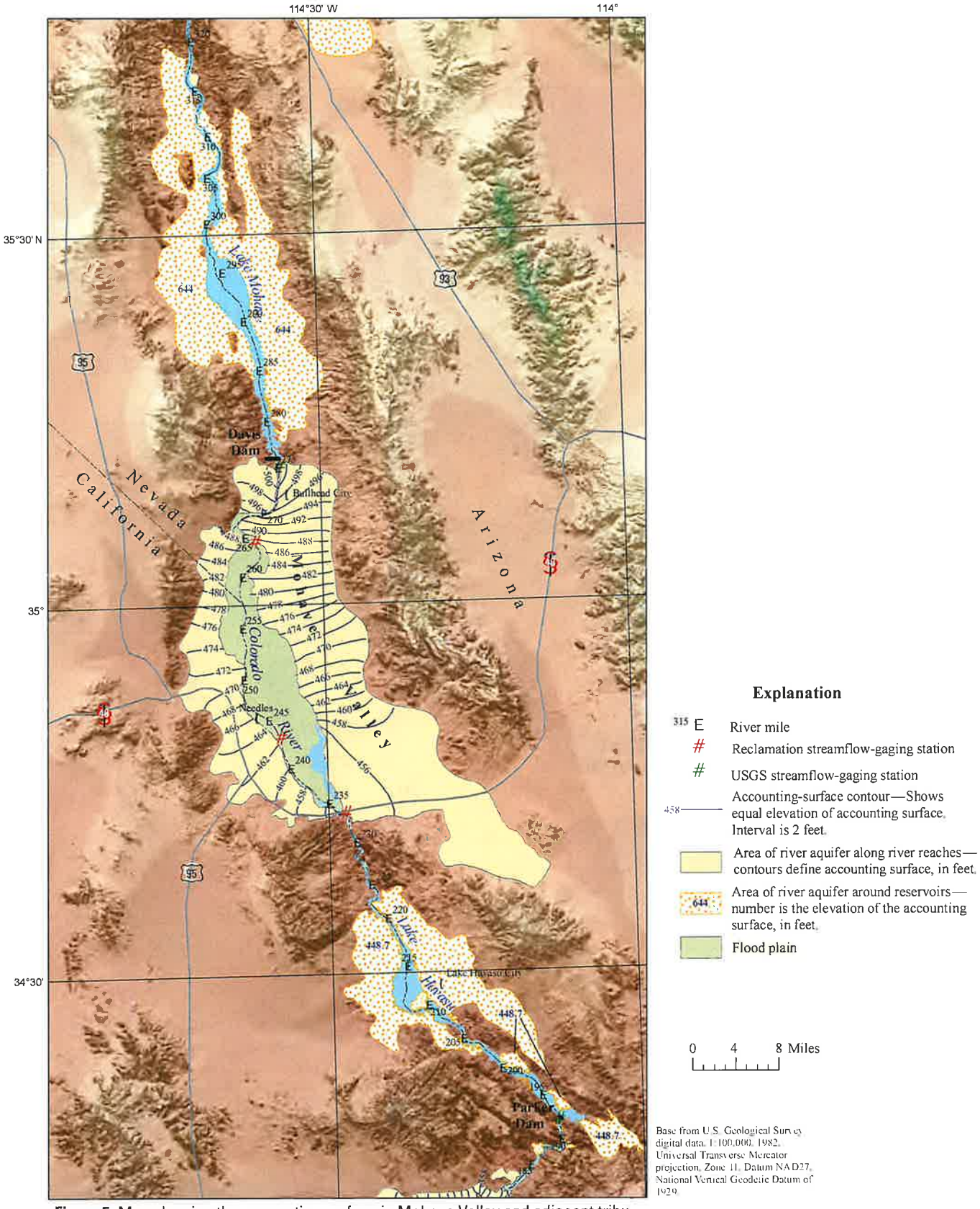
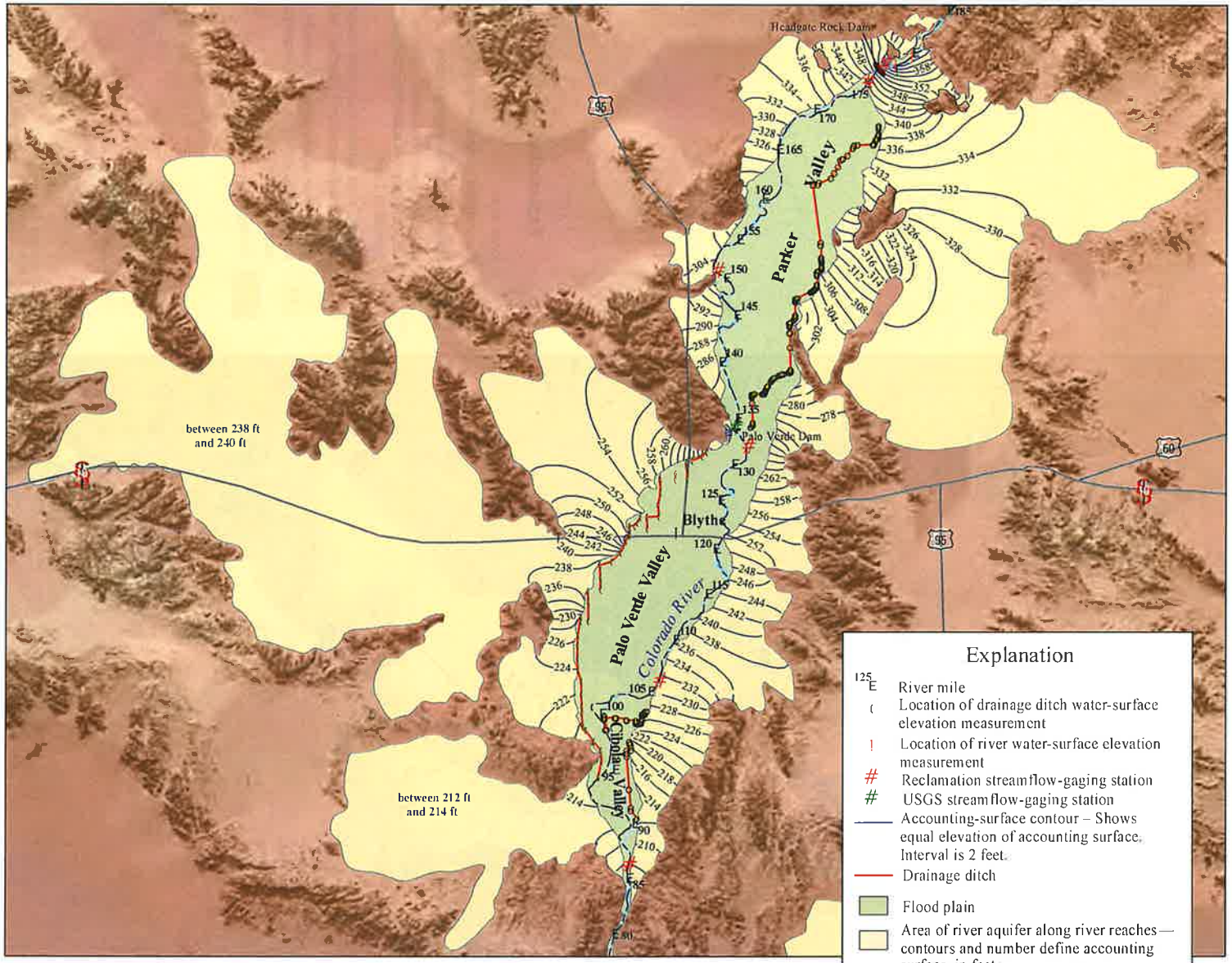


Figure 5. Map showing the accounting surface in Mohave Valley and adjacent tributary areas in Arizona, California, and Nevada.



Base from U.S. Geological Survey digital data, 1:100,000, 1982, Universal Transverse Mercator projection, Zone 11, Datum NAD27, National Vertical Geodetic Datum of 1929.

Figure 6. Map showing the accounting surface in Parker, Palo Verde, and Cibola Valleys and adjacent tributary areas in Arizona and California.

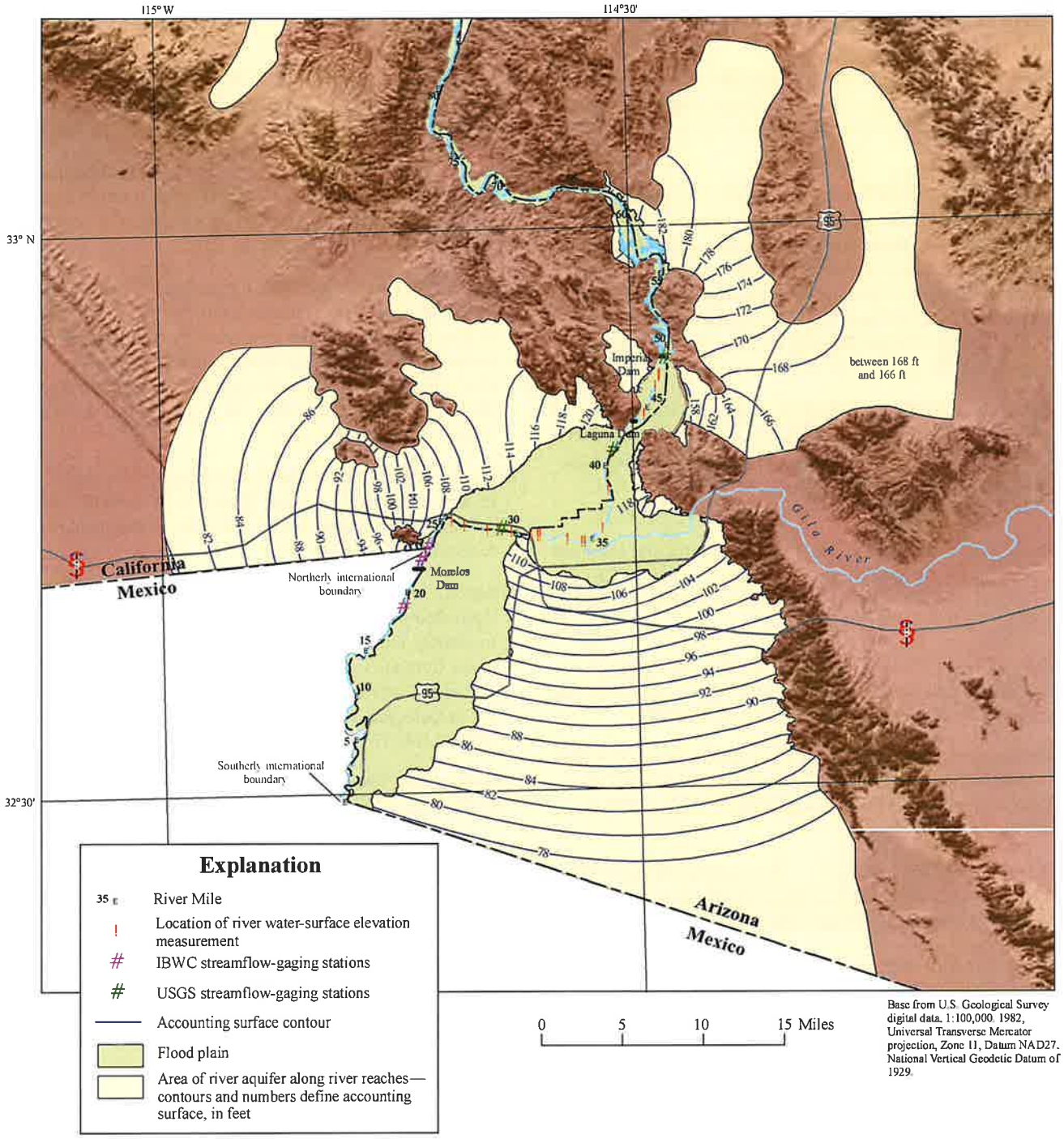


Figure 7. Map showing the accounting surface in the Yuma area upstream and downstream from Laguna Dam and adjacent tributary areas in Arizona and California.

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Exhibit B

January 20, 2023

Sent via email (with attachments by electronic file transfer)

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Re: Comments on IS21-0029 SMP Gold Corp (Oro Cruz) Reclamation Plan #21-0001, a Mineral Exploration Project (SCH No. 2022120331) Environmental Assessment and Mitigated Negative Declaration

Dear Mr. Abraham:

These comments are submitted on the IS21-0029 SMP Gold Corp (Oro Cruz) Reclamation Plan #21-0001 Mineral Exploration Project (SCH No. 2022120331) ("Project") from Center for Biological Diversity, Western Watersheds Project, Earthworks, the Sierra Club California/Nevada Desert Committee, Conservation Lands Foundation, Greenaction for Health and Environmental Justice, Mojave Desert Land Trust, California Native Plant Society, and the Ahmut Pipa Foundation (collectively "Conservation Organizations"). These comments supplement and incorporate by reference our previous comments (dated December 16, 2022) on BLM's Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) and proposal to approve the Plan of Operations for the SMP Gold Corp. These comments were sent to the County and are also attached as Exhibit 1. The Conservation Organizations have reviewed the Environmental Assessment and Mitigated Negative Declaration ("EA/MND") and associated environmental review documents closely and are concerned that Imperial County ("County") has failed to adequately disclose, analyze, and mitigate the Project's significant environmental impacts as required under the California Environmental Quality Act, Public Resources Code section 21000 et seq. ("CEQA") and 14 California Code of Regulations section 15000 et seq. ("CEQA Guidelines"). The Conservation Organizations urge the County to prepare and circulate an Environmental Impact Report ("EIR") for the Project prior to taking any further action on the Project application.

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I. The County Must Prepare an EIR for the Project.

CEQA was enacted for the state to "take all action necessary to protect, rehabilitate, and enhance the environmental quality of the state" and to "[e]nsure that the long-term protection of the environment . . . shall be the guiding criterion in public decisions." (Pub. Res. Code § 21001.) The CEQA Guidelines state that "CEQA was intended to be interpreted in such a manner as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language," and that "[t]he purpose of CEQA is . . . to compel government at all levels to make decisions with environmental consequences in mind." (CEQA Guidelines § 15003.) CEQA is an information document and, as such, "requires full environmental disclosure." (*Communities for a Better Environment v. City of Richmond* (2010) 184 Cal.App.4th 70, 89.)

Only when "there is no substantial evidence in light of the whole record before the public agency that the project . . . may have a significant effect on the environment" may an agency prepare a negative declaration or mitigated negative declaration instead of an EIR. (Pub. Res. Code § 21064.5; *see also id.* §§ 21064, 21080(c).) A mitigated negative declaration, in particular, is prepared "when the initial study has identified potentially significant effects on the environment, but . . . revisions in the project plans or proposals . . . would avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur" and there is no substantial evidence the project may have a significant effect on the environment. (*Id.* § 20164.5.) If there is substantial evidence that a project may have a significant effect on the environment, an agency must prepare an EIR. (*Id.* § 21080(d).)

If an agency is presented with so much as "a fair argument that a project may have a significant effect on the environment, the lead agency shall prepare an EIR even though it may also be presented with other substantial evidence that the project will not have a significant effect." (CEQA Guidelines § 15064(f)(1); *see also No Oil, Inc. v. Los Angeles* (1974) 13 Cal.3d 68, 75.)

The CEQA Guidelines provide guidance for determining if a project's effects are significant. Such a determination "calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data" and a "consider[ation of] the views held by members of the public in all areas affected." (*Id.* § 15064(b)-(c).) The lead agency must consider both direct and indirect physical changes in the environment caused by the project. (*Id.* § 15064(d).)

CEQA also requires consideration of cumulative impacts. An EIR is required "if the cumulative impact may be significant and the project's incremental effect, though individually limited, is cumulatively considerable . . . when viewed in connection with the effects of past projects, the effects of other current project, and the effects of probable future projects." (*Id.* § 15064(h)(1).) Cumulatively considerable environmental effects require a mandatory finding of significance. (*Id.* § 15065(a)(3).)

CEQA also has a substantive mandate and requires effective mitigation. "[P]ublic agencies should not approve projects as proposed if there are feasible alternatives or feasible

mitigation measures available which would substantially lessen the significant environmental effects of such projects." (Pub. Res. Code § 21002.) CEQA requires mitigation measures to be "fully enforceable through permit conditions, agreements, or other measures." (*See id.* § 21081.6(b); CEQA Guidelines § 15126.4(a)(2).) "Formulation of mitigation measures should not be deferred until some future time." (CEQA Guidelines § 15126.4(a)(1)(B).)

The Project's impacts on biological resources, air quality and greenhouse emissions, energy, water supply, cultural resources and numerous other factors are readily apparent given the type, location and scale of the project. Any one of these factors alone is sufficient to warrant preparation of an EIR.

II. The EA/MND Lacks an Adequate Analysis of and Mitigation for the Project's Impacts to Biological Resources

The EA/MND lacks adequate detail in the description and analysis of special-status species that occur, have the potential to occur, or historically occurred in and near the Project area. Below we provide just a few illustrative examples of the EA/MND's shortcomings in this respect, though this is not a comprehensive list. The below information provides ample support of a fair argument that the project may have a significant effect on the environment. Accordingly, the County must prepare an EIR. (CEQA Guidelines § 15064(f)(1); *see also No Oil, Inc. v. Los Angeles* (1974) 13 Cal.3d 68, 75.)

A. Desert Tortoise Are a Special Status Species, the Impacts to Which are Presumed to be Significant.

The CEQA Guidelines indicate that a Project can be expected to have significant impacts to biological resources if the Project has a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service. (CEQA Guidelines, Appendix G, subd. IV(a).) Accordingly, the EA/MND itself indicates that the Project's impacts will be significant if it will "have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate . . . species . . . by the California Department of Fish and Game." (EA/MND at 102[1]; see also CEQA Guidelines § 15065(a)(1) [when performing an initial study, agencies shall make a mandatory finding of significance where a proposed project has the potential to substantially reduce the number or restrict the range of a listed species], California Fish and Game Code § 2085 [CESA candidate species treated like threatened or endangered species].)

The Mojave Desert Tortoise is listed as threatened under the Endangered Species Act and California Endangered Species Act ("CESA"). (55 Fed. Reg. 12178 12191, 14 CCR § 670.5.) The tortoise has been the official State Reptile since 1972. (Assembly Bill 1089, Chapter 683, 1972.) In addition, on October 14, 2020, the California Fish and Game Commission ("CFGC") advanced the Mojave Desert Tortoise to candidacy to uplist it from threatened to endangered

[1] The EA/MND posted on CEQANet was not paginated. Citations to the EA/MND in this comment letter refer to the PDF page number.

under CESA, protecting these imperiled species from harm during the ongoing review process. (CFGC 2020.) Consequently, the Project's impacts to the desert tortoise must be considered significant and fully evaluated and disclosed to the public. (*Nelson v. Cnty. of Kern* (2010) 190 Cal.App.4th 252, 284 [information before County showing that mining exploration project could significantly impact plant and animal life in the area meets the fair argument test to require preparation of an EIR.].)

Desert tortoise are on the decline throughout their range, including in Imperial County (Allison and McLuckie 2018). In this area, the desert tortoise are part of the most southern population in California, where they endure the most arid and hottest habitat in California. As noted in our attached comments on the NEPA document, "the Picacho Area of Environmental Concern (ACEC) was established in part to conserve the declining Mojave desert tortoise." (Exhibit 1 at p. 21; BLM 2016.)

With active burrows and tortoise sign found in some of the drill areas (EA at 98), it is incumbent that these animals be protected from any harms. The EA/MND assumes that any impacts will be mitigated to less-than-significant levels with the avoidance, minimization and mitigation measures outlined in Appendix F, Table F-3. The proposed measures are wholly inadequate to protect the on-site desert tortoise. Accordingly, the Project's impacts will remain significant and should be considered in an EIR. In that analysis the County must consider adoption of the following additional feasible mitigation measures at minimum:

- Commit to secure an "incidental take permit" from the California Department of Fish and Wildlife, in addition to the Federal "take" permit, prior to any groundbreaking activities;
- Preconstruction surveys prior to the proposed project implementation;
- On-site biological monitor during project implementation who has wildlife agency permits to move desert tortoise out of harm's way;
- Fencing of all worksites, roads and other areas of disturbance associated with the proposed project;
- A detailed raven plan that effectively discourages ravens from being drawn to the site during proposed project implementation as well as during the restoration efforts and fencing removal.

B. The EA/MND Does Not Adequately Describe the Environmental Baseline for Various Other Species.

The EA/MND fails to provide adequate baseline information and description of the environmental setting for species other than the desert tortoise. This deficiency extends to the EA/MND's treatment of rare plants, animals, and communities. For some species or habitats baseline conditions are lacking or totally absent and as a result no impact assessment is provided for these biological resources. The failure to address numerous species may be the result of inadequate surveys.

1. Flat-tailed horned lizard and Colorado fringe-toed lizard

The EA/MND (at 79) states that surveyors found small sand patches in the western edge of the area of analysis during March 2021 plant surveys. The Plan of Operations states that loose sandy soils are present in the project area. Sandy soils are the preferred habitat for the imperiled flat-tailed horned lizard *Phrynosoma mccallii* and the Colorado Desert fringe-toed lizard (*Uma notata*), both of which are State Species of Special Concern (Thompson 2016). These reptile species may have been dormant in underground burrows or inactive during the surveys which were performed in March 2021. California Department of Wildlife's recommendations for managing the flat-tailed horned lizard include "limit[ing] habitat disturbance and destruction. Development that leads to habitat conversion or fragmentation should be avoided or limited in … habitat." (*Ibid.*) For the Colorado Desert fringe-toed lizard, "[p]rotecting sand dune habitat from the impact of off-highway vehicle use" is a key management strategy. (*Ibid.*) Implementing these management strategies will help minimize impacts to these lizards and need to be included in the MND. Creation of new roads in this area as part of the proposed Project is of concern because it could further fragment habitat and provide new access for off-highway vehicles. Additionally, the avoidance and minimization measures for desert tortoise may benefit these lizards, but additional analysis and avoidance measure need to be put in place to avoid lizard impacts.

2. Golden Eagles

As per our comments on the EA, it is imperative that the County conduct golden eagle nest surveys and discuss compliance with all the federal and state requirements for eagles in detail.

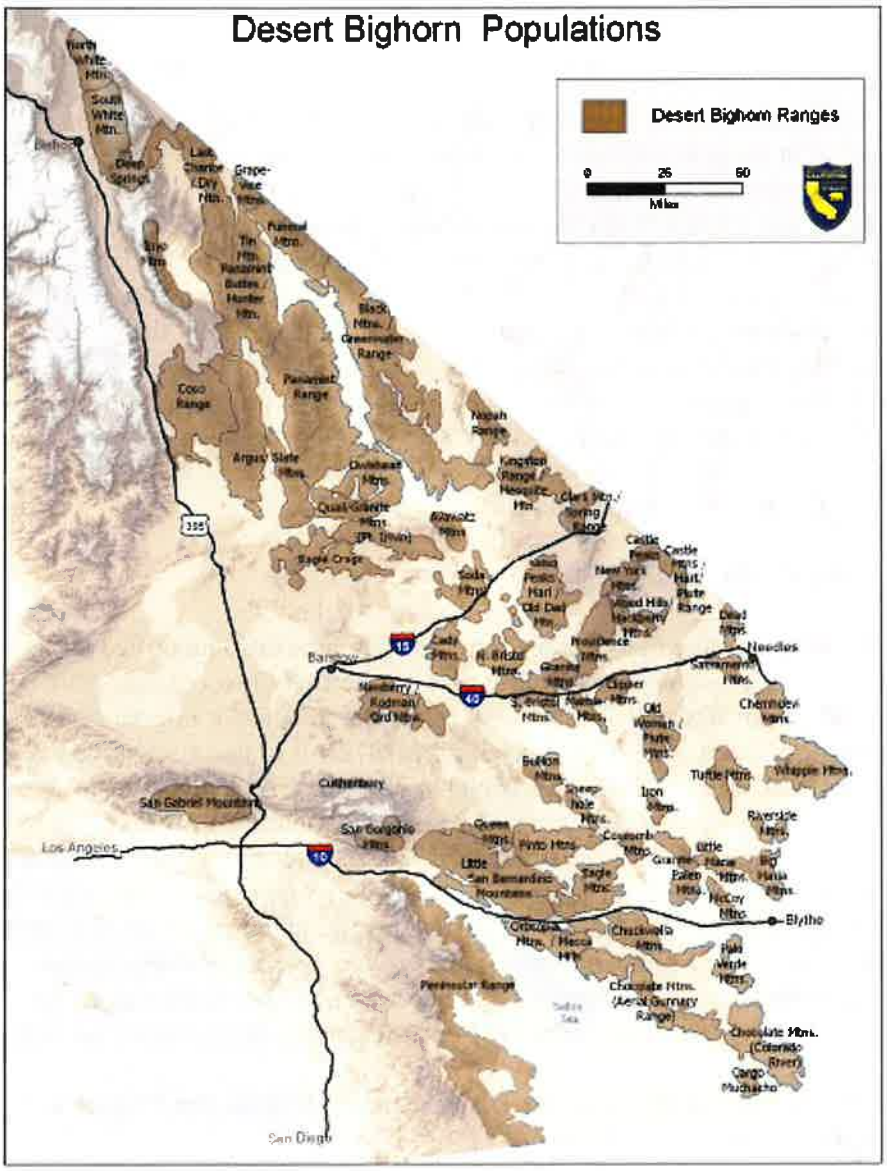
3. Le Conte's Thrasher

The California Natural Diversity Database (2023) documents that the Le Conte's thrasher (*Toxostoma lecontei*), a California Species of Special Concern, is present in the general proposed project area. These very shy, non-migratory birds are easily disturbed and known to be "[o]ften exceptionally wary of humans; vulnerable to off-road vehicle activity, other disturbance, and removal of shrubs for agricultural or other development." (CDFW 2005). These birds have been known to be declining for years. (CDFW 2005). The MND must include the results of targeted surveys for Le Conte's thrasher. Based on the outcome of the surveys the MND must be updated to include the outcome of the surveys and the analysis of impacts from the proposed action.

4. Desert Bighorn Sheep

Desert bighorn sheep (see map below) historically occupied the Cargo Muchacho Mountains. California Department of Fish and Wildlife is repatriating desert bighorn to various ranges throughout their historic range. While the Cargo Muchachos are not currently being repatriated, the impact to habitat from the exploratory drilling must be analyzed in the context of impacts to future desert bighorn repatriation. Desert bighorn are a "fully protected" species under California law.

(continued on next page…)



Map of Desert Bighorn Sheep Habitat – CDFW n.d.

5. Bats

While three bat species were identified definitively in the EA/MND and an additional species was speculated, the California Natural Diversity Database (2023) has one record of the western mastiff bat (*Eumops perotis californicus*) occurring in the general area of the proposed project. All these bat species are State Species of Special Concern. These findings collectively also indicate a high level of diversity of bats in the localized area. Additional surveys need to be conducted during the appropriate time of year to evaluate the presence of important roosting sites, including maternity roosts for these species that have that life history requirement, and provide an analysis of potential impacts to these species from the proposed project.

6. Rare Plants

According to the California Natural Diversity Data base (2023), two additional rare plants have been documented in the general area of the proposed project area. These include the pink fairy-duster (*Calliandra eriophylla*) CRPR 2.3, which is not analyzed despite the EA/MND's acknowledgment that it has a "high likelihood" of occurrence, and the glandular ditaxis (*Ditaxis claryana*) CRPR 2.2, which also is not analyzed despite the EA/MND's acknowledgment that it may occur on site. (EA/MND at 302.) These species, in addition to the plants analyzed in the EA/MND, are tracked by the State of California because of their rarity/threats. As such, the MND is inadequate because it failed to target these species in the appropriately timed botanical surveys and failed to provide a full floral inventory of the species identified on site. Absent adequate surveys, the EA/MND lacks evidence showing that the Project will not impact these rare plants. Since evidence exists supporting a fair argument that there may be an impact, the County must prepare an EIR.

7. Rare Plant Communities

The EA/MND identifies the Blue Palo Verde-Ironwood Alliance (also identified by its scientific name *Parkinsonia florida—Olneya tesota* alliance) as microphyll woodlands existing on-site. (EA/MND at 78.) Microphyll woodlands are very important habitat for migratory bird species as well as desert tortoise. (Audubon 2019; Luckenbach 1972.) It is also a sensitive plant community identified by the State of California. (EA/MND at 78.) The EA/MND mapped microphyll woodlands to cover 2 percent of the proposed project area, but the Conservation Biology Institute mapping – which was contracted by federal and state agencies for the Desert Renewable Energy Conservation Plan (DRECP) – mapped a much greater extent of microphyll woodlands than the MND identifies. (Databasin 2014.) A site-specific mapping of the microphyll woodlands (aka Blue Palo Verde- Ironwood Alliance or *Parkinsonia florida—Olneya tesota* alliance) must be done. Since evidence exists supporting a fair argument that there may be an impact to the microphyll woodlands identified in the DRECP, the County must prepare an EIR.

III. The EA/MND Fails to Adequately Analyze, Disclose, and Mitigate the Project's Significant Adverse Air Quality Impacts.

The EA/MND's evaluation of the Project's air quality impacts is flawed. It fails to disclose and study the Project's full suite of air quality impacts and fails to adopt all feasible mitigation measures to mitigate those impacts. (*See* EA/MND Sec. 3.3.5.) The County must require an EIR to adequately analyze the Project's air quality impacts, acknowledge their significance, and consider and adopt feasible mitigation to reduce those impacts.

A. This Project would add extractive development to a region already suffering from poor air quality.

Air quality is a significant environmental and public health concern in California. Unhealthy, polluted air contributes to and exacerbates many diseases and increases mortality rates. The U.S. government estimates that between 10-12 percent of total health costs can be

attributed to air pollution. (VCAPCD 2003.) Many plants and trees, including agricultural crops, are also injured by air pollutants. This damage ranges from decreases in productivity, a weakened ability to survive drought and pests, to direct mortality. (*Id.*) Terrestrial wildlife is also affected by air pollution as the plants and trees that constitute their habitats are weakened or killed. Aquatic species and habitats are also affected by air pollution through the formation of acid rain that raises the pH level in oceans, rivers and lakes. Greenhouse gases, such as the air pollutant carbon dioxide which is released by fossil fuel combustion, contribute directly to human-induced climate change (EPA 2016), and in a positive feedback loop, poor air quality that contributes to climate change will in turn worsen the impacts of climate change and attendant air pollution. (BAAQMD 2016.)

According to the American Lung Association's 2022 "State of the Air" report, Imperial County has a "Fail" grade for both year-round ozone and particulate matter pollution, under both the 24-hour and annual metrics. (*Id.*) Ozone (commonly referred to as smog) is created by the atmospheric mixing of gases from fossil fuel combustion and other volatile organic compounds and sunlight. Although it is invisible, ozone poses one of the greatest health risks, prompting the EPA to strengthen its National Ambient Air Quality Standard for Ozone in 2015. (ALA 2022.) $PM_{2.5}$ is a common component of vehicle exhaust emissions and contributes to visible air pollution. These tiny participles are dangerous because they are small enough to escape our body's natural defenses and enter the blood stream.

Fugitive dust is the term used to describe the fine particulate matter – $PM_{2.5}$ and PM_{10} – that results from ground disturbance, such as construction, road-building operations, or mining. Fugitive dust can impede breathing and cause respiratory irritation, cough, airway obstruction and poor lung function. (Blodgett 2004.) Chronic or long-term exposure can lead to lung inflammation, bronchitis and emphysema and produce a severe lung disease known as silicosis, a form of pulmonary fibrosis. (Hnizdo 2003.) Fugitive dust emissions would result from project operations. (EA/MND at Sec. 3.3.3.)

B. By Excluding Stationary Source Emissions, the Project Improperly Underestimates the Project's Air Quality Emissions

Although the EA/MND purports to evaluate whether the Project would emit criteria pollutants for which the region is in nonattainment status, it fails to analyze the Project's *total* emissions. (EA/MND at Sec. 3.3.5(b).) The EA/MND's air quality analysis inexplicably omits the Project's stationary source emissions and concludes, based on mobile sources alone, that the Project will have less-than-significant impacts. (*Ibid.*)

The EA/MND does not define what is included under the umbrella term "stationary source." It appears to refer to the Imperial County Air Pollution Control District (ICAPCD) rules, which define stationary source to encompass "any building, structure, facility, Equipment, or Emissions Unit which emits or may emit any Affected Pollutant directly or as a Fugitive Emission." (ICAPCD Rule 207.) The County's definition appear to include the wide-range of on-site activities, including the drill rigs, generators, and construction. Even comparing the emissions calculations in Appendix E to the disclosed mobile source emissions in EA/MND Section 3.3.5(b), "stationary sources" appear to be the main driver of the Project's air quality

impacts. (See Appendix E.) When the Project's total emissions are calculated, they well exceed the County's thresholds of significance. Yet nowhere does the EA/MND analyze or make a significance finding for total Project emissions. This obscures the Project's true impacts.

The EA/MND claims it need not analyze the emissions from stationary sources because stationary source emissions are "already subject to mitigation" under the air district rules, specifically ICAPCD Rule 207. This reasoning ignores the clear requirements in the ICAPCD CEQA Handbook, which mandate "an Initial Study [] analyze *all* phases of a development project including, operational (long-term) and cumulative impacts so as to determine the level of significance." (ICAPCD 2017 at 9.) This mandate is consistent with CEQA, which requires full disclosure of all the potential air pollutants and/or toxic air emissions from a project. (*Citizens to Preserve the Ojai v. County of Ventura* (1985) 176 Cal.App.3d 421 [a quantitative analysis of the full impact is necessary to determine the impact of air quality emissions.]) Excluding stationary sources from the air quality emissions fails to take a hard look at an important environmental impact. This failure violates CEQA.

The EA/MND also claims that it need not consider stationary source emissions because the County's threshold of significance is designed to only evaluate mobile sources. (EA/MND at 28.) Even if the Project's mobile source emissions are less-than-significant under this threshold, a determination that an environmental impact complies with a particular threshold of significance does not relieve a lead agency of its obligation to consider evidence that indicates the impact may be significant despite compliance with the threshold. (CEQA Guidelines § 15064(b)(2).)

The primary and overriding basis for the County's conclusion here was its assumption that the project's CEQA analysis is limited to mobile sources only. But once that assumption is removed, the situation is entirely different. When the entire project is considered, the record reveals sufficient information and inferences to indicate a fair argument that significant environmental impacts may exist, requiring an EIR. (*Nelson v. Cnty. of Kern* (2010) 190 Cal. App. 4th 252, 283.)

C. The EA/MND Fails to Analyze or Disclose the Project's Fugitive Dust Emissions.

Furthermore, nowhere does the EA/MND analyze the significance of the Project's fugitive dust impacts. Fugitive dust is typically used to describe the fine particulate matter – $PM_{2.5}$ and PM_{10}. The EA/MND separately evaluates the Project's $PM_{2.5}$ and PM_{10} emissions, finding neither meet the respective thresholds of significance. In Appendix E, however, the EA/MND recognizes a third category of particulate matter, called "PM," and estimates those emissions will reach up to 373.22 pounds per year, the vast majority of which will come from helicopter use and laydown yard emissions (220.93 and 147.97 pounds per year, respectively). This estimate well exceeds any threshold of significance for any criteria pollutant set by the County. Inexplicably, nowhere in the EA/MND's air quality analysis is this impact disclosed or analyzed against a threshold of significance.

The Project then attempts to dispel any concerns about fugitive dust by concluding that compliance with construction fugitive dust control measures will reduce any impacts to less-

than-significant levels. (EA/MND at 29 ["[T]hrough implementation of the ICAPCD's standard construction fugitive dust controls and standard construction mitigation measures, the Project would not result in a cumulatively considerable net increase of any criteria pollutant...].) Appendix E makes clear that the majority of fugitive dust emissions will come from project operations (helicopter use and laydown yard emissions), not construction. Mitigation to reduce construction impacts does not provide evidence that the Project's overall fugitive dust will be reduced to less-than-significant levels. Therefore, a fair argument exists that the Project may have a significant effect on the environment necessitating the preparation of an EIR.

D. The EA/MND's Few Air Quality Mitigation Measures Are Unenforceable and Deferred.

Generally, mitigation measures should not be deferred, and feasibility findings should not be delegated to staff. (CEQA Guidelines, §§ 15126.4(a)(1)(B), 15025(b)(2).) Specific details of a mitigation measure "may be developed after project approval when it is impractical or infeasible to include those details during the project's environmental review provided that the agency (1) commits itself to the mitigation, (2) adopts specific performance standards the mitigation will achieve, and (3) identifies the type(s) of potential action(s) that can feasibly achieve that performance standard and that will [be] considered, analyzed, and potentially incorporated in the mitigation measure.'" (*Golden Door Properties v. County of San Diego* (2020) 50 Cal.App.5th 467, 518.) The EA/MND fails to meet these requirements.

The EA/MND notes that the Project Applicant will comply with ICAPCD Regulation VIII – Fugitive Dust Rules to develop and implement—at a later date and outside of the public process – a dust control plan to address fugitive dust. (EA/MND at Sec. 3.3.5(b).) The lead agency is expected to develop mitigation in an open public process. (*Communities for a Better Environment v. City of Richmond* (2010) 184 Cal.App.4th 70, 93.) The EA/MND offers no reason why a dust control plan cannot be developed as part of the Project's environmental review, nor does it include objective standards to guide the County's approval of the plan. As written, the measure creates an enormous loophole and allows the Project applicant and the County to determine—at a later date, without oversight or objective standards, and without supporting its decision with substantial evidence—whether mitigation will be implemented. It is entirely inappropriate to defer analysis of fugitive dust mitigation until after Project approval, especially since formulating a plan appears to be entirely feasible.

IV. The EA/MND Failed to Properly Analyze or Adequately Mitigate Greenhouse Gas Emissions.

A. Climate Change is a Catastrophic and Pressing Threat to California.

A strong, international scientific consensus has established that human-caused climate change is causing widespread harms to human society and natural systems, and that climate change threats are becoming increasingly dangerous. The Intergovernmental Panel on Climate Change (IPCC), the leading international scientific body for the assessment of climate change, concluded in its 2014 Fifth Assessment Report that: "[w]arming of the climate system is

unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, and sea level has risen," and further that "[r]ecent climate changes have had widespread impacts on human and natural systems." (IPCC 2014.) These findings were echoed in the United States' own 2014 Third National Climate Assessment and 2017 Climate Science Special Report, prepared by scientific experts and reviewed by the National Academy of Sciences and multiple federal agencies. The Third National Climate Assessment concluded that "[m]ultiple lines of independent evidence confirm that human activities are the primary cause of the global warming of the past 50 years" and "[i]impacts related to climate change are already evident in many regions and are expected to become increasingly disruptive across the nation throughout this century and beyond." (Melillo 2014.)

Immediate and aggressive greenhouse gas emissions reductions are necessary to keep warming well below 2°C above pre-industrial levels. The IPCC Fifth Assessment Report and other expert assessments have established global carbon budgets, or the total amount of carbon that can be burned while maintaining some probability of staying below a given temperature target. According to the IPCC, total cumulative anthropogenic emissions of CO_2 must remain below about 1,000 $GtCO_2$ from 2011 onward for a 66 percent probability of limiting warming to 2°C above pre-industrial levels, and to 400 $GtCO_2$ from 2011 onward for a 66 percent probability of limiting warming to 1.5°C. (IPCC 2014 at 63-64 & Table 2.) These carbon budgets have been reduced to 850 $GtCO_2$ and 240 $GtCO_2$, respectively, from 2015 onward. (Rogelj 2016 at Table 2.) As of 2022, climate policies by the world's countries would lead to an estimated 2.7°C of warming, and possibly up to 3.6°C of warming, well above the level needed to avoid the worst dangers of climate change. (Climate Action Tracker 2022.)

The United States has contributed more to climate change than any other country. The U.S. is the world's biggest cumulative emitter of greenhouse gas pollution, responsible for 27 percent of cumulative global CO_2 emissions since 1850, and the U.S. is currently the world's second highest emitter on an annual and per capita basis. (World Resources Institute 2020.) Nonetheless, U.S. climate policy is wholly inadequate to meet the international climate target to hold global average temperature rise to well below 2°C above pre-industrial levels to avoid the worst dangers of climate change. Current U.S. climate policy has been ranked as "critically insufficient" by an international team of climate policy experts and climate scientists which concluded: "These steps represent a severe backwards move and an abrogation of the United States' responsibility as the world's second largest emitter at a time when more, not less, commitment is needed from all governments to avert the worst impacts of climate change." (Climate Action Tracker 2022.)

In its 2018 *Special Report on Global Warming of 1.5°C*, the IPCC—the leading international scientific body for the assessment of climate change—described the devastating harms that would occur at 2°C warming. The report highlights the necessity of limiting warming to 1.5°C to avoid catastrophic impacts to people and life on Earth. (IPCC 2018.) The report also provides overwhelming evidence that climate hazards are more urgent and more severe than previously thought, and that aggressive reductions in emissions within the next decade are essential to avoid the most devastating climate change harms.

In response to inadequate action on the national level, California has taken steps through legislation and regulation to fight climate change and reduce statewide GHG emissions. Enforcement and compliance with these steps are essential to help stabilize the climate and avoid catastrophic impacts to our environment. California has a mandate under AB 32 to reach 1990 levels of GHG emissions by the year 2020, equivalent to approximately a 15 percent reduction from a business-as-usual projection. (Health & Saf. Code, § 38550.) Based on the warning of the Intergovernmental panel on Climate Change and leading climate scientists, Governor Brown issued an executive order in April 2015 requiring GHG emission reduction 40 percent below 1990 levels by 2030. (Executive Order B-30-15 (2015).) The Executive Order is in line with a previous Executive Order mandating the state reduce emission levels to 80 percent below 1990 levels by 2050 in order to minimize significant climate change impacts. (Executive Order S-3-05 (2005).) In enacting SB 375, the state has also recognized the critical role that land use planning plays in achieving greenhouse gas emission reductions in California.

The state Legislature has found that failure to achieve greenhouse gas reduction would be "detrimental" to the state's economy. (Health & Saf. Code § 38501(b).) In his 2015 Inaugural Address, Governor Brown reiterated his commitment to reduce greenhouse gas emissions with three new goals for the next fifteen years:

- Increase electricity derived from renewable sources to 50 percent;
- Reduce today's petroleum use in cars and trucks by 50 percent;
- Double the efficiency of existing buildings and make heating fuels cleaner. (Brown 2015 Address.)

Although some sources of GHG emissions may seem insignificant, climate change is a problem with cumulative impacts and effects. (*Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin.*, (9th Cir. 2008) 538 F.3d 1172, 1217 ("the impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impacts analysis" that agencies must conduct).) One source or one small project may not appear to have a significant effect on climate change, but the combined impacts of many sources can drastically damage California's climate as a whole. Therefore, project-specific GHG emission disclosure, analysis and mitigation is vital to California meeting its climate goals and maintaining our climate.

The impacts of climate change are already being felt by humans and wildlife. Human-induced climate change, including more frequent and intense extreme events, has caused widespread adverse impacts and related losses and damages to nature and people. (IPCC 2022.) This rise in weather and climate extremes has led to some irreversible impacts, as natural and human systems are pushed beyond their ability to adapt. (IPCC 2022.)

In the IPCC's most recent report, entitled *Climate Change 2022: Impacts, Adaptation and Vulnerability*, it found that warming is proceeding even faster than anticipated, and the best-case scenario for climate change is slipping out of reach. (IPCC 2022.) The report now estimates that, over the next 20 years, the world will cross the global warming threshold of 1.5°C. And unless there are immediate, rapid and large-scale reductions in greenhouse gas emissions, limiting warming to close to 1.5°C—or even 2°C—will be beyond reach. The United Nations Secretary General described the forecasts in this report as an "atlas of human suffering." (Borenstein 2022.)

Given the increasingly urgent need for drastic action to reduce GHG emissions, the EA/MND's decision to give short shrift to the Project's significant climate change effects is all the more alarming.

B. The EA/MND Fails to Adequately Disclose the Project's GHG Impacts.

A CEQA document "must present facts and analysis, not simply the bare conclusions or opinions of the agency." (*Bay Area Citizens v. Association of Bay Area Governments* (2016) 248 Cal.App.4th 966, 977 (*quoting Californians for Alternatives to Toxics v. Calif. Dept. of Food and Agric.* (2005) 136 Cal.App.4th 1, 13). The discussion of impacts must provide sufficient information and analysis to allow the public to discern the basis for the agency's impact findings. (*Sierra Club, supra,* 6 Cal. 5th at p. 513 ["There must be a disclosure of the 'analytic route the … agency traveled from evidence to action."].) A "conclusory discussion" of a significant environmental impact makes a CEQA document "inadequate as an informational document" as a matter of law." (*Id.* at 514.)

A "conclusory discussion" of a significant environmental impact makes an EA/MND "inadequate as an informational document" as a matter of law. (*Sierra Club*, *supra*, 6 Cal.5th at p. 514.) An EIR must provide information regarding the project's significant environmental impacts that is sufficient to allow decision-makers and the public to understand the environmental consequences of the project. (*Id.* at p. 520; *Laurel Heights Improvement Ass'n v Regents of Univ. of Cal.* (1988) 47 Cal.3d 376, 404; See CEQA Guidelines § 15151.) The document must include enough detail to enable the public "to understand and to consider meaningfully the issues raised by the proposed project." (*Id.* at 516 (citation omitted).)

The analysis of greenhouse gas impacts offers the public little information to understand Project activities that will generate GHG emissions. The EA/MND presents one table with the Project's projected GHG emissions. (EA/MND at 28.) While the EA/MND expends dozens of pages identifying the global sources of GHG emissions, the EA/MND discloses only a single Project sources of emissions underlying these totals: fuel consumption. (*Ibid.*) The EA/MND fails to analyze and disclose the activities that would result in GHG emissions, primarily associated with use of off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. From the sole table provided, and without any basic explanation, the public and decisionmakers have no way to understand and independently evaluate the environmental consequences of the Project. (See EA/MND Sec. 3.6.5 and Appendix E at 224.)

While EA/MND purports to provide additional detail in Appendix E, Appendix E merely breaks down greenhouse gas emissions into CO2, CH4, and N20, rather than detailing the actual sources of greenhouse gas emissions.[2] Such a conclusory discussion of the Project's GHG impacts renders the EA/MND inadequate as an informational document.

[2] The California Supreme Court has repeatedly cautioned that readers should not be forced to sift through appendixes to detect the EIR's environmental analysis. (*Cleveland Nat. Forest Found. v. San Diego Assn. of Governments* (2017) 3 Cal.5th 497, 516; *Cal. Oak Found. v. City of Santa Clarita* (2005) 133 Cal.App.4th 1219,

C. By Excluding Stationary Source Emissions, the Project Underestimates the Project's Greenhouse Gas Emissions.

One need look no further than the EA/MND's lack of disclosure for the activities underlying its greenhouse gas estimates to understand why CEQA requires such disclosure. The EA/MND fails to include GHG emissions from stationary sources and therefore underestimates the Project's impact on climate change. (Appendix E at 224.)

The EA/MND estimates that the Project's greenhouse gas emissions will be 3,021 metric tons per year and summarily concludes that, based on SCAQMD's 10,000 metric ton threshold, that the Project will have less than significant climate impacts. (EA/MND at 28.) However, according to a footnote in Appendix E, this estimate too "does not include stationary source emissions." (Appendix E at 224.)

The EA/MND provides no justification for omitting the greenhouse gas impacts generated by stationary sources which appear to comprise a large portion of the Project's activity. (Appendix E at 224.) Given the information gleaned from elsewhere in the EA/MND, however, there is ample evidence to suggest that the Project would have significant GHG impacts. This Project proposes to construct approximately two miles of road improvements for existing roads, approximately 6.2 miles of new and temporary 12-foot-wide exploration drilling access roads; eight helicopter landing pads; 65 drill pads; 1.8 miles of new permanent access roads; a staging area for access to the Project Area; and seven drill sites. (EA/MND at 5.) The Project would disturb 21 acres. (*Ibid.*) The Project proposes to utilize gasoline-powered helicopter equipment and rely primarily on diesel and gasoline (see sec 3.9.3) – an anthropogenic source of carbon – for energy generation. The Project identifies not a single project design feature or mitigation measures aimed to lessen these emissions.

Consequently, because of the deficiencies of the impact analysis for the proposed Project, the EA/MND fails to adequately disclose and properly estimate the Project's GHG emissions. A fair argument exists to show the Project may have an impact on greenhouse gas emissions, and the County must prepare an EIR to disclose, analyze, and mitigate these impacts.

D. The EA/MND Lacks Evidentiary Support that GHG Impacts Would Be Less-Than-Significant.

The document offers three reasons for why the Project's greenhouse gas emissions should not be considered a significant impact. Each of these reasons is unavailing.

First, as discussed above, the EA/MND relies on a numerical estimate that excludes most of the GHG-generating activity associated with the Project.

1239 ["[I]nformation scattered here and there in EIR appendices, or a report buried in an appendix, is not a substitute for good faith reasoned analysis."], internal quotations omitted.)

Second, the EA/MND relies on the fuel efficiency of vehicles established by California's 2017 Scoping Plan to suggest that the Project "does not have its own GHG emissions but is simply a location in which GHG emissions are taking place." (EA/MND at 28.) This argument ignores what CEQA is meant to do – namely, ensure that a lead agency fully evaluates, discloses, and mitigates wherever feasible a project's significant environmental effects. (Pub. Res. Code, §§ 21000, *et seq.*) The EA/MND may consider what mitigation is within the County's jurisdiction when analyzing feasible mitigation measures, but these statewide fuel standards do not absolve the EA/MND of CEQA's requirement that it disclose and analyze all potentially significant impacts associated with a project.

The GHG analysis here is similar to the one that failed in *Friends of Oroville v. City of Oroville* (2013) 219 Cal.App.4th 832, 842. In that case, the Court held that the City of Oroville had failed to assess the impact of a project's greenhouse gas emission because it had improperly applied the threshold for determining the significance of project greenhouse gas emissions. (*Ibid.*) There, the EIR used the "Scoping Plan Measures" from the Assembly Bill 32 Scoping Plan to create a significance threshold. (*Id.* at 843.) However, it concluded that the certain measures need not be applied to the project because they were meant to be implemented at a state-wide level. (*Ibid.*) The court said that by choosing a framework that excluded consideration of fuel consumption, the EIR "ignore[ed] the elephant in the room," since 68% of the Project's GHG emissions came from these impacts. (*Ibid.*) By relying on an inapplicable state-wide plan to disclaim responsibility to fully analyze and disclose impacts, that analysis – and this one, too – are deficient. Plus, the 2017 Scoping Plan is no longer valid; the California Air Resources Board in 2022 issued a new Scoping Plan, which the EA/MND did not consider.

The EA/MND's third reason as to why the Project has no significant climate impact is the most illogical. The EA/MND concludes that, since climate change is a global problem, "no single project is large enough to impact climate change." (EA/MND at 28.) Courts have rejected this "drop-in-the-bucket" approach to impact analysis. In *Kings County,* the court invalidated an EIR that concluded increased ozone impacts from the project would be insignificant because it would emit relatively minor amounts of precursor pollutants compared to the large volume already emitted by other sources in the county, (1990) 221 Cal.App.3d 692, 717-18. The *Kings County* court rightly stated, "The relevant question to be addressed…is not the relative amount of precursors emitted by the project when compared with preexisting emissions, but whether any additional amount should be considered significant in light of the serious nature of the ozone problems in this air basin. (*Id.* at 718.) Likewise, here, the EA/MND may not minimize the Project's impacts by comparing them to a global problem. (CEQA Guidelines §15064.4(b) [In determining the significance of a project's GHG emissions, the lead agency "should focus its analysis on the reasonably foreseeable incremental contribution of the project's emissions to the effects of climate change … even if [such contribution] appears relatively small compared to statewide, national or global emissions."].)

V. The EA/MND's Analysis of the Project's Energy Impacts is Incomplete and Inadequate.

CEQA requires agencies to analyze whether their projects will result in wasteful or inefficient use of energy. (Pub. Res. Code, § 21100(b)(3); CEQA Guidelines §15126.2(b) CEQA

Guidelines Appendix F.) To demonstrate that a project will not result in the wasteful use of energy, agencies must show that the project has decreased per capita energy consumption, decreased reliance on fossil fuel use, and increased reliance on renewable energy sources. (*Cal. Clean Energy Com. v. City of Woodland* (2014) 225 Cal.App.4th 173, 209; Pub. Res. C §21100(b)(3); *see also People v. County of Kern* (1976) 62 Cal.App.3d 761, 774.)

The entirety of fuel consumption resulting from this Project would be attributable to the burning of diesel, gasoline, and jet fuel – all fossil fuels. (EA/MND at 35.) The Project is expected to consume approximately 36,138 gallons of diesel fuel and 1,500 gallons of JetB fuel. (EA/MND at 36.) Despite the Project's massive fuel consumption, the EA/MND concludes that any impacts would be less than significant because this amount is "nominal" compared to the fuel consumed in the entirety of Imperial Country. (*Ibid.*)

The EA/MND attempts to minimize the impact of the Project's fuel consumption by comparing it to the County's annual fuel consumption, which is 24.3 million gallons. (EA/MND at 35.) This is disingenuous. The more applicable statistic would be to compare annual fuel consumption to similarly sized mining exploration Projects, an analysis the EA/MND does not undertake.

The EA/MND again argues that current fuel efficiency standards, in and of themselves, suggest that this Project should not be considered inefficient or wasteful. Yet this Project does nothing to facilitate increased fuel efficiency. Compliance with existing fuel efficiency standards alone – absent project-specific analysis—is not sufficient evidence to support a finding of no significant impact under the CEQA. (*Oro Fino Gold Mining Corp. v. County of El Dorado* (1990) 225 Cal. App. 3d 872, 881–882.) Otherwise, any projects burning fossil fuels – regardless of the amount – could claim an efficient use of energy.

This reasoning also ignores what CEQA is meant to do – namely, ensure that a lead agency fully evaluates, discloses, and mitigates wherever feasible a project's significant environmental effects. (Pub. Res. Code, §§ 21000, *et seq.*) The EA/MND may consider what mitigation is within the County's jurisdiction when analyzing feasible mitigation measures, but these statewide standards do not absolve the EA/MND of CEQA's requirement that it disclose and analyze all potentially significant impacts associated with a project. Significance thresholds must not foreclose consideration of any potentially significant environmental effect, or the CEQA analysis is deficient. (*Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th 1099, 1109 ["A threshold of significance cannot be applied in a way that would foreclose the consideration of other substantial evidence tending to show the environmental effect to which the threshold relates might be significant."].)

Finally, the EA/MND ignores the requirements of Appendix F of CEQA. Neither the EA/MND nor any of the technical appendices provide any information on how this Project seeks to decrease overall energy use or its reliance on fossil fuels; instead, the Project relies exclusively on fossil fuels. This misses the clear legislative intent driving an energy analysis – to reduce fossil fuel use and maximize energy efficiency.

VI. The EA/MND Fails to Adequately Analyze the Project's Impacts on Water Supplies.

California faces unprecedented challenges in its effort to allocate and conserve limited water resources, especially as water supply dwindles in the face of climate change and population growth. The Project would further exacerbate regional and statewide supply by constructing new roads and engaging in mining exploration activities that, absent an identified water source, threatens to overdraft local groundwater supply. In light of these, and other, underlying concerns, the EA/MND's analysis of the Project's water supply fails to adequately consider all potential significant impacts.

The Project anticipates using up to approximately 2,000 gallons of water daily for active drilling periods. (EA/MND at 97.) The EA/MND surmises that water would be procured from Gold Rock Ranch "and/or" a local water purveyor. (*Ibid.*) On these facts alone, the EA/MND concludes there is adequate water supply available to meet the needs of the Project and finds a less than significant impact related to water supply. (EA/MND at 66.)

CEQA requires that an analysis present decisionmakers "with sufficient facts to evaluate the pros and cons of supplying the amount of water that the [project] will need." (*Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 430-31.) This includes identifying and analyzing water supplies that "bear a likelihood of actually proving available; speculative sources and unrealistic allocations ('paper water') are insufficient bases for decision-making under CEQA." (*Id.* at 42.)

The EA/MND's water supply analysis does not comply with this mandate. Instead, it falters from the outset because the EA/MND acknowledges that water for the project has not yet been secured. The EA/MND cannot rely on paper water to conclude the Project has adequate water available to supply its needs.

Furthermore, while the EA/MND promises to not rely on surface and groundwater "within the Project Area," it provides no assurances that it will not buy groundwater from the neighboring Gold Rock Ranch or the local water purveyor. (EA/MND at 65.) Given the "minimal amount" of surface water in the region (EA/MND at 74), nothing is stopping the Project from purchasing and using groundwater from the local basin. CEQA requires that the Project disclose and analyze if it will "[s]ubstantially decrease groundwater supplies or interfere substantially with groundwater recharge. (CEQA Guidelines, Appendix G, X(b).) This analysis is not limited to the Project area. The EA/MND fails to study this impact.

VII. The Project will Have a Significant Impact on Cultural Resources and Cultural Landscapes.

Substantial evidence, gathered through BLM's government-to-government consultation with culturally affiliated tribes in the project area, supports a "fair argument" that there is a significant effect on the environment. (*See* MND § 3.14 *Native American Religious Concerns and Traditional Values.*) Despite this evidence, the County has failed to engage in a "good faith" effort and consult with all affected tribes, in violation of AB 52. (Pub. Res. Code § 21082.3(a).)

This failure underscores the EA/MND's failure to evaluate all known facts about the cultural resources and cultural landscapes that were obtained through ongoing consultation by BLM. (*See* MND § 3.14.2)

1. The County Has Failed to Consult With Affected Tribes, As AB 52 Requires.

Under CEQA, as set forth in AB 52, a lead agency must engage in a "good faith" effort to consult with all affected tribes to develop mitigation measures that are reasonable and mutually agreed upon. (Pub. Res. Code, § 21082.3(a).) An agency cannot certify an MND if it has not conducted and completed consultation with all affected tribes that are willing to engage. (Pub. Res. Code, § 21082.3(b).) Agencies are required to provide notice to all "California Native American tribe(s) traditionally and culturally affiliated with a geographic area of the proposed project." (Pub. Res. Code § 21080.3.1(a)-(b).)

The MND identified several tribes that could potentially be impacted by the project. BLM sent 16 notice letters initiating formal government-to-government consultation and received 7 comment letters. Imperial County, on the other hand, sent out only one written notice for consultation, to the Fort Yuma Quechan Indian Tribe. (*See* MND at Sec.3.14.2-5)

By failing to engage in a "good faith" effort and consult with all affected tribes to develop mitigation measures that are reasonable and mutually agreed upon, the County has not complied with CEQA. (Pub. Res. Code § 21082.3(a).) The County must contact all affected tribes and work together with those tribes to develop mitigation measures. Until the County has performed consultation, it cannot move forward with certifying the project.

2. Absent Adequate Consultation, the EA/MND Lacks a Basis to Conclude Impacts to Tribal Cultural Resources are Fully Disclosed and Properly Mitigated.

Under CEQA, a historical resource is a resource listed or determined to be eligible for listing in the California Register of Historical Resources. (Pub. Res. Code § 21084.1) The fact that a resource is not listed or determined to be eligible for listing or not included in a local register of historical resources, or not deemed significant pursuant to criteria set forth in subdivision (g) of Section 5024.1 "shall not preclude a lead agency from determining whether the resource may be an historical resource for purposes of this section." (*Id.*) Historic resources are subject to CEQA and should be given "special recognition." (*See Friends of Sierra Madre v. City of Sierra Madre* (2001) 25 Cal.4th 165, 186; *Citizens for a Sustainable Treasure Island v. City & County of San Francisco* (2014) 227 Cal.App.4th 1036, 1065.) Tribal cultural resources include places and objects that hold cultural value to California Native American tribes, regardless of the tribe's recognition status. (Pub. Res. Code § 21084.2(b).) A tribal cultural landscape may also qualify as a cultural resource depending on the extent it is "geographically defined in terms of the size and scope of the landscape." (Pub. Res. Code § 21074(b).)

The EA/MND identified a total of 75 cultural resources within a mile of the site and 12 that intersect the project site. Within the relevant area, "25 cultural prehistoric resources were identified that may be *in continued use* by Native American individuals, such as trails, geoglyphs, and rock art sites." (EA/MND at 38, emphasis added.) Furthermore, in consultation with BLM, the Fort Yuma Quechan Indian Tribe objected to the project due to impacts to "a significant cultural landscape and items of cultural patrimony which are integral to the spiritual and everyday lives of the Quechan people." (EA/MND at 48.)

Evidence exists from BLM's consultation that the Project is within a region that is "highly significant" and holds great cultural, religious, and spiritual significance to the Fort Yuma Quechan Indian Tribe. (EA/MND at sec. 3.1.3.) The County disregards this evidence, and concludes that, because the Fort Yuma Quechan Indian Tribe did not respond to the County's letter, it need not consider the evidence secured through BLM's consultation of cultural resources on site. Instead, the County considered only impacts to cultural resources identified via record searches. It refused to evaluate the impacts to tribal cultural resources or cultural landscapes. Until BLM completes consultation and Imperial County starts consultation with all culturally affiliated and affected tribes, the EA/MND cannot accurately conclude that impacts to tribal resources will be less than significant. (Pub. Res. Code § 21074(b) [consultation ensures that tribal knowledge about cultural resources and landscapes are fully considered.]) Given this clear evidence of tribal cultural resources within and near the project area, lack of response to the AB 52 consultation letter is not adequate to support the County's conclusion that impacts to cultural resources are less than significant.

VIII. CONCLUSION

Thank you for the opportunity to submit comments on the EA/MND for the Project. We urge the County not to approve the Project without first preparing an EIR and complying with CEQA. The EIR should, among other things, address and evaluate the potentially significant impacts described in this letter.

Given the possibility that the Conservation Organizations may choose to pursue legal remedies in order to ensure that the County complies with its legal obligations, including those arising under CEQA, we respectfully remind the County of its statutory duty to maintain and preserve all documents and communications that may constitute part of the "administrative record" of this proceeding. (§ 21167.6(e); *see Golden Door Properties, LLC v. Superior Court* (2020) 53 Cal.App.5th 733.) The administrative record encompasses any and all documents and communications that relate to any and all actions taken by the County with respect to the Project, and includes "pretty much everything that ever came near a proposed [project] or [] the agency's compliance with CEQA . . . ." (*County of Orange v. Superior Court* (2003) 113 Cal.App.4th 1, 8.) The administrative record further includes all correspondence, emails, and text messages sent to or received by the County's representatives or employees, that relate to the Project, including any correspondence, emails, and text messages sent between the County's representatives or employees and the Applicant's representatives or employees. Maintenance and preservation of the administrative record requires that, *inter alia*, the County (1) suspend all data destruction policies; and (2) preserve all relevant hardware unless an exact replica of each file is made.

Please include this letter and all references in your project file for the Project. Please also include all of the signatories below on your notice list for all future updates, notices, and documents related to the Project and do not hesitate to contact us with any questions at the numbers or emails listed below.

Sincerely,

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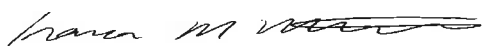

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Attachments:

Exhibit 1: December 16, 2022 Comments on Oro Cruz Exploration Project EA/MND
Exhibit 2: Photographs of the Project site

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Exhibit 1

Submitted via email and via e-planning

Bureau of Land Management
Attn: Mayra Martinez
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El Centro, CA 92243 mymartinez@blm.gov

December 16, 2022

Re: SMP Gold Corp. Oro Cruz Exploration Project EA/MND

Dear Ms. Martinez,

These comments are timely submitted on the BLM's Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) and proposal to approve the Plan of Operations (PoO) for the SMP Gold Corp. Oro Cruz Exploration Project (Project) from the Center for Biological Diversity, Western Watersheds Project, Earthworks, the Sierra Club California/Nevada Desert Committee, Conservation Lands Foundation, Greenaction for Health and Environmental Justice, Mojave Desert Land Trust, California Native Plant Society, and the Ahmut Pipa Foundation (collectively "Conservation Organizations"). These comments are timely submitted. Although the BLM and Imperial County prepared a joint document with the EA and a Mitigated Negative Declaration (MND) combined, BLM provided public notice for the EA comment period ending December 16, 2022. On December 13, 2022, Imperial County notified the public of an opportunity to comment on the MND with comments due January 20, 2023. Because the project is a single project and both NEPA and CEQA require the agencies to consider the whole of the project in their review, the Conservation Organizations reserve the right to add additional comments regarding the joint EA/MND and compliance with State laws including SMARA and CEQA during the comment period noticed by Imperial County.

As detailed below, BLM's review and proposed approval of the Project violates a number of federal laws, including the Federal Land Policy Management Act (FLPMA), the National Environmental Policy Act (NEPA), and other federal laws and regulations. At a minimum, due to the likely potential for significant impacts, BLM must prepare a full Environmental Impact Statement (EIS) for this Project. In addition, because there is a fair argument that the project will have significant impacts, Imperial County must prepare an EIR.

These comments incorporate the previous comments submitted by the above groups, especially as the EA fails to adequately respond to those comments.

I. The Project, and BLM's Review and Proposed Approval, Violates FLPMA

BLM's review and proposed approval of the Project violates the agency's multiple duties to protect public land resources under FLPMA.

A. The Project Must Comply with All Applicable Land Use Plans

FLPMA is the basic "organic act" for management of the BLM public lands. Under FLPMA, BLM

must develop land use plans for the public lands under its control, 43 U.S.C. § 1712, and all resource management decisions must be in accordance with those plans. Id. § 1732(a), 43 C.F.R. § 1610.5-3(a). *See* Norton v. S. Utah Wilderness Alliance, 542 U.S. 55, 69 (2004) (this requirement "prevent[s] BLM from taking actions inconsistent with the provisions of a land use plan"); Ore. Natural Res. Council v. Brong, 492 F.3d 1120, 1128 (9th Cir. 2007) (holding BLM decision is "inconsistent with the [Land Use] Plan and, consequently, violate FLPMA"); W. Watersheds Project v. Salazar, 843 F.Supp.2d 1105, 1114 (D. Id. 2012) (reversing BLM decisions as inconsistent with land use plans); W. Watersheds Project v. Bennett, 392 F.Supp.2d 1217, 1227 (D. Id. 2005) (same).

If a proposed action is not clearly consistent with the land use plan, BLM must either deny the proposed action or amend the plan, complying with NEPA and allowing for public participation. *See* 43 C.F.R. §§ 1610.5-3, 1610.5-5. *See also* National Parks and Conservation Ass'n v. FAA, 998 F.2d 1523, 1526 (10th Cir. 1993) (nonconforming land use required RMP amendment). The Interior Board of Land Appeals recognizes that this "consistency" requirement reflects the mandatory duty to fully and strictly comply with the governing land management plans. *See, e.g.* Jenott Mining Corp., 134 IBLA 191, 194 (1995); Uintah Mountain Club, 112 IBLA 287, 291 (1990); Marvin Hutchings v. BLM, 116 IBLA 55, 62 (1990); Southern Utah Wilderness Alliance, 111 IBLA 207, 210-211 (1989).

Complying with the RMP is required by both the general land use conformity requirement of FLPMA as well as BLM's duty under FLPMA to "prevent unnecessary or undue degradation" ("UUD") of the public lands. 43 U.S.C. §1732(b). To prevent UUD, BLM must ensure that all environmental protection standards will be met at all times. 43 C.F.R. § 3809.5 (definition of UUD prohibited by FLPMA includes "fail[ure] to comply with one or more of the following: … Federal and state laws related to environmental protection.").

"All future resource management authorizations and actions … shall conform to the approved plan." 43 C.F.R. §1610.5-3(a). BLM defines "conformity" as requiring that "a resource management action shall be specifically provided for in the plan, or if not specifically mentioned, shall be clearly consistent with the terms, conditions, and decisions of the approved plan or plan amendment." Id. §1601.0-5(b). "Consistent" is defined as requiring that decisions "will adhere to the terms, conditions, and decisions of officially approved and adopted resource related plans." Id. §1601.0-5(c).

Mining operations are not exempted from FLPMA's requirement to comply with the RMP. For example, in Western Exploration v. U.S. Dept. of the Interior, 250 F. Supp. 3d 718, 747 (D. Nev. 2017), the court held that in the mining context, as well as for other potential uses of public land, RMP standards to protect the Greater Sage Grouse must be met to comply with BLM's duty to "prevent unnecessary or undue degradation" under FLPMA. The court rejected a challenge from the mining industry and others and agreed with the Interior Department that meeting the RMP requirements was part of the UUD mandate:

> Defendants [Interior Department et al.] contend that the ''unnecessary or undue degradation'' standard in the statute does not preclude the agency from establishing a more protective standard that seeks improvements in land conditions that ''go beyond the status quo.'' The FEIS states that "if actions by third parties result in habitat loss and degradation, even after applying avoidance and minimization measures, then compensatory mitigation projects will be used to provide a net conservation gain to the sage-grouse.'' The Agencies' goals to

> enhance, conserve, and restore sage-grouse habitat and to increase the abundance and distribution of the species, they argue, is best met by the net conservation gain strategy because it permits disturbances so long as habitat loss is both mitigated and counteracted through restorative projects. If anything, this strategy demonstrates that the Agencies allow some degradation to public land to occur for multiple use purposes, but that degradation caused to sage- grouse habitat on that land be counteracted. The Court fails to see how BLM's decision to implement this standard is arbitrary and capricious. Moreover, the Court cannot find that BLM did not consider all relevant factors in choosing this strategy, as it appears to possess elements proposed in the DEIS.
>
> In sum, Plaintiffs fail to establish that BLM's challenged decisions under FLPMA are arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.

Western Exploration, at 747 (internal citations omitted). *See also* Mineral Policy Center v. Norton, 292 F. Supp. 2d 30, 49 (D.D.C. 2003) ("when BLM receives a proposed plan of operations under the 2001 rules, pursuant to Section 3809.420(a)(3), it assures that the proposed mining use conforms to the terms, conditions, and decisions of the applicable land use plan, in full compliance with FLPMA's land use planning and multiple use policies.").

BLM's mitigation policy, as detailed by the Interior Solicitor, acknowledges the need to ensure compliance with an RMP as part of its mitigation duties under the FLPMA UUD standard. In discussing the previous rulemaking (quoted above) with approval, the Solicitor reiterated "'the operator's responsibility to comply with applicable land use plans and BLM's responsibility to specify necessary mitigation measures.' Id. at 54,840 (emphasis supplied)." M-37039, The Bureau of Land Management's Authority to Address Impacts of its Land Use Authorizations through Mitigation, 20, n. 115 (Dec. 21, 2016)(Mitigation Opinion). The 2016 Mitigation Opinion was temporarily revoked in 2017, but was recently reinstated by the Solicitor. M-37075, Withdrawal of M-37046 and Reinstatement of M-37039 (April 15, 2022) (Exhibit 2). This new Opinion noted that the 2017 Opinion (M-37046) "expresses no views regarding the merits of the legal analysis or conclusions contained in the [2016 Opinion]." M-37075 at 2.

The Solicitor noted that "in the hardrock mining context, the BLM has long recognized that the UUD requirement creates a 'responsibility [for the BLM] to specify necessary mitigation measures' when approving mining plans of operations." M-37039, at 19 (citations omitted). "The BLM regulations addressing surface management of hardrock mining operations on public lands have consistently included mitigation as a requirement for preventing UUD, including as part of the general performance standards in the current regulations." Id.

B. The Project Does Not Comply with the Management Requirements and Prescriptions of the DRECP and Federal Law.

1. California Desert National Conservation Lands

The Picacho ACEC was designated as an ACEC and as California Desert National Conservation Lands (CDNCLs) by the Desert Renewable Energy Conservation Plan (DRECP) Record of Decision signed in September of 2016. The DRECP identifies CDNCLs, in accordance with the Omnibus Public Land

Management Act of 2009 (Omnibus Act), which are nationally significant landscapes within the California Desert Conservation Area (CDCA) with outstanding cultural, ecological, and scientific values. The CDNCLs are a permanent addition to the National Landscape Conservation System (NLCS), as per the direction to BLM in the Omnibus Act. DRECP at xi-xii.

The Omnibus Act added to the newly established NLCS "[a]ny area designated by Congress to be administered for conservation purposes, including…public land within the [CDCA] administered by the [BLM] for conservation purposes." 16 U.S.C. § 7202(b)(2)(D). Unlike other CDCA lands managed under multiple-use principles, these areas are to be managed "in a manner that protects the values for which [they were] designated." *Id.* § 7202(c)(2); see also 43 U.S.C. §1732(a).

The Federal Land Policy Management Act (FLPMA) requires that public lands be managed under multiple use principles "except that where a tract of such public land has been dedicated to specific uses according to any other provisions of law it shall be managed in accordance with such law" (emphasis added). Thus, all NLCS lands within the CDCA must be managed to prohibit discretionary uses that are incompatible with the conservation, protection, and restoration of their landscapes. See 16 U.S.C. § 7202.

Because the project is in the Picacho Area of Critical Environmental Concern it will significantly impact nationally significant values therein, including cultural, ecological, and scientific resources of this area. These values and the management goals are detailed in the DRECP Appendix B regarding the Picacho ACEC. Most importantly, the BLM EA/MND must consider how the goals can be met if the Project is approved. The goals include to enhance, protect, and preserve the cultural and biological resources, and to maintain desert tortoise habitat connectivity between the Chuckwalla Desert Wildlife Management/Area of Critical Environmental Concern/ Critical Habitat Units and high value climate refugia for wildlife. Due to their special protective designation, ACECs, including the Picacho ACEC, must be managed to a higher conservation standard that is consistently implemented across all ACECs. The EA/MND fails to show that BLM fully considered how the Project would affect these management goals.

2. *National Conservation Lands Standards*

The 2009 Omnibus Bill (Omnibus) established the National Conservation Lands as a permanent system of protected lands, "...to conserve, protect and restore nationally significant landscapes that have outstanding cultural, ecological, and scientific values for the benefit of current and future generations." Id. To ensure that the permanently protected National Conservation Lands are managed in order to "conserve, protect and restore nationally significant landscapes," all units within the system have several basic conservation standards, including:

1) Prescriptive language that requires the area to be managed for the conservation, protection and enhancement of resources over other uses;
2) A prohibition on discretionary uses that are not consistent with conservation and protection of these resources;
3) A mineral withdrawal; and
4) Restrictions on off-road vehicles and a travel management plan with restrictions necessary to protect the area.

These standards ensure that lands within the system are managed consistently for conservation and safeguarded for future generations. The Omnibus Bill makes clear that units of the system must be managed to a higher conservation standard.

3. *Department of the Interior and BLM Policy*

Conservation primacy and standards for the system have also been outlined in Department of the Interior guidance and BLM policies. In 2010, Secretarial Order 3308 established a unified conservation vision for managing the National Conservation Lands 'as required by the Omnibus Act of 2009' to 'conserve, protect, and restore nationally significant landscapes.' Further stating that "the BLM shall ensure that the components of the [system] are managed to protect the values for which they were designated, including, where appropriate, prohibiting uses that are in conflict with those values." Secretarial Order 3308, Management of the National Landscape Conservation System, Nov 15, 2010, Sec. 4.

In 2011, BLM released the 15-Year Strategic Plan, setting specific goals for how to manage the National Conservation Lands focused on conservation, protection, and restoration. The Strategic Plan further expanded that "there is an overarching and explicit commitment to conservation and resource protection as the primary objective" and that the BLM shall "not authorize discretionary uses that cannot be managed in a manner compatible with the designation proclamation or legislation." The National Landscape Conservation System, 15 Year Strategy, 2010.

In 2012, BLM released two relevant Policy Manuals: 6100-National Landscape Conservation System Management; and 6220-National Monuments, Conservation areas, and Similar Designations. When making management decisions BLM must use these manuals as guidance. Secretarial Order 3308, and policy manual 6100 and 6220 provide guidance to BLM employees on the drafting of management plans and land use plan decisions as related to the National Conservation Lands. The Secretarial Order, 15-Year Strategy and Policy Manuals make clear that agency policy prioritizes conservation over other uses within the National Conservation Lands.

Lastly, it should be clear, that the CDNCLs are managed as part of the National Conservation Lands, and no longer managed under multiple-use standards as outlined in the Federal Land Policy Management Act. *See* BLM's 15-Year Strategy for the National Conservation Lands, citing FLPMA, as amended, Public Law No. 94-579, Title III, Sec. 302(a). Clearly, units of the National Conservation Lands must be managed for the specific uses for which they were designated.

BLM is precluded from permitting exploration activities that may run afoul of the requirements of the governing land use plan, and adversely impact the very purposes for which the ACEC and CDNCL were designated. Exploration activities will result in habitat loss, fragmentation, noise and dust, as well as adverse impacts to groundwater, cultural and scenic resources. FLPMA requires BLM to conduct all management and implementation activities "in accordance with" governing RMPs. 43 U.S.C. § 1732(a); *see also* 43 CFR § 1610.5-3(a) ("All future resource management authorizations and actions .. . shall conform to the approved plan"). The EA was required to fully analyze and disclose whether the actions proposed in the amended Plan of Operations (PoO) conform to the requirements of the DRECP, including the objectives for land; wildlife; vegetation; cultural and tribal resources, and other resources. It has failed to do so.

BLM cannot approve any actions under the PoO that are inconsistent with BLM's own management plans, management policies, guidelines, handbooks, and manuals. Here the EA/MND fails to show that the Project will not be inconsistent with the management plans and policies, and therefore BLM should not approve the Project.

4. *The EA/MND Fails to Fully Address ACEC and CDNCL Standards*

While the SMP Gold Corporation's Oro Cruz Pit Area Exploration Plan of Operation recognizes that the proposed project is within an Area of Critical Environmental Concern (ACEC) - specifically the Picacho ACEC, it fails to identify that it is also within an area identified as part of the California Desert National Conservation Lands (CDNCL), which are part of the National Conservation Lands System (NLCS). The EA now acknowledges the project is within CDNCL lands but still fails to adequately address the project in the context of the NCLS.

The Desert Renewable Energy Conservation Plan (DRECP) provided a framework for the Picacho ACEC. Applicable Objectives (from Appendix L of the DRECP) for the Picacho ACEC/CDNCL lands that need to be addressed for compliance in the environmental review include:

- Minimize soil disturbance.
- Protect and enhance robust populations of both rare and common native plants. Unique plant assemblages exist within this ACEC, including mesquite and all thorn assemblages.
- Create a baseline of plant species to track environmental changes.
- Maintain and enhance habitat that supports native wildlife; Desert Tortoise, Mule Deer, Bighorn Sheep.
- Manage landscape to ensure wildlife passage and connectivity between wildlife populations.
- Protect biodiversity and manage for resilience (protect climate refugia and provide for migration corridors).
- Maintain and or enhance key ecosystem processes (e.g., carbon sequestration, water residence time) and prepare and respond to significant disturbances to the environment (e.g., floods).
- Encourage compliance with ACEC management recommendations
- Protect resource values of the ACEC
- Review certain proposed mining activities to ensure that they provide adequate protection of public lands and their resources. Mining activities would be allowed with appropriate analysis, stipulations, and mitigation.

Special attention is to be given to project impacts that may affect groundwater. Specifically, "for any activity that proposes to utilize groundwater resources regardless of project location," BLM must comply with the groundwater CMA's, including CMA LUPA-SW-23 that states:

> LUPA-SW-23: A Water (Groundwater) Supply Assessment shall be prepared in conjunction with the activity's NEPA analysis and prior to an approval or authorization. This assessment must be approved by the BLM in coordination with USFWS, CDFW, and other agencies, as appropriate, prior to the development, extraction, injection, or consumptive use of any water resource. The purpose of the Water Supply Assessment is to determine whether over-use or over-draft conditions exist within the project basin(s), and whether the project creates or

exacerbates these conditions. The Assessment shall include an evaluation of existing extractions, water rights, and management plans for the water supply in the basin(s) (i.e., cumulative impacts), and whether these cumulative impacts (including the proposed project) can maintain existing land uses as well as existing aquatic, riparian, and other water-dependent resources within the basin(s) (i.e., cumulative impacts), and whether these cumulative impacts (including the proposed project) can maintain existing land uses as well as existing aquatic, riparian, and other water-dependent resources within the basin(s).

DRECP at 141.

The Water Supply Assessment shall also address:

- Estimates of the total cone of depression considering cumulative drawdown from all potential pumping in the basin(s), including the project, for the life of the project through the decommissioning phase
- Potential to cause subsidence and loss of aquifer storage capacity due to groundwater pumping
- Potential to cause injury to other water rights, water uses, and landowners
- Changes in water quality and quantity that affect other beneficial uses
- Effects on groundwater dependent vegetation and groundwater discharge to surface water resources such as streams, springs, seeps, wetlands, and playas that could impact biological resources, habitat, or are culturally important to Native Americans
- Additional field work that may be required, such as an aquifer test, to evaluate site specific project pumping impacts and if necessary, establish trigger points that can be used for a Groundwater Water Monitoring and Mitigation Plan
- The mitigation measures required, if there are significant or potentially significant impacts on water resources include but are not limited to, the use of specific technologies, management practices, retirement of active water rights, development of a recycled water supply, or water imports.

BLM's environmental review must provide a Groundwater Supply Assessment in conjunction with its analysis of the proposed project under NEPA to comply with the Plan requirements and FLPMA. But has failed to do so. The EA/MND, Appendix B says that it is unnecessary to provide a Ground Water Supply Assessment and that other groundwater CMAs do not apply because the groundwater extraction is not *under the Project* site, but this response fails to address the key question—whether and how the use of groundwater for this Project may affect resources and potentially cause injury to other water uses and whether mitigation is needed. In addition, as discussed below, the failure to fully analyze these uses and impacts violates BLM's duties under NEPA. The EA/MND at 59 states the water will come from either Gold Rock Ranch and/or a local water purveyor and without even fully identifying the source states there will be "sufficient water supplies available to serve the Project. Therefore, the Project would have less than significant impacts." EA/MND at 59. This kind of conclusory statement without support does not meet the requirements of the Plan in the CMAs, NEPA, or CEQA. Further, the EA/MND (at 92) admits "Groundwater may be encountered during the course of exploratory drilling within the Drill Pads." But fails

to quantify the amount of groundwater that may be affected if it is encountered as well as the baseline conditions of the groundwater. This also contradicts the premise in the EA/MND that no groundwater on site would be affected.

C. The Project Fails to Prevent Undue Impairment of the Scenic, Scientific and Environmental Values of the CDCA.

BLM must also consider whether the proposed PoO complies with the FLPMA requirements "to protect the scenic, scientific, and environmental values of the public lands of the California Desert Conservation Area against undue impairment, and to assure against pollution of the streams and waters within the California Desert Conservation Area." 43 U.S.C. § 1781.

The undue impairment standard is a more environmentally protective standard than the unnecessary and undue degradation (UUD) standard (discussed in more detail below), which applies on all BLM lands:

> Under FLPMA section 601(f), BLM can prevent activities that cause undue impairment to the scenic, scientific, and environmental values or cause pollution of streams and waters of the CDCA, separate and apart from BLM's authority to prevent unnecessary or undue degradation. The IBLA has agreed that BLM's obligation to protect the three enumerated CDCA values from ''undue impairment'' supplements the unnecessary or undue degradation standard for CDCA lands. *See* Eric L. Price, James C. Thomas, 116 IBLA 210, 218–219 (1990). Thus, BLM decisions with respect to development proposals in the CDCA are governed by both the ''undue impairment'' standard of subsection 601(f) and the ''unnecessary or undue degradation'' standard of section 302(b), as implemented by the subpart 3809 regulations.

66 Fed. Reg. 69998, 70018 (Nov. 21, 2000). *See also* Reeves v. U.S., 54 Fed. Cl. 652, 670-674 (Fed. Cl. 2002) (in the context of the "nonimpairment" standard for Wilderness Study Areas, federal claims court held that mining claimant had no property right under the Mining Law to violate the standard, upholding BLM's denial of the proposed plan of operations). BLM's surface mining regulations, 43 C.F.R. § 3809 et seq., specifically define UUD as occurring when operations "[f]ail to attain a stated level of protection or reclamation required by specific laws in areas such as the California Desert Conservation Area." 43 C.F.R. § 3809.5.

BLM was required to fully consider FLPMA's "undue impairment" standard for the CDCA and require measures "to protect the scenic, scientific, and environmental values of the public lands of the California Desert Conservation Area against undue impairment, and to assure against pollution of the streams and waters within the California Desert Conservation Area." FLPMA Section 601(f), 43 U.S.C. § 1781(f). All of the areas within the proposed plan of operations are protected as CDNCL and/or ACEC; therefore, as part of the analysis of the proposed plan of operations, BLM must look to the objectives, desired future conditions, allowable uses, and Conservation Management Actions (CMAs) adopted in the DRECP (as detailed above), but the EA/MND fails to show that BLM has done so. Allowing any unmitigated adverse impacts to sensitive and protected plant species, wildlife, water resources, cultural resources, scenic, and other environment values would violate FLPMA's standards for these lands, and therefore the Project should not be approved.

D. The Project Fails to Prevent Unnecessary or Undue Degradation of Public Land Resources.

FLPMA requires that the BLM "take any action necessary to prevent unnecessary or undue degradation of the lands." 43 U.S.C. § 1732(b). This is known as the "prevent UUD" standard. This duty to "prevent undue degradation" is "the heart of FLPMA [that] amends and supersedes the Mining Law." Mineral Policy Center v. Norton, 292 F.Supp.2d 30, 42 (D.D.C. 2003). "FLPMA, by its plain terms, vests the Secretary of the Interior [and the BLM] with the authority – indeed the obligation – to disapprove of an otherwise permissible mining operation because the operation, though necessary for mining, would unduly harm or degrade the public land." Id.

The 3809 regulations implement FLPMA's mandate to prevent UUD through two primary provisions: (1) the definition of UUD at 3809.5; and (2) the Performance Standards at 3809.420. As detailed below, BLM must fully consider the UUD mandate and protect public resources. The Performance Standards in Part 3809 mandates that all operations "must take mitigation measures specified by BLM to protect public lands." 43 CFR § 3809.420(a)(4). BLM cannot approve a mining project that would cause UUD. 43 C.F.R. § 3809.411(d)(3)(iii). "FLPMA's requirement that the Secretary prevent UUD supplements requirements imposed by other federal laws and by state law." Center for Biological Diversity v. Dept. of Interior, 623 F.3d 633, 644 (9th Cir. 2010). BLM complies with this mandate "by exercising case-by-case discretion to protect the environment through the process of: (1) approving or rejecting individual mining plans of operation." Id. at 645, quoting Mineral Policy Center, 292 F.Supp.2d at 44:

> "Mitigation measures fall squarely within the actions the Secretary can direct to prevent unnecessary or undue degradation of the public lands. An impact that can be mitigated, but is not, is clearly unnecessary." 65 Fed. Reg. 69998, 70052 (Nov. 21, 2000) (preamble to BLM's 43 C.F.R. Part 3809 mining regulations). Furthermore, if an UUD cannot be prevented through mitigation measures, BLM must reject the plan of operations. Kendall's Concerned Area Residents, 129 IBLA 130, 138 (1994) ("If unnecessary or undue degradation cannot be prevented by mitigation measures, BLM is required to deny approval of the plan.").

In undertaking environmental review of this proposed plan of operations, BLM must consider whether mitigation measures can protect the species, habitats, soils, cultural and water resources affected by the proposed plan of operations in order to prevent UUD. That analysis must include detailed identification of direct and indirect impacts as well as cumulative impacts. It must identify specific mitigation measures that address each impact and also include an analysis of the effectiveness of each measure in order to meet BLM's duties under NEPA as well as FLPMA. As detailed below, the EA/MND fails to adequately address environmental impacts and as a result has also failed to show it has taken steps to prevent UUD.

E. The Project Fails to Meet the FLPMA and Part 3809 Reclamation and Submittal Requirements and the SMARA requirements

Related to, and part of, the failure to prevent undue impairment and UUD under FLPMA, the Project fails to meet all of the requirements of the 43 CFR Part 3809.420 Performance Standards and the PoO submittal requirements of 3809.401. Those rules require detailed operational and reclamation requirements

for all proposed activities.

But the EA and the PoO fall far short of these mandates. As one example, the EA says that there will be 65 drill sites (EA at 6). Yet the maps of the drill sites in the PoO show well over 100 sites. *See* PoO Figures 3a-3h. In addition, many, indeed most, of these drill sites do not show any road access, whether existing or proposed. Section 3809.401(b) requires detailed plans for all "drill sites" and "access routes," as well as detailed reclamation plans for all these sites. Yet, while the PoO clearly shows the company's drilling sites, the EA contains no analysis of these additional sites (a NEPA violation as well, as noted below).

Regarding the "reclamation" professed to comply with the 3809 standards, the BLM does not intend to require reclamation of the newly-constructed road coming up from the south from American Girl Wash for 5 or more years.

> Access to the Oro Cruz Portal would require the construction of 9,640 linear ft (1.8 miles) of new 15-foot-wide road. The road would be secured from unauthorized access for the duration of activity at the portal staging area while assuring access by BLM staff. A gate would be placed across the road accompanied by proper deterrence on either side of the gate (i.e. fence, berm, or large boulder).
>
> Reclamation would be implemented at the 2.8-acre portal staging area and all equipment would be removed within the 5-year reclamation monitoring period.

PoO at 4. BLM does not explain why reclamation will take 5 years at this site, especially when it would begin concurrently. Nor does BLM why all of the equipment and facilities could not be removed immediately, not just within 5 years.

It appears that BLM is keeping this new road open to the portal area (and allowing its construction in the first place) in order to facilitate the company's future mining operations. Indeed, there is no mention of closing the road, even after that 5 years. BLM does not explain why drilling areas 1 and 6 could not occur first, and be fully reclaimed, along with the southern access road.

Notably, "The anticipated post-Project land uses are **mining**, recreational uses, and open space." PoO at 20 (emphasis added). As the company has stated: "the Oro Cruz Gold Project hosts many exploration targets in addition to a high-grade oxide gold zone that, based on the historical mine operation records, is amenable to conventional heap leach extractive methods." About Us - Southern Empire Resources at https://smp.gold/about/ (pdf from December 14, 2022) (Attachment 1).

Under NEPA and FLPMA, if the post-Project land use is "mining," then this future use should have been analyzed.

Further, the EA and project documents available to the public by BLM do not contain the reclamation cost estimate and bonding for all these facilities/activities as required by the Part 3809 rules. This includes the failure to include the operational and reclamation information and analysis for the additional dozens/scores of drill sites noted above, but also for the construction and reclamation of the new

southern access route.

F. BLM Failed to Comply with the Requirements for Rights of Ways Under FLPMA Title V.

The EA and proposed Project approval fail to meet the strict public interest, environmental protection, and financial requirements of the Federal Land Policy and Management Act (FLPMA). BLM is under the mistaken view that all of the new access roads are governed by "rights" under the 1872 Mining Law and the 43 CFR part 3809 regulations. Although it could be argued that the company has a right for one access road into its claim block, BLM proposes additional new route(s), especially the new road from the south to access drill areas 1 and 6. *See* PoO Figure 2.

But as shown in that Figure 2, these drill areas can be accessed from the north, from the existing road along Tumco Wash (with only a slight area of new construction needed). *See also* PoO Figure 3b. With that access from the north, drill areas 1 and 6 can be accessed without the construction of a new road coming up from American Girl Wash. Thus, the new road all the way up from American Girl Wash is not needed to access the claims and drilling areas. As such, the company cannot assert any legitimate "right" under the Mining Law, and that road is not "authorized by the mining laws" under 43 CFR 3809.1(a) and 3809.2(a).

In addition, constructing this new, and unneeded, road, violates the protective standards and requirements under the FLPMA undue impairment, UUD, Land Use Plan, and other requirements noted above.

Even if it could be constructed, this access road is governed by FLPMA Title V, Section 504, and requires the issuance of a Right-of-Way (ROW) to construct the road across public lands. *See* Alanco Environmental Resources Corp., 145 IBLA 289, 297 (1998) ("construction of a road, was subject not only to authorization under 43 C.F.R. Subpart 3809, but also to issuance of a right-of-way under 43 C.F.R. Part 2800."); Wayne D. Klump, 130 IBLA 98, 100 (1995) ("Regardless of his right of access across the public lands to his mining claims and of his prior water rights, use of the public lands must be in compliance with the requirements of the relevant statutes and regulations [FLPMA Title V and ROW regulations]."). The leading treatise on federal natural resources law confirms this rule: "Rights-of-way must be explicitly applied for and granted; approvals of mining plans or other operational plans do not implicitly confer a right-of-way." George C. Coggins & Robert L. Glicksman, *Pub. Nat. Res. Law*, § 15.21 (2d ed. 2020).

BLM may grant a Right-of-Way (ROW) only if it "(4) will do no unnecessary damage to the environment." 43 U.S.C. § 1764(a). Rights of way "shall be granted, issued or renewed … consistent with … any other applicable laws." Id. § 1764(c). A right-of-way that "may have significant impact on the environment" requires submission of a plan of construction, operation, and rehabilitation of the right-of-way. Id. § 1764(d). A Title V SUP/ROW "shall contain terms and conditions which will … (ii) minimize damage to scenic and esthetic values and fish and wildlife habitat and otherwise protect the environment." Id. § 1765(a). In addition, the ROW can only be issued if activities resulting from the ROW:

> (i)protect Federal property and economic interests; (ii) manage efficiently the lands which are subject to the right-of-way or adjacent thereto and protect the other lawful users of the lands adjacent to or traversed by such right-of-way; (iii) protect lives and property; (iv) protect the interests of individuals living in the general area traversed by the right-of-way who rely on

> the fish, wildlife, and other biotic resources of the area for subsistence purposes; (v) require location of the right-of-way along a route that will cause least damage to the environment, taking into consideration feasibility and other relevant factors; and (vi) otherwise protect the public interest in the lands traversed by the right-of-way or adjacent thereto.

FLPMA, § 1765(b).

At least three important potential substantive requirements flow from the FLPMA's ROW provisions. First, BLM has a mandatory duty under Section 505(a) to impose conditions that "will minimize damage to scenic and esthetic values and fish and wildlife habitat and otherwise protect the environment." Id. §1765(a). The terms of this section do not limit "damage" specifically to the land within the ROW corridor. Rather, the repeated use of the expansive term "the environment" indicates that the overall effects of the ROW on wildlife, environmental, scenic and aesthetic values must be evaluated and these resources protected. In addition, the obligation to impose terms and conditions that "protect Federal property and economic interests" in Section 505(b) requires that the BLM must impose conditions that protect not only the land crossed by the right-of-way, but all federal land affected by the approval of the ROW. In this case, as noted herein, BLM failed to evaluate all aspects and ramifications of issuing the ROW for the Ambler Road. At a minimum, the DEIS failed to consider the mineral material/gravel mines and related infrastructure made possible by the ROW. Also as noted herein, the DEIS fails to show how the mineral projects in the Ambler District made possible by the issuance of the ROW meet these FLPMA requirements.

Second, the requirements in Section 505(b) mandate a BLM determination as to what conditions are "necessary" to protect federal property and economic interests, as well as "otherwise protect[ing] the public interest in the lands traversed by the right-of-way or adjacent thereto." This means that the agency can only approve the ROW if it "protects the public interest in lands" not only upon which the road would traverse, but also lands and resources adjacent to and associated with the ROW.

Third, is the requirement that the right-of-way grant "do no unnecessary damage to the environment" and be "consistent with … any other applicable laws," id. §§ 1764(a)-(c). This means that a grant of a ROW leading to the exploration and mining must satisfy all applicable laws, regulations and policies, including all state and local laws, etc.

The federal courts have repeatedly held that the federal land agency not only has the authority to consider the adverse impacts on lands and waters outside the immediate ROW corridor, it has an obligation to protect these resources under FLPMA. In County of Okanogan v. National Marine Fisheries Service, 347 F.3d 1081 (9th Cir. 2003), the court affirmed the Forest Service's imposition of mandatory minimum stream flows as a condition of granting a ROW for a water pipeline across USFS land. This was true even when the condition/requirement restricted or denied vested property rights (in that case, water rights). Id. at 1085-86.

The BLM thus cannot issue a ROW that fails to "protect the environment" as required by FLPMA, including the environmental resource values in and not within the ROW corridor. "FLPMA itself does not authorize the Supervisor's consideration of the interests of private facility owners as weighed against environmental interests such as protection of fish and wildlife habitat. FLPMA *requires* all land-use authorizations to contain terms and conditions which will protect resources and the environment." Colorado Trout Unlimited v. U.S. Dept. of Agriculture, 320 F.Supp.2d 1090, 1108 (D. Colo. 2004)(emphasis in

original) appeal dismissed as moot, 441 F.3d 1214 (10th Cir. 2006).

The Interior Department, interpreting FLPMA V and its right-of-way regulations, has held that: "A right-of-way application may be denied, however, if the authorized officer determines that the grant of the proposed right-of-way would be inconsistent with the purpose for which the public lands are managed or if the grant of the proposed right-of-way would not be in the public interest or would be inconsistent with applicable laws." Clifford Bryden, 139 IBLA 387, 389-90 (1997) 1997 WL 558400 at *3 (affirming denial of right-of-way for water pipeline, where diversion from spring would be inconsistent with BLM wetland protection standards). Here, allowing access and granting a ROW for the southern route would be "inconsistent with the purpose for which the public lands are managed," as detailed above, and thus cannot be authorized.

Similar to the County of Okanogan and Colorado Trout Unlimited federal court decisions noted above, the Interior Department has held that the fact that a ROW applicant has a property right that may be adversely affected by the denial of the ROW does not override the agency's duties to protect the "public interest." In Kenneth Knight, 129 IBLA 182, 185 (1994), the BLM's denial of the ROW was affirmed due not only to the direct impact of the water pipeline, but on the adverse effects of the removal of the water in the first place:

> [T]he granting of the right-of-way and concomitant reduction of that resource, would, in all likelihood, adversely affect public land values, including grazing, wildlife, and riparian vegetation and wildlife habitat. The record is clear that, while construction of the improvements associated with the proposed right-of-way would have minimal immediate physical impact on the public lands, the effect of removal of water from those lands would be environmental degradation. Prevention of that degradation, by itself, justified BLM's rejection of the application.

1994 WL 481924 at *3. That was also the case in Clifford Bryden, as the adverse impacts from the removal of the water was considered just as important as the adverse impacts from the pipeline that would deliver the water. 139 IBLA at 388-89. *See also* C.B. Slabaugh, 116 IBLA 63 (1990) 1990 WL 308006 (affirming denial of right-of-way for water pipeline, where BLM sought to prevent applicant from establishing a water right in a wilderness study area).

In King's Meadow Ranches, 126 IBLA 339 (1993), 1993 WL 417949, the IBLA affirmed the denial of right-of-way for a water pipeline, where the pipeline would degrade riparian vegetation and reduce bald eagle habitat. The Department specifically noted that under FLPMA Title V: "[A]s BLM has held, it is not private interests but the public interest that must be served by the issuance of a right-of-way." 126 IBLA at 342, 1993 WL 417949 at *3 (emphasis added). As the IBLA recently held:

> The public interest determination is more than a finding that no laws will be violated by granting the ROW. Even if UUD [Unnecessary or Undue Degradation] can be avoided, degradation to public resources posed by a requested ROW may factor into BLM's determination of whether that ROW would be in the public interest. For example, in Sun Studs, we upheld BLM's rejection of a logging road ROW permit based on environmental considerations without any suggestion that the environmental harm rose to the level of

unlawful degradation.

Klamath-Siskiyou Wildlands Center, IBLA 2019-75, at 9 (April 29, 2019), citing Sun Studs, 27 IBLA at 282-83.

II. The EA and Proposed FONSI Violate NEPA

NEPA requires federal agencies to take a "hard look" at the environmental consequences of their proposed actions. Kleppe v. Sierra Club, 427 U.S. 390, 410 n.21 (1976); Blue Mountain Biodiversity Project v. Blackwood, 161 F.3d 1208, 1211 (9th Cir. 1998). To take this "hard look," agencies must prepare an EIS for all "major Federal actions significantly affecting the quality of the human environment." 42 U.S.C. § 4332(C). The standard for when an agency must prepare an EIS is a "low standard." Klamath Siskiyou Wildlands Ctr. v. Boody, 468 F.3d 549, 562 (9th Cir. 2006).

The Council on Environmental Quality (CEQ) establishes NEPA regulations, which are binding on every federal agency. 40 C.F.R. § 1500.3(a) (2020). The original regulations implementing NEPA were published by CEQ in 1978. See 40 Fed. Reg. 55,978 (Nov. 29, 1978). In 2020, the Trump administration published new CEQ NEPA regulations. See 85 Fed. Reg. 43,304 (July 16, 2020) (codified at 40 C.F.R. Part 1500). The Biden administration has since revised the regulations and is making further revisions. See 87 Fed. Reg. 23,453 (April 20, 2022).

The Secretary of the Interior issued Order #3399, on April 16, 2021, which states that: "Bureaus/Offices will not apply the 2020 Rule in a manner that would change the application or level of NEPA that would have been applied to a proposed action before the 2020 Rule went into effect on September 14, 2020." Thus, the 1978 NEPA rules apply here.

Under NEPA, if an agency is unsure whether a proposed action may have significant environmental effects, it may prepare a shorter "environmental assessment" to determine whether an EIS is necessary. 40 C.F.R. § 1501.4(c) (1978); 40 C.F.R. § 1501.5 (2020). To avoid preparing an EIS, the agency's EA and FONSI must provide a "convincing statement of reasons" why a project's impacts are insignificant. 40 C.F.R. §§ 1501.4, 1508.9, 1508.13 (1978).

The scope of NEPA review is broad. BLM must evaluate and disclose the direct, indirect, and cumulative effects of the proposed action and its alternatives on ecological, aesthetic, historic, cultural, economic, social, and health interests. 40 C.F.R. §§ 1508.7–1508.8 (1978). That did not happen here.

It should also be noted that the EA repeatedly describes the Project lands as "previously disturbed," as one of the grounds to support its truncated FLPMA and NEPA review. "[T]he Project is an exploratory drilling project, that would occur entirely within an area disturbed by historical mining activities. The majority of the Project Area has been disturbed due to these historical mining operations." EA at 114. BLM does not inform the public as to which "majority" Project lands were "previously disturbed" by mineral operations.

Yet, even if some, but certainly not most, of the Project lands experienced previous mining activities, under BLM regulations, these lands were satisfactorily "reclaimed." Thus, BLM cannot justify new and

significant impacts to public land and resources under the guise that the lands had been "previously disturbed" by mining, as all of those lands have been supposedly reclaimed to support public uses such as for recreation, wildlife, cultural values, etc. – resources that will be impacted by the Project.

A. The EA Failed to Fully Analyze Direct, Indirect and Cumulative Impacts.

The EA fails to conduct the required "hard look" at the Project's impacts, including both the drilling areas and the access route(s) and the Project as a whole.

Under NEPA, BLM must consider all direct, indirect, and cumulative environmental impacts of the proposed action. 40 CFR §§ 1502.16, 1508.8, 1508.25(c). Direct effects are caused by the action and occur at the same time and place as the proposed project. 40 CFR § 1508.8(a). Indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. 40 CFR § 1508.8(b). Both types of impacts include "effects on natural resources and on the components, structures, and functioning of affected ecosystems," as well as "aesthetic, historic, cultural, economic, social or health [effects]." Id.

BLM's limited environmental review of the exploratory drilling and road access is inadequate under NEPA. At a minimum, as noted above, the PoO proposed to be approved shows well over 100 drill sites, but the EA is based on only 65 drill sites. EA at 6. Additionally, the likely impacts of use of these public lands by heavy equipment and exploratory drilling that are not adequately disclosed or addressed include, but are not limited to:

- Impacts to wildlife;
- Impacts to native habitat;
- Impacts to soils;
- Impacts to groundwater and hydrology;
- Impacts to air quality;
- Impacts to the ACEC;
- Impacts to cultural resources and Environmental Justice;
- Consistency with Resource Management Plans.

BLM must also fully review the impacts from all "past, present, and reasonably foreseeable future actions." These are the "cumulative effect/impacts" under NEPA. Cumulative effects/impacts are defined as:

> [T]he impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

40 CFR § 1508.7. In a cumulative impact analysis, an agency must take a "hard look" at all actions.

> An EA's analysis of cumulative impacts must give a sufficiently detailed catalogue of past, present, and future projects, and provide adequate analysis about how these projects, and

> differences between the projects, are thought to have impacted the environment. … Without such information, neither the courts nor the public ... can be assured that the [agency] provided the hard look that it is required to provide.

Te-Moak Tribe of Western Shoshone v. U.S. Dept. of Interior, 608 F.3d 592, 603 (9th Cir. 2010) (rejecting BLM-issued EA for mineral exploration that had failed to include detailed analysis of impacts from nearby proposed mining operations).

NEPA's mandate to analyze cumulative impacts applies to all "past," "present," and "reasonably foreseeable future actions." 40 C.F.R. §1508.7. BLM must include "mine-specific or cumulative data." Great Basin Resource Watch v. BLM, 844 F.3d 1095, 1105 (9th Cir. 2016), quoting Great Basin Mine Watch v. Hankins, 456 F.3d 955, 973 (9th Cir. 2006). It must provide a detailed "quantified" analysis of other projects' combined environmental impacts, and "identify and discuss the impacts that will be caused by each successive project. Including how the combination of those various impacts is expected to affect the environment" within the area. Great Basin Res. Watch, 844 F.3d at 1105.

The EA does not adequately analyze the cumulative impacts from the other proposed activities within the cumulative effects study area on environmental justice, cultural resources and uses, wildlife, recreation, air quality, and other potentially affected resources. The EA contains little, if any, detailed analysis of these and other past, present, and "Reasonably Foreseeable Future Activities" (RFFAs) within the potentially affected areas that may cumulatively affect these resources. BLM simply lists the acreages of these activities, with no detailed impacts analysis.

The Ninth Circuit has repeatedly rejected similarly cursory analyses contained in BLM EAs and EISs for mineral operations, holding that listing other projects does not satisfy NEPA:

> [S]imply listing all relevant actions is not sufficient. Rather, "some quantified or detailed information is required. Without such information, neither the courts nor the public ... can be assured that the [agency] provided the hard look that it is required to provide." Neighbors of Cuddy Mountain v. U.S. Forest Serv., 137 F.3d 1372, 1379 (9th Cir. 1998).

Great Basin Res. Watch, 844 F.3d at 1104. The Ninth Circuit in Great Basin Mine Watch v. Hankins specifically rejected BLM's argument that a list of other projects and their acreages satisfied NEPA's cumulative impacts analysis requirements: "**A calculation of the total number of acres to be impacted by other projects in the watershed is a necessary component of a cumulative effects analysis, but is not a sufficient description of the actual environmental effects that can be expected.**" 456 F.3d at 973 (emph. added).

But that's exactly what the EA does here. It provides a general description of other types of projects in the area, and their general impacts, and their acreages. But no details or analysis is provided – not even the names of the RFFA projects. *See* EA Table 3-37 (for the cumulative impacts to wildlife, merely listing the general types of past, present, and RFFAs, and their acreages). EA at 106-07.

In addition, the EA fails to even mention other existing and RFFA operations/activities in the cumulative affects study area (CESA). For example, for the Environmental Justice CESA, the EA correctly

notes its large area. EA Figure 3-4. Yet there is no discussion, analysis, or even a list, of the other current and RFFA projects in this CESA. As BLM knows, there are a number of mineral projects proposed in this CESA. *See* Imperial Exploration Project (and maps showing the projects within the Environmental Justice CESA for the Oro Cruz Project) (Attachment 2).

Regarding the CESAs themselves, the EA improperly restricted the scope of analysis for critical resources such as wildlife, and even more importantly, Native American Cultural/Historical Resources. *See* EA Figures 3-2, 3-12. As discussed in more detail below, BLM is aware, the Tribes and Native communities that have lived and used these areas for millennium consider these mountains, and the Project site, as part of a much larger cultural landscape, which includes Indian Pass and related Trails network (such as the Trail of Dreams). *See* Record of Decision for the Imperial Project, at 10 (discussing Trail of Dreams as a ground for denying the Project)(Attachment 3). BLM cannot avoid its duties to the Tribes, and under NEPA and FLPMA cannot ignore these facts.

Here, the adverse impacts from the Project when added to other past, present or reasonably foreseeable future actions is clearly essential to the BLM's determination (and duty to ensure) that the Project complies with all legal requirements and minimizes all adverse environmental impacts. "[W]hen the nature of the effect is reasonably foreseeable but its extent is not, we think that the agency may not simply ignore the effect. The CEQ has devised a specific procedure for 'evaluating reasonably foreseeable significant adverse effects on the human environment' when 'there is incomplete or unavailable information.' 40 C.F.R. § 1502.22." Mid States Coalition for Progress v. Surface Transportation Board, 345 F.3d 520, 549-550 (8th Cir. 2003). The BLM's failure to obtain this information, or make the necessary showings under § 1502.22, for all direct, indirect and cumulative impacts violates NEPA.

Thus, BLM failed to fully consider the cumulative impacts from all past, present, and reasonably foreseeable future projects in the region on, at a minimum, environmental justice, water and air quality, recreation, cultural/religious, wildlife, scenic and visual resources, etc. BLM must fully review, and subject such review to public comment in a revised draft EA or EIS, the cumulative impacts from all other past, present and RFFAs including mining/exploration, grazing, recreation, energy development, roads, ORV use, etc., in the region. The EA's failure to include these reviews violates NEPA.

B. The EA fails to fully review all baseline conditions.

The establishment of the baseline conditions of the affected environment is a fundamental requirement of the NEPA process whether an EA or EIS is prepared:

> "NEPA clearly requires that consideration of environmental impacts of proposed projects take place before [a final decision] is made." LaFlamme v. FERC, 842 F.2d 1063, 1071 (9th Cir.1988) (emphasis in original). Once a project begins, the "pre-project environment" becomes a thing of the past, thereby making evaluation of the project's effect on pre-project resources impossible. Id. Without establishing the baseline conditions which exist in the vicinity ... before [the project] begins, there is simply no way to determine what effect the proposed [project] will have on the environment and, consequently, no way to comply with NEPA. Half Moon Bay Fisherman's Mark't Ass'n v. Carlucci, 857 F.2d 505, 510 (9th Cir. 1988). "In analyzing the affected environment, NEPA requires the agency to set forth the

baseline conditions."

Western Watersheds Project v. BLM, 552 F.Supp.2d 1113, 1126 (D. Nev. 2008). Similarly, the CEQ explained: "The concept of a baseline against which to compare predictions of the effects of the proposed action and reasonable alternatives is critical to the NEPA process." Council of Environmental Quality, Considering Cumulative Effects under the National Environmental Policy Act (May 11, 1999). "NEPA requires that the agency provide the data on which it bases its environmental analysis. Such analyses must occur before the proposed action is approved, not afterward." Northern Plains v. Surf. Transp. Brd., 668 F.3d 1067, 1083 (9th Cir 2011) (concluding that an agency's "plans to conduct surveys and studies as part of its post-approval mitigation measures," in the absence of baseline data, indicate failure to take the requisite "hard look" at environmental impacts). Baseline information and analysis must be part of the environmental review and be subject to public review and comment under NEPA.

Federal courts have repeatedly rejected EAs for mineral exploration project that do not contain detailed analysis of baseline conditions for all potentially affected resources, such as groundwater, wildlife, etc. *See* Gifford Pinchot Task Force v. Perez, 2014 WL 3019165, **27-33 (D. Or. 2014) (BLM EA for mineral exploration failed to analyze baseline ground water conditions); Cascade Forest Conservancy v. Heppler, 2021 WL 641614, *17–20 (D. Oregon 2021); ICL v. U.S. Forest Serv., 2012 WL 3758161, *14–17 (D. Idaho 2012); ICL v. U.S. Forest Serv., 429 F. Supp. 3d 719, 730-32 (D. Idaho 2019).

Here, the EA failed to obtain this baseline information on all potentially affected resources, including listed and imperiled plants and animals, other native and non-native vegetation and wildlife, ground and surface waters resources and water quality, air quality, recreation, cultural/religious/historical, and soils.

C. The EA failed to include an adequate mitigation plan under NEPA and BLM mining regulations

As noted herein, the EA fails to have an adequate plan to mitigate the significant impacts to cultural and environmental resources, as required by NEPA, FLPMA, and BLM regulations (e.g., Part 3809). As just one example, the EA fails to analyze mitigation of the dozens/scores of potential drill sites (and access routes), as it fails to analyze their impacts at all. There is also no mitigation for the loss of Native American religious and cultural use and values at and around the Project site.

Under NEPA, the agency must have an adequate mitigation plan to minimize or eliminate all potential project impacts. NEPA requires the agency to: (1) "include appropriate mitigation measures not already included in the proposed action or alternatives," 40 CFR § 1502.14(e); and (2) "include discussions of: . . . Means to mitigate adverse environmental impacts (if not already covered under 1502.14(e))." 40 CFR § 1502.16(a)(9). NEPA regulations define "mitigation" as a way to avoid, minimize, rectify, or compensate for the impact of a potentially harmful action. 40 C.F.R. §§1508.1(s). "[O]mission of a reasonably complete discussion of possible mitigation measures would undermine the 'action-forcing' function of NEPA. Without such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects." Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 353 (1989). NEPA requires that the agency discuss mitigation measures, with "sufficient detail to ensure that environmental consequences have been fairly evaluated." Methow Valley, 490 U.S. at 352.

An essential component of a reasonably complete mitigation discussion is an assessment of whether the proposed mitigation measures can be effective. *Compare* Neighbors of Cuddy Mountain v. U.S. Forest Service, 137 F.3d 1372, 1381 (9th Cir.1998) (disapproving an EIS that lacked such an assessment) *with* Okanogan Highlands Alliance v. Williams, 236 F.3d 468, 477 (9th Cir.2000) (upholding an EIS where "[e]ach mitigating process was evaluated separately and given an effectiveness rating"). The Supreme Court has required a mitigation discussion precisely for the purpose of evaluating whether anticipated environmental impacts can be avoided. Methow Valley, 490 U.S. at 351–52 (citing 42 U.S.C. § 4332(C)(ii)).

A mitigation discussion without at least some evaluation of effectiveness is useless in making that determination. South Fork Band Council v. Dept. of Interior, 588 F.3d 718, 727 (9th Cir. 2009) (rejecting EIS for failure to conduct adequate review of mitigation and mitigation effectiveness in mine EIS). "The comments submitted by [plaintiff] also call into question the efficacy of the mitigation measures and rely on several scientific studies. In the face of such concerns, it is difficult for this Court to see how the [agency's] reliance on mitigation is supported by substantial evidence in the record." Wyoming Outdoor Council v. U.S. Army Corps of Eng'rs, 351 F. Supp. 2d 1232, 1251 n. 8 (D. Wyo. 2005). *See also* Dine Citizens v. Klein, 747 F.Supp.2d 1234, 1258-59 (D. Colo. 2010) (finding "lack of detail as the nature of the mitigation measures" precluded "meaningful judicial review").

D. The agency must fully review all reasonable alternatives

NEPA requires the agency to "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal that involves unresolved conflicts concerning alternative uses of available resources." 42 U.S.C. § 4332(E); 40 CFR § 1502.14. It must "rigorously explore and objectively evaluate all reasonable alternatives" to the proposed action. City of Tenakee Springs v. Clough, 915 F.2d 1308, 1310 (9th Cir. 1990). NEPA requires the environmental review to "present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public." League of Wilderness Defs.-Blue Mts. Biodiversity Project v. United States Forest Serv., 689 F.3d 1060, 1069 (9th Cir. 2012). Whether an EA or EIS is prepared, BLM must "rigorously explore and objectively evaluate all reasonable alternatives" including alternatives that are "not within the [lead agency's] jurisdiction. 40 C.F.R. § 1502.14(a), (c)." Id. at 1071. "While a federal agency need not consider all possible alternatives for a given action in preparing an EA, it must consider a range of alternatives that covers the full spectrum of possibilities." Ayers v. Espy, 873 F.Supp. 455, 473 (D. Colo. 1994).

In this case, the EA failed to justify its rejection and/or failure to fully consider, at a minimum, the following reasonable alternatives: (1) access to each activity without the construction of new roads or reconstruction/improvement any existing or reclaimed, which could require helicopter access; (2) reduction in the amount, scope, and impact of each activity or group of activities including drilling waste disposal; (3) timing restrictions to protect wildlife; (4) preclusion of any impact to cultural/religious/historical resources, (5) moving the activities further from wildlife core/home ranges and (6) avoidance of rare plants/plant communities and their ecological/hydrological requirements.

III. Failure to Prepare EIS Violates NEPA

BLM's proposed issuance of a FONSI, and failure to prepare an EIS, violates NEPA and FLPMA. At the outset, due to the fundamental NEPA deficiencies in the EA noted above, BLM cannot issue a FONSI. BLM's deficient EA renders its FONSI inadequate. "[I]f the EA is deficient under NEPA in one of the ways Plaintiff has previously argued, then the [agency's] DN/FONSI is necessarily arbitrary and capricious because it relied on the 2012 EA." Gifford Pinchot Task Force v. Perez, 2014 WL 3019165, *40 (D. Or. 2014).

This follows a line of well-established Ninth Circuit precedent. *See* Native Ecosystems Council v. Tidwell, 599 F.3d 926, 937 (9th Cir. 2010) (USFS violated NEPA in issuing FONSI based on inadequate analysis); Ctr. for Biological Diversity v. NHTSA, 508 F.3d 1212, 1223-24 (9th Cir. 2007) (When an EA fails to comply with NEPA requirements, it "do[es] not constitute a 'hard look' at the environmental consequences of the action as required by NEPA. Thus, the FONSI is arbitrary and capricious.").

Here, BLM's decision not to prepare an EIS was made without the critical information regarding cumulative and other impacts, alternatives, mitigation, and baseline conditions detailed above. As such, the FONSI is consequently invalid.

NEPA requires federal agencies to prepare an EIS for "major Federal actions significantly affecting the quality of the human environment." 42 U.S.C. § 4332(C). "If an agency decides not to prepare an EIS, it must supply a convincing statement of reasons to explain why a project's impacts are insignificant." Native Ecosystems Council v. Tidwell, 599 F.3d 926, 937 (9th Cir. 2010) (quotation omitted). It is well established in the Ninth Circuit that an "EIS must be prepared if substantial questions are raised as to whether a project . . . may cause significant degradation of some human environmental factor." Blue Mountains, 161 F.3d at 1212 (quotation omitted). "Thus, to prevail on a claim that the [agency] violated its statutory duty to prepare an EIS, a plaintiff need not show that significant effects will in fact occur." Id. (quotation omitted). "It is enough for the plaintiff to raise substantial questions whether a project may have a significant effect on the environment." Id. (quotation omitted).

The Ninth Circuit has regularly described the bar for whether significant effects may occur as a "low standard." *See, e.g.*, League of Wilderness Defenders v. Connaughton, 752 F.3d 755, 760 (9th Cir. 2014); Cal. Wilderness Coal. v. U.S. Dep't of Energy, 631 F.3d 1072, 1097 (9th Cir. 2011); Klamath Siskiyou Wildlands Center v. Boody, 468 F.3d 549, 562 (9th Cir. 2006). Applying these principles, the Ninth Circuit has ordered EISs where plaintiffs raise substantial questions as to whether there may be significant impacts. *See, e.g.*, Blue Mountains, 161 F.3d at 1212–16; Nat'l Parks, 241 F.3d at 732; Ocean Advocates v. U.S. Army Corps of Eng'rs, 402 F.3d 846, 868 (9th Cir. 2005); Bark, 958 F.3d at 873; Envtl. Def. Ctr., 36 F.4th at 882.

Courts have ordered an EIS where cursory analysis in an EA—like BLM's analysis here—renders effects highly controversial, unknown, or uncertain and, thus, potentially significant. The Ninth Circuit held that an EA with "data gaps" and "lack of data" concerning potential effects requires an EIS. *See* National Parks, 241 F.3d at 733 (an agency's "lack of knowledge does not excuse the preparation of an EIS; rather it requires the [agency] to do the necessary work to obtain it."); Blue Mountains, 161 F.3d at 1212–16 (lack of supporting data and cursory treatment of environmental effects in EA warranted preparation of EIS).

Similarly, in Hausrath v. U.S. Dep't of the Air Force, 491 F. Supp. 3d 770 (D. Idaho 2020), the court found effects were controversial and required preparation of an EIS where plaintiffs "identified serious gaps in the USFAF's analyses concerning the effects of noise from the proposed action" to the community and wildlife. Id. at 802. The court also found that an EIS was required because the action in Hausrath had uncertain effects due to "the absence of baseline noise data actually measuring the ambient noise levels in the affected communities." Id. at 802–03.

Here, based on the EA's inadequate analysis, the significance of the Project's impacts to public resources, an EIS is required. That was the case recently in the California Desert as found by BLM. For an exploration drilling proposed on Conglomerate Mesa, BLM is requiring an EIS instead of an EA. That was for an exploration drilling project of far fewer drill sites, road construction, and environmental impacts. *See* March 9, 2022 letter from Carl Symons, BLM Ridgecrest Field Manager, to Mojave Precious Metals (Attachment 4). That project at Conglomerate Mesa involves only 12 acres and 30 drill sites, far less drill sites and surface impacts than are contemplated for this Oro Cruz project. Id. Notably, the Conglomerate Mesa project is within the same California Desert Resource Management Plan for the CDCA, also involves ACEC and CDNCL lands, and other critical public resources as does the much-larger Oro Cruz Project. BLM properly found that an EIS is required for the Conglomerate Mesa proposal, and should make the same finding here.

A. Biological Resources

1. Desert Tortoise

The Picacho Area of Environmental Concern (ACEC) was established in part to conserve the declining Mojave desert tortoise (EA at 25). Active burrows and tortoise sign were found in the drill areas (EA at 98).

The environmental review must clearly address alternative proposals for avoiding, minimizing, and mitigating the impacts to the desert tortoise and any occupied habitat. Yet the required mitigation measures outlined in Appendix F, Table F-3 simply state that access roads will be fenced with tortoise exclusion fencing in Tumco Wash.

An aggressive raven prevention plan also needs to be developed as part of the environmental review and followed during project development and implementation. LUPA-BIO-6 is listed as a mitigation measure, with raven management guidelines, but nothing specific to the project area. More detail of raven management specific to this area needs to be given, including nest management. Ravens are an increasing threat to Mojave desert tortoises range-wide.

2. Flat-tailed horned lizard and Colorado fringe-toed lizard

Small areas of sand can harbor fringe-toed lizards (*Uma notata*) and fringe-toed lizards (*Phrynosoma mccallii*), and the EA at 79 mentions that surveyors found small sand patches in the western edge of the area of analysis during March 2021 plant surveys. The Plan of Operations states that loose sandy soils are present in the project area. But surveys during the main activity time for reptiles—May and June—were not undertaken. These reptile species may have been dormant in underground burrows in March. Therefore, the

presence of these two lizard species needs to be assessed with targeted surveys during the proper season. No Aeolian Sand Transport assessment was conducted, as is required by LUPA-BIO-1. A Habitat Assessment was undertaken but is simply shown as habitat photos in Appendix E. No sand areas were mapped. Photos 13 and 14 in Appendix E show sandy areas, but methods for assessing sand habitats or sand transport are not given.

3. Golden Eagles

Apparently, no nest surveys were undertaken. Avian surveys found active nesting prairie falcons (EA at 96). Helicopter operations to deliver drilling equipment, water, and other supplies to mountain drill sites could disturb any golden eagles nesting in the area and could lead to take under the Bald and Golden Eagle Protection Act. Golden eagles are also fully protected species under California law and cannot be taken at any time. (Cal. Fish and Game Code §3511(b)(7).) Targeted surveys during the winter nesting season should be undertaken.

The EA states at 100:

> Should golden eagles or golden eagle nests be identified during pre-clearance surveys, CMA LUPA-BIO-IFS-24 would be implemented to minimize impacts of surface disturbance within one-mile of active golden eagle nests or territories, as included in **Appendix F**.

This indicates that no nest surveys were undertaken to determine the location and number of breeding pairs and active nests in the Project Area. This is not acceptable.

The Finding of No Significant Impact for the Silicon Exploration Project Environmental Assessment DOIBLM-NV-B020-2020-0017-EA (Attachment 5) states for golden eagles:

> There was one golden eagle nest and five possible golden eagle nests within one mile of the Project Area. None of the nests were occupied during 2019 field surveys; however, one nest was active during 2020 field surveys. To avoid impacts to those nests, AGA would implement the EPM in Section 2.2.6.10 that states Project activities would not be conducted between January 1 and August 31 within one mile of a nest. However, if that is not practicable, a survey would be conducted after March 21 at eagle nest sites that are within one mile of the Project Area to determine occupancy. The timing of the surveys may be adjusted due to winter weather conditions and is subject to approval from the NDOW based on consideration of bighorn sheep (*Ovis canadensis*) lambing activity. If a nest has a bird in an incubating/brooding posture, it would be assumed that the nest is active that year, and a one-mile disturbance buffer would be applied until August 31, or until it has been determined that 1) the nest has failed; or 2) the young have fledged and are no longer dependent on the nest. The buffer sizes may be reduced with approval from the US Fish and Wildlife Service (USFWS). If the nest is not active at the time of the surveys, the one-mile buffer would not apply and Project activities could commence. (FONSI at 6).

Ultimately the gold exploration company decided to seek a take permit from US Fish and Wildlife Service, which was analyzed in a March 2022 Environmental Assessment. (Attachment 6). **This gold**

exploration project did not use helicopters. The Service discusses the need for a take permit:

> This Environmental Assessment (EA) analyzes the environmental consequences of the United States (U.S.) Fish and Wildlife Service (Service) issuing an incidental take permit for the take of golden eagles (*Aquila chrysaetos*) associated with the Silicon Exploration Project (Project) pursuant to the National Environmental Policy Act (NEPA) (42 United States Code [U.S.C.] §§ 4321–4347). Issuance of an eagle take permit by the Service for take that is incidental to otherwise lawful activities under the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. §§ 668–668d and 50 Code of Federal Regulations [CFR] § 22.26) constitutes a discretionary federal action that is subject to NEPA. This EA assists the Service in ensuring compliance with NEPA, and in making a determination as to whether any "significant" impacts could result from the analyzed actions that would require preparation of an Environmental Impact Statement (EIS). This EA evaluates the effects of alternatives for the Service's decision whether to issue an eagle take permit. (EA at 1)
>
> The Service issued a take permit for eagles for the Silicon Exploration Project. (*See* Attachment 5).

Without proper eagle nest surveys, the Oro Cruz applicant may unintentionally harass golden eagles that might be nesting in the mountains around the drill areas, especially with the use of helicopters. This could result in the loss of productivity of eagles in the region.

4. Desert Bighorn Sheep

Currently desert bighorn sheep are not known to be present in the Cargo Muchacho mountains, but the proposed project area is within the desert bighorn Wildlife Habitat Management Area designated in BLM's 2002 Northern and Eastern Colorado Desert Plan Amendment. Repatriating the desert bighorn sheep in the Cargo Muchacho Mountains is a key goal to sustaining the desert bighorn sheep metapopulation particularly as the effects of climate change advance. The environmental review must analyze the impacts to bighorn sheep habitat from the proposed project and whether it could impact future recovery efforts.

The EA at 95 states that no known guzzlers are in the area, but otherwise the EA does not analyze potential bighorn sheep habitat here, nor future recovery efforts.

5. Burro Deer

The EA at 97 states that mule deer were observed during 2021 desert tortoise surveys. This narrow endemic mule deer subspecies (*Odocoileus hemionus eremicus*) is only found in the Colorado Desert of southeastern California. Measures should be outlined that avoid disturbing these deer populations.

6. Rare Plants

Although several rare plants are known in this area and some are identified in the EA/MND (at 79), it is unclear when plant surveys were conducted and whether they were seasonally appropriate to find certain plants. Therefore other rare plants may have been missed. Without more information it appears that the conclusions in the EA/MND that rare plants will not be significantly impacted is unsupported.

B. Cultural Resources

The proposed action would adversely affect the sacred Tribal Cultural Landscape that consists of the ancient trail network, called Trail of Dreams or Xam Kwatchan Trail Network, which extends from Avi Kwa Ame (Spirit Mountain, Nevada) to the Avi Kwlal (Pilot Knob, California). The area that would be disturbed by the Oro Cruz exploration project is included in this Tribal Cultural Landscape. (*See* Figure 2 (map) Attachment 7). The EA has failed to analyze the impact on this Tribal Cultural Landscape held sacred by six native American Tribes in the region. Comments submitted by the Quechan Tribe are referenced in the EA (section 3.14.3):

> The proposed Project location is sited within a region that is highly significant to the Fort Yuma Quechan Indian Tribe. This is a location that the Tribe attaches great cultural, religious and spiritual significance to. The Fort Yuma Quechan Indian Tribe objects to the proposed mining project and the proximity of the operation to a significant cultural landscape and items of cultural patrimony which are integral to the spiritual and everyday lives of the Quechan people.

However, the EA states (section 3.14.3) states that "Currently, not enough information has been provided to understand the nature, extent and use of the resource, and therefore to fully assess impacts or determine if there are minimization or avoidance measures that would apply." Not having enough information to analyze the impacts on the Tribal Cultural Landscape is not sufficient grounds to determine the project would have no significant impacts on Native American Religious Concerns and Traditional Values. Instead, the BLM should require an EIS to analyze these impacts in detail.

Furthermore, BLM pursuant to the 2019 Dingell Act the BLM was required to develop and implement a cultural resources management plan for the Xam Kwatchan Trail Network:

> Not later than 2 years after the date of enactment of the John D. Dingell, Jr. Conservation, Management, and Recreation Act [enacted March 12, 2019], the Secretary shall develop and implement a Tribal cultural resources management plan to identify, protect, and conserve cultural resources of Indian Tribes associated with the Xam Kwatchan Trail network extending from Avikwaame (Spirit Mountain, Nevada) to Avikwlal (Pilot Knob, California).

16 U.S.C.S. § 410aaa-75. That plan is overdue and BLM cannot authorize mine exploration activities on lands associated with the Xam Kwatchan Trail Network until it completes the tribal cultural resources management plan which is needed to ensure protection and conservation of these resources.

C. Additional Resource Issues

The environmental review must provide sufficient information to evaluate serious aspects of the project and raise many questions, which if answered, might expose environmental impacts.

1. Source of Groundwater and Impacts

The EA, at 87-92, states that 2,000 gallons of water per day will be required for drilling and dust suppression. The water would be procured from Gold Rock Ranch and/or another local water purveyor. A mobile water truck would be utilized onsite for dust suppression, and applied water would either naturally evaporate or infiltrate into the ground. The impact of taking that water from existing wells is not addressed despite the drought conditions in the area. And even though the specific source of water is not known, the EA/MND at 92 claims that the "Project would not consume groundwater from the Imperial Valley Groundwater Basin" – there is no support for this statement. In addition, because the groundwater in this area is connected to the Colorado River, taking any water from the water table must be strictly accounted for under the law of the river. (*See* Map 7 in Attachment 8). The EA/MND fails to analyze how groundwater pumping from off-site sources may impact the Imperial Valley groundwater district and the Colorado River accounting surface (as noted above). Because the identification and analysis of groundwater resources, including the source of water and the impacts of its extractions, are not adequately disclosed or addressed the EA/MND violates NEPA and CEQA.

2. Surface Disturbance

The EA/MND (at 5) calculates the surface disturbance at 20.54 acres – but it is unclear if that calculation accounts for additional for turnaround spaces for the large trucks and heavy equipment, sumps, and overburden. All the road segments and drill pads must be considered new ground disturbances regardless of being on top of the roads and pads of previous mining/drilling/disturbed areas. Use of all road segments and pads for the proposed project will cause new disturbances. The EA/MND attempts to waive away the significance of these new surface disturbances on previously reclaimed areas, undermining the environmental review.

3. Reclamation Plan is Not Provided

The EA/MND refers to a Reclamation Plan (Sespe 2022) (at 8), but it is not provided with the EA/MND. Instead the EA/MND provides only a summary: "A summary of the Reclamation Plan is provided below, and complete details are provided in SMP – Oro Cruz Exploration Project Reclamation Plan (Sespe 2022), on file with Imperial County (Reclamation Plan #21-0001)." EA/MND at 8-10. A copy of the plan should have been circulated to the public during the comment period. Several important recommendations for reclamation from scoping comments do not appear to have been addressed in the EA/MND:

- Prohibit blading of road segments or the staging area. Mow or hand cut vegetation to within inches of the ground on the road segments and then drive over them to the drill pad, creating a 2-track path and leaving the roots intact. Vegetation will grow back faster from root stock than from seed.
- Prohibit tracked vehicles and require only vehicles equipped with oversized, balloon tires to minimize soil compaction and to speed revegetation.
- Topsoil is thin in the desert and what is scraped off for reclamation may blow away, if not covered. That topsoil needs to be protected by stockpiling at appropriate height to prevent composting from occurring which would kill off propagules and soil fauna.

- Plant seedlings and require reseeding only in the fall. Do not use hydroseeding methods.
- The seed source for reseeding must contain *locally* sourced native species only. The grasses should be grasses that are native to the project site.
- The BLM or an independent botanist needs to survey all of the drill sites and roads to them annually starting after the drilling ends, to determine whether SMP Gold Corporation has complied with the reclamation requirements. This information should be shared with the public. Issue a notice of violation if the results are substandard.
- Require an annual report in the fall on how the revegetation is progressing and the presence of and removal of all noxious weeds.
- Establish criteria for "successful reclamation". Including the density and diversity of species
- Require remediation if plants aren't established after three years.
- Identify who will be responsible for the monitoring after three years if the goals have not been met and funding from the project proponent to be sure it continues.
- Clean vehicles before entering the project site if they have been driven where they could pick up non-native plant propagules on their vehicle.

Because these important issues regarding reclamation raised in scoping were not addressed in the EA/MND, and a copy of the full Reclamation Plan is not provided for public review, the document is inadequate as an informational document under NEPA and CEQA.

IV. The Mitigated Negative Declaration is Inadequate to Fulfill the Requirements of SMARA or CEQA.

A. SMARA and the County Ordinance Require the County to Evaluate Both the Mining Exploration Project and the Reclamation Plan

Imperial County is identified as the lead agency for both SMARA and CEQA. EA/MND at 2. As the court explained in Nelson v. County of Kern, 190 Cal. App. 4th 252 (2010):

> The Legislature declared that its intent in enacting SMARA was "to create and maintain an effective and comprehensive surface mining and reclamation policy with regulation of surface mining operations so as to assure that: [¶] (a) Adverse environmental effects are prevented or minimized and that mined lands are reclaimed to a usable condition which is readily adaptable for alternative land uses[; and ¶] (b) The production and conservation of minerals are encouraged, while giving consideration to values relating to recreation, watershed, wildlife, range and forage, and aesthetic enjoyment." (§ 2712, subds. (a) & (b).) "To achieve those goals, SMARA requires that persons conducting surface mining operations obtain a permit and obtain approval of a reclamation plan from a designated lead agency for areas subjected to post-January 1, 1976, mining. (§§ 2770, 2776.)" (*Hansen Brothers Enterprises, Inc. v. Board of Supervisors* (1996) 12 Cal.4th 533, 547, fn. omitted.) In particular, SMARA provides: "[N]o person shall conduct surface mining operations unless a permit is obtained from, a reclamation plan has been submitted to and approved by, and financial assurances for reclamation have been approved by, the lead agency for the operation pursuant to this article." (§ 2770, subd. (a).) This section, including the requirement that a surface mining permit be obtained from the lead agency, has been described as "'[a]t the

heart of SMARA.' " (*People ex rel. Dept. of Conservation v. El Dorado County* (2005) 36 Cal.4th 971, 984.)

To facilitate the enforcement of SMARA, section 2774 states that "[e]very lead agency shall adopt ordinances in accordance with state policy that establish procedures for the review and approval of reclamation plans and financial assurances and the issuance of a permit to conduct surface mining operations . . ." (§ 2774, subd. (a).)

Under the Imperial County Ordinance, exploratory mining activities fall within the definition of Surface Mining Operations (Title 9, Div. 20: Surface Mining & Reclamation (hereinafter "Title 9") § 92001.01.) The County Ordinance prohibits mining activities without first obtaining County approval of "a Permit, Reclamation Plan, and financial assurances for reclamation," subject to narrow exceptions which are not relevant here. Title 9 § 92001.03.

The EA/MND acknowledges that Imperial County must approve the reclamation plan (at 2), but fails to acknowledge that a permit approval is also needed. Just as in Nelson, here, the is no question that the County, as lead agency, "is responsible under SMARA and the local ordinance to evaluate the entire [] proposal and to determine *both* whether to issue a permit for mining operations and whether to approve the reclamation plan." Nelson, 190 Cal. App. 4th at 269 (emphasis in original; citing Pub. Res. Code §§ 2770, subd. (a), 2774, subd. (a)). And as in Nelson, "[t]hat being the case, it was improper for County to sever the mining operations from the scope of its review under SMARA." Id. 190 Cal. App. 4th at 269.

As noted above, a complete copy of the reclamation plan was not provided to the public during this comment period. On this basis, the conservation groups reserve the right to provide additional comments once a complete copy of the reclamation plan is provided. The summary provided in the EA/MND is insufficient for the public or decision makers to determine if the reclamation plan is adequate to meet SMARA standards, and because the reclamation plan is a key part of the mitigation for the project, the failure to provide the public with all relevant studies and information also fails CEQA and fails to show that an MND is appropriate.

B. CEQA requires the County to consider the whole of the action in an EIR.

The joint EA/MND section "3.2 CEQA Checklist and Impact Analysis" is insufficient in several ways as detailed below and an EIR is needed. The purpose of CEQA is to provide decision-makers and the public with environmental information before decisions are made, not after. As the California Supreme Court observed in Laurel Heights I, "[i]f post-approval environmental review were allowed, [CEQA analyses] would likely become nothing more than post hoc rationalizations to support action already taken. We have expressly condemned this [practice]." Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal. ("Laurel Heights I"), (1988) 47 Cal. 3d 376, 394 (citation omitted). Accordingly, "public agencies shall not undertake actions concerning the proposed public project that would have a significant adverse effect or limit the choice of alternatives or mitigation measures, before completion of CEQA compliance." CEQA Guidelines § 15004(b)(2). In particular, an agency shall not "take any action which gives impetus to a planned or foreseeable project in a manner that forecloses alternatives or mitigation measures that would ordinarily be part of CEQA review of that public project." CEQA Guidelines § 15004(b)(2)(B). CEQA requires the preparation of environmental review documents "as early as feasible in the planning process to

enable environmental considerations to influence project program and design and yet late enough to provide meaningful information for environmental assessment." Laurel Heights I, 47 Cal. 3d at 395; *see also* CEQA Guidelines § 15004(b).

Only when "there is no substantial evidence in light of the whole record before the public agency that the project . . . may have a significant effect on the environment" may an agency prepare a negative declaration or mitigated negative declaration instead of an EIR. (Public Res. Code § 21064.5; *see also id.* §§ 21064, 21080(c).). A mitigated negative declaration, in particular, is prepared "when the initial study has identified potentially significant effects on the environment, but . . . revisions in the project plans or proposals . . . would avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur" and there is no substantial evidence the project may have a significant effect on the environment. (Id. § 20164.5.) If there is substantial evidence that a project may have a significant effect on the environment, an agency must prepare an EIR. (Id. § 21080(d).)

If an agency is presented with so much as "a fair argument that a project may have a significant effect on the environment, the lead agency shall prepare an EIR even though it may also be presented with other substantial evidence that the project will not have a significant effect." (CEQA Guidelines § 15064(f)(1); *see also* No Oil, Inc. v. Los Angeles (1974) 13 Cal.3d 68, 75. By contrast, negative declarations are appropriate only when there is no substantial evidence in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment. Pub. Resources Code, § 21064.5; *see also* § 21080, subd. (c); CEQA Guidelines §§ 15006, subd. (h), 15064, subd. (f)(2), 15070, subd. (b), 15369.5.

Where, as here, there is a fair argument that the proposed project – the proposed mine exploration activities including new and expanded access roads and a reclamation plan—may have a significant effect on the environment, preparation of an EIR is required. Public Resources Code §§ 21100, 21151; CEQA Guidelines § 15064(a)(1); No Oil, Inc. v. City of Los Angeles (1974) 13 Cal. 3d 68, 82. No such determination can be made in this instance as detailed in this letter, there are potentially significant impacts to wildlife, water, air, cultural resources, and other resources.

Furthermore, under CEQA, an EIR must be prepared even if the lead agency can point to substantial evidence in the record supporting its determination that no significant effect will occur. Architectural Heritage Assn. v. County of Monterey (2004) 122 Cal. App. 4th 1095, 1110. The lead agency may not dismiss evidence because it believes that there is contrary evidence that is more credible. Pocket Protectors v. City of Sacramento (2005) 124 Cal. App. 4th 903, 935. Either there is substantial evidence showing the possibility of a significant environmental effect or there is not. If there is, then the lead agency must prepare an EIR. Architectural Heritage Assn., 122 Cal. App. 4th at 1109-1110. Importantly, the "fair argument" test "establishes a low threshold for initial preparation of an EIR, which reflects a preference for resolving doubts in favor of environmental review." Id. at 1110.

The County is required to consider the whole of the action in its CEQA review. CEQA Guidelines, Section 15378. The definition of "project" is "given a broad interpretation in order to maximize protection of the environment." Lighthouse Field Beach Rescue v. City of Santa Cruz (2005) 131 Cal.App.4th 1170, 1180 (internal quotation omitted); *see also,* Muzzy Ranch Co. v. Solano County Airport Land Use Com. (2007) 41 Cal.4th 372, 381-83; Fullerton Joint Union High Sch. Dist. v. State Bd. of Educ. (1982) 32 Cal.3d

779, 796-97; Bozung v. Local Agency Formation Com. (1975) 13 Cal.3d 263, 277-81.) A "project" is "the whole of an action" directly undertaken, supported, or authorized by a public agency "which may cause either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment." (Public Resources Code § 21065; CEQA Guidelines § 15378(a).) Under CEQA, "the term 'project' *refers to the underlying activity* and not the governmental approval process." California Unions for Reliable Energy v. Mojave Desert Air Quality Mgmt. Dist. (2009) 178 Cal.App.4th 1225, 1241, (quoting Orinda Assn v. Bd. of Supervisors (1986) 182 Cal.App.3d 1145, 1171-72 [emphasis added].) (CEQA Guidelines, § 15378(c) ["The term 'project' refers to the activity which is being approved and which may be subject to several discretionary approvals by governmental agencies. The term 'project' does not mean each separate governmental approval."]. As the court concluded in Nelson, 190 Cal. App. 4th at 272 "the entire CEQA project that had to be reviewed by County included both the mining operations and the reclamation plan. Both aspects were integrally related and constituted the whole of the action or the entire activity for which approvals were being sought." Put another way, "CEQA required County to engage in an environmental review of both the mining operations and the reclamation plan—the entire project." Id.

Under the County Ordinance, before a permit or reclamation plan can be approved, the site plan and reclamation plan must be found to meet the requirements of SMARA and other state statutes and regulations including CEQA. *See* Title 9 § 92002.03. Unfortunately, the County's ordinance does not fully describe the County's CEQA obligations because it only expressly mentions CEQA in the context of approval of the reclamation plan. Title 9 § 92002.03(B)(4). Here, the County does not acknowledge the need for a permit for all operations and the IS/MND fails to address several potentially significant impacts, rendering it inadequate.

As detailed above, the Project may have significant direct and indirect impacts on listed species (desert tortoise), fully protected species (golden eagles), as well as other wildlife species of special concern (flat-tailed horned lizard and Colorado fringe-toed lizard), therefore, an EIR is required. *See, e.g.,* CEQA Guidelines §15065(a)(1) (mandatory findings of significance). Impacts to habitat for rare flora and fauna are significant under section 15065 and require full evaluation under CEQA. *See* Mira Monte Homeowners Association v. Ventura County, 165 Cal.App.3d 357, 363-364. In addition, the EA/MND fails to show that all needed plant surveys were undertaken, particularly fall plant surveys. On this basis as well the EA/MND is inadequate.

As detailed above, the analysis of impacts to water resources is woefully incomplete. EA/MND states that Project water use overall will be up to 2,000 gallons per day and approximately 240,000 gallons of water over the life of the Project (EA/MND at 90) and that the water would be trucked in from existing wells but does not identify which wells (at 92). And even though the specific source of water is not known, the EA/MND at 92 claims that "Project would not consume groundwater from the Imperial Valley Groundwater Basin" – there is no support for this statement. Further, the EA/MND at 92 admits "Groundwater may be encountered during the course of exploratory drilling within the Drill Pads." But the EA/MND fails to quantify the amount of groundwater that may be affected if it is encountered. This also contradicts the premise in the EA/MND that no groundwater on site would be affected. The IS/MND notes that the area is not an adjudicated basin but provides no analysis to support the determination that this level of groundwater use is not significant in this arid environment that is currently in drought conditions. Water, especially in the desert and even more so in the time of chronic drought in California is a key resource that needs to have a full analysis in an EIR for this proposed project. The County should have fully addressed

those potentially significant impacts but did not, on this basis as well an EIR is needed. In addition, as noted above, groundwater in this area is limited because it's use may draw water from the Colorado River, the CEQA review did not disclose whether a water right is needed. Because the EA/MND fails address this potentially significant impact to Colorado River water resources, it is inadequate on this basis as well. Because the IS/MND failed to fully identify and analyze impacts of groundwater use by the Project it fails to comply with CEQA.

CEQA also requires that environmental review must analyze the effects of any proposed mitigation measures and their likely efficacy. CEQA Guidelines § 15126.4(a)(1)(D) ("If a mitigation measure would cause one or more significant effects in addition to those that would be caused by the project as proposed, the effects of the mitigation measures shall be discussed"); Save Our Peninsula Comm. v. Monterey Board of Supervisors (2001) 87 Cal.App.4th 99, 130 ("An EIR is required to discuss the impacts of mitigation measures"). An agency's determination that a proposed mitigation measure will effectively mitigate an impact must be supported by substantial evidence. City of Irvine v. County of Orange (2015) 238 Cal.App.4th 526.

The IS/MND suggests several mitigation measures that may themselves have impacts which are not analyzed. For example, the IS/MND acknowledges for air quality that the area is in nonattainment for PM_{10} (at 17), and that the project will cause emissions and relies on standard "project design features ("PDFs") incorporating the local air district rules for fugitive dust emissions and GHG emissions to mitigate impacts to PM_{10} air quality (at 19). However, those PDFs which would potentially reduce impacts to air quality, which address mitigation measures for air quality relied on in the IS/MND, would use potentially significant amounts of water and the mitigation measures are very general. PDF-7 for Air Quality only states that "The Project would comply with applicable State of California and Imperial County Air District rules for fugitive dust emissions and greenhouse gas emissions." It does not provide details of those rules.

Compliance with the law alone is not sufficient evidence to support a finding of no significant impact under the CEQA. *See* Oro Fino Gold Mining Corp. v. County of El Dorado (1990) 225 Cal. App. 3d 872, 881–882. The IS/MND assumes that compliance with other regulations and programs will mitigate the air quality impacts to less-than-significant levels. The IS/MND lacks any project-specific analysis of the potential impacts and the effect that regulatory compliance could have on those impacts. Because the Project does not disclose the specifics of the Project's impacts in the first instance, nor provide any specifics on these regulatory programs, the IS/MND lacks a basis to conclude that these regulatory programs in and of themselves will reduce the environmental impacts *of this project* to less-than-significant levels. Accordingly, the IS/MND's conclusion that air quality impacts will be mitigated to less-than-significant levels is unsupported.

Further, although EA/MND at 91 and Appendix F Table F-1, PDF-3 state "Water used for dust control would be kept to a practicable minimum . . .", the EA/MND elsewhere states that Project water use overall will be up to 2,000 gallons per day and approximately 240,000 gallons of water over the life of the Project (EA/MND at 90) and that the water would be trucked in from existing wells but does not identify which wells (at 92). As explained above, this discussion of the groundwater use is in adequate. Because the mitigation measure to address potential impacts to air quality may have potentially significant impacts to water resources, the MND should have fully addressed those potentially significant impacts but did not. In addition, as noted above, groundwater in this area is limited because it's use may draw water from the

Colorado River, the CEQA review did not disclose whether a water right is needed. Because the EA/MND fails to mention this additional potential limit on water availability for the mitigation measure it relies on, it is inadequate on this basis as well. Because the IS/MND failed to address the impacts of the water use for the air quality mitigation measure the MND cannot be relied on and the County has failed to comply with CEQA.

Here, there are several potentially significant impacts that are not shown to be fully mitigated including impacts to wildlife, cultural resources, air quality and ground water and there are potentially significant impacts to the environment that are not adequately identified and analyzed including inconsistencies with the governing land use management plan (as detailed above). Therefore, the County must prepare an EIR and cannot rely on a mitigated negative declaration.

The proposed mining exploration project may also have significant impacts to cultural resources. Imperial County claims it has fulfilled its obligations under AB 52 with a letter to a single tribe that went unanswered (EA/MND at 49). This fails to comply with the spirit of consultation requirement cannot excuse the County's failure to consider cultural resources and information tribal representatives have provided to BLM regarding the Project's potentially significant effects on cultural resources. On this basis as well, an EIR is needed.

Based on the number of imperiled species with potential to be affected by the proposed mining exploration, lack of adequate biological surveys, and because potential impacts to water resources and air quality that have not been fully identified or analyzed in the EA/MND, an EIR is required.

Conclusion

Due to the numerous violations of FLPMA, NEPA, and other laws, BLM cannot approve the Project based on the EA and must prepare an EIS. Due to Imperial County's failure to comply with SMARA, CEQA and other laws and regulations, and because there is a fair argument that the Project will significantly impact the environment Imperial County cannot approve the Project based on the IS/MND and must prepare an EIR.[1] Please keep us informed of all notices associated with this project.

Respectfully,

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[1] As noted above, because the notice period for the IS/MND by Imperial County continues until January 20, 2023, the conservation organizations reserve the right to provide additional detailed comments on all issues.

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Attachments:

Attachment 1: About Us - Southern Empire Resources at https://smp.gold/about/ (pdf from December 14, 2022)
Attachment 2: EXPLORATION PLAN OF OPERATION for the IMPERIAL EXPLORATION PROJECT IMPERIAL COUNTY, CA, revised Oct. 2020
Attachment 3: Record of Decision for the Imperial Project Gold Mine Proposal Imperial County, California, U.S. Department of Interior, BLM Case File No. CA 670-41027 OEPC #DES-97-43 and #DES-99-8 OEPC #FES-00-50, Signed by the Secretary of Interior, January 17, 2001
Attachment 4: March 9, 2022 letter from Carl Symons, BLM Ridgecrest Field Manager, to Mojave Precious Metals
Attachment 5: FONSI for the Silicon Exploration Project Plan of Operations Nevada Reclamation Permit Application DOI-BLM-NV-B020-2020-0017-EA available at https://www.fws.gov/media/silicon-exploration-project-eagle-permit-nepa-documents ; https://eplanning.blm.gov/public_projects/1505119/200366575/20022705/250028909/20200724_Silicon_FONSI_Final_Signed.pdf

Attachment 6: Environmental Assessment for the Issuance of an Eagle Take Permit for the Silicon Exploration Project, U.S. Fish and Wildlife Service, March 2022 available at https://www.fws.gov/sites/default/files/documents/EA-silicon-exploration-project-eagle-permit.pdf

Attachment 7: Cleland, James H. 2008. Ethnographic Trail Systems as Large-Scale Cultural Landscapes: Preservation and Management Issues in Preserving the Boundaries of Historic Landscape Preservation, edited by Cari Goetcheus and Eric MacDonald (Clemson, SC: Clemson University Digital Press, 2008), [6]+208 pp. Paper (out of print). ISBN 978-0-9796066-5-6 available at https://tigerprints.clemson.edu/cgi/viewcontent.cgi?article=1003&context=cudp_environment

Attachment 8: Wiele, S.M., Leake, S.A., Owen-Joyce, S.J., and McGuire, E.H., 2009, Update of the accounting surface along the lower Colorado River: U.S. Geological Survey Scientific Investigations Report 2008-5113, version 1.1, 16 p., 3 plates in pocket. Available at https://pubs.usgs.gov/sir/2008/5113/sir2008-5113_text.pdf

Attachment 1

About Us – Southern Empire Resources

Acquisition, Exploration and Development of Gold Deposits in North America.

Southern Empire is focused on the acquisition, exploration and development of gold deposits in North America. Our projects are located in the world's best mining jurisdictions and they are selected strategically to be positioned near existing infrastructure.

ORO CRUZ & AMERICAN GIRL, CARGO MUCHACHO MOUNTAINS, CALIFORNIA

In the Cargo Muchacho mountains of Imperial County, southeast California, Southern Empire owns the American Girl Mine Property and holds options to acquire a 100% interest in the 2,160 hectares (5,338 acre) Oro Cruz Property located approximately 22.5 kilometres (km; 14 miles) southeast of the operating Mesquite gold mine of Equinox Gold Corp.

With a history that includes extensive drilling and large-scale open pit and underground mining by the American Girl Mining Joint Venture (53 per cent owned by MK Gold Co., a subsidiary of Morrison Knudsen Corporation, and 47 per cent owned by Hecla Mining Company), which was suspended during the gold market downturn in 1996, the Oro Cruz Gold Project hosts many exploration targets in addition to a high-grade oxide gold zone that, based on the historical mine operation records, is amenable to conventional heap leach extractive methods.

EQUITY INTEREST IN BULLFROG GOLD CORP.

Southern Empire also holds a significant equity interest in Bullfrog Gold Corp., a US based gold exploration company with a commanding land package in the Bullfrog Mine area from which Barrick Gold Corp. produced more than 2 million ounces during the 1990's.

EXPERIENCED & KNOWLEDGABLE MANAGEMENT TEAM

Our team, including 2015 Canadian Mining Hall of Fame inductee, Ron Netolitzky, has decades of experience and the proven ability to deliver results. Meet our leadership team here.

Southern Empire is listed on Toronto's TSX Venture Exchange under the symbol SMP and also trades on Germany's Frankfurt Exchange, having the symbol 5RE.

Our share capital is widely, but tightly held. Please, see our current Share Capital Structure.

For further information, please contact Southern Empire here and visit our SEDAR page.

SMP CORPORATE PRESENTATION

CONTACT SMP

Join our Mailing List

Direct Contact Form

Attachment 2

EXPLORATION PLAN OF OPERATION
for the
IMPERIAL EXPLORATION PROJECT
IMPERIAL COUNTY, CA

For submittal to:

U.S. Department of the Interior
Bureau of Land Management

El Centro Field Office
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Prepared for:

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Prepared By:

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revised - October 2020

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Attachments

Attachment A	Project Maps – Overview and Segments
Attachment B	Pad Name, Location and Claim Information
Attachment C	Pads and Two-track Trail – Typical Design
Attachment D	Typical Monitoring Well and Piezometer Diagrams

2020 – Imperial Exploration Project
Pursuant to CFR §3809.401

1.0 Introduction

1.1 Purpose and Scope

This Exploration Plan of Operations ("EPO") describes the Imperial Exploration Project ("Project") proposed by Imperial USA Corporation ("IUC"). The purpose of the Project is to develop exploratory drill holes for mineral, geotechnical, environmental, hydrogeological, and/or engineering assessments. This EPO is submitted pursuant to and in conformance with the U.S. Bureau of Land Management ("BLM") Surface Management Regulations at 43 CFR § 3809 et seq.

1.2 Project Overview

The Project is a drilling program on three segments of a claim block controlled by IUC that includes contiguous unpatented lode and mill site claims on 2,939 acres (1,149 ha.) (the "Project Segments"). The Project Segments are located north of the Cargo Muchacho Mountains in southeast Imperial County, California and approximately 47 miles east-northeast of El Centro, California and 22.5 miles north-northwest of Yuma, Arizona. (Figure 1). The boundaries of the Project Segments and land use status are presented on Figure 2.

All IUC's claims located within the Project Segments are on federally owned lands administered by the BLM El Centro Field Office. There are no private or state-owned lands within the Projects Segments.

The Project Segments trend southeast to northwest and are referred to as (i) the Indian Pass Segment at the southeast end of the project area, (ii) the Ogilby Segment in the trend center, and (iii) the East Mesquite Segment in the northwest. The Project Segments will be accessed primarily by (i) Indian Pass Road, (ii) the Ogilby Road, and (iii) several existing BLM Legal Routes within and around the Project Segments. Table 1 presents pertinent information on the Project Segments.

Table 1. Project Segments

Project Segment	Claim Names	Acres Disturbed	Total Acres	BLM Legal Routes Used	Township, Range and Section
Indian Pass	UYA, BB, SWL	10.8	1,571	649, 680, 989, 880, 841, 840, 843, 845, 859, 858, 878, 877	NW Corner of T.14S. R.21E and SW Corner T.13S., R.21.E.
Ogilby	KMI	1.9	645	654,647, 645, 643, 641, 631, 615, 531	SE Corner of T.13S, R.20E.
East Mesquite	KMI	1.6	723	648,683,754.735,629	T. 13S., R.19E, S.12,

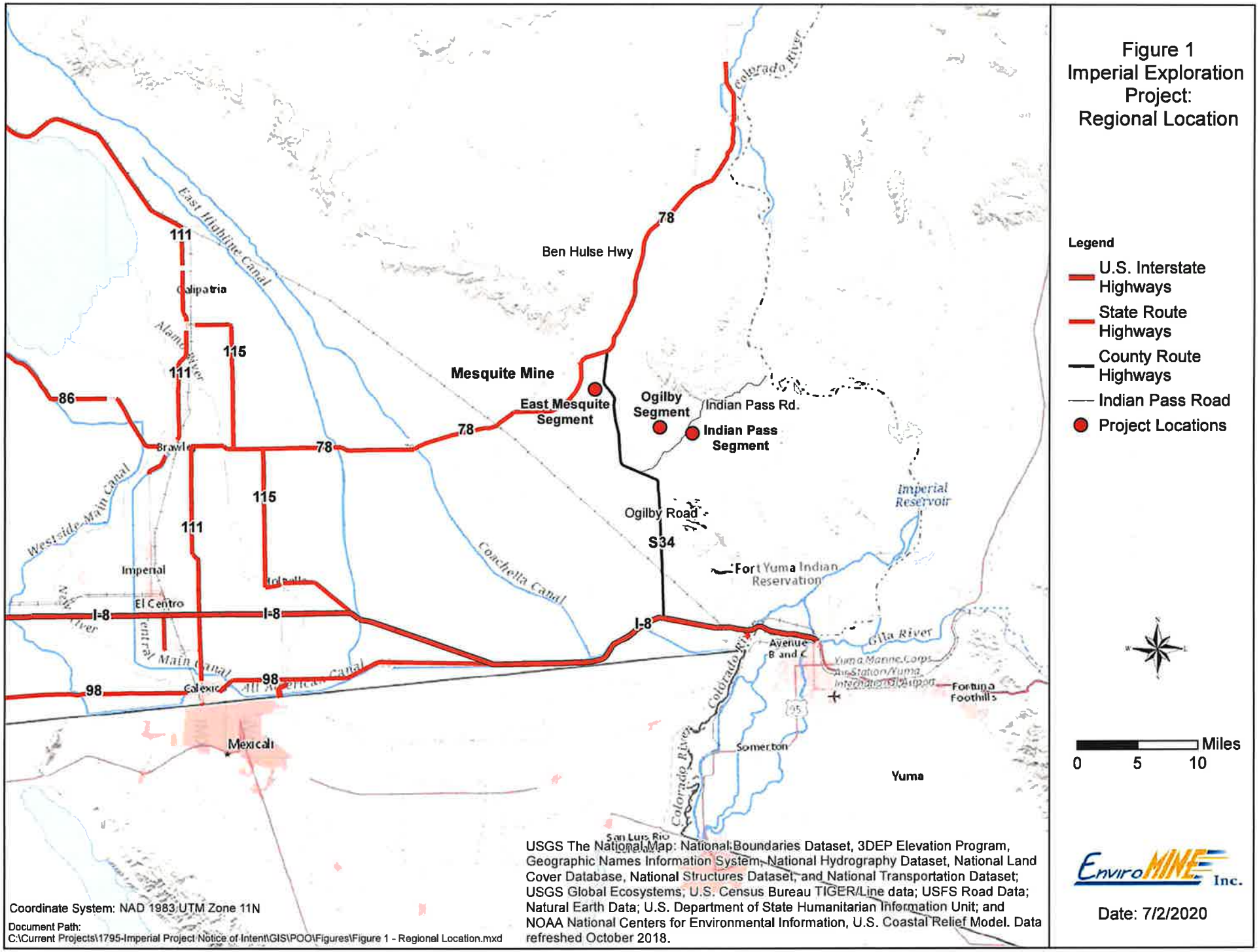
Figure 1
Imperial Exploration Project:
Regional Location
Legend
U.S. Interstate Highways
State Route Highways
County Route Highways
Indian Pass Road
Project Locations
Mesquite Mine
East Mesquite Segment
Ogilby Segment
Indian Pass Segment
Indian Pass Rd.
Ben Hulse Hwy
Ogilby Road
S34
78
86
111
115
98
I-8
Calipatria
Brawley
Imperial
El Centro
Calexico
Mexicali
Somerton
Yuma
Fort Yuma Indian Reservation
Imperial Reservoir
Coachella Canal
East Highline Canal
Westside Main Canal
Central Main Canal
All American Canal
Alamo River
New River
Colorado River
Gila River
Fortuna Foothills
Miles
0 5 10
Date: 7/2/2020
Coordinate System: NAD 1983 UTM Zone 11N
Document Path:
C:\Current Projects\1795-Imperial Project Notice of Intent\GIS\POO\Figures\Figure 1 - Regional Location.mxd
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model. Data refreshed October 2018.

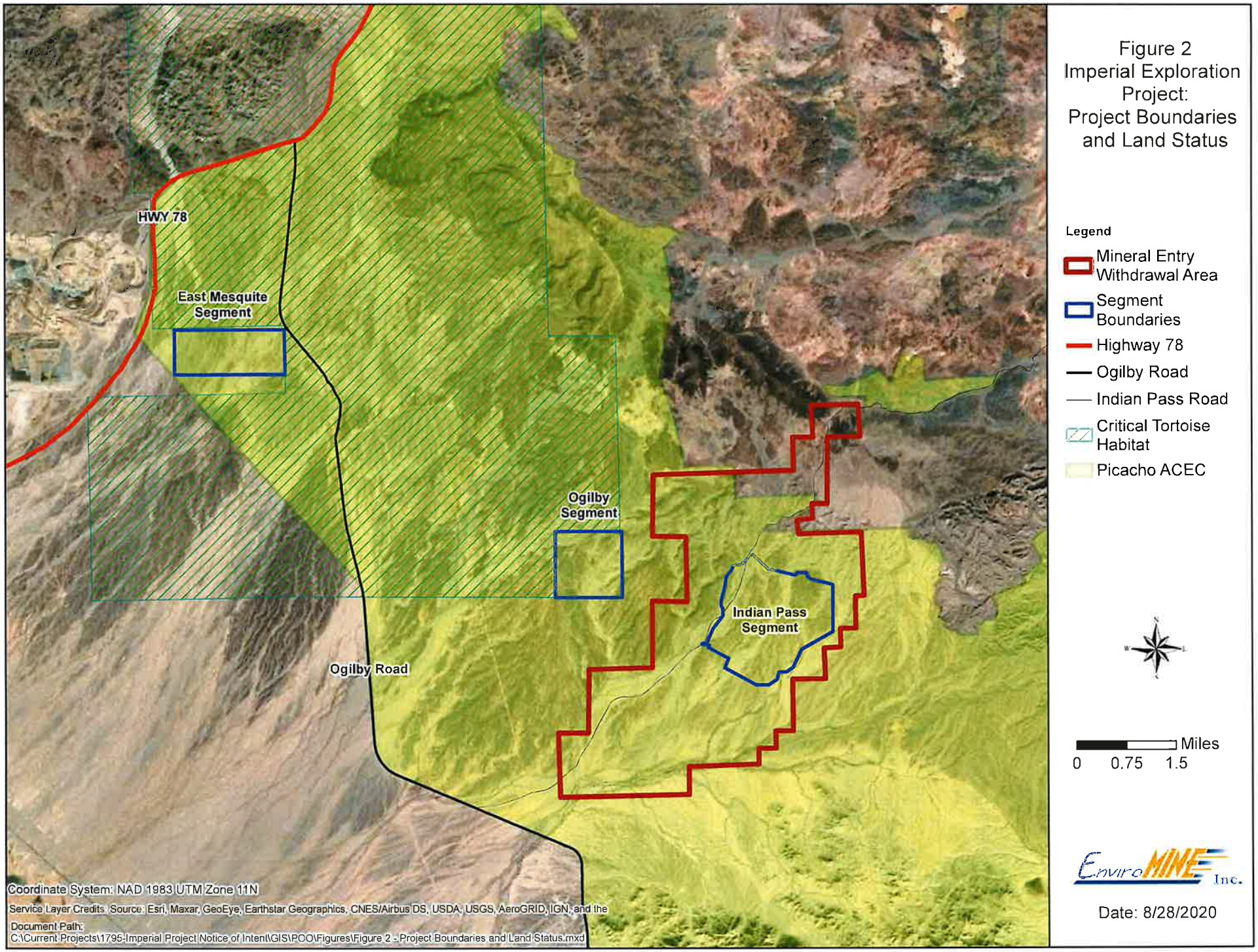

Figure 2
Imperial Exploration Project:
Project Boundaries and Land Status

Legend

- Mineral Entry Withdrawal Area
- Segment Boundaries
- Highway 78
- Ogilby Road
- Indian Pass Road
- Critical Tortoise Habitat
- Picacho ACEC

Miles
0 0.75 1.5

EnviroMINE Inc.

Date: 8/28/2020

The Project proposes to grade drill pads within the Project Segments that will be used to complete 4-inch diameter exploratory drill holes for mineral, geotechnical, environmental, hydrogeological, and/or engineering assessments. Grading, where needed, will be accomplished with a rubber-tired backhoe loader and will be conducted in a manner to minimize disturbance. A core or reverse circulation ("RC") drill rig will advance the drill holes.

Access to the drill pads on the Project Segments will utilize BLM Legal Routes, and previously disturbed lands as much as possible. Attachment A provides an overview map and individual maps for each Project Segment.

Using the local workforce where possible, work will begin as soon as this EPO has been approved and equipment can be mobilized. The operation, including reclamation, should be complete within about three years from start-up. No permanent fixed structures will be built, and all equipment and any temporary structures will be removed from individual pads after completion of drilling and proper abandonment of the drill holes.

The Project is designed and will be operated to minimize potential direct, indirect, and cumulative impacts related to the resources discussed below. Table 2 identifies resources with potential to be impacted by the Project, and the development and operating practices that will be used to minimize any potential impacts.

Table 2. Project Practices to Reduce Potential Impacts

Potentially Affected Resource	Practice
Air	• Implement dust control measures such as two-track trails watering and treatment during movement of equipment. • Employee training for dust emission reduction • Reduced speed limits
Water	• Utilize BMPs to minimize erosion and sedimentation. • Utilize approved non-hazardous drill lubricants and palliatives for dust control. • Clean up spills immediately. • Recycle ~80% of the water at the process site.
Land/Soils	• Use BLM Legal Routes for access to drill sites to fullest extent possible. • Use rubber-tired backhoe-loader to minimize disturbance. • Stockpile topsoil for revegetation.
Vegetation	• Minimize new disturbance to limit vegetation damage. • Relocate cacti for use prior to grading.
Wildlife	• Minimize new disturbance to limit habitat degradation. • Desert tortoise awareness training for all employees.

	• Baseline and preconstruction surveys for desert tortoise • Monitoring in advance of all new grading activity • Exclusionary fencing where appropriate
Special Species Status	• Train workers to recognize and protect special status species. • Record any observations or encounters of species with special status. • Determine if observations or encounters merit additional measures.
Cultural Resources	• Avoid adverse effects to historic properties through project redesign; utilization of existing ground disturbance; and oversight by archaeological monitors where appropriate. • Train workers to recognize and avoid cultural resources. • Develop and implement drilling work plans to avoid adverse effects. • Adhere to existing guidance in The CA BLM Protocol to address human remains and unanticipated discoveries.
Visual Resources	• Remove temporary structures upon completion of use. • Remove all equipment upon completion of drilling on each pad. • Drill cuttings buried on site or worked into the surface of the drill pad prior to topsoil application. • Regrade disturbed areas to blend with topography during reclamation. • Revegetate disturbed areas.
Recreation/Public Safety	• Minimize new disturbance. Exclude public from operational areas only. Safety signage will be posted the drill pads and along the two-track trails. • Will not block BLM Legal Routes.

1.3 History

The region has a long mining history which dates back to the 1780's and has continued until the present with mines such as Picacho, Tumco, and American Girl from the late 1800's and more recently, the opening of the Mesquite Mine in 1986. Mining activities within in the Project boundaries, however, were limited to minor dry placer exploration operations and drilling exploration conducted in the 1970's into the 1990s.

More recently, Chemgold, Inc. began exploring the Indian Pass area for a mining operation in the mid-1990s. This project was continued as Glamis Imperial Corporation's Imperial Project. Between the two companies, over 300 exploration drill holes were placed in the Indian Pass area that included numerous access roads and the conversion of some drill holes into groundwater monitoring wells and piezometers.

This area was also the subject of several technical environmental studies and evaluations that included Cultural Resource and Biological assessments, amongst others. Previous field work for assessing mineralization potential, rock hounding and recreational use of the area by off-road enthusiasts has resulted in a significant amount of disturbance on the site.

1.4 Environmental Setting

The Project area is situated on nearly flat terrain south of the Chocolate Mountains and north of the Cargo Muchacho Mountains, at elevations ranging between 760 and 925 feet above mean sea level (AMSL). The Project area is transected by ephemeral washes which drain from the northeast to the southwest, terminating by infiltration against the Algodones Dunes.

Present and pre-mining land use of the Project area includes mineral-related activities, recreation (rock-hounding and off-highway vehicle use), hunting and wildlife habitat.

Soils on the Project area are 0 to 18 inches thick and poorly developed, consisting of gravelly or coarse sands, with most of the area covered by upland flats or desert pavement. Vegetation in the Project area is sparse, with plants more abundant along washes. Typical upland vegetation is a shrub/scrub type consisting of burrobush, creosote bush, teddy-bear cholla, and ocotillo; washes have additional tree species of desert ironwood and palo verde, and other shrub species of sweetbush and desert lavender.

Previous groundwater studies completed in the mid 1990's for the Project area determined that groundwater elevations varied extensively across the Project area and ranged from 75 feet amsl to 575 feet amsl. Tests conducted in the Indian Pass Segment of the Project indicated that the hydraulic conductivity of the bedrock formation is very low. The closest surface water bodies to the Project area are the Colorado River approximately 7.75 miles to the east and the Salton Sea about 44 miles northwest (Westec, 1996).

Average annual precipitation in the Project area is approximately 4.5 inches. All surface drainages in the area are ephemeral, with flows occurring only during and immediately following major precipitation events. Precipitation tends to occur in fairly short, intense storm events in the summer and frontal storms in the winter

2.0 Applicant Information

2.1 Name of Operator and Claimant

Imperial USA Corporation
312 E Barioni Blvd.
Imperial, CA 92251
c/o Marc Leduc
(720) 635-3143 (Marc@Koremining.com)

2.2 Taxpayer EIN:

88-0262623

2.3 Individual Completing Application

Dennis Fransway
EnviroMINE, Inc
3511 Camino Del Rio South Suite 403
San Diego, CA 92108
619-284-8515 (Dennis@Enviromineinc.com)

2.4 Legal Description and Claim Information

The proposed activities for this Project will take place on the three Project Segments presented in Table 1, the Indian Pass Segment is located is located in the northwest corner of Township 14S, Range 21E and the southwest corner of Township 13S, Range 21E. Ogilby Segment is located in the SE Corner of T.13S, R.20E. and East Mesquite is T. 13S., R.19E, S.12 all on the Hedges, CA 7.5 Quad, San Bernardino Base Meridian. The specific details for the location and the claims are presented in Attachment B. All claims are controlled by IUC.

2.5 Claim type

Lode and Mill Site

2.6 Relationship to BLM Regulations and Land Use Plan Conformance

The three Project Segments are located within the Picacho Area of Critical Environmental Concern ("ACEC") established as a result of the Desert Renewable Energy Conservation Plan ("DRECP") in 2016 (Figure 2). Under BLM regulations, any level of new disturbance within an ACEC will require a Plan of Operation and Environmental Assessment pursuant to the National Environmental Policy Act ("NEPA"). Exploration activities proposed in this EPO subject to this requirement include overland access, two-track trail establishment (to the limited extent where access via BLM Legal Routes is not available), grading of exploration drill pads and sumps, and reclamation.

Although certain activities in the ACEC are subject to a disturbance cap,[1] all disturbance associated with IUC's exploration activities discussed herein are not subject to the ACEC disturbance cap, because IUC's exploration activities are "operations" "reasonably incident" to surface mining, as defined within 43 CFR §

[1] It is unclear whether BLM has inventoried existing disturbance throughout the ACEC.

3809.5 and 3715.0-5, respectively. Thus, IUC's exploration activities, which are authorized by the Mining Law of 1872, cannot be limited by provisions of a subordinate land-use plan such as the DRECP. (See, e.g., BLM H-3809-1 Surface Management Handbook, p 8-14, § 8.7.1.[2]) Accordingly, the ACEC disturbance cap shall "have no force and effect" on IUC's right to enter and explore IUC's unpatented mining claims located within the Ogilby and East Mesquite Segments.

Moreover, although IUC's unpatented mining claims located within the Indian Pass Segment are located within the "Indian Pass Withdrawal Area," which was subject to a 20-year withdrawal from mineral entry effective October 27, 2000, and was subsequently permanently withdrawn from mineral entry on or around March 12, 2019, both withdrawals were subject to valid existing rights. As set forth in that certain 2002 BLM Mineral Report (Serial No. CACA 35511), IUC's unpatented mining claims located within the Indian Pass Segment were deemed valid as of 1998, prior to any withdrawal from mineral entry, and therefore remain open for mineral entry and exploration by IUC and not subject to the ACEC disturbance cap.

The proposed drill pads on the Indian Pass segment of the Project are all located on valid mill site or lode claims as identified in the 2002 Mineral Report cited above. Work on the mill site claims will consist of placing drill holes for the purpose of collecting geotechnical data, conducting hydrogeological assessments or other ancillary purposes. Drill pads on these mill site claims are identified with the designator "G" attached to the pad number. For example, KIP20–XXXG. Lode claims will be drilled for mineral re-assessment and to collect information on the geotechnical, hydrogeologic and subsurface conditions of the Project. These pads do not have the "G' designator attached to the claim number.

(area left blank intentionally)

[2] "In addition, land use plans must recognize the rights granted by the Mining Law to enter, explore, and develop mineral resources on the public lands. A land use plan cannot change the law's authorization to use public lands that are open to location under the Mining Law. Areas may only be removed from operation of the Mining Law by congressional withdrawal or in accordance with the withdrawal provisions of Section 204 of FLPMA." Further, in areas open to mineral entry or closed subject to valid existing rights, a land use plan cannot preclude mining or restrict certain types of mining activities, or generally place limits on the type or size of an operation.

3.0 Description of Exploration Activity

3.1 Activity Description

The activity described in this EPO is an exploration drilling program to complete mineral, geotechnical, environmental, hydrogeological, and/or engineering assessments within the following three Project Segments: (i) the Indian Pass Segment, (ii) the Ogilby Segment and (iii) the East Mesquite Segment of the Project. These three Project Segments lie on a southeast to northwest trend with Indian Pass Segment on the southeast and East Mesquite Segment on the northwest of the Project area.

Exploration activities on all Project Segments proposed in this EPO include overland access via 10 feet wide two-track trails (to the extent BLM Legal Routes are not available), grading of exploration drill pads and sumps, and reclamation.

The proposed drilling operations will access all the Project Segments across BLM Legal Routes and overland access with 10 feet wide, two-track trails, as much as possible, to minimize disturbance. Two-track trails will also be used where old roads disturbed the site in the past. A total of one hundred and sixty-eight (168) drill pads will be constructed on the three Project Segments and multiple borings may be drilled on each pad. After drilling for mineral re-assessment is completed on pad KIP20-109 and for geotechnical purposes on KIP20-110G, a boring will be completed, and groundwater monitoring wells installed at these locations. To support the groundwater monitoring, piezometers for measuring groundwater levels will be installed in completed boreholes on pads KIP20-004, KIP20-054 and KIP20-007.

Four, small test pits will also be excavated by an excavator for metallurgical samples. These test pits will be located on a rock outcrop on the northern part of the Indian Pass segment of the Project and are expected to be completed in approximately two days. These test pits will be 4 ft. wide x 15 ft. long and 10 ft. deep with approximately 30 cubic yards, total, of rock material retrieved for analysis. Each trench will be backfilled immediately after completion. Test pits 1 and 2 will be on claim UYA-189. Test Pit 3 will be on claim UYA-101 and Test Pit 4 on claim UYA-186.

3.2 Location and Access

The route of access from El Centro, California to the Indian Pass and Ogilby Project Segments of the Project area is to proceed east on Interstate 8 about 44 miles to the Ogilby Road exit (Exit 159). From Yuma, Arizona take Interstate 8-West approximately 15.3 miles to the Ogilby Road Exit. Turn north and proceed approximately 13.3 miles to the intersection with Indian Pass Road, a graded dirt road. Turn east (right) and continue for approximately 5.0 miles to the Project area (Figure 3). Access to the East Mesquite segment is to proceed north on Ogilby Road approximately about 8.25 miles past Indian Pass Road to BLM Legal Route 648 and go west. A power/telephone line is adjacent to this road on the north side. No incorporated towns are located within 20 miles of the Project area; however, there is a fueling station and a California Highway

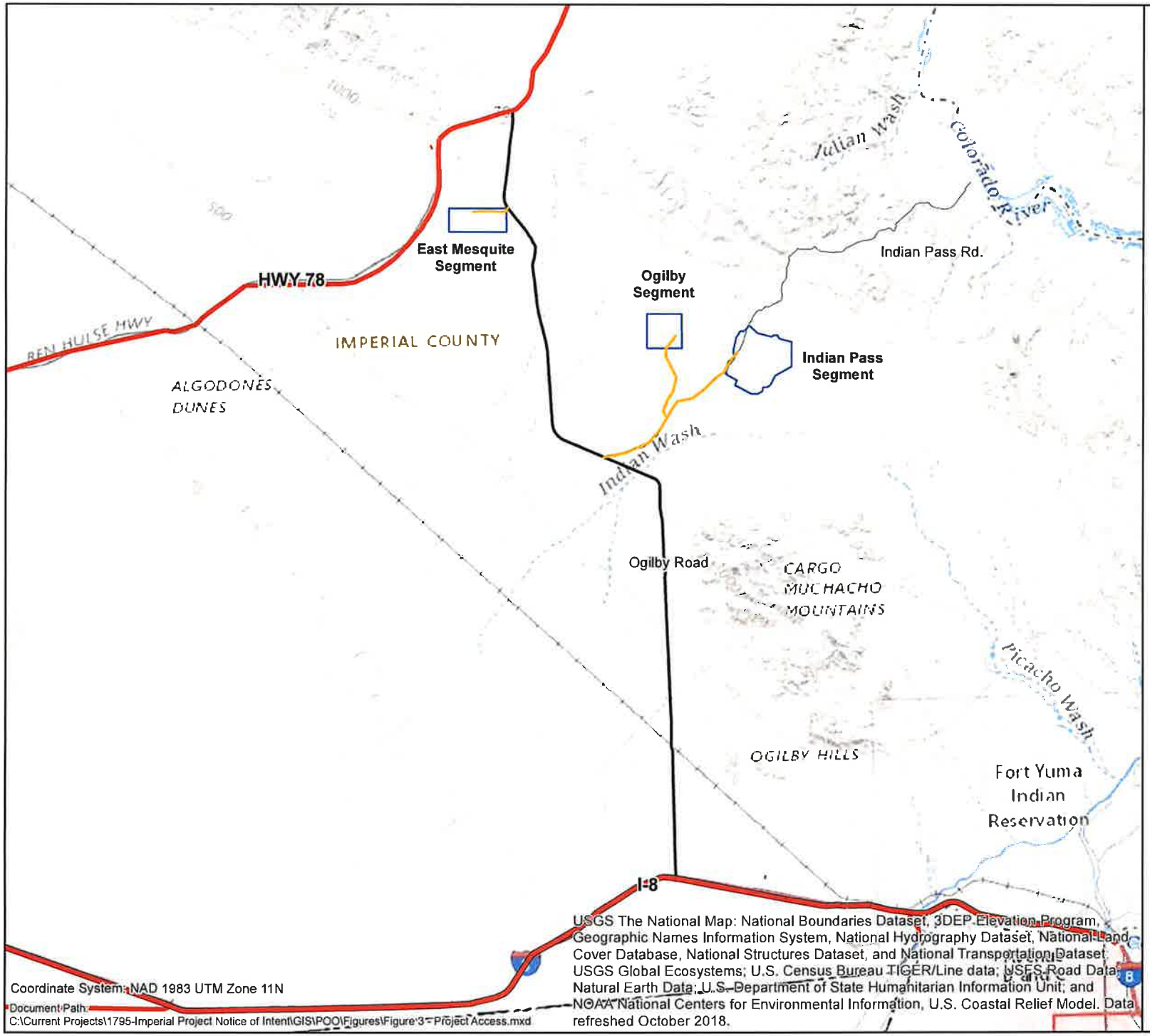

Figure 3
Imperial Exploration Project:
Project Access

Legend

- Access Routes
- U.S. Interstate Highways
- State Route Highways
- County Route Highways
- Indian Pass Road

Miles
0 1.75 3.5

EnviroMINE Inc.

Date: 8/28/2020

road trails/unmaintained roads previously used by other operators and off-road vehicles are present in the proposed Project area. As much as practical, IUC will follow these previously disturbed trails/unmaintained roads to access the locations of the new drill pads. Safety signage will be place around all active Project areas, at each pad and along each of the two track trails used by the Project.

3.3 Project Area Biology

The following description of the biological resources is based on previous assessments of the Indian Pass Segment of the Project. Ogilby and the East Mesquite Segments have not been evaluated however, IUC is in the process of contracting for professional services to have both biological and cultural evaluations conducted for the disturbance areas of these two Project Segments.

3.3.1 Vegetation

Biological surveys completed in the mid-1990s described the vegetation communities on the Indian Pass Segment ("Indian Pass Study Area") of the Project and assessed the potential for special-status plant species to occur (Figure 5). In 2018 a biological evaluation for the Indian Pass Study Area found that no substantial changes in vegetation composition have occurred within that area over the past 25 years. Vegetation communities mapped during the 1995 surveys persist in the Indian Pass Study Area; however, the names given to those communities have changed. (Table 3.)

Table 3. Vegetation Communities within the Indian Pass Study Area

Vegetation Community 1990s	Vegetation Community 2018	Sensitive?	Acres
Desert succulent scrub	Creosote bush scrub	No	662.61
	Creosote bush – white burr sage	No	266.49
	Desert pavement	No	500.30
Microphyll woodland	Blue palo verde – ironwood woodland	Yes	140.82
	Total:		1570.22

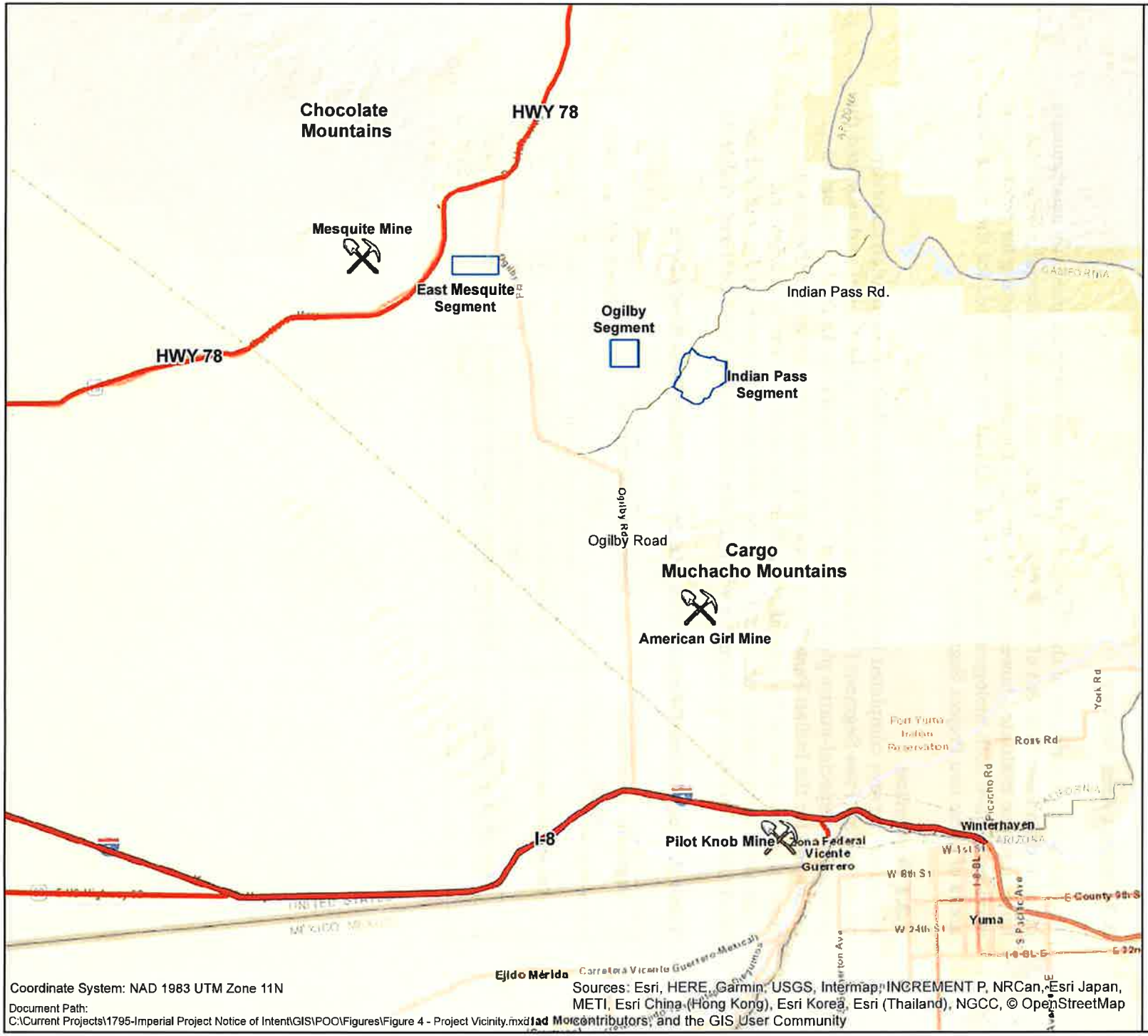

Figure 4
Imperial Exploration Project:
Project Vicinity

Legend

- Nearby Mines
- Segment Boundaries
- U.S. Interstate Highways
- State Route Highways
- Indian Pass Road

Miles
0 2.5 5

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Date: 8/28/2020

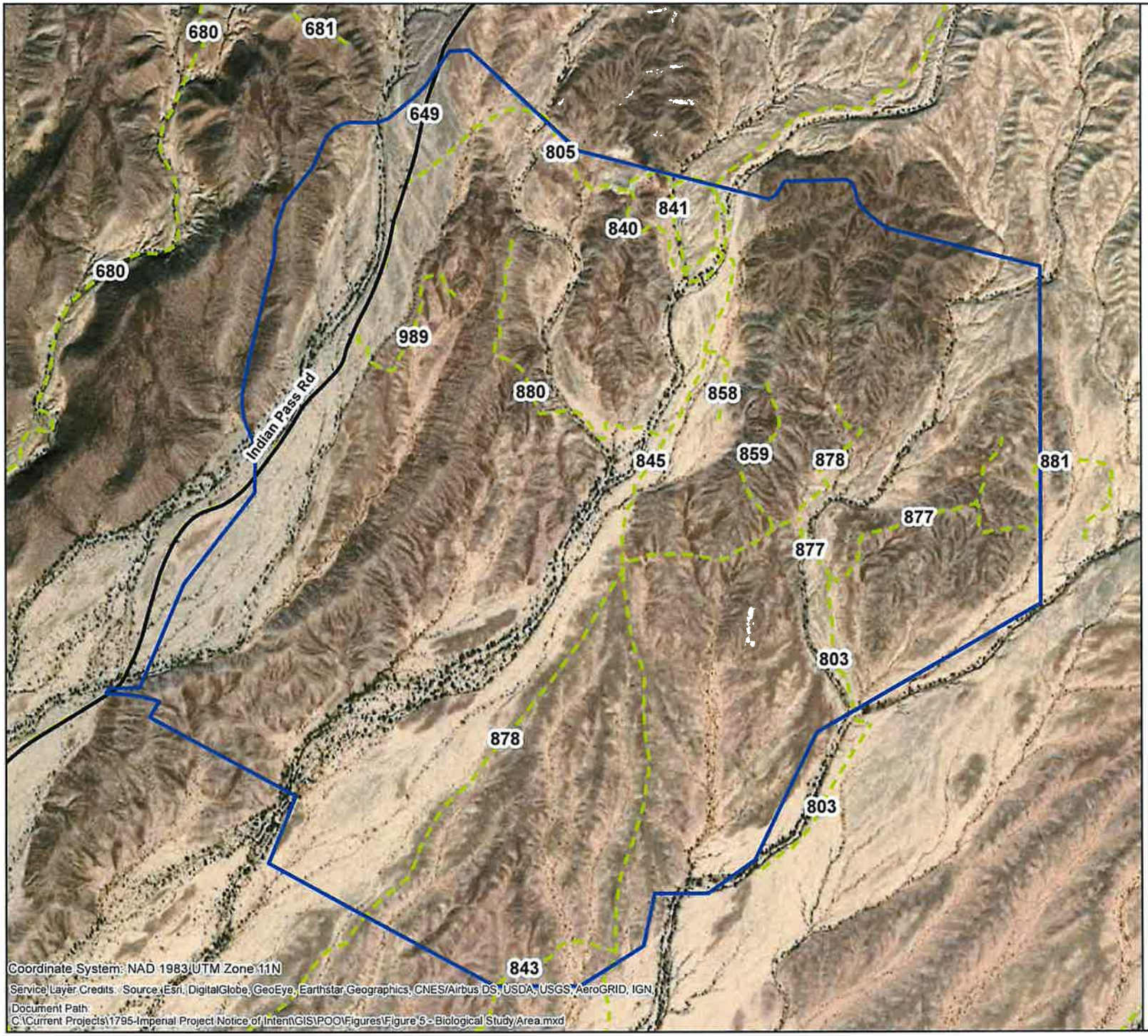

Figure 5
Imperial Exploration Project:
Biological Study Area

Legend

- Study Area
- Indian Pass Road
- BLM Legal Routes

Feet
0 800 1,600

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Date: 6/23/2020

Special-Status Species - Vegetation

Previous surveys assessed the potential for 26 special status species to occur in the Indian Pass Study Area. Of the 26 special status species, 12 special status plant species were determined to have a moderate to high potential to occur within the Indian Pass Study Area.

Two plant species classified under the California Native Plant Society ("CNPS") Inventory system were observed during a 2018 survey. Pink fairyduster (CNPS 2B.3) was observed in shallow, narrow tributary washes to the major washes within the Indian Pass Study Area. Approximately 7,000 individuals were identified and mapped on silty or sandy drainage bottoms within thee drainages. Pink velvet mallow (CNPS 4.3) was also observed in several localized patches in the westernmost major wash within the Study Area. Approximately 200 individuals were identified and mapped on the wash edges under blue palo verde–ironwood woodland canopy.

Neither species is protected under California's applicable plant life protection statutes, including the California Endangered Species Act ("CESA"), the Native Plant Protection Act ("NPPA"), and the Desert Native Plant Act ("DNPA").

Threatened or Endangered Plant Species

No threatened or endangered plant species were observed in the Indian Pass Study Area.

3.3.2 Wildlife

Wildlife composition and habitats have remained generally un-changed in the last 25 years. Wildlife encountered during a 2019 site visit make up the basis for the assessment of current conditions (WRA. 2020).

Special-Status Wildlife

One special-status wildlife species, black-tailed gnatcatcher (California Fish and Wildlife Service: Watch List), was commonly observed flying and foraging within the larger washes on the Indian Pass segment of the property in 2018. Based on a review of the resources and databases, a total of 29 special-status wildlife species have been documented in the vicinity of the Indian Pass Study Area. Twelve of these species have been documented within 5 miles of the Indian Pass Study Area.

Threatened or Endangered Animal Species

The Mojave Desert tortoise is a federally listed species that is known to occupy the Project area. The Project Segments and all drill pads located thereon are not located within Mojave Desert tortoise Designated Critical Habitat.

Due to the potential presence of desert tortoise within the vicinity of the Project Segments , formal consultation between BLM and USFWS may be necessary. A biological assessment that addresses the impacts to the desert tortoise would be required to initiate formal consultation. The measures described in the Section 3.3.3 Mitigation, below, reflect standard or anticipated requirements, and may be incorporated as part of the Project. Any Biological Opinion resulting from any Section

7 Consultation would provide specific conditions and requirements that may supersede some of the following measures.

Raptors
There are no known raptor nests in the Project area, although several raptors have been observed foraging in the area.

3.3.3 Mitigation

Pre-construction surveys for special-status plants and wildlife will be completed within 30 days of the start of work. If necessary, access routes and pads will be adjusted to avoid sensitive species. A Desert tortoise monitor will be utilized to clear all grading in advance of the activity.

Plants:

- Ocotillo shrubs and all cacti species will be identified. If two track trails or pads cannot be adjusted to avoid these plants, they will be salvaged by excavating and placing in containers for future reclamation.

Wildlife:

- Desert Tortoise Monitoring and Exclusion
    - Best Management Practices ("BMPs") for desert tortoise surveying, monitoring and avoidance will be utilized. Specific mitigation measures may be necessary and will be implemented consistent with state and/or federal law, BLM requirements, and USFWS requirements.
    - There will be pre-construction surveys utilizing USFWS approved (2009, 2019)[3] survey methods of defined project areas for tortoise sign. Surveyors will first determine whether desert tortoise are present in the area. If appropriate, surveyors will record tortoise sign on a standardized form. Tortoise sign includes burrows and burrow conditions, scats that are not burrows, carcasses, tracks, and live animals. If appropriate, survey results will be used to determine an estimated number of desert tortoises in the project area(s) using USFWS (2019) methodology and any necessary further action will be taken consistent with state and/or federal law.
    - Clearance surveys will be conducted consistent with USFWS Desert Tortoise Field Manual (2009) and any other current guidance.

[3] Desert Tortoise (Mojave Population) Field Manual (*Gopherus agassizii*), December 2009; Preparing for Any Action That May Occur Within the Range Of The Mojave Desert Tortoise (*Gopherus agassizii*), October 8, 2019.

- Prior to construction activities, an Authorized Biologist[4] will present a Worker Environmental Awareness Program ("WEAP") to all project personnel. The WEAP will contain information concerning the biology and distribution of the desert tortoise, desert tortoise activity patterns, desert tortoise sensitivity to human activities, desert tortoise legal status, and occurrence.

- Desert tortoise exclusion fencing will be constructed, where viable, consistent with clearance survey areas. Construction sites should be completely fenced with security and desert tortoise exclusion fencing, including desert tortoise exclusion gates at access points. Exclusion fencing will be maintained over the course of construction and operations, as necessary.

- An Authorized Biologist or a Desert Tortoise Monitor trained and authorized by USFWS and/or BLM, as appropriate, will be present at the site during two-track trail establishment and pad grading. Desert tortoise clearance surveys of any unfenced work areas will be conducted immediately prior to the onset of pre-construction, during grading operations, and reclamation of the disturbance areas. Such monitoring shall be conducted in compliance with all applicable state and federal requirements.

- All information regarding the location and characteristics of any encountered tortoises will be documented. Any tortoise encountered by the crew shall not be touched or harassed and the encounter shall be reported to the Monitor or Authorized Biologist immediately for further action consistent with state and/or federal law.

- Grading for pad construction will begin shortly after approval of the EPO. All project related vehicular traffic will be limited to a speed of 15 mph for safety and as a Desert tortoise protection measure. Silt fences around the sump and pad, in addition to safety fencing around each sump, will prevent wildlife access to the pad. These pads will be used for 3 to 12 days maximum before drilling is completed and the drill hole(s) closed by completely backfilling with hydrated bentonite chips. All equipment and temporary structures will then be removed from the pad. Once the sump dries, the safety fence will be removed, and the sump backfilled.

3.4 Other Permits

After BLM approval of the EPO and prior to the start of operations, IUC will apply for and obtain well permits for the borings through the Imperial County Planning and Development Services Building Group. The Colorado River Basin Regional Water Quality Control Board (CRBRWQCB) has been notified of the exploration to confirm

[4] As defined by USFWS Authorized Biologist Qualifications Statement (October 20, 2008), https://www.fws.gov/carlsbad/PalmSprings/DesertTortoise/DT_Auth_Bio_qualifications_statement_10-20-08.pdf.

that discharge of water and drilling sediments to the sump qualifies to obtain coverage by filing a Notice of Intent under General Order R7-2015-0006 For Discharges Of Low Threat Wastewaters To Surface Waters. A National Pollution and Discharge Elimination (NPDES) Notice of Intent will be filed with the State Water Resources Board and a Storm Water Pollution Prevention Plan (SWPPP) will be developed prior to the start of the Project. Imperial County's Planning and Development Services will be contacted regarding Surface Mining and Reclamation Act (SMARA) and any applicable requirements.

The Imperial County Air Pollution Control District (ICAPCD) will be contacted to inquire about potential operating permits. Discussions with the agency have been completed on local dust control requirements.

3.5 Drill Site & Two-track Trail Establishment

The new drill sites will be located on separate drill pads that will be no larger than 50 feet by 50 feet, plus a sump 5 feet deep by 5 feet wide by 15 feet long to capture mud and cuttings from the drill fluid. A rubber-tired backhoe loader will be used to build the pads and sump areas. Each pad will be cleared of vegetation and graded level to accommodate the equipment. Ditches and berms will be used to divert up-gradient storm water away from the pads. When necessary, a road grader will be brought to the project site to maintain BLM Legal Routes and County dirt Roads utilized by the project. A tracked excavator, Cat 349F or equivalent, will be used to excavate the four test pits on Indian Pass and a rubber tire dump truck with a 10-yard capacity will transport the rock sample off site.

Locations of the proposed routes for access to the pads, and test pits on Indian Pass for each Project Segment are presented on individual maps in Attachment A. Old roads (non-BLM Legal Routes) are shown in orange, existing BLM Legal Routes in green, and proposed new two-track trails are shown as red colored lines to the drill pads. Drill pads are outlined in yellow. Any cactus species or ocotillo shrubs encountered within proposed two-track trails will be salvaged or avoided. Salvaged plant species will be dug out by hand or by small backhoe and placed in adequately sized containers. These container plants will be cared for in an offsite location and will be re-planted in the same general area from which they were originally salvaged. If grading is required in localized areas to allow access to the drill pads, the depth of grading will be limited to that necessary to allow passage of 4-wheel drive vehicles and will be completed with the backhoe loader. Dry drainages will be crossed perpendicular to the water flow direction with any vertical side banks sloped to the channel bottom. No drainages will be blocked by the two track trails. Typical designs for the two track trails and pads are presented in Attachment C.

Disturbance from the 168 pads will total 9.6 acres and sumps of 0.3 acres. Two-track trails are measured at12,510 feet in length and 10 feet in width for a combined total of 125,100 sq. ft., or 2.9 acres. Total anticipated disturbance from the drill pads, sumps, turnouts and access routes will be 13.2 acres (Table 4).

Table 4. Project Features and Disturbed Acreage

Project Feature	Length (feet)	Width (feet)	Square Footage	Disturbed Acreage*
New Two-track Trails (includes 3,138 ft. of unmaintained roads)	112,510	10	125,100	2.9
Turnouts (6 ea.)	190 ea.	15 ea.	17,100	0.4
168 Drill Pads	50 ea.	50 ea.	420,000	9.6
168 sumps	15 ea.	5 ea.	12,600	0.3
		Totals:	**624,375**	**13.2**

*rounded to a tenth acre

Drilling fluids and drill cuttings from the drill rig will be contained in the sump on each pad. Water in the sump will be recycled into the drilling stem. A small rubber-tired backhoe loader will be used to dig or expand sumps at the direction of an IUC representative to ensure that water does not overflow the sumps.

Topsoil on each pad shall be salvaged and stockpiled on the edge of each pad for use in reclamation of the disturbance at the end of the drilling project. Vegetation will not be separated from the topsoil to encourage rapid reestablishment. Best Management Practices in the form of silt fences, straw waddles, contour ditches and soil berms will be utilized to inhibit erosion. All products containing straw or seed utilized on the Project will be certified as 'weed-free'.

3.6 Drill Site/Drill Hole Locations

Drilling on each pad may include multiple, angle borings at a drill length between 820 feet (250 m) and 1,476 feet (450 m). Individual borings will be drilled at angles ranging from 60 to 90 degrees from horizontal. Total depths of the borings will range from approximately 550 feet to 1,050 feet below ground surface. Drill holes will be drilled on azimuths ranging from 0 to 275 degrees.

All drill holes shall be completed and immediately abandoned upon completion in accordance with the well permits issued by the Imperial County Department of Planning and Development Services and the standards specified by the California Department of Water Resources Bulletin 74-81 and Bulletin 74-90, CA - Well Standards. Prior to closure, all drill holes shall be abandoned in compliance with the permit to eliminate any threat to public safety and wildlife.

3.7 Operations

Up to three drill rigs and support vehicles may be operating simultaneously on the project each season depending on the availability of these rigs in the southwest U.S. and the analytical results of samples collected as the exploration project proceeds.

Mobile equipment to be used by the operation per individual shift is listed in Table 5. and discussed in the following paragraphs. No processing equipment will be used on the Project.

Table 5. Imperial Exploration Mobile Equipment

Imperial Onsite Mobile Equipment – Drilling, Grading and Reclamation					
No.	**Make**	**Type/Model**	**Weight (lbs.)**	**Purpose**	**Usage**
3	Atlas	Core Drill Rig- CS1000	45,000	Core Drilling	90%
1	Schramm	Reverse Circulation Drill Rig – 685	45,000	Reverse circulation drilling	10%
3	Freightliner	Water Truck - M2106	66,000	Drill rig support - General dust suppression	100%
1	Cat	Excavator – 349F	100,000	Test Pit Excavation, truck loading, backfilling pits*	2 days
1	Freightliner	Dump truck, 10-cu, yd. capacity - 108SD	69,000	Transport bulk rock samples off site*	2 days
1	John Deere	Backhoe Loader - 310L EP	13,800	Drill Pad grading, sump excavation, reclamation*	30%
1	Cat	Road Grader - 140K	38,603	BLM Legal Route and County road maintenance*	Occasional
3	Ford	Pickup - F250 4x4	6,618	Transportation for drill crew	75 miles/day
4	Ford	Pickup - F150 - 4x4	4,951	Transportation for site geologist, supervisor, QC	75 miles/day

*single shift during daylight hours

A 4x4 truck mounted core drill rig, such as an Atlas Copco CS1000 8.5 feet long and 7.3 feet wide) or a Schramm 685, respectively, or equivalents, will be used for the borings and will operate 24 hours per day. The Atlas Copco rig is 8.5 feet long, 5.3 feet wide and 32.5 feet high with drill masts fully extended. This drill rig will be delivered and moved by trailer or be mounted on a truck. Each truck mounted drill rig weighs approximately 45,000 lbs., has a wheelbase of 146 inches and is 9.5 feet wide including mirrors.

The drill rig will be accompanied by an all-terrain 4x4, 4,000-gallon water truck, a 3/4-ton, 4 x 4 pickup used by the drill crew (3) members, and 1/2-ton, 4x4 pickup for the geologist. These vehicles will be used for each 12-hour shift. Pickups (2) will make one round trip per day, per shift and that mileage is indicated in Table 5. The water truck and drill rig will remain on the pad for both shifts. The water truck will make one round trip per shift to the water source. If multiple drill rigs area operating on the Project simultaneously, a third 4x4 pick up would also be present for the use of a drilling supervisor to coordinate the drilling operations.

Cores retrieved will be HQ (2.5 inches) or PQ (3.35 inches) size with a drill hole diameter of 3.78 inches or 4.83 inches, respectively. Rock samples will be collected from the drill cuttings of the RC rig.

A rubber-tired backhoe loader, similar to a John Deere 310L EP model, will be used to level the pads and excavate the sump areas. This backhoe loader weighs 13,800 lbs. and is 7-feet wide and has a 7-foot wheelbase. Minimal grading of pads is anticipated due to the low relief in the area. This loader will not be stored on the Project site after the drill pads are leveled and two-track trails established. It will return to the Project during reclamation for recontouring the pads and any necessary ripping to reduce compaction.

If necessary, a road grader will be brought to the project site to maintain BLM Legal Routes and County dirt Roads utilized by the project. A track mounted excavator, Cat 349F or equivalent, will be used to excavate the four test pits on Indian Pass. This excavator weights approximately 100,000 lbs. If available in the area, a rubber-tired excavator will be used. A 10-yard capacity, rubber-tired dump truck will be loaded with rock sample, approximately 7 yards per trench, by the excavator and transported to an offsite facility for processing. When the test pits have been completed and backfilled, this equipment will be removed from the Project site. It is expected that the test pits will be dug, sampled and backfilled over a course of two days.

A portable toilet will remain on the pad until the borings are backfilled in accordance with County well permits. All drill sites will be accessed using existing BLM Legal Routes where available. Two-track trails, cleared of vegetation by cutting to near surface level, will be utilized for travel from maintained BLM roads to the drill pads.

3.7.1 Dust Control and Water Use

A water truck will be equipped with spray bars and will have a capacity of 4,000 gallons of water. This truck will be utilized to provide water for the drill rig and to apply water on frequently traveled road pad surfaces to control dust during operations per ICAPCD Rule 801 F.1. Although the use of palliatives is not anticipated, any palliative (dust control additives) used to enhance dust control will be a magnesium chloride solution and will be approved by the CRBRWQCB prior to application. If wind speed on the project site exceeds 25 miles per hour, water will be applied to the disturbed area at least once per hour. No more than 5-gallons of the magnesium chloride will be on site at any one time and shall be stored on the water truck,

Water will be utilized for the drilling. An organic polymer, brand name Polyore, may be added to the drilling fluid to reduce friction on the drill bits. Polyore is a natural food-grade polymer, non-toxic, and biodegradable. It is a non-mineral powder made from Guar Gum (PDSCo.Inc., 2020).

Flocculants may also be used to settle particles in recycled water and will be a powdered, aluminum sulfate flocculant. There will be no more than a 5-gallon bucket of the flocculant stored on the drill rig during operations.

Water use for a 12-hour shift is anticipated to be approximately 4,000-gallons per shift (8,000 gals/day) for both drilling and dust control. In the event there is excessive

water loss due to fractures in the rock, a second tank of water may be needed to complete the work shift or until the water loss is stopped.

IUC will obtain water for drilling and dust control from a legal source (either via purchase or permitted groundwater extraction) in the vicinity of the Project.

3.7.2 Power and Communications

No power sources are proposed for the exploration activities. Any supplemental power needed at site would be provided by a portable generator on the drill rig that would be permitted and in compliance with California Air Resources Board (CARB) emissions and registration requirements.

On-site communications will be provided through hand-held radios and cellular service, as available. If additional communications capacity is needed, trailer mounted temporary radio towers may be used.

3.7.3 Storm Water

Storm water from the disturbance areas will be managed according to the best management practices outlined in the SWPPP that will be prepared upon Project approval.

3.7.5 Support Facilities

No support facilities or buildings are needed.

3.8 Environmental Protection Measures

IUC will continue to implement the following applicant-committed environmental protection measures to ensure a safe and environmentally sound exploration project.

3.8.1 Air Quality

IUC, in compliance with the ICAPCD Air Quality Best Management Practices, will protect air quality by undertaking road and two-track trail maintenance activities to reduce fugitive dust emissions. Two-track trails will be watered using fresh water to reduce fugitive dust emissions, based upon weather and surface conditions. Application of water by water trucks will be done, as needed. Wet drilling methods will be used to reduce the potential for fugitive dust emissions.

A 15-mph speed limit for all project equipment will be enforced. Vehicle speeds will be reduced in areas of disturbance to minimize the potential for fugitive dust emissions to maintain operational safety and protect any wildlife. Project vehicles will be maintained regularly to ensure they are operating in a manner to minimize vehicle emissions.

Electrical power to run air compressors and/or work lighting, if needed, would be provided by a drill rig mounted generator permitted for use by CARB. If a non-exempt

portable diesel-powered generator is necessary, it shall be registered under the Statewide Portable Equipment Registration Program Regulation (PERP) administered by CARB.

All fuel used on the Project will comply with CARB fuel quality requirements. Off-road equipment used on the project will be registered under CARB's DOORS program prior to operating on the Project.

3.8.2 Water Quality

All drill holes will be plugged upon completion of the drill hole in accordance with Imperial County Well Permits and California Bulletin 74-81 and 74-90. Two drill holes will be converted to monitoring wells. One well will be placed on pad KIP20-109 and one on KIP20-110G of the Indian Pass Segment of the project. Both will be completed as a 6-inch diameter monitoring wells that will be used for groundwater sampling and water level measurements over the term of the approved plan and possibly continue into future permitting efforts. Groundwater sample collection and water level measurements will be completed quarterly during Season 1 and bi-annual after the first season. Collected water samples shall be analyzed for the Standard Water Quality parameters and for CA Title 22 Metals by an independent, CA certified laboratory.

It is estimated that groundwater will be encountered in this area within 650 feet of the ground surface.(Personal Communication, Groundwater Levels at Indian Pass, 2020)

The monitoring wells will be completed and secured in accordance with County well permits. A cross section diagram of the well design is included in Attachment D. A secured, (tamper proof lock), steel collar embedded in concrete will be installed around the well head and a locking well cap placed on the well casing. No automatic sampling equipment or communication devices will be left on site. A transducer may be placed inside the well casings and a battery-powered data logger placed on the interior of the secured steel collar to measure water elevations. If used, data from the logger would be manually recovered each quarter and the battery replaced.

In support of the groundwater monitoring conducted on the wells, IUC will also install three piezometers in select drill holes that will be used to measure water levels around the site. Piezometers will be placed on the following drill pads:

- KIP20-007,
- KIP20-044, and
- KIP20-054.

These piezometers will be made of blank 2-inch Schedule 80 PVC casing with up to 80 feet of 2-inch Schedule 80 PVC slotted well screen installed on the bottom of the blank casing. Each piezometer will be placed in a vertical core boring that is cased with an 8-inch steel casing in a 12-inch diameter boring to a depth of 20-feet and sealed with

a concrete grout. Within this steel casing, a 5-inch diameter core boring will be drilled to a depth that is a 6-inches below the planned length of the piezometer depth.

After the core boring is complete, the bottom 6-inches will be packed with sand, the casing and well screen inserted and the remainder of the boring around the screen segment packed with sand to the height of groundwater surface level. A slurry of hydrated bentonite will then be pumped into the boring to create a 20-foot seal above the groundwater surface. The reminder of the boring up to the steel casing will be filled with a bentonite grout seal with casing centralizers placed every 100-feet in the boring to keep the casing vertical. Once the PVC casing installation is complete, the surface will be secured with the installation of a steel encased well vault and a 4-foot by 4-foot concrete pad poured around the vault.

Installation materials and anticipated depths of the piezometers are provided as D2 - Typical Piezometer Detail in Attachment D and will be secured as shown on the detail. Well permits for these piezometers will be obtained through Imperial County.

The monitoring wells and piezometers will be removed in accordance with the requirements of the County well permit if these are not needed by the claim holders for future groundwater evaluations. If the wells and piezometers remain in place after the Project ends, these will be left in a secured condition so unauthorized personnel are unable to access the interior casing.

Storm water BMPs will be used for surface disturbance sites to minimize storm water erosion. Shallow sediment traps will consist of a hand dug depression up to 6-inches deep, 3-feet long and 3-feet wide with straw wattles around the downhill side of a depression may be placed on a pad surface as part of the BMPS. These are not engineered structures and may be installed on any pad if runoff accumulates on the pad and as necessary to control erosion and sedimentation. These depressions will be reclaimed as part of the pad reclamation.

Drill cuttings will be contained on site, and fluids managed utilizing appropriate control measures. Best Management Practices will be used as necessary until the end of the drill program.

3.8.3 Spill Contingency Plan

Materials and equipment necessary for spill cleanup will be kept at each drill rig. Equipment and materials will include, but not be limited to, shovels, gloves, safety glasses, sorbent materials (absorbent pads and granulated clay pellets), sand, sawdust, and plastic/metal trash containers specifically for this purpose.

Well-maintained equipment will be used to perform the work required on the Project. When practicable, equipment maintenance will be performed off-site. In the event of oil, fuel, lubricating grease or other equipment leaks, cleanup will be conducted immediately. If a leak results in liquid pooling an oil-absorbing product will be applied.

Once the cleanup product has absorbed the spill material, the product will be removed and placed in the petroleum contaminated soil bin located on the active pad and the material disposed of according to state and federal regulations. Any contaminated soil will be removed, managed, and disposed of at an off-site facility in compliance with state and federal regulations. In the event of oil, fuel, or hydraulic fluid leaks, cleanup will be conducted as soon as possible. In the event of a major spill, the following actions will be taken in addition to any federal, state, and local health and safety regulations:

- Contain the spread or migration of the spill using the on-hand supply of erosion control structures and/or by creating dirt berms, as feasible and necessary.

- Regulated wastes will be removed from the Project area and disposed of in a state, federal, or local designated area.

If a spill of a petroleum constituent is considered to meet the reportable quantity per the Imperial County's Certified Unified Public Agency (CUPA) guidelines or a reportable quantity for hazardous waste is released based on the U.S. Environmental Protection Agency (EPA) guidelines established under Title III List of Lists (40 CFR Part 302), the BLM and Imperial County CUPA will be notified within 24 hours and the appropriate remedial actions and confirmation sampling will be conducted under direction of the BLM and Imperial County CUPA.

3.8.4 Soils and Erosion Prevention and Control

IUC will conduct exploration operations in a manner which minimizes soil erosion. Erosion and runoff control measures, such as water bars, ditching, and other water control structures will be implemented in areas of surface disturbance. After the exploration program is completed in an area, the surface disturbance will be graded, re-contoured, and available topsoil/growth medium replaced, and the area will be seeded with an BLM-approved native seed mixture in order to establish a ground cover and minimize erosion. Revegetation activities will commence at the earliest feasible time following reclamation activities. Best Management Practices (BMPs) will be utilized to control erosion and sedimentation. BMPs utilized to control erosion and sedimentation will be detailed in SWPPP prepared for the approved project.

3.8.5 Surface Water Resources

Natural drainage patterns will not be altered. Drill site construction within drainage channels will be avoided unless prior approval from the BLM is obtained. When drainages must be crossed with a two-track trails, best management practices, identified in the SWPPP to be prepared for the Project, will be followed to minimize the surface erosion and sedimentation potential. Smaller drainage patterns that could be affected by trench or pad construction will be restored, and regrading will conform to the adjacent topography upon completion of the exploration program. The

construction and maintenance practices from the BLM Gold Book, Surface Operating Standards and Guidelines, Fourth Edition, Revised 2007 will be implemented.

All exploration activities will be conducted using BMPs such that sediments, cuttings, drilling fluids, or any other material or substance will be fully contained in sumps to ensure that these materials do not enter drainages.

Sumps will be excavated and managed to prevent overtopping and saturating the safety berms. IUC will monitor sumps regularly for seeps or other evidence of erosion and will direct drill crews to cease activity and notify supervisors if seepage is observed. IUC will ensure that sump evacuation proceeds for as long as drilling or other water-producing activities continue. If evacuation is not possible, drilling will be stopped as soon as water levels approach the sump capacity. No trash will be placed in the sumps.

3.8.6 Solid and Hazardous Wastes

The Project will not generate or dispose of any hazardous waste on the exploration area. Petroleum products will be used on-site. Petroleum products are excluded as hazardous substances under the Comprehensive Environmental Response, Compensation, and Liability Act section 101(14). Diesel will be transported to the site in a mobile fuel/lube truck but will not be stored on-site. Motor oil, lubricating grease and solvent in small quantities (one case each or less) would be maintained in a fully contained box on the drill rig for emergency use. If regulated materials (petroleum products) are spilled, measures will be taken under IUC spill response guidelines to control the extent of the spill, and the appropriate agencies will be notified in accordance with the applicable federal and state regulations.

Solid waste will be collected at each drill pad and maintained in a covered container to prevent raven scavenging. All solid waste will be removed from each active pad daily and shall be disposed of at a suitable disposal site.

A portable toilet will be located on each active drilling pad. The toilets will be regularly serviced using a contract cleaning service that will manage disposal of the sewage waste.

3.8.7 Wildlife and Sensitive Species

To avoid potential impacts to breeding migratory birds, a BLM-approved biologist will survey in early spring of each year, all areas proposed for drilling or surface disturbance for the presence of active nests. IUC has committed to conducting pre-disturbance migratory bird nest surveys in the spring and establishing exclusion zones around active nests as part of the applicant committed EPMs. Additionally, surface disturbance clearance surveys will be conducted following BLM Wildlife Protocols (BLM 2014c) when a proposed activity involves ground disturbance during the nesting season, defined by the BLM as March 1 through July 31. When active nests are located, or if other evidence of nesting is observed (e.g., mating pairs, territorial defense, carrying nesting material, transporting food), IUC's biologist will

recommend to the BLM an avoidance buffer around the nest. BLM, in coordination with the U.S. Fish and Wildlife Service (USFWS), will review and approve avoidance measures prior to surface disturbance. IUC's biologist will inform IUC when the birds have left the nest. IUC will not conduct any drilling or surface disturbing activities within the exclusion zone until the biologist determines that the birds are no longer nesting.

During the nesting season (March 1 to July 31), IUC will not conduct drilling or surface disturbing activities within a 0.5-mile radius of any active raptor nests. Upon identifying an active raptor nest, IUC will immediately notify the BLM. Speed limits will be posted, and vehicle speeds reduced in areas of disturbance to minimize the potential for fugitive dust emissions, to protect wildlife and to maintain operational safely. Speed limits will be enforced.

3.8.8 Special Status Species

In the event that other special status plant or wildlife species are identified within the Project, IUC will not conduct surface disturbing activities within the species' habitat until the BLM can evaluate the potential impact and coordinate with IUC to devise and implement a plan to avoid the habitat. To the extent avoidance is not feasible, IUC will coordinate with BLM and any other appropriate agency to comply with all applicable laws and regulations.

In the event 30-day preconstruction surveys identify special status plant or wildlife species only protected pursuant to California law, IUC will coordinate with BLM and the appropriate state agency (e.g., California Natural Resources Agency or California Department of Fish and Wildlife) to avoid impacts to that species or otherwise comply with applicable California law and regulations.

All test pits, sumps, and other small excavations that pose a hazard or nuisance to the public, wildlife, or livestock will be adequately fenced to preclude access or constructed with a sloped end for easy egress.

3.8.9 Cultural and Paleontological Resources

IUC will conduct exploration activities in accordance with all applicable state and federal regulations. As part of the baseline data collection to support the NEPA analysis for this project, IUC will contract with a qualified archaeologist to conduct a Class III level cultural survey of each of the proposed disturbance areas to identify cultural resources and evaluate those resources for the National Register of Historic Places.

The archaeologist will submit a report that adheres to the BLM's Cultural Resource Inventory Guidelines documenting the results of the inventory. Documented sites will be protected from surface disturbing activities by an exclusion zone defined by BLM until the BLM determines the National Register eligibility of each archaeological site. IUC will avoid adverse effects to historic properties (i.e. sites eligible or potentially eligible for the National Register) through project redesign; archaeological monitoring;

or limiting ground disturbing activities to existing, modern disturbance. IUC will provide BLM with a written work plan for avoiding adverse effects to historic properties. Sites determined not eligible by BLM will not require avoidance or archaeological monitoring.

IUC will not knowingly disturb, alter, injure, or destroy any scientifically important paleontological remains, or adversely affect any historical or archaeological site, structure, building or object eligible or potentially eligible for the National Register on federal lands.

IUC will be responsible for ensuring that employees, contractors, or any others associated with the Exploration Project do not damage, destroy, or vandalize historic properties. Should unauthorized damage to cultural resources occur within or near the Exploration Project during the period of construction, operation, or rehabilitation due to the unauthorized, negligent, or inadvertent actions of IUC or other Exploration Project personnel, IUC will be responsible for costs of rehabilitation or mitigation.

If human remains/burials or any previously unidentified cultural (archaeological or historical) resources are discovered during construction activities under the approved Plan, IUC will immediately cease activities, ensure that the discovery is appropriately protected, and immediately notify the BLM Authorized Officer by telephone, followed with written confirmation. The remains or unanticipated find will be handled in accordance with Stipulation 9.0 or 11.0 of the *Protocol Agreement Among California BLM and California SHPO and Nevada SHPO* (2019) and any applicable state and federal regulations. Work will not resume, and the discovery will be protected until notified in writing by the BLM Authorized Officer.

IUC's employees and contractors will receive training on the potential for cultural resources and the procedures required by IUC to avoid unauthorized disturbance, alteration, or destruction of any remains or any historical or archaeological site, structure, building or object on federal land. This issue will be covered during the daily safety meeting.

3.8.10 Survey Monuments

Survey monuments, witness corners, and/or reference monuments will be protected to the extent economically and technically feasible. Should moving such a feature be required, IUC will ensure that a California licensed surveyor oversee and execute the relocation in a manner consistent with applicable laws. The BLM will be notified in writing prior to the moving of any such survey monument.

3.8.11 Vegetation/Desert Shrub Resources

Reseeding will be consistent with all BLM recommendations for seed mix constituents, application rate, and seeding methods. Where possible, IUC will minimize removal of desert shrubs and succulents during activities associated with drill pad and two-track trails establishment.

3.8.12 Wildland Fire Protection

All applicable state and federal fire laws and regulations will be complied with and all reasonable measures will be taken to prevent and suppress fires in the Project area. In the event the proposed Project activities start or cause a wildfire, IUC will be responsible for all the costs associated with the suppression.

IUC will comply with all applicable state and federal fire laws and regulations and all reasonable measures (i.e., vehicle hand tools, extinguisher), contact BLM concerning fire controls on welding) will be taken to prevent and suppress fires in the Project area.

All Project vehicles will carry fire extinguishers and a minimum of ten gallons of water during the months of May through September. Adequate fire- fighting equipment, i.e., shovel, Pulaski, extinguisher(s), and a minimum ten gallons of water, will be kept at the drill site(s). Vehicle catalytic converters will be inspected often and cleaned of all brush and grass debris.

Welding operations will be conducted in an area free from or mostly free from vegetation. A minimum of ten gallons of water and a shovel will be on hand to extinguish any fires created from the sparks. Extra personnel will be at the welding site to watch for fires created by welding sparks. Welding aprons will be used when conditions warrant (i.e., during red flag warnings).

Wildland fires will immediately be reported by calling 911. Information reported will include the location (latitude and longitude if possible), fuels involved, time started, who or what is near the fire, and the direction of fire spread. The El Centro Field Office will be notified with the same information after the initial call is completed.

3.8.13 Public and Wildlife Safety

Mine Safety and Health Administration (MSHA) approved safety signage will be posted at the intersection of a BLM Legal Route and the active two-track trail, along the two-track trails and at the entrance to and around, an operating pad to discourage the public from entering the work area. If necessary, a temporary gate-type structure will be placed across the two-track trails near the pad entrance that would require vehicle occupants to stop and open prior to proceeding. A silt fence will be installed around the edge of the pad to discourage rodents, reptiles, and tortoises from entering the active area. A safety fence will be installed around each sump. In addition, the ends of each sump will be sloped to allow small animal or reptile species to escape if they should fall into the sump.

Each drill hole will be abandoned in accordance with the Imperial County well permits as soon as it is completed by backfilling from the bottom of the drill hole to the ground surface with hydrated bentonite chips using a tremie tool. If an emergency requires all personnel to leave the site immediately, the drill hole would be covered by a heavy steel plate prior to leaving the site.

Since each pad will be operating 24 hours per day for seven days, no fence other than a safety fence around the sump and silt fencing will be installed. Under routine conditions, the site will only be left after drill holes have been properly abandoned.

4.0 Reclamation Plan

Reclamation of all areas disturbed will be completed to the standard described in Section 3809.420 of 43 CFR and reasonable measures will be taken to prevent unnecessary or undue degradation of Federal lands during operations and reclamation. These measures will include restricting reclamation activities to disturbed areas (e.g. not obtaining fill or covering materials from undisturbed areas).

4.1 Reclamation Grading

Abandonment of individual drill holes will be accomplished using hydrated bentonite chips applied with a tremie tool from the bottom of the borehole to the surface. Sumps will be backfilled when dry. Excess drill cuttings will be worked into the surface of the pad and compacted areas will be ripped or scarified. Drainages disturbed by the project by grading for pads, if any, will be re-established to their original pattern and gradient. After compaction relief and drainage establishment, the pad and two-track trails will be graded to approximate original contour to blend with the existing topography. All salvaged topsoil will then be spread over the surface, left in a roughened condition in preparation for planting with native seed in the fall of the year. Any vegetation disturbed during the grading will be strewn across the pad.

Signs will be posted around the recontoured pads and along the two-track trails that indicate reclamation is in progress and to stay off. A small berm will be placed across the trail at the intersection of the trail with a BLM Legal Route or County Road to discourage access to the trail.

4.2 Revegetation

After completion of all drilling activities and boring abandonment, each pad will be graded to the approximate original contour of the surrounding topography and left in a roughened condition. On flatter areas, the two-track trails surface will be scarified, and water bars installed where needed to prevent runoff from running down the two-track trails. If necessary, ripper teeth will be used on the bucket to relieve deep compaction. After final grading, salvaged topsoil will be spread over the disturbed area as a seed bed. The prepared seed bed will then be planted with the native seed mix presented in Table 6, or as recommended by BLM, by hand broadcasting, or broadcast by rotary spreaders. Native seed mix will be certified as weed free.

Table 6. Seed mixture for Imperial Exploration Project

Species	Pure Live Seed* (pounds per acre)

General Seed:	
creosote (Larrea tridentata)	4
white burr sage (Ambrosia dumosa)	3
brittlebush (Encelia farinosa)	2
small flowered fagonia (Fagonia laevis)	1
white rhatany (Krameria bicolor)	1
Special Seed: (for specific applications in washes)	
Pink fairyduster ((Calliandra eriophylla),	0.5
Pink velvet mallow (Horsfordia alata)	0.5
Salvaged Container Plants:	
salvaged ocotillo and all cactus species will be transplanted near original locations	unknown
Total:	**12**

*Seed mix will be certified as weed-free.

The two-track trails will be bonded for re-seeding; pads and sumps will be bonded for reclamation grading and seeding costs. Weed control will be addressed with the Imperial County Agricultural Commissioner's office.

4.3 Weed Control

IUC will be responsible for controlling all noxious weeds in newly disturbed areas until the reclamation activities have been determined to be successful and released by the BLM authorized officer.

As part of weed control measures, IUC will require that the undercarriage of all contractor vehicles be cleaned and inspected prior to entering the Project area if the vehicle is coming from an area outside of southern California.

Monitoring for weeds will occur annually by the Project Biologist. Based on the Biologists recommendations, weeds will be removed by hand or through the use of an herbicide that is approved for use on public lands. If weeds are removed by hand, all removed vegetative matter will be placed in plastic bags and removed from public land. These bags will be disposed of at a licensed solid waste facility.

5.0 Monitoring Plan

5.1 Wildlife

IUC will provide photos of threatened, endangered and special status species in the project kickoff meeting. All personnel on the site will be instructed to recognize and avoid disturbing these species or other wildlife encountered during the daily safety meeting. Speed limits will be established and enforced. Prior to moving any vehicles on the site, the area beneath the vehicles will be inspected for the presence of Desert tortoise. Sightings and injury or death of any species will be recorded and reported to the BLM.

5.2 Archaeological Sites

Archaeological sites determined eligible or unevaluated for the National Register will be marked and avoided by all project personnel. IUC will monitor operations to ensure that these sites and other artifacts that may be discovered, are not disturbed. BLM will be contacted promptly if artifacts are discovered. All markings identifying a site will be removed after initial grading of the pads are completed.

5.3 Surface Water Quality

Surface water quality at the exploration site and process site will be monitored as required by the SWPPP prepared to comply with the NPDES General Permit for Industrial Facilities.

5.4 Reclamation Success

IUC will inspect the exploration site annually for three years following the winter rains to see if disturbed areas are revegetating and other reclamation measures need repair or modification. Should remedial work appear necessary, IUC will consult with the BLM El Centro Field Office to agree on methods and to obtain approval to carry out the work.

5.5 Annual Reporting

IUC will provide a monitoring report to BLM on an annual basis that documents project activities including, a map of all project disturbance (two-track trails, drill pads, etc.), a description of all project reclamation completed and monitoring data collected; including wildlife, cultural resource and revegetation. A summary of drill hole status, work completed, and work planned for the following season will also be included.

6.0 Interim Management Plan

Temporary closure is not anticipated but could be necessitated by heavy rains interfering with drilling, break-down of key equipment, unavailability of fuel or key supplies, labor disputes or other unforeseeable events.

Should temporary closure be required, IUC would notify the BLM El Centro Field Office of the closure, identify the reason for the closure and the expected duration of the closure. In the event of a temporary shutdown, an IUC representative will remain on site until drilling can resume. Drill holes will not be left in an unsafe manner and will either be backfilled completely with hydrated bentonite chips or, in an emergency

event where personnel are required to leave immediately, covered with a heavy steel plate

In the event shutdowns, existing borings would be abandoned according to permit requirements and sumps dried and filled. All equipment and temporary structures would be removed from the project site except for silt fencing which would remain until the pads are reclaimed. Signage would remain in place. Disturbed areas would be checked every six weeks during a closure to ensure storm water BMPS are in operating condition.

7.0 Schedule of Activities

The drilling program is expected to be completed within 3 years from the approval of the Exploration Plan of Operation.

Exploration drilling will be conducted on each of the three Project Segments during each of the three years. Approximately one-third of the identified pads in each segment will be drilled per season depending on the availability of drill rigs and the results from the exploration. During the year, drilling will be dispersed throughout each Segment and not in numerical sequence. This allows the development of an overview of the sub-surface conditions and geologic resources. During the second and third years, drilling will be more concentrated in areas where positive geologic conditions and test results were found during the previous seasons. On the Indian Pass and Ogilby Segments, drilling will generally proceed in a north to south pattern while East Mesquite will be drilled in a west to east pattern.

After drilling is completed on the pads, the sumps will be allowed to dry, the safety fence removed, and the sump filled. Recontouring of the pads and spreading of topsoil would follow within 60 days of cessation of exploration activities. BMPs would remain in place during this period. Signage that indicates "Reclamation in Process – Stay Off" would be posted along the two-track trail and at the pad. At the intersection of a two-track trail and a BLM Legal Route, a short, low berm will be placed across the trail to discourage the vehicular use of the trail by the public.

Seeding would occur on the pads and the two-track trails each season between November 15th and January 15th to take advantage of seasonal rains. Monitoring of the revegetation on all IUC disturbance will continue for 3 years following reclamation.

IUC will provide an annual report documenting project activities including, a map of all project disturbance (drill sites, drill pads, test pits, geophysical pads, etc.), all project reclamation completed, any monitoring data (water, stormwater, revegetation), and a summary of drill hole status (active or plugged and abandoned). Also included will be a description of the anticipated activities for the following exploration season.

As previously discussed, IUC will contract with a Cultural Resource specialist and a wildlife biologist to clear all two-track trails and pads within the Project boundaries in

advance of disturbance. If cultural sites are identified in the survey area or the biologist recommends avoidance of an area, the trail routes and pad locations will be modified to avoid those sites or the Desert tortoise.

8.0 Reclamation Cost Estimate/Financial Assurance

IUC will provide the BLM with an irrevocable financial assurance mechanism in an amount equal to the reclamation cost estimate as a financial guarantee.
A financial assurance cost estimate (FACE) for reclamation on the Imperial Exploration Project will be provided to the BLM prior to approval of this proposed EPO. Included in the estimate shall be costs for reclaiming new drill sites, abandoning drill borings, re-seeding trails and pads, mobilization-demobilization cost and the associated contingency.

9.0 Occupancy

No occupancy of the site is proposed. No permanent structures or facilities will be placed in the Project area.

Nothing proposed in this EPO will interfere with public access to adjacent public lands. Existing BLM Legal Routes will remain open to the public and will not be blocked by the Project.

10.0 Acknowledgements

Imperial USA Corporation will complete all necessary reclamation of areas disturbed during the operations to the standards described in 36 CFR §3809.420 and the Terms and Conditions of US BLM-El Centro Field Office Notice. IUC will assure that reasonable measures will be taken to prevent unnecessary or undue degradation of the federal lands during operations.

It is understood that, should the nature of the operation change, a modified or supplemental Plan of Operations and Reclamation Plan may be required.

It is understood that approval of this Plan of Operations and Reclamation Plan does not constitute certification of ownership to any person named herein or recognition of the validity of any mining claim herein.

It is understood that a bond, equivalent to the actual cost of performing the agreed upon reclamation measures, will be required before this plan can be approved.

Bonding and any bond reduction amounts will be set on a site-specific basis in coordination with cooperating agencies.

It is understood that approval of this plan does not relieve IUC of the responsibility to comply with other applicable Federal or State laws, rules, or regulations.

It is understood that any information provided with the plan that is marked confidential will be treated by the BLM in accordance its rules, and regulations.

IUC agrees to comply with all Conditions in the Plan of Operations and Reclamation Plan, including recommended changes and reclamation requirements.

IUC understands that the bond will not be released until the BLM or state agency in charge gives written approval of the reclamation work.

Signature of Operator: _____

(On behalf of) _____ Date: _____

(to be signed upon approval)

11.0 References

Westec Inc. 1996. Hydrology Baseline Report for the Imperial Project. WESTEC Project 95145. Report 1451. February 1, 1996

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U.S. Department of Interior, Bureau of Land Management. 2002. Mineral Report. Discovery, Use and Occupation, and Mineral in Character Determination of 187 Lode Mining Claims and 277 Mill Site Claims, Owned by Glamis-Imperial Gold Company, Imperial County, California. Serial Number CACA 35511.

Attachment 3

United States Department of the Interior
Bureau of Land Management
California Desert District

Record of Decision for the Imperial Project Gold Mine Proposal

Imperial County, California

Prepared by:

United States Department of the Interior
Bureau of Land Management
California State Office
California Desert District
El Centro Field Office

BLM Case File No. CA 670-41027
OEPC #DES-97-43 and #DES-99-8
OEPC #FES-00-50

Approved by: _____ 1/17/01
Secretary of the Interior Date

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EXECUTIVE SUMMARY

This document constitutes the Record of Decision (ROD) for the Imperial Project, an open-pit gold mine proposed by the Glamis Imperial Corporation on public lands administered by the Department of the Interior's Bureau of Land Management (BLM) in eastern Imperial County, California. This ROD is prepared in accordance with the National Environmental Policy Act (NEPA), the Federal Land Policy and Management Act (FLPMA), and other applicable Federal laws and regulations.

After extensive analysis, public review and comment, and application of pertinent Federal laws and policies, it is the decision of the Department of the Interior, based upon the recommendation of the BLM, not to approve the plan of operations for the Imperial Project. This represents the No Action alternative as described in the Final Environmental Impact Statement/Environmental Impact Report (FEIS/EIR) published jointly by BLM and Imperial County on November 17, 2000. The FEIS/EIR is available online at http://www.ca.blm.gov/elcentro/imperial_project.html.

This decision is based upon the following key factors determined to be unique to this particular proposal:

- the proposed project is located in an area determined to have nationally significant Native American values and historic properties and would cause unavoidable adverse impacts to these resources.
- the proposed project will result in unavoidable adverse impacts to visual quality in this substantially undisturbed landscape.
- the impacts of the proposed project cannot be mitigated to the point of meeting the statutory requirement in FLPMA that BLM must prevent "undue impairment" of the public lands in the CDCA.
- the proposed project is inconsistent with the CDCA plan.
- the identified unavoidable and adverse environmental impacts resulting from the project override the possible economic benefits that might be derived from the project.
- the proposed project fails to meet the overall statutory requirement in FLPMA that BLM must prevent "unnecessary or undue degradation" of the public land resources.

The proposed project area, about 45 miles northeast of El Centro, California, and 20 miles northwest of Yuma, Arizona, lies within the boundaries of the California Desert Conservation Area (CDCA), designated by Congress in Section 601 of FLPMA as a region requiring special management due to its nationally significant resources. The proposed project, to be located on 1,571 acres of unpatented mining claims held by Glamis Imperial Corporation, would encompass a mine and processing area, including open pits, waste rock and topsoil stockpiles, heap leach pads, administrative and maintenance facilities, a precious metal recovery plant, haul roads, an electrical substation, distribution lines, and associated facilities. Up to 150 million tons of ore would be mined and leached, and an additional 300 million tons of waste rock would be deposited on the site under the proposal.

In making the determination that the proposed project area contains nationally significant Native American values and historic properties, this ROD relies heavily upon the advice of the Advisory Council on Historic Preservation, an official Presidential advisory organization. The Council advised the Secretary of the Interior on October 19, 1999, that the Indian Pass-Running Man Area of Traditional Cultural Concern in which the project would be located is archeologically significant and retains critical religious, historic, and educational importance to the Native American tribes in the area. The Council further advised that even if all feasible mitigation measures identified were required as a condition of approval, the project would still result in serious and irreparable degradation of the sacred and historic values in the area. The Council concluded that the project would effectively destroy the identified historic resources and recommended denial of the project. A copy of the Council's letter is included as Appendix A of this ROD.

In interpreting the legal authorities pertaining to this particular project, this ROD relies upon the Department of the Interior Solicitor's Opinion of December 27, 1999, which describes the nature of BLM's discretionary authority under the statutory standards of "undue impairment" and "unnecessary or undue degradation" to proposed actions on the public lands in the CDCA. A copy of the Opinion is included as Appendix B of this ROD.

In addition to Glamis Imperial Corporation's proposed action and the No Action alternative (not to approve the plan of operations), the Department also considered West Pit, East Pit, and Complete Pit Backfill alternatives. Several other alternatives were considered initially but were eliminated from detailed analysis in the FEIS/EIR, including alternative mine locations, alternatives to relocate facilities, and alternative mining and processing methods. The No Action alternative is both the agency's preferred alternative and the environmentally preferable alternative as identified in the FEIS/EIR.

During the extensive environmental review process, the combined public comment periods provided for approximately 11 months of public review. A draft EIS/EIR on the project was published in November 1996 for public review and comment through March 1997. Based upon public comments received, the November 1996 draft EIS/EIR was withdrawn and a new draft EIS/EIR was prepared and published November 1997 for public comment through April 1998. Four public hearings were held to receive comments on the two drafts. A public hearing on the project was also conducted by the Advisory Council on Historic Preservation in March 1999. Public comments on the FEIS/EIR were also accepted for 30 days. Approximately 1,000 individual comments were received by BLM on the project during these comment periods. These comments were carefully considered and are addressed in the FEIS or in this ROD.

Since this was a joint environmental review process, BLM worked closely with Imperial County in the EIS/EIR preparation. As part of the environmental review process, BLM and Imperial County consulted and coordinated with the U.S. Fish and Wildlife Service, the U.S. Environmental Protection Agency, the U.S. Geological Survey, the U.S. Army Corps of Engineers, the U.S. Bureau of Reclamation (Lower Colorado Division), the Advisory Council on

Historic Preservation, the Governor's Office of Planning and Research, the California Department of Conservation, the California Department of Fish and Game, the California State Office of Historic Preservation, the California Native American Heritage Commission, the California Regional Water Quality Control Board, the Metropolitan Water District of Southern California, and the Southern California Association of Governments. In accordance with Section 106 of the National Historic Preservation Act, BLM also officially consulted with the Quechan Tribal Council, Fort Yuma Indian Reservation. In addition to correspondence from the Quechan Tribe and verbal discussions and tours with Tribal members, BLM held three formal government-to-government consultations with the Tribe: December 16, 1997; February 4, 2000; and November 27, 2000.

This ROD constitutes the final administrative decision of the Department of the Interior.

Additional information on this decision can be obtained from BLM's El Centro Field Office, 1661 S. 4th Street, El Centro, California, 92243, telephone (760) 337-4400.

Proposed Imperial Project Area

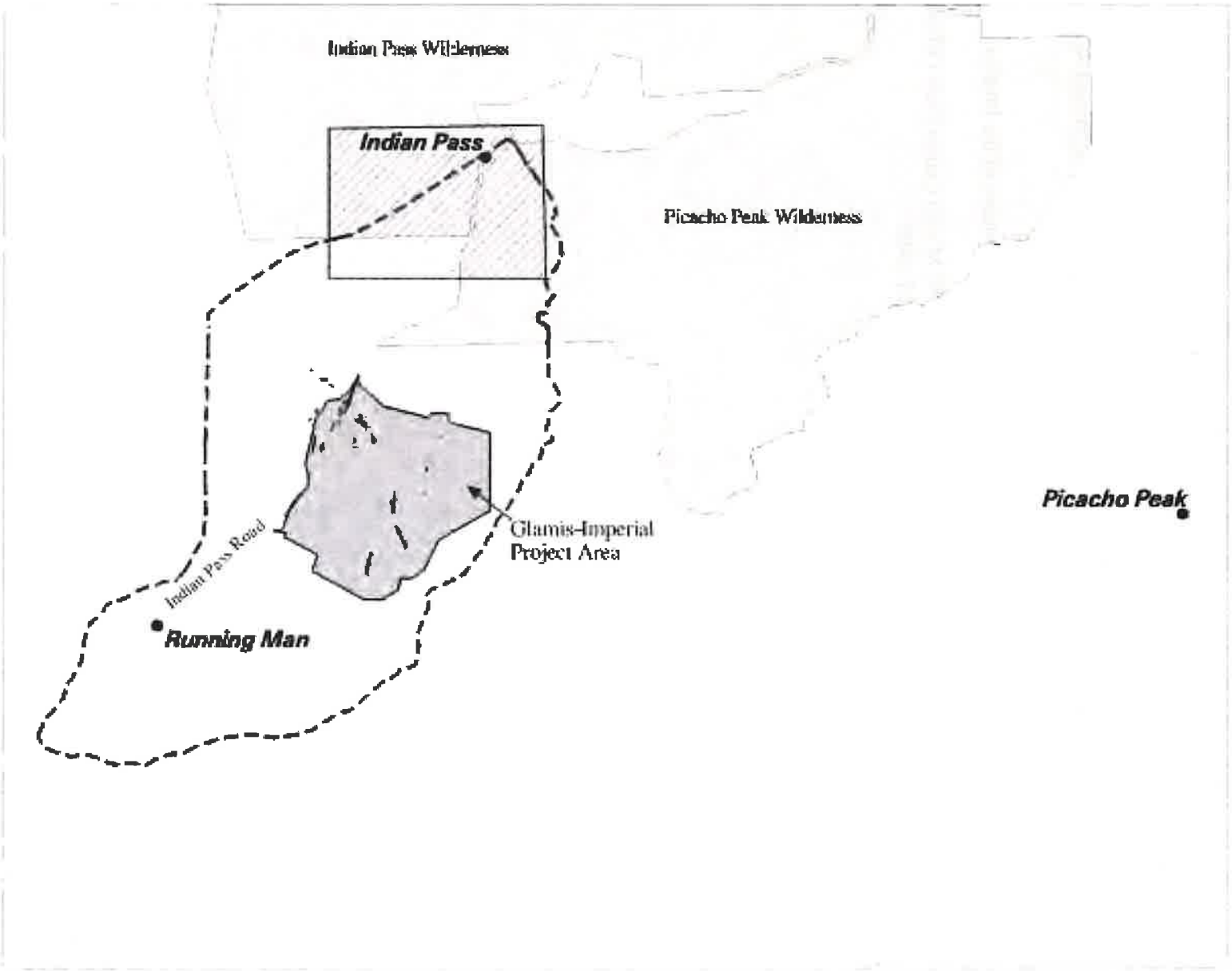
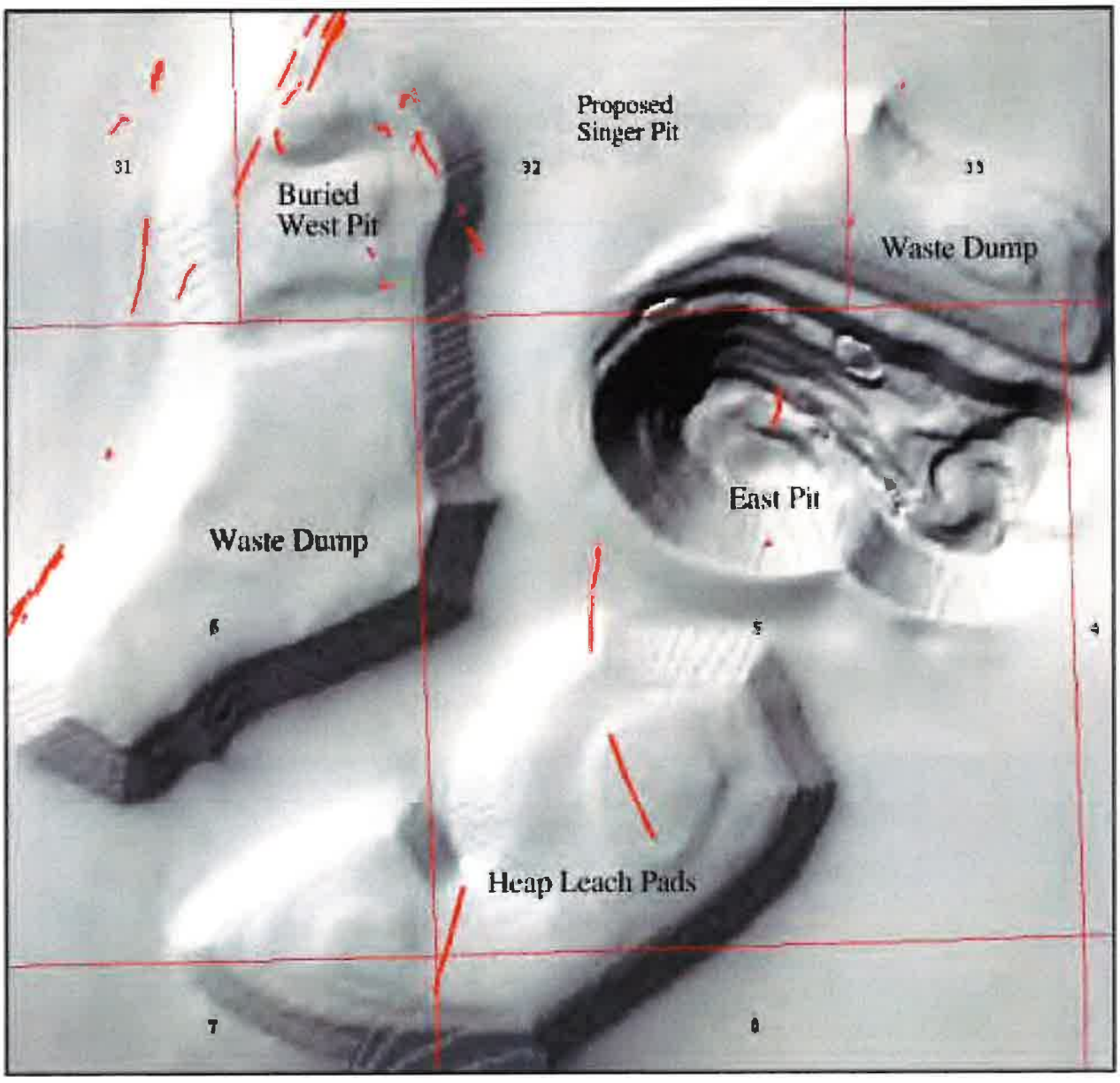


Figure 1

Proposed Imperial Project Area

Modeled Pit and Waste Dumps



Section Lines

Ancient Trails

Figure 2

Proposed Imperial Project Area
Before/After Simulation View

December 2000

Northeast View from Running Man Trail
Before Operations

Northeast View from Running Man Trail
After Operations

Figure 3

DECISION

After extensive analysis, public review and comment, and application of pertinent Federal laws and policies, it is the decision of the Department of the Interior, based upon the recommendation of the BLM, not to approve the plan of operations for the Imperial Project. This represents the No Action alternative as specified in the FEIS/EIR published jointly by BLM and Imperial County on November 17, 2000.

This decision is based upon the following key factors determined to be unique to this particular proposal:

- the proposed project is located in an area determined to have nationally significant Native American values and historic properties and would cause unavoidable adverse impacts to these resources.
- the proposed project will result in unavoidable adverse impacts to visual quality in this substantially undisturbed landscape.
- the impacts of the proposed project cannot be mitigated to the point of meeting the statutory requirement in FLPMA that BLM must prevent "undue impairment" of the public lands in the CDCA.
- the proposed project is inconsistent with the CDCA plan.
- the identified unavoidable and adverse environmental impacts resulting from the project override the possible economic benefits that might be derived from the project.
- the proposed project fails to meet the overall statutory requirement in FLPMA that BLM must prevent "unnecessary or undue degradation" of the public land resources.

RATIONALE

The proposed project would cause significant and unavoidable adverse impacts to values of critical importance to Native American Tribes.

The proposed project would significantly damage the network of Native American trail segments and related cultural resources associated with the nationally significant Indian Pass-Running Man Area of Traditional Cultural Concern (ATCC) (see Figure 1 and Appendix D). The Indian Pass-Running Man ATCC is recognized by the Department as having values of critical religious, cultural, and educational importance to the Colorado River Indian Tribes, Ft. Mojave Indian Tribe, and particularly the Quechan Tribe. Development and operation of the proposed gold mine would significantly diminish the integrity and spiritual qualities of the ATCC as a place of solitude, knowledge, and power to the tribes.

The proposed project would destroy portions of the Trail of Dreams, other trails, and related ceremonial areas providing a spiritual pathway between Pilot Knob, 25 miles from the site, and Newberry Mountain, 115 miles away. The Quechan and the other tribes believe the project would impair the ability to travel, both physically and spiritually, along the Trail of Dreams; to make ceremonial use of the prayer circles, rock alignments, and other cultural features in the project area; to gain protection from metaphysical dangers; and to continue to use the project area for vision quests and teaching tribal youths about their culture.

In consideration of the scope and magnitude of the project's potential impacts to critical Native American values, BLM requested the advice of the Advisory Council on Historic Preservation. The Council's findings and recommendations were formally submitted to the Secretary on October 19, 1999 (see Appendix A). The Department has considered these recommendations and concurs with the following Council findings: 1) the values of the ATCC are of premier importance to the Quechan Tribe for sustaining their traditional religion and culture; 2) the ATCC has retained sufficient integrity of setting, feeling, and association to remain a critically important area for traditional uses; 3) the proposed mining operation would unduly degrade the ATCC; 4) concerned individuals and the Quechan Tribe have consistently voiced their overwhelming opposition to the project; and 5) mitigation measures proposed by Glamis Imperial Corporation are not adequate to compensate for the loss of Native American values and historic properties if the mining project were approved.

Approval of the proposed project would not be in conformance with Executive Order 13007 on Indian Sacred Sites. The proposed project would not conform to Executive Order 13007 because the project would destroy access to and the ceremonial use of sacred sites by the Quechan and would significantly harm the integrity of sacred sites. While direct physical damage could be reduced on some sites through mitigation proposed by Glamis Imperial Corporation, according to the Quechan, the overall loss of the integrity of the ATCC and its spiritual value to the Quechan could not be offset. Further, the Quechan have stated financial or off-site mitigation measures

would not compensate for these adverse impacts. This conclusion is supported by the Council, the California State Historic Preservation Office, and the California Native American Heritage Commission.

Approval of the proposed project would result in disproportionate adverse impacts to Native Americans, and thus would also not conform with Executive Order 12898 on Environmental Justice. The Quechan have consistently expressed concern over the cumulative impacts of the proposed project. When combined with the impacts from existing mines, interstate highway development, and other land development in their traditional territory, the impacts of the proposed project would result in an increase in the already significant loss of values to the Quechan. Archaeological surveys and historic records over the past 20 years have documented Native American values and historic properties lost to the Quechan as a result of various Federal and State projects. The Quechan have stated that other substantial unrecorded losses have also occurred.

The proposed project would cause significant and unavoidable adverse impacts to historic properties determined eligible for the National Register of Historic Places.

The proposed project would have an adverse effect on 55 historic properties determined eligible for listing in the National Register of Historic Places, including the Indian Pass-Running Man Area of Traditional Cultural Concern. The eligible properties also include significant Native American trail segments and other historic properties such as geoglyphs, rock rings, ceremonial quartz and ceramic scatters, and cleared circles, both inside and outside the footprint of the proposed project. The eligible properties would be disturbed or destroyed through excavation of the open pits and construction and operation of the leach pad, waste rock and soil stockpiles, diversion channels, haul and access roads, and associated processing and support facilities. In addition to the direct physical effects, mining related noise and visual impacts of the project would further diminish the quality of the eligible properties. In its letter of July 21, 1998, the State Historic Preservation Office has concurred with BLM's determination of adverse effects (Appendix D).

Mitigation measures would reduce but not eliminate adverse effects to 23 of the 55 historic properties determined eligible for the National Register of Historic Places. In the November 1997 draft EIS/EIR, the project proponent modified the initial proposal to provide for mitigation of adverse effects to these resources. The company redesigned the mining plan to reduce impacts including reduction in the heights of the waste rock and stockpiles as well as other design modifications. The company also agreed to undertake an archaeological data recovery program to preserve archeological materials and compensate the Quechan through enhancement of the existing Quechan heritage preservation program, including the acquisition and preservation of off-site archaeological resources.

However, the mitigation measures proposed by Glamis Imperial Corporation would not be effective in reducing adverse effects on 32 of the 55 historic properties. Even after implementing the mitigation measures, characteristics relating to integrity of setting, feeling, and association,

which qualify the properties for listing to the National Register of Historic Places, would be irreversibly disturbed by mining activities: integrity of the Trail of Dreams, other prehistoric trails, and related ceremonial areas would be impaired; the existing natural landscape would be permanently altered; opportunities for solitude would be diminished; and the overall spiritual value of the ATCC would be irreversibly damaged. The Council, after reviewing the company's proposed mitigation measures and carefully evaluating the potential impacts, stated in its October 19, 1999 letter to the Secretary of the Interior (see Appendix A) that the mitigation measures would "do little to reduce the devastating impacts on the historic properties and their environment and fall short of compensating for the loss of traditional, religious, and cultural values of the ATCC." The Department agrees with the Advisory Council's conclusion.

The proposed project would cause significant and unavoidable adverse impacts to visual quality.

The project would result in significant long-term change to the area's sensitive visual quality. It would, therefore, not conform to the CDCA plan's applicable visual resources management rating, which provides for the existing landscape character to be maintained (see Appendix C).

An open 880-foot deep East Pit, and 280-foot high waste rock stockpiles and heap would remain as permanent substantial changes to the existing undisturbed natural landscape (see Figures 2 and 3). The level of contrast would gradually diminish after backfilling of the Singer and West Pits, regrading and replanting native vegetation, and overall reclamation of the site following completion of mining. However, the substantial visual contrast would remain after final reclamation is completed.

The project would result in significant visual impacts, specifically: (1) disruption of the existing landscape with new man-made land forms, including waste rock and leach piles which would be 100-150 feet higher than any existing natural features in the vicinity; (2) alteration of surface color, texture, and vegetation cover on approximately 1,300 acres; and (3) adverse effects to a landscape which includes Picacho Peak, Indian Pass, and other unique natural landmarks that are also historically important to Native American culture and the general public. These visual impacts would be clearly visible from the Indian Pass Road and other routes of travel in the immediate vicinity of the project area.

The proposed project would permanently alter the character of a visually sensitive area. The factors that cause the project site to be sensitive to changes in visual quality include: (1) the existing visual quality of the proposed project area and surrounding landscape is substantially undisturbed; (2) the existing topography of gently sloping ground and low rolling ridges provides little opportunity to screen or blend the project within the surrounding landscape; and (3) the 5-10 mile distance between the mine site and the surrounding mountains creates broad depth of field in which the proposed project site is visible from various public vantage points.

The overall effect of significant and unavoidable adverse impacts would cause undue impairment to the CDCA.

The overall effect of significant and unavoidable adverse impacts on Native American values, historic properties, and visual quality would significantly diminish the "scenic, scientific, and environmental values" of the CDCA, values BLM is required by Section 601 of FLPMA to protect. Specifically, the Quechan Tribe's ability to practice sacred traditions as an integral part of the Quechan culture would be irreparably damaged; 55 traditional historic properties which are eligible for listing in the National Register of Historic Places, including the Running Man/Indian Pass ATCC, would effectively be destroyed; and the scenic quality of a substantially undisturbed area would be irreversibly altered. Despite efforts by Glamis Imperial Corporation to reduce adverse impacts through mitigation, no effective means were found to prevent the significant level of destruction to important CDCA values. Finally, as stated earlier, approval of the project would not conform with Indian Sacred Sites and Environmental Justice Executive Orders. The severity of these combined impacts would be so great, and of such scope and magnitude, that undue impairment would result.

The proposed project would not be in conformance with the CDCA plan.

The proposed project would not conform with the CDCA plan because the significant and unavoidable adverse environmental impacts discussed in this ROD would exceed the maximum level of impact allowed under the plan; thus, the project would result in undue impairment. Further, the scope and magnitude of these effects would be so great as to preclude consideration of a plan amendment to permit the project.

The CDCA plan's multiple use guidelines and the minerals management provisions of the plan would allow mineral development to be considered in this area. However, no effective means of mitigation were found to avoid significant and unavoidable adverse impacts. Such impacts would irreversibly and irretrievably harm important resources of an area designated in the CDCA plan in 1980 as Multiple Use Class L (Limited Use). Multiple Use Class L is specifically intended for the protection of "sensitive, natural, scenic, ecological, and cultural resource values" and provides for "generally lower-intensity, carefully controlled multiple use of resources, while ensuring that sensitive values are not significantly diminished." The proposed project would not achieve this required level of protection.

The Multiple Use Class L designation appropriately fits this area based on the sensitive and significant environmental resources in and around the proposed project site. Because of the identified significant resource values in this area, a plan amendment designating this area as Multiple Use Class M (Moderate Use) or Multiple Use Class I (Intensive Use) would not provide adequate protection and, thus, would not be warranted. On October 27, 2000, the Department of the Interior withdrew the project area and surrounding public lands, totaling 9,360 acres, from further mining to protect recognized historic properties, Native American values, and the visual quality of the ATCC; portions of the Indian Pass Area of Critical Environmental Concern; and portions of the Indian Pass and Picacho Peak Wilderness Areas.

The Department reviewed the records of permitted mines in the CDCA in comparison to the FEIS/EIR analysis of the proposed project. Although BLM has previously approved other large-scale gold mining operations in Multiple Use Class L areas, the unique combination of important environmental factors discussed in this ROD set this proposed project apart from those other projects. Six of the 12 existing CDCA mining operations were approved in Multiple Use Class L areas: America, Colosseum, Picacho, Morning Star, Castle Mountain, and Briggs mines (see Appendix E). Unlike the proposed project, no Native American values or historic property issues (other than preservation of the historic mining activities at some of these sites) were identified during project review for the American, Picacho, Morning Star, Colosseum, and Castle Mountain mines. Native American values or historic properties were identified at the Briggs mine; however, the two identified historic properties were avoided and fenced by the mine operator as a condition of approval of the plan of operations. All of the permitted mines, unlike the proposed project, were located on sites previously disturbed by mining activity. Even in the Briggs mine site, where the evidence of previous mining activity was considered minor, the surrounding mountains were close to the project site and reduced visual contrast to an acceptable level.

The identified unavoidable and adverse environmental impacts resulting from the project override the possible economic benefits that might be derived from the project.

It is the conclusion of the Department that the possible economic benefits that might be derived from the project, as described in the FEIS/EIR and summarized below, do not overcome the legal requirements to prevent undue impairment to public lands in the CDCA.

The Department recognizes the importance of developing public land resources and the economic and social benefits that mining has on the local, regional, and national economies of the United States. Glamis Imperial Corporation estimates that the proposed project would generate up to 120 local job opportunities through the life of the project and would incur approximately $48 million in initial capital expenditures. In addition, Glamis Imperial Corporation estimates that there would be continuing capital expenditures of $1.7 million per year and $26 million per year in non-capital expenditures, including payroll. The proposed project would be required to pay sales tax on all expenditures and pay local property taxes on mine assets. All these effects are possible economic benefits of the proposed project.

However, the mineral deposit involved in this proposed project by its nature requires considerable surface disturbance to support operations. The mineral deposit supporting the proposed project is one of the lowest gold grades for open-pit, dump heap leach operations in the United States (see Appendix F). From Glamis Imperial Corporation's estimates of an average reserve grade of 0.016 ounces of gold per ton, approximately 280 tons of rock would be mined, moved, processed, and stored for each ounce of gold produced. In addition, gold prices have fallen approximately 27 percent since the project was initially proposed in 1995. A decrease from approximately $384 per ounce in 1995 to an estimated $278 per ounce in 2000 has significantly reduced the potential of this project to be economically sustainable.

While it is the policy of the Department to consider the possible economic benefits of development of public land resources, that consideration must be made in the context of all other public land resource values, including environmental, historic, and other values. In this case, the overall adverse environmental impacts caused by the project would outweigh the possible economic benefits to be derived from mining a mineral deposit with an average reserve grade of 0.016 ounces of gold per ton.

The proposed project would cause unnecessary or undue degradation to public lands.

As discussed, the significant and unavoidable adverse environmental impacts of the project would result in "undue impairment" because approval of the project would not be in conformance with the CDCA plan and a plan amendment is not warranted. Further, it is determined that loss of the identified scenic, scientific and environmental values to the people of the United States would override the possible economic benefits that might be derived from the project.

By causing undue impairment to CDCA values, it is the conclusion of the Department that the project would result in unnecessary or undue degradation to the public lands.

ALTERNATIVES CONSIDERED

A. ALTERNATIVES TO THE PLAN CONSIDERED IN DETAIL

- Proposed Project (Glamis Imperial Corporation's proposed plan of operations)
- West Pit Alternative
- East Pit Alternative
- Complete Pit Backfill Alternative

Each alternative assumes use of the same environmental protection and reclamation measures as the proposed action.

1. Proposed Action

The proposed action, i.e., Glamis Imperial Corporation's plan of operations as presented to BLM, was to be located on 1,571 acres of unpatented mining claims and would encompass the mine and processing area, including open pits, waste rock and topsoil stockpiles, heap leach pads, administrative and maintenance facilities, a precious metal recovery plant, haul roads, an electrical substation, distribution lines, and associated facilities. Up to 150 million tons of ore would be mined and leached, and 300 million tons of waste rock would be mined and deposited on the site. Specifically, the plan proposed to backfill and reclaim the Singer and West Pits and leave the 880-foot East Pit open (see Figure 3). It also would create two waste dumps and a 280-foot heap leach pad.

The agency's preferred alternative as identified in both the 1996 and 1997 EIS/EIR drafts was the proposed action as presented by Glamis Imperial Corporation. However, the agency preferred alternative was changed to No Action in the November 2000 Final EIS/EIR, to reflect new information concerning historic properties and Native American values. In particular, information concerning historic and archaeological resources identified during expanded field survey and analysis in 1997, a report provided by the Advisory Council on Historic Preservation (see Appendix A), and consultation with the Quechan Tribe substantially increased agency awareness and understanding of the importance of the site to Native Americans. That new information was a significant factor in the agency's decision to change its initial preferred alternative to the No Action alternative, and ultimately in the Department's decision not to approve the Imperial Project.

2. West Pit Alternative

This alternative would create the least amount of total surface disturbance by mining only the West Pit and Singer Pit. Approximately one-third of the disturbance would be produced, compared to the proposed action, or about 40 percent of the ore and 30 percent of the waste rock. Total surface disturbance would be reduced to approximately 853 acres, or about 63 percent of the total 1,362 acres disturbed under the proposed action. Only a small part of the West Pit would be backfilled. The Singer Pit would not be backfilled, since the East Pit would not

be mined. The south waste rock stockpile and the heap leach pile would be about the same height as under the proposed action. Total project life for the West Pit Alternative would be about 10 years, compared to 20 years for the proposed action.

This alternative would slightly reduce the total area of disturbance but would not eliminate significant adverse impacts to Native American values, historic and archaeological resources, and visual quality. The density of historic or archaeological properties determined eligible for the National Register of Historic Places is higher on the west side of the project area, and includes the main trail segments and associated sites. This area would be disturbed under the West Pit Alternative. The remaining waste rock stockpile and heap would be substantially the same height and form as in the proposed action and would cause significant adverse impacts to visual quality, even after mitigation.

3. East Pit Alternative

Under this alternative, the East Pit and Singer Pit would be mined, producing a total of about 67 percent of the mined rock produced under the proposed action, or about 60 percent of the ore and 70 percent of the waste rock. Total surface disturbance under the East Pit Alternative would be reduced to approximately 1,126 acres, or about 83 percent of the total 1,362 acres disturbed under the proposed action. The Singer Pit would be completely backfilled with waste rock from mining the East Pit, and the East Pit would not be backfilled. The south waste rock stockpile and the east waste rock stockpile would still be about the same 300-foot height as the proposed action, but the heap leach pile would be a height of 250 feet. Total project life would be approximately 14 years, versus 20 years. Final reclamation might continue beyond the end of the 14 years. Indian Pass Road would not be relocated around the project mine and process area under the East Pit Alternative.

The East Pit Alternative would disturb 40 percent less surface area than the proposed action. It would not fully develop the identified mineral reserves. It would still require almost the same projected capital and annual operating costs of the East Pit Alternative. Glamis Imperial Corporation stated that this East Pit Alternative would not be an economically viable project, and would not be profitable.

The elimination of the West Pit and reduction in size of the south waste rock stockpile under this alternative would reduce the scope and magnitude of adverse impacts by avoiding the area of highest historic or archaeological site density. However, significant Native American values and historic properties would be destroyed under this alternative, including the overall integrity of the Indian Pass-Running Man ATCC. Impacts to visual quality would be slightly reduced but would also remain significant.

4. Complete Pit Backfill Alternative

The purpose of this alternative was to evaluate the feasibility of complete backfill of all three proposed pits. All available waste rock would be used to completely backfill to at least the

original grade. The East Pit would then be backfilled. Because mined rock occupies more volume than unbroken rock, all the rock from the pit would not fit back into the same pit. Surface disturbance would not be reduced by the Complete Pit Backfill Alternative. Refilling the East Pit could take more than four years, and cost $80 million to $100 million. This alternative would reduce the significance of adverse effects to visual resources by eliminating the waste rock stockpiles and the open pit. The heap leach pad would still remain. This alternative would also reduce the significant adverse visual effects to the Indian Pass-Running Man ATCC. The alternative would allow the full amount of discovered ore to be mined. Glamis Imperial Corporation states that the Complete Pit Backfill Alternative would not be an economically viable project, and would not be profitable.

B. ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

Several other alternatives identified in the FEIS were not analyzed in detail. These are summarized below.

1. Alternative Mine Locations

One alternative was to construct and operate a mine at an entirely different location than the proposed project area. However, such an alternative would fail to meet the objectives of the proposed action, to profitably recover the precious metals within the project site. Another alternative included potential off-site locations for the mine facilities, pits, heap leach pad, and waste rock stockpiles. However, there was no environmental advantage to this alternative as the disturbance would be greater in scope and equal in impact.

2. Alternatives to Relocate Road, Water Wells, and Utility Corridors

Since these alternatives did not substantially decrease any of the significant adverse effects of the proposed action, and because the cost would reduce conformance with the basic project objectives, these were eliminated from any further consideration.

3. Alternative Mining and Processing Methods

Although there are several variations on mining techniques, including underground mining or in-situ mining, none are feasible in this type of ore body because the deposits necessary to support such methods are not present.

Like mining, there are several potential alternative methods for processing ore other than cyanide heap leach. Considered were vat leaching, carbon in pulp, flotation, or a combination of these processes. None were technically feasible for the type of ore involved in the proposed project, and were eliminated from consideration.

PUBLIC INVOLVEMENT

Opportunities for Public Involvement

The BLM, as the lead Federal agency, and Imperial County, as the lead State agency, diligently involved the public throughout the joint Federal/State environmental review process. In response to Glamis Imperial Corporation submission of a mining plan of operations, BLM published a news release and a Notice of Intent in the Federal Register on March 24, 1995, announcing the company's mining proposal and the initiation of the NEPA process to prepare an EIS on the project. On April 5, 1995, Imperial County distributed its Notice of Preparation of an EIR initiating the California Environmental Quality Act process.

A Draft EIS/EIR was published on November 1, 1996 for public comment and review. Public hearings were held in La Mesa and Holtville, California. After the initial 60-day public review, BLM extended the public comment period twice, through March 24, 1997. More than 425 written comment letters were received, and 49 people testified at the two public hearings. After a review of the comments received, the BLM and Imperial County jointly announced on June 11, 1997 that a new Draft EIS/EIR for the Imperial Project would be prepared and recirculated.

On August 1, 1997, BLM formally withdrew the November 1996 Draft EIS and announced its intent to prepare another EIS for the Imperial Project. All comments on the 1996 draft were treated as scoping comments for the revised Draft EIS/EIR. Imperial County concurred in this decision.

A revised Draft EIS/EIR was published on November 28, 1997, and made available for public review through January 27, 1998. Public hearings were again held in La Mesa and Holtville, California. After the initial 60-day review, BLM extended the public comment period twice, through April 13, 1998. More than 541 comments were received, including public testimony at the two public hearings.

An additional public hearing by the Advisory Council on Historic Preservation, a Presidential advisory organization, was held in Holtville, California in March 1999. That hearing focused on the potential impacts of the project on cultural, historic, and archeological resources associated with the Quechan and other tribes.

BLM and Imperial County included in the FEIS/EIR, published on November 17, 2000, a summary of all general comments received and details on all substantive public comments received during two the public comment periods which cumulatively totaled approximately 10 months. The agencies' responses to all substantive comments received are included in that document.

In addition, BLM also accepted public comments on the FEIS/EIR for 30 days, through December 18, 2000. A total of 24 comments were received. Although many of the comments

were general, i.e., supporting or opposing the project, and none of the comments contained substantially new information, many raised issues seeking clarification or interpretation of data in the FEIS or its supporting documents. These issues were carefully considered in development of this ROD and are summarized, along with BLM's responses, in Appendix G.

Interagency/Intergovernmental Coordination

As part of the environmental review process, BLM and Imperial County consulted and coordinated with the U.S. Fish and Wildlife Service, the U.S. Environmental Protection Agency, the U.S. Geological Survey, the U.S. Army Corps of Engineers, the U.S. Bureau of Reclamation (Lower Colorado Division), the Advisory Council on Historic Preservation, the Governor's Office of Planning and Research, the California Department of Conservation, the California Department of Fish and Game, the California State Office of Historic Preservation, the California Native American Heritage Commission, the California Regional Water Quality Control Board, the Metropolitan Water District of Southern California, and the Southern California Association of Governments. In accordance with Section 106 of the National Historic Preservation Act, BLM also officially consulted with the Quechan Tribal Council, Fort Yuma Indian Reservation. In addition to correspondence from the Tribe and verbal discussions and tours, BLM held three formal government-to-government consultations with the Tribe: December 16, 1997; February 4, 2000; and November 27, 2000.

Coordination with the County of Imperial

BLM and the County of Imperial jointly prepared all the environmental review documents under the provisions of the National Environmental Policy Act and the California Environmental Quality Act. The County's draft EIR and BLM's draft EIS were released concurrently for public review. The County's role under the Surface Mining and Reclamation Act of 1975 is to determine the adequacy of the surface mining reclamation plan submitted by Glamis Imperial Corporation as part of the mining proposal. The Imperial County Planning and Building Department has taken no action on the proposed reclamation plan, pending issuance of BLM's decision regarding the plan of operations.

APPENDICES

Appendix A

Advisory Council on Historic Preservation, 10/19/99 letter
and BLM letter to ACHP, 8/25/98

Advisory Council On Historic Preservation

The Old Post Office Building
1100 Pennsylvania Avenue, NW #809
Washington, D.C. 20004

October 19, 1999

Honorable Bruce Babbitt
Secretary of the Interior
1849 C Street, NW
Washington D.C. 20240

Dear Secretary Babbitt:

In accordance with Section 106 of the National Historic Preservation Act and Stipulation 4 of the "Programmatic Agreement Regarding The Manner In Which The BLM Will Meet Its Responsibilities Under The National Historic Preservation Act," the Bureau of Land Management requested the comments of the Council on proposed plans by the Glamis Imperial Corporation to develop a 1600-acre precious metal mine on lands administered by the BLM in Imperial County, California. The proposed project will impact the Indian Pass-Running Man Area of Traditional Cultural Concern, which is archaeologically significant and retains critical religious, cultural and educational importance to the Colorado River Indian Tribes, Ft. Mojave Indian Tribe, and especially the Quechan Tribe. In response to that request, I am pleased to offer the following findings and recommendation by the Council.

Findings

The religious, cultural and educational values of the Indian Pass-Running Man Area of Traditional Cultural Concern (ATCC) are of premier importance to the Quechan Tribe for sustaining their traditional religion and culture. The ATCC encompasses an area of approximately 8.2 miles in length and up to 5.2 miles in width. It represents a concentration of archaeological remains indicative of ceremonial religious practices, including geoglyphs, petroglyphs, cleared circles, and trails linking this area to other areas of traditional cultural value. For the Quechan, this area represents a place of solitude, power, and a source of knowledge where scenic qualities, such as an unmarked landscape and unobstructed viewshed, contribute to the integrity of the historic resources and of the area's religious and cultural value. The ATCC figures prominently in their religious beliefs and functions as a "teaching area" where Quechan

practitioners are instructed in their religious and cultural traditions. Sixteen trails and trail segments have been recorded within the ATCC, including the Trail of Dreams which extends through the ATCC to Avikwaame, a mountain north of Needles, California, where, according to tradition, all Yuman-speaking people were created. Avikwaame is perhaps the single most important place in traditional Quechan culture and religion,

Supported by ethnographic studies and tribal testimony, BLM, in consultation with the California State Historic Preservation Officer, determined that properties within the ATCC are eligible for listing in the National Register under criterion A (those properties associated with Quechan traditional religious arid cultural practices), criterion C (those properties that embody distinctive characteristics of Native American built objects such as geoglyphs, petroglyphs and trails), and criterion D (those properties important for the information they can provide). The integrity of setting, feeling and association is of particular importance for those properties that qualify under criteria A and C.

Although the region has sustained several large mining operations and other extensive development projects, the ATCC has retained sufficient integrity of setting, feeling, and association to remain a critically important area for traditional uses. Some historic property types can be altered and still retain sufficient integrity to remain of value and use to those communities who hold them in high regard. However, the ATCC is comprised of historic properties whose traditional value is dependent on qualities of continuity and association which are extremely fragile. Trails connect places of religious and cultural significance and are also places where ceremonies are conducted along the route to ensure safe journeys. The scenic landscape along trails provides landmarks that enable the travelers to find their way as does the physical integrity of the trails. Ceremonies are conducted during the construction of certain trail features to protect travelers from metaphysical dangers, to prepare for the spiritual rigors of the journey, and to help ensure that they arrive at their destination in the proper mind set. At this time the Trail of Dreams and the ATCC retain sufficient integrity for continued traditional uses. The only significant intrusion into the area is the unpaved Indian Pass Road. Existing highways, power lines, mining operations and other types of development that may compromise setting are not readily visible from the project area. It remains a place of quiet solitude and substantial environmental integrity.

The proposed mine and its operation would unduly degrade the ATCC, introducing activities and intrusions incompatible with the historic area and its unique qualities. The Quechan have argued that the ATCC and vicinity are so central to the religious and cultural practices of the tribe that impacts from the proposed mine would essentially destroy the tribe's ability to practice and transmit to future generations the ceremonies and values that sustain their cultural existence. Within the project footprint all contributing elements to the ATCC would be destroyed. A 300' high stockpile would obscure Indian Pass viewsheds and the nearly 200 acre and 900' deep East Pit would remain a defacement on the landscape, irrevocably altering the historic environment. Other visual intrusions would result from proposed power lines, utility corridors and associated facilities. The integrity of the ATCC, particularly those values associated with the setting, feeling and

association of the historic properties, would be severely compromised and the charactcristics qualifying,the area for the National Register jeopardized.

The public and tribe have consistently voiced their overwhelming opposition to the proposed mine. The Council solicited comments and views of the public and the tribe regarding the impacts of the mine. The vast majority of respondents voiced their strong opposition to the mine. Overwhelming opposition to the project was also voiced by the public and tribes in the public comment record of the draft Environmental Impact Statement prepared by BLM. Many non-tribal commenters specifically identified the area's religious and cultural importance to the Quechan and defended the Quechan's fight to practice their traditional religion in this area as the basis for their opposition to the project. The Quechan have remained steadfast and unswerving in their opposition to the project because of the importance of the area to sustaining their traditional culture and religion. On November 8, 1998, the Quechan Tribal Council passed unanimously a resolution of opposition to the project. In our view, this consistent and overwhelming opposition to the project provides compelling evidence of the importance of this area to the public and the Tribe as a place for spiritual and cultural renewal.

Although the BLM and GIamis have attempted to devise mitigation measures responsive to the values of affected historic resources, they are not adequate to compensate for the loss. In an effort to minimize impacts, Glamis Imperial Corporation has redesigned certain aspects of the mine plan. Specifically, the proposed overburden stockpiles were moved and reduced in height, one stockpile was eliminated, haulage routes were altered, and the footprint of the leach pad was altered to reduce physical impacts on some cultural features. Furthcr, Glamis has expressed willingness to carry out a mitigation package. Such mitigation efforts might include archaeological data recovery of threatened sites and cultural features, backfilling two of the three open pits and reestablishing a trail corridor, establishing a "cultural land bank" away from the project to convey selected riparian lands to the tribe for cultural resource enhancement purposes, and relinquishing about 800 acres of nearby mining claims in the Indian Pass and Picacho Peaks Wilderness Areas. These mitigation efforts represent a laudable proposal by the company. However, in the Council's view, they do little to reduce the devastating impacts on the historic properties and their environment and fall short of compensating for the loss of the traditional religious and cultural values of the ATCC.

Conclusions and Recommendation

If implemented, the project would be so damaging to historic resources that the Quechan Tribe's ability to practice their sacred traditions as a living part of their community life and development would be lost. Overall, the Council is convinced that the cumulative impacts of the proposed mine on the ATCC, even with the mitigation measures proposed by the company, would result in a serious and irreparable degradation of the sacred and historic values of the ATCC that sustain the tribe. Therefore, the Council concludes that the Glamis Imperial Project would effectively destroy the historic resources in the project area, and recommends that Interior take whatever legal means available to deny approval for the project.

In accordance with Section 106, the Council provides these comments for your consideration as you take into account the impact that the Glamis Imperial Project will have upon these important historic properties. Since the final decision will be made and documented by you, as required by Section 110(l) of the National Historic Preservation Act, I request the opportunity to meet with you to discuss our concerns before final action is taken on the project. The Council's Executive Director will contact your office to arrange this.

Sincerely,

/s/ Cathryn Slater

Cathryn Buford Slater
Chairman

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
California State Office
2135 Butano Drive
Sacramento, California 95825-0451

AUG 2 5 1998

In Reply Refer To:

8130(P)
CA-930.5

Mr. John Fowler, Executive Director
Advisory Council on Historic Preservation
1100 Pennsylvania Avenue, NW
Washington, DC 20004

Dear Mr. Fowler:

The Bureau of Land Management (BLM) is considering a plan of operations submitted by Glamis Imperial Corporation pursuant to the Mining Act of 1872 (43 CFR 3809) for an open-pit, heap-leach, precious metal mine in eastern Imperial County, California. Referred to as the "Imperial Project," this undertaking would entail the development of three major components: (1) a 1,571-acre Project mine and process area which would disturb approximately 1,302 acres; (2) an ancillary area (water wells and utility corridors) which would disturb approximately 38 acres, and (3) an approximately 16-mile upgraded ("overbuilt") transmission line, which would disturb approximately 22 acres. More complete descriptions of the proposed Imperial Project ("Project") are provided in the "Summary" (pages S-2 through S-8) and Section 2.1 (pages 2-1 through 2-50) of the attached Draft Environmental Impact Statement/Environmental Impact Report (Draft EIS/EIR) prepared by the BLM and Imperial County to analyze the effects of the Project and alternatives on the environment.

A Class III inventory and evaluation of the Area of Potential Effects (APE) was conducted by KEA Environmental, Inc.(see enclosed report entitled *Where Trails Cross: Cultural Resources Inventory and Evaluation for the Imperial Project, Imperial County, California*). Additionally, a Native American consultation program was conducted by Tierra Environmental Services and is included as Appendix C of the KEA report. The Quechan Tribe has expressed strong cultural concerns for properties in the APE; accordingly, BLM has met repeatedly with the Quechan cultural committee regarding the Project and has been conducting an ongoing government-to-government consultation.

BLM has consulted with the California State Historic Preservation Officer (SHPO) (see enclosed letter dated February 25, 1998) regarding potential effects to historic properties. The

SHPO letter provides a summary of historic properties that would be affected by the Project. BLM and the SHPO have concurred that the Imperial Project would have an adverse effect on historic properties. All Project alternatives considered in the EIS/EIR other than the No Project alternative would also have an adverse effect on historic properties. BLM believes that Council review of this project would be appropriate under Paragraph 4.b.(3) of the Nationwide Programmatic Agreement.

The following paragraphs describe potential effects to historic properties. The Project mine and process area, where adverse effects would be most severe, is addressed first, followed by the Project ancillary area and overbuilt transmission line.

Project Mine and Process Area

Indian Pass-Running Man Area of Traditional Cultural Concern- KEA identified a historic district, measuring approximately eight miles long northeast to southwest and reaching up to five miles in width northwest to southeast. This district contains a concentration of sites and features of cultural concern to the Quechan Tribe. Material culture in the district includes Native American trails, geoglyphs, scratched petroglyphs, ceramics scatters, lithic scatters, rock circles, and a variety of other types of features. The Quechan have also expressed concern for landscape features within the district. According to knowledgeable representatives of the Quechan Tribe, the district was important in religious activities and in the training of traditional cultural leaders. Because the district is tied to several other areas of traditional cultural concern by a trail network and because the Quechan view this complex as inter-related, BLM and SHPO discussed whether there should be an evaluation of a single very large traditional cultural property (over 150 miles in length) encompassing this entire complex or a series of linked traditional cultural properties. The result of this discussion was the sense that the available information is not sufficient to decide this issue. As a consequence BLM is requesting that the ultimate boundaries of a traditional cultural property be left open, and asked KEA to describe and evaluate an "area of traditional cultural concern" (ATCC). KEA applied the evaluation methods described in *National Register Bulletin* 38 in evaluating the ATCC and recommended that it is eligible for the National Register as a district under Criteria A, C, and D. BLM and SHPO have concurred with this evaluation.

The BLM and SHPO have concurred that there would be an adverse effect to the district. The Project mine and process area is proposed to be located in the central portion of the district and would physically destroy between 15% and 20% of the area encompassed by it, including numerous contributing elements spanning the full range of feature types mentioned above. The Project would also introduce visual and aural components that are out of character with the remaining portions of the district. The Quechan have stated the belief that the operation of the mine and the presence of waste rock stockpiles, ore heap, and open mine pit after reclamation would destroy their ability to practice their traditional religion in the district and would have a devastating effect on the continuity of their traditional culture. The location of the ore body makes total avoidance of the district impossible if the Project goes forward. The mining company has redesigned certain Project components to reduce direct

physical disturbance of several features of traditional cultural concern, but numerous others would be destroyed. While two of the proposed open pits would be refilled, the mining company has stated that refilling the other major pit (which would partially reduce the ultimate visual impact of the Project) would be uneconomic and would make the Project infeasible.

Trail of Dreams - The Quechan Tribe has identified a major Native American trail connecting two highly sacred places, *Avikwlal* (Pilot Knob) and *Avikwaame* (Newberry Mountain). The straight-line distance between these places is approximately 170 miles. According to the Quechan, religious leaders and those seeking spiritual power would make pilgrimages along this trail. Additionally, dream travel is said to have occurred along the trail. Knowledgeable Quechan representatives have identified segments of this trail in the Project mine and process area. Recent archaeological reconnaissance by KEA confirms that extant trail segments identified as the Trail of Dreams are associated with distinct concentrations of features of potential symbolic significance as well as ceramics of the Patayan cultural tradition and retain good integrity. Alternative routes represented by other roughly parallel trail segments do not replicate segments identified as being part of the Trail of Dreams in these characteristics. Extant trail segments identified as being part of the Trail of Dreams have been incorporated into the Indian Pass-Running Man ATCC (district). Additionally, KEA evaluated these segments as individually eligible for the National Register under Criteria A, C and D. BLM and SHPO have concurred with these evaluations.

Portions of the Trail of Dreams outside of the ATCC have not been evaluated. The western mine pit would destroy an extant trail segment identified by the Quechan as being part of the Trail of Dreams. The Quechan have stated that this will cut-off their ability to make religious pilgrimages along the Trail of Dreams and to undertake dream travel along this route. The BLM and SHPO have concurred that there would be an adverse effect to this site. The western mine pit will be refilled during the operation of the Project. It might be possible to restore the destroyed segment of the Trail of Dreams as part of the reclamation effort.

Multicomponent Sites - Seven large multicomponent sites were identified within the Project mine and process area. These contain concentrations of cultural features connected by a low density scatter of individual artifacts. Features include a large number of lithic scatters and flaking stations, ceramics scatters, geoglyphs, rock features, and a few scratched petroglyphs. These sites have been included within the district and also evaluated as individually eligible for the National Register under Criteria D and A and/or C. Some of the multicomponent sites include historic period features associated with 20th century mining or World War II training. KEA recommended that these historic period features do not contribute to the eligibility of the district or the sites. BLM and SHPO have concurred with this evaluation. Each of the multicomponent sites would be physically disturbed in part or in whole by Project earthmoving activities. BLM and SHPO have agreed that there would be an adverse effect to these sites.

Trails - Sixteen prehistoric trail segments have been identified within the APE of the Project

mine and process area. In accordance with SHPO guidelines, prehistoric trail segments were recorded as separate archaeological sites. KEA evaluated these as contributing elements to the district. They have value under Criteria D and A and/or C. BLM and SHPO have agreed with these evaluations. Most, if not all, of these trail segments would be disturbed or destroyed by development of the Project mine and process area.

Project Ancillary Area and Transmission Line

The Project ancillary area is immediately south of the Project mine and process area and would contain water wells, a buried water pipeline, an new 92 kV electric transmission line, and utility access roads. Some of the same sites contained here are also contained within the area of the ATCC. In addition, approximately 16 miles of an existing utility wood-pole transmission line outside of the Project ancillary area would be upgraded from a voltage of 34.5 kV to 92 kV. Avoidance of ground-disturbing effects is more feasible in these areas than in the Project mine and process area.

The Running Man Site (CA-IMP-2727) - This large multicomponent site lies adjacent to the Project ancillary area. Two major Native American trails cross within this site, including the Trail of Dreams. Near the intersection lies the Running Man geoglyph, which appears to be a post-1930 Native American construction. Project facilities in the Project ancillary area have been located to avoid direct impacts to features of possible traditional cultural significance. However, the new 92 kV transmission line, located approximately 200 meters west of the Running Man geoglyph, will introduce an out-of-character visual element.

Aboriginal Trails - Ten prehistoric trails were identified in the Project ancillary area and along the route of the overbuilt transmission line. All have been determined eligible for the National Register under Criterion D, and those associated with the Trail of Dreams or with features of possible symbolic significance have been determined eligible under Criteria A and/or C as well. It appears that Project facilities, including the overbuilt transmission line, can be sited to avoid direct disturbance of these sites. However, construction of the new electric transmission line in the Project ancillary area will introduce out-of-character visual elements to trails evaluated as eligible under Criteria A and C, including a segment of the Trail of Dreams.

Geoglyph Sites - Twelve geoglyph sites and one possible geoglyph site have been recorded in the Project ancillary area and along the overbuilt utility transmission line route. These are mostly small circular designs tamped into desert pavement. Most lack associated artifacts. The geoglyph sites have been determined eligible for the National Register under Criteria C and D. It appears that direct impacts to these sites can be avoided; however, geoglyphs in the Project ancillary area would be subject to visual intrusion from out-of-character elements.

Ceramic Scatters - Seven ceramic scatters were recorded in the Project ancillary area and along the overbuilt utility transmission line route. It is noteworthy regarding ceramic scatters, including those within the Project mine and process area, that early archaeological work by

Malcolm Rogers in the vicinity of Indian Pass reported much higher frequencies of Native American pottery than is evident today. What is left is the last vestige of a once more abundant set of resources. The KEA report suggests that remaining ceramics can be compared to Rogers' extensive collections from the area and provide important new information regarding Native American prehistory. Accordingly, the ceramics scatters have been determined eligible for the National Register under Criterion D. It appears that impacts to these sites in the Project ancillary area and along the transmission line can be avoided through facility siting.

Flaked Stone Quarry - A small quartz quarry was found along the overbuilt utility transmission line route. This site has been determined eligible for the National Register under Criterion D. It appears that the site can be avoided during construction.

Camp Pilot Knob - This large site, several miles in length, is one of ten divisional camps established for the World War II era Desert Training Center. It has been determined eligible for the National Register under Criteria A, B and D. The existing transmission line passes across this site and existing would poles would be replaced with taller poles to support the overbuilt utility electric transmission line for the Project. However, most existing poles are immediately adjacent to an existing county road. With proper monitoring, KEA recommended that construction of the overbuilt transmission line should not effect qualities that make this site significant. However, BLM and SHPO have concurred that the effect of the Project would be adverse.

Mitigation

BLM would like to begin consultation regarding measures to avoid or reduce adverse effects. Pages 309 through 320 of the KEA report address potential mitigation measures. Many of KEA's suggestions are included in the Draft EIS/EIR as recommended mitigation measures. Glamis Imperial Corporation has also suggested certain mitigation measures in a letter to the Quechan Tribe. The Tribe has stated that only complete avoidance will adequately reduce the adverse effect and that they will remain opposed to the Project regardless of what mitigation measures, short of full avoidance, are proposed. From strictly a scientific point of view most of the sites can be satisfactorily mitigated. From the cultural viewpoint of the Quechan there are no identified measures that can eliminate the effect to the Quechan's cultural heritage. The paragraphs below summarize mitigation measures as discussed in the EIS/EIR. Following this, mitigation measures suggested by Glamis Imperial are summarized.

The following mitigation measures were proposed in the Draft EIS/EIR (they are numbered as they appear in that document) independent of the KEA report:

<u>Measures Incorporated by Project Design Which Avoid or Reduce Potentially Significant Impacts</u>

- 4.1.6-1: To reduce Project impacts on identified cultural resources, Project facilities

associated with the Project mine and process area shall be located consistent with those presented in the Plan of Operations (Revised September 1997). This shall include all of the Project revisions included since the previous Plan of Operation (Revised October 1996), including the revised boundary of the Project mine and process area, the reduction in the height of the waste rock stockpiles, the elimination of one (1) waste rock stockpile and two (2) soil stockpiles, and the reconfiguration of the remaining waste rock stockpiles, soil stockpiles, haul roads, and the heap leach pad.

Mitigation Measures Proposed to Avoid or Reduce Potentially Significant Impacts

- 4.1.6-2: Applicant shall designate a project contact representative (PCR) who would be responsible for overseeing Project compliance with the conditions and stipulations for cultural resources. The PCR shall have authority to halt all activities that are in violation of the stipulations. The PCR may be a project manager, company environmental coordinator, or other person identified as responsible by the Applicant. Applicant shall provide the name and contact information of the PCR to the BLM prior to construction.

- 4.1.6-3: Should previously unidentified cultural resources be discovered during project construction or operations, Applicant shall immediately cease all activities in the immediate vicinity of the discovery and notify the BLM. Activities shall not be reinitiated in the vicinity of the discovery until authorized by the BLM.

Suggested Mitigation Measures that Would Reduce Potentially Significant Impacts

The following are some of the proposed mitigation measures, some of which were identified in the Draft EIS/EIR. They have not been incorporated in the Project by the Applicant, but may be incorporated, in whole or in part, into BLM's Record of Decision for the Proposed Action following completion of on-going Section 106 consultation and on-going Government-to-Government consultation with the Quechan Tribe:

The following measures could partially mitigate the physical disturbance within the Project mine and process area which will occur to the features of religious-symbolic significance within the Indian Pass-Running Man ATCC:

- 4.1.6-4: Extant cultural features in the Indian Pass-Running Man ATCC should be avoided to the extent possible. KEA's GPS data base should be provided to Glamis Imperial to determine whether additional features can be avoided. The Running Man geoglyph is already listed on the National Register of Historic Places but needs to be rephotographed and the nomination for the Colorado Desert Geoglyphs will be "refreshed" with new data as a result of the project.

- 4.1.6-5: A professional archaeologist shall flag or fence avoided features near construction areas prior to initial site preparation. Environmental inspectors shall monitor avoidance. Flags outside of the perimeter fence should be removed immediately after construction of

that fence.

- 4.1.6-6: An archaeological data recovery program conforming to that recommended in Chapter 9 of the KEA report may be implemented and can include a description and analysis of the features and artifacts that would be destroyed by the project and a technical archaeological report.

- A treatment plan and agreement document betwen BLM and the ACHP will describe explicitly how much archaeological work will be undertaken.

- The treatment plan will make the determination which lands will be acquired for the archaeological bank which will be created as a result of the project. The exact acreage will be determined by using a formula which credits the amount of money that Glamis will
- spend for the physical mitigation of the archaeology against the amount spent to acquire lands with archaeological resources that will be preserved and replace the resources which will be adversely affected by the project.

- A determination will be made in the treatment plan as to who will hold the land and how the sites will be administered.

- All lands in the Indian Pass area will be segregated from mineral entry.

- Glamis Imperial will relinquish their mining claims in the Indian Pass Area of Critical Environmental Concern after BLM completes the withdrawl action.

- BLM will withdraw from mining all of the lands in the Indian Pass Area of Critical Environmental Concern.

The following measures could partially mitigate the physical disturbance within the Project mine and process area which will occur to significant Native American trails and will cut-off the ability of the Quechan to travel physically and spiritually along the Trail of Dreams:

- 4.1.6-7: In consultation with the Quechan, extant trails in the Indian Pass-Running Man ATCC should be field mapped and their significance to Native Americans ascertained. Low-level aerial photography and video photography should be used to document trails that will be destroyed. It appears from present information that certain trail corridors through the Indian Pass-Running Man ATCC west of the mine and process area can be preserved. Preserved segments with high Native American sensitivity should be nominated to the NRHP and a preservation plan prepared by a consultant and adopted by the BLM. The National Register documentation will be prepared by a consultant and reviewed and submitted to SHPO by the BLM.

The following measures could partially mitigate the physical disturbance and visual and aural

intrusions in and from the Project mine and process area into the Indian Pass-Running Man ATCC which will conflict with the Quechan traditional practices and inhibit the Quechan's ability to conduct traditional religious activities at the Indian Pass-Running Man ATCC:

- 4.1.6-8: In accordance with the current Plan of Operations, the height of the waste rock stockpiles and heap should be restricted to 300 feet.

- 4.1.6-9: The BLM will continue consultation with the Quechan to ensure continued access to the Indian Pass-Running Man ATCC during Project implementation and after Project closure.

The following measures could partially mitigate the disturbance created within the Project mine and process area which will inhibit or destroy the Quechan's ability to use the Indian Pass-Running Man ATCC for traditional cultural education programs:

- 4.1.6-10: Provide for a cultural educational program which would include a professional-quality video documentary of the Indian Pass-Running Man ATCC prior to disturbance; a full or part-time teaching/curatorial position for a Quechan tribal member for a period of three (3) to five (5) years; preconstruction cultural educational classes in the Indian Pass-Running Man ATCC; and a comprehensive report documenting Quechan history and prehistory written in part or in its entirety by the Quechan.

- 4.1.6-11: Delay or phase construction activities to allow the Quechan the opportunity to conduct traditional cultural education in the Indian Pass-Running Man ATCC prior to their loss of this resource.

- 4.1.6-12: A non-technical report should be written based on the archaeological and ethnographic studies written for the Quechan tribe, addressing the part of Quechan history that would be destroyed by the mine and distributed to the local media, school districts, communities, etc by Glamis Imperial on behalf of the Bureau of Land Management.

- 4.1.6-13: Provide for the expansion plan for the Quechan Museum and curation of artifacts from the Project in this facility.

The following measures could partially mitigate the cumulative adverse effects that the disturbance created by the Project mine and process area will have on traditional cultural sites in Quechan territory:

- 4.1.6-14: The Indian Pass-Running Man ATCC, the Trail of Dreams, Pilot Knob, Muggins Peak, and the Picacho Basin should be nominated to the NRHP as traditional cultural properties by Glamis for the BLM through their chosen consultant.

- 4.1.6-15: A recording and protection program for the concentration of scratched petroglyphs at Indian Pass should be implemented.

- 4.1.6-16: Consultation should be initiated with the Quechan to identify lands of traditional concern that could be acquired and protected. The purchase price of these lands will be discounted from the overall price of project mitigation.

In addition to the measures listed above to mitigate the adverse effects on the Indian Pass-Running Man ATCC, the following measures are proposed to mitigate the physical disturbance created by the Project mine and process area to all or parts of seven (7) multicomponent and twelve (12) trail sites, which will result in data loss and the destruction of historic context:

- 4.1.6-17: An archaeological data recovery program (in accordance with the recommendations provided in Chapter 9 of KEA's cultural resource report) may be implemented at sites that cannot be avoided.

The following measures are proposed to mitigate the physical disturbance to significant archaeological sites created by construction within the Project ancillary area.

- 4.1.6-18: No ground disturbance should be allowed within features that contribute to the significance of the Indian Pass-Running Man ATCC. In site CA-IMP-2727, the water pipeline should be rerouted to the area already disturbed by Indian Pass Road. Alternatively, boring could be utilized to avoid impacts to contributing features. All NRHP-eligible archaeological sites outside of the Indian Pass-Running Man ATCC should be avoided. Flagging and monitoring should be done in accordance with mitigation measure 4.1.6-5.

The following measures are proposed to mitigate the disturbance which could occur to features that contribute to the NRHP-eligibility of Camp Pilot Knob.

- 4.1.6-19: Prior to construction, a professional historical archaeologist should flag all features in the vicinity of existing poles that contribute to the NRHP eligibility of Camp Pilot Knob. Periodic archaeological monitoring should be conducted to ensure avoidance. In case of accidental damage, BLM will follow the stipulations in the 1998 Protocol with the SHPO. Oral history and archival research should be considered along with archaeological data recovery in case of such an eventuality.

- 4.1.6-20: If adverse effects cannot be avoided, an interpretive display should be developed to supplement the *E Clampus Vitus* sign that already exists on-site. This display should address the relationship of Camp Pilot Knob to the overall Desert Training Center operations and include historical photos of the camp during its period of significance.

The following measure is proposed to mitigate the disturbance which could occur to significant archaeological sites during the construction of the overbuilt 92 kV/34.5 kV transmission lines.

- 4.1.6-21: All NRHP-eligible sites should be flagged for avoidance of direct impacts prior to construction of the transmission line. Avoidance of flagged archaeological sites should be part of the overall environmental monitoring program for the Project. In addition, periodic monitoring by a professional archaeologist and Quechan representative should be conducted to ensure avoidance. In case of accidental damage, BLM will consult with SHPO. Oral history archival research, and ethnographic research should be considered as appropriate along with archaeological data recovery in case of such an eventuality.

Additional Mitigation Proposed by Glamis Imperial Corporation

In a letter to the Chairperson of the Quechan Cultural Committee dated September 5, 1997, Glamis Imperial proposed the following measures to help mitigate the Project's impacts to the ATCC and Trail of Dreams:

- Funding for an endowment to the Quechan Tribe for three years for the services of a tribal member to study cultural features in and around Indian Pass and to continue cultural education within the tribe. Provision of a new pickup truck for use in this cultural program.

- Up to $50,000 in funding to conduct a baseline study of the Native American rock art, geoglyphs and other cultural features at Indian Pass within the BLM-designated Indian Pass Area of Critical Environmental Concern (ACEC).

Additional Native American Concerns about Mitigation

While certain mitigation measures mentioned above might suggest the study and dissemination of information about traditional Quechan religion, BLM is sensitive to Native American concerns to protect the dignity and integrity of traditional culture. Quechan spiritual knowledge was gained traditionally through long-term commitment to a spiritual path and arduous training. The Quechan have long been reticent to reveal much about their traditional belief systems. Such knowledge is protected by its keepers and consequently is not shared readily. The following written statement provided by a knowledgeable Quechan representative exemplifies Quechan concerns:

> This area is a sacred landmark to living Quechan people, not a potential display or campfire talk subject. Sensationalizing its mysteries or exposing its secrets to an otherwise unprepared audience would entail, in effect, a showcasing of the religious beliefs of others rather than an understanding of them.

Any mitigation program involving the preservation of cultural knowledge should be planned under the direction of the Quechan themselves.

All mitigation undertaken will be through an open bid process. The BLM will assist Glamis Imperial in making the final selection of the consultants which will be hired for the various phases of the project.

This project has produced over 500 comments from interested publics including archaeologists, environmental groups, historic resources community members, and local Indian tribes. Staff of California SHPO visited the project site and attended a meeting with the BLM and Quechan Indian Tribe. The SHPO concurred that we had provided adequate information to them since the project will create an adverse effect to the resources even with all of the above proposed mitigation measures. Several public hearings have been held dealing with the overall project. Pursuant to 36 CFR 800.5 (3) we request that you expeditiously schedule at least one public informational meeting with to discuss the project, mitigation measures proposed, and the design of a treatment plan with full public/tribal involvement. The location of the meeting place should be determined after discussion with my Deputy Preservation Officer.

We look forward to future discussions with you regarding the Glamis Imperial Project's effects and measures that might reduce those effects. Please feel free to call Russell L. Kaldenberg, Deputy Preservation Officer (916-978-4635) to discuss this project.

Sincerely,

Ed Hastey
State Director

cc: (all without enclosures)
Director, WO-240, 204-LS
District Manager, CDD (Attn: Joan Oxendine)
Field Manager, El Centro
Advisory Council on Historic Preservation, Attn: Alan Stanfill, 12136 West Bayalud Ave., Suite 300, Denver, CO 80226
KEA Environmental, 1420 Kettner Blvd., Suite 620, San Diego, CA 92101
Environmental Mgt. Assoc., Inc., 1698 Greenbriar Lane, Suite 210, Brea, CA 92621-5919
Glamis Imperial Corporation, Steve Baumann, P.O. Box 758, Winterhaven, CA 92283
Southeast Information Center, Attn: Coordinator, P.O. Box 430, Ocotillo, CA 92259
State Office of Historic Preservation, P.O. Box 942896, Sacramento, CA 94296-0001
Tribal Chair Jackson, Quechan Tribe, Fort Yuma Reservation, P.O. Box 11352, Yuma, AZ 85364
Michael Baksh, Ph.D., Tierra Environmental Services, 9903 Businesspark Ave., Suite E, San Diego, CA 92131
Larry Myers, Executive Director, Native American Heritage Commission, 915 Capitol Mall, Room 364, Sacramento, CA 95814

Enclosures:

(1) EIS/EIR
(2) Letter to SHPO, dated 2/25/98
(3) SHPO Reply Letter, dated 4/23/98
(4) Letter to SHPO, dated 7/09/98
(5) SHPO Reply Letter, dated 7/21/98
(6) KEA Survey Report (*Where Trails Cross...*)
(7) KEA Trails Reconnaissance Reports

Appendix B

Solicitor's Opinion, Regulation of Hardrock Mining, 12/27/99

United States Department of the Interior

OFFICE OF THE SOLICITOR
Washington, D.C. 20240

IN REPLY REFER TO:

DEC 27 1999

Memorandum

To: Secretary
Acting Director, BLM

From: Solicitor

Subject: Regulation Of Hardrock Mining

I. Factual Background

The Glamis Imperial Gold Mine is proposed to be developed on mining claims in Imperial County, California, in the southeastern part of the California Desert Conservation Area designated by Congress. The mining company, Glamis Gold, has submitted a plan of operations for a cyanide heap-leach gold mine using three open pits on 1,650 acres. The Bureau of Land Management is in the process of preparing an environmental impact statement under the National Environmental Policy Act, 42 U.S.C. §4321 et seq., on the company's proposed plan of operations.

The Glamis proposal is typical of modern, fine-particle, heap-leach gold mining and recovery operations. It involves the disturbance of a large quantity of waste rock and low-grade ore in order to extract a comparatively tiny amount of gold. It would retrieve, on average, approximately one ounce of gold for every 422 tons of earth core and waste material disturbed – a ratio by weight of one to 13.5 million. See Memorandum from R.Waiwood, BLM, to the Office of the Solicitor (Dec. 1, 1999). Because the ore body is of a somewhat lower grade than that found at most operating mines, the ratio of metal recovered to material disturbed is lower than found in many other operations, particularly for a start-up operation.[1] The low grade of the ore may so affect the profit margin that the imposition of reasonable environmentally protective restrictions or mitigation measures may make the venture unprofitable.

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[1]It may be cost-effective for an established mine, with the necessary infrastructure and other capital investment already in place, to move to lower grade ore, when it may not be cost-effective for an initial investment to mine such a low grade.

The proposed mine has raised several regulatory questions; the most prominent arises from the fact that the proposed mine footprint is located in the Indian Pass-Running Man Area of Traditional Cultural Concern[2] on ancestral lands of the Quechan Tribe of Indians. Recently, at BLM's request, the Advisory Council on Historic Preservation[3] completed a review of the project, and advised BLM of its findings by letter dated October 19, 1999.

In summary, the Advisory Council advised that: (a) the "religious, cultural and educational values" in the area are "of premier importance to the Quechan Tribe for sustaining their traditional religion and culture"; (b) the proposed mine would "unduly degrade" the area, "introducing activities and intrusions incompatible with the historic area and its unique qualities"; and (c) no available mitigation measures are adequate to compensate for the loss. The Advisory Council concluded:

> If implemented, the project would be so damaging to historic resources that the Quechan Tribe's ability to practice their sacred traditions as a living part of their community life

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[2]An "Area of Traditional Cultural Concern" or ATCC is a term used here to describe the area potentially affected by the Glamis mining project. BLM first used this term when proposing a land withdrawal surrounding the Glamis project from operation of the Mining Law, subject to valid existing rights. See 63 Fed. Reg. 58752 (November 2, 1998).

[3]The National Historic Preservation Act (NHPA), 16 U.S.C. §470 et seq., created the Advisory Council on Historic Preservation. See 16 U.S.C. § 470i. The Council is an independent agency that, among other things, may comment with respect to the effect of any federal undertaking on any "site" or "object" included in or eligible for inclusion in the National Register of Historic Places. See 16 U.S.C. §§ 470f, 470j. If an undertaking does not have the potential to cause effects on historic or cultural properties, an agency has no further obligations under the NHPA. 36 C.F.R. §800.3(a)(1). If there is an effect on an historic property, the agency will further determine if the impact is adverse. Id. §800.5(a)(1). The Advisory Council has the option of entering the consultation on its own initiative, or it may be invited to do so by either the SHPO or the agency. Id. §800.5(c). BLM, the Advisory Council, and the National Conference of State Historic Preservation Officers entered into a nationwide Programmatic Agreement on March 26, 1997, outlining the manner in which BLM will meet its responsibilities under the NHPA.

The Glamis project is an undertaking falling under the NHPA. By letter dated August 25, 1998, BLM formally requested the Advisory Council's involvement, noting that BLM and the SHPO had concurred that the Glamis Project would have an adverse effect on historic properties, and also that the Advisory Council's review of the project was appropriate under Paragraph 4.b.(3) of the nationwide Programmatic Agreement since the Glamis project is a "highly controversial undertaking." The Advisory Council and BLM visited the proposed area for the Glamis project site on March 11, 1999. In a letter to Secretary Babbitt dated October 19, 1999, the Advisory Council made its formal recommendations regarding the Glamis project.

and development would be lost. Overall, the Council is convinced that the cumulative impacts of the proposed mine on the ATCC, even with the mitigation measures proposed by the company, would result in a serious and irreparable degradation of the sacred and historic values of the ATCC that sustain the tribe. Therefore, the Council concludes that the Glamis Imperial Project would effectively destroy the historic resources in the project area, and recommends that Interior take whatever legal means available to deny approval for the project.

Officials of Glamis Gold responded to the Advisory Council letter by a fourteen-page letter to the Secretary dated November 10, 1999, exploring the legal issues addressed here. We also have a December 14, 1999 letter from the Western Mining Action Project commenting on the legal arguments in Glamis Gold's November 10, 1999 letter.

This opinion responds to the Advisory Council's recommendations and Glamis Gold's letter, and addresses two questions:

What limits or obligations does the First Amendment to the U.S. Constitution place on the BLM in this context?

To what extent does the Federal Land Policy and Management Act authorize or oblige the BLM to protect the cultural and historic resources[4] of the ATCC in connection with the Glamis proposed plan of operations?

II. Statutory Background

A. The Mining Law

The Mining Law of 1872 allows miners to secure exclusive rights to mine public lands through the location of valid mining claims. Valid mining claims require, among other things, a "discovery" of a "valuable mineral deposit." See 30 U.S.C. §23. A "discovery" is not defined in the statute, but the Supreme Court has described it as having occurred "[w]here minerals have been found, and the evidence is of such a character that a person of ordinary prudence would be justified in the further expenditure of his labor and means, with a reasonable prospect of success, in developing a valuable mine. . . ." Chrisman v. Miller, 197 U.S. 313, 322 (1905). More recently, the Supreme Court has supplemented this "prudent person" test with a "marketability test," which holds that profitability is a critical factor in determining if a mineral deposit is

[4]In its letter dated October 19, 1999, the Advisory Council refers to the need for protection of "historic" properties. BLM's regulations and guidelines mainly refer to "cultural" resources and values. The resources that would be affected by the Glamis proposal are both cultural and historic, so we use the terms interchangeably in this memorandum.

marketable. United States v. Coleman, 390 U.S. 599, 602 (1968). Factors considered in determining whether a discovery exists under either test include the costs of extraction, processing, and transporting the minerals, including labor and equipment costs, and the cost of satisfying environmental requirements of applicable federal, state, and local laws and regulations. Great Basin Mine Watch et al., 146 IBLA 248, 256 (1998); U.S. v. Garner, 30 IBLA 42, 67 (1977); United States v. Pittsburgh Pac. Co., 84 I.D. 282, 285 (1977), affirmed, 462 F. Supp. 905 (D.S.D. 1978), 614 F.2d 1190 (8th Cir. 1980); United States v. Kosanke Sand Corp. (On Reconsideration), 80 I.D. 538, 551 (1973). This means that Glamis Gold's ability to comply with environmental protection requirements may affect whether it has discovered a valuable deposit of gold in accordance with the Mining Law and whether its mining claims are valid.

B. The Federal Land Policy and Management Act

In 1976, Congress enacted the Federal Land Policy and Management Act (FLPMA), 43 U.S.C. §§ 1701 et seq., providing the Secretary of the Interior with organic authority to manage the federal public lands, including those lands containing mining claims located under the Mining Law. FLPMA explicitly acknowledged the continued vitality of the Mining Law of 1872, but amended it in four respects. The last portion of 302(b) provides:

> Except as provided in section 1744, section 1782, and *subsection (f) of section 1781 of this title* and in the *last sentence of this paragraph*, no provision of this section or any other section of this Act shall in any way amend the Mining Law of 1872 or impair the rights of any locators or claims under that Act, including, but not limited to, rights of ingress and egress.

43 U.S.C. §1732(b) (emphasis added). The two italicized references are relevant to consideration of the Glamis operation. Taking them in reverse order, the last sentence of the paragraph states: "In managing the public lands the Secretary shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands." 43 U.S.C. §1732(b). This made clear Congress's intent that all public lands activities, including those conducted under the Mining Law of 1872, are subject to the unnecessary or undue degradation standard.

The reference to section 1781(f) relates to added protection Congress bestowed on public lands found within the California Desert Conservation Area (CDCA). Section 601 of FLPMA created the CDCA, 43 U.S.C. §1781(c), based on Congress's finding that its lands contain "historical, scenic, archeological, environmental, biological, cultural, scientific, educational, recreational, and economic resources" in need of special attention. 43 U.S.C. §1781(a)(1). This section continued, in pertinent part:

> Subject to valid existing rights, nothing in this Act shall affect the applicability of the United States mining laws on the public lands within the California Desert Conservation Area, except that all mining claims located on public lands within

> the California Desert Conservation Area shall be subject to reasonable regulations as the Secretary may prescribe to effectuate the purposes of this section. Any patent issued on any such mining claim shall recite this limitation and continue to be subject to such regulations. *Such regulations shall* provide for such measures as may be reasonable to *protect the scenic, scientific, and environmental values of the public lands of the California Desert Conservation Area against undue impairment, and to assure against pollution of the streams and waters within the California Desert Conservation Area.*

43 U.S.C. §1781(f) (emphasis added). As noted above, this section is explicitly referenced in FLPMA's § 302(b), reconfirming that it applies to mining claims located under the Mining Law.[5]

III. The Quechan Tribal Religion and the First Amendment

Because the Advisory Council has found that the proposed mining operations would have a very damaging effect on the tribe's "ability to practice their sacred traditions," questions have been raised as to BLM's responsibilities with respect to the First Amendment in this context. In Lyng v. Northwest Indian Cemetery Protective Ass'n, 485 U.S. 439 (1988), the Supreme Court held that the First Amendment's Free Exercise Clause did not prevent the Forest Service from permitting road construction or timber harvesting in a portion of a national forest traditionally used by members of California Indian tribes for religious purposes. Even though the majority noted that the logging and road-building could have "devastating effects on traditional Indian religious practices," the government was not in these circumstances required to "bring forward a compelling justification for its otherwise lawful actions." Id. at 450. The Supreme Court went on in Lyng to caution that:

> Nothing in [this] opinion should be read to encourage governmental insensitivity to the religious needs of any citizen. The Government's rights to the use of its own land, for example, need not and should not discourage it from accommodating religious practices like those engaged in by the Indian respondents.

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[5]The other two references in § 302(b) are not relevant here. One requires recordation of mining claims with the federal government, 43 U.S.C. § 1744, and the other incorporates protections for lands eligible for wilderness protection, 43 U.S.C. § 1782. This Office has issued several opinions on the latter. Interpretation of Section 603 of the Federal Land Policy Management Act of 1976 -- Bureau of Land Management (BLM) Wilderness Study, 86 I.D. 89 (1979); The Bureau of Land Management Wilderness Review and Valid Existing Rights, 88 I.D. 909 (October 5, 1981); Patenting of Mining Claims and Mill Sites in Wilderness Areas, M-36994 (May 22, 1998). The Glamis proposal does not involve wilderness study areas or issues.

Id. at 453-54. The Court noted with approval the Forest Service's effort to reroute the road to avoid impacting the most sacred areas, and to leave specific sites undisturbed. Id. at 454.

The teachings of Lyng control application of the First Amendment to the Glamis proposal. The Constitution does not compel rejection of the proposed mining plan on the basis of its potential impact on tribal religious practices. But, like the Forest Service in Lyng, the BLM here could make efforts to accommodate tribal interests through exercise of its regulatory authority.

Since Lyng was decided, the President has issued an Executive Order on Sacred Sites, E.O. 13007 (May 24, 1996), which mandates that federal land managers

> shall, to the extent practicable, permitted by law, and not clearly inconsistent with essential agency functions, (1) accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and (2) avoid adversely affecting the physical integrity of such sacred sites.

The Advisory Council makes clear that the Glamis proposal would affect the physical integrity of sacred sites as they are defined in the Order (see Order, § 1(b)(iii)). The Executive Order therefore guides BLM's administration of its responsibility to regulate hardrock mining on federal lands here in the CDCA, and directs BLM to a policy choice in favor of preserving the physical integrity of the sites unless such a choice is impracticable, forbidden by law, or clearly inconsistent with essential agency functions.

Finally, the Office of Legal Counsel in the Department of Justice has recently advised that the federal government "has broad latitude to accommodate the use of sacred sites by federally recognized Indian tribes" without violating the Establishment Clause of the First Amendment. See OLC Opinion, Memorandum for Bruce Babbitt Secretary of the Interior – Permissible Accommodation of Sacred Sites, September 18, 1996, p. 1; see also Morton v. Mancari, 417 U.S. 535 (1974); Rupert v. Director, U.S. Fish and Wildlife Serv., 957 F.2d 32 (1st Cir. 1992); Peyote Way Church of God, Inc. v. Thornburgh, 922 F.2d 1210 (5th Cir. 1991).

IV. Unnecessary or Undue Degradation

Section 302(b) of FLPMA directs that the Secretary "*shall* by regulation *or otherwise*, take *any* action necessary to prevent unnecessary *or* undue degradation of the lands." 43 U.S.C. §1732(b) (emphasis added). Cultural and historic resources are plainly within the ambit of the unnecessary or undue degradation standard. FLPMA itself recognizes protection of cultural resources as an important component of public land management.[6] The National Historic Preservation Act

[6]See, e.g., 43 U.S.C. §1702(a) (defining "areas of critical environmental concern" to include public land areas "where special management attention is required . . . to protect and prevent

(NHPA), 16 U.S.C. §470 et seq., covers cultural and historic resources on public lands;[7] indeed, the Advisory Council's involvement in consideration of the Glamis proposal stems from that coverage. BLM's subpart 3809 regulations, implementing the "unnecessary or undue degradation" standard for hardrock mining, require BLM to "tak[e] into consideration the effects of operations on *other resources* and land uses, including those resource and land uses outside the area of operations." 43 C.F.R. §3809.0-5(k) (emphasis added). Other provisions of the regulations incorporate environmental laws, which include the NHPA. See, e.g., 43 C.F.R. §3809.2-2 (each operation "shall comply with all pertinent Federal and State laws"); 43 C.F.R. §3809.0-5(k) ("[f]ailure to comply with applicable environmental protection statutes and regulations thereunder will constitute unnecessary or undue degradation").

The conjunction "or" between "unnecessary" and "undue" speaks of a Secretarial authority to address separate types of degradation' -- that which is "unnecessary" and that which is "undue." That the statutory conjunction is "or" instead of "and" strongly suggests Congress was empowering the Secretary to prohibit activities or practices that the Secretary finds are unduly degrading, even though "necessary" to mining. Commentators agree that the "undue degradation" standard gives BLM the authority to impose restrictive standards in particularly sensitive areas, "even if such standards were not achievable through the use of existing technology." Graf, Application of Takings Law to the Regulation of Unpatented Mining Claims, 24 Ecology L.Q. 57, 108 (1997); see also Mansfield, On the Cusp of Property Rights: Lessons from Public Land Law, 18 Ecology L.Q. 43, 83 (1991). Further support for that interpretation is found in the fact that, in the 105th Congress, a mining industry-supported bill introduced in the Senate would have, among other things, changed the "or" to "and." S. 2237, 105th Cong. (1998); see 144 Cong. Rec. S10335-02, S10340 (September 15, 1998). See also Utah v. Andrus, 486 F.

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irreparable damage to important historic, cultural, or scenic values . . ."); 43 U.S.C. §1781(a) (California desert, considered further below).

[7]In 1966, Congress recognized that "the historic and cultural foundations of the Nation should be preserved . . . ." and through the NHPA, the Secretary of the Interior was "authorized to expand and maintain a National Register of Historic Places composed of districts, sites, buildings, structures, and objects significant in American history, architecture, archeology, engineering, and *culture*." Pub. L. No. 89-665, 80 Stat. 915 (emphasis added). In 1992, Congress amended the NHPA and clarified that "[p]roperties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization may be determined to be eligible for inclusion on the National Register." 16 U.S.C. §470a(d)(6)(A).

Originally the NHPA focused attention only on those properties officially listed on the National Register of Historic Places. In 1976, however, the statute was amended to include buildings and sites eligible for inclusion on the National Register. Pub. L. No. 94-422, 90 Stat. 1320. The NHPA was further amended in 1992 to require partnerships with States, Indian tribes, Native Hawaiians, and local governments. Pub. L. No. 102-575, 106 Stat. 4753.

Supp. 995, 1005 n.13 (D. Utah 1979) (quoting brief of the American Mining Congress).

This key sentence in § 302(b) gives the Secretary authority, by regulation "or otherwise," to spell out the requirements necessary to prevent such types of degradation. Finally, the sentence gives the Secretary a mandatory duty to take any action necessary to prevent such degradation.

The generally applicable portion of the definition of "unnecessary or undue degradation" in BLM's current regulations essentially codifies a "prudent operator" standard. That standard effectively focuses only on the directive to prevent "unnecessary" degradation, as opposed to "undue" degradation. The entire definition provides as follows:

> Unnecessary or undue degradation means surface disturbances greater than what would normally result when an activity is being accomplished by a prudent operator in usual, customary, and proficient operations of similar character and taking into consideration the effects of operations on other resources and land uses, including those resources and uses outside the area of operations. Failure to initiate and complete reasonable mitigation measures, including reclamation of disturbed areas or creation of a nuisance may constitute unnecessary or undue degradation. Failure to comply with applicable environmental protection statutes and regulations thereunder will constitute unnecessary or undue degradation. Where specific statutory authority requires the attainment of a stated level of protection or reclamation, such as in the California Desert Conservation Area, Wild and Scenic Rivers, areas designated as part of the National Wilderness System administered by the Bureau of Land Management and other such areas, that level of protection shall be met.

43 C.F.R. §3809.0-5(k). The "objectives" of subpart 3809 are stated as follows in §3809.0-2:

> (a) Provide for mineral entry, exploration, location, operations, and purchase pursuant to the mining laws in a manner that will not unduly hinder such activities but will assure that these activities are conducted in a manner that will prevent unnecessary or undue degradation and provide protection of nonmineral resources of the federal lands;
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> (b) Provide for reclamation of disturbed areas. . . .

Putting the objectives together with the "unnecessary or undue degradation" standard, the Department's current regulations seek to "provide for mineral [activities] in a manner that will not unduly hinder" them, while at the same time to prevent disturbance "greater than what would normally result" from a prudent operation. The Interior Board of Land Appeals (IBLA) has read the regulations this way. See Bruce W. Crawford, 86 IBLA 350, 397 (1985) (the regulatory definition "clearly presumes the validity of the activity but asserts that [unnecessary or undue

degradation] results in greater impacts than would be necessary if it were prudently accomplished"); see also United States v. Peterson, 125 IBLA 72 (1993); Kendall's Concerned Area Residents, 129 IBLA 130, 140 (1994).

While BLM could have adopted (and indeed might be obliged to adopt) more stringent rules in order to ensure prevention of "undue degradation," it has so far chosen to circumscribe only harm outside the range of degradation caused by the customary and proficient operator utilizing reasonable mitigation measures.

The preamble to BLM's regulations states:

> There may exist several alternative ways to achieve a particular result which are reasonable and prudent from a business standpoint. However, an environmental assessment or environmental impact statement may show the authorized officer that the first alternative would have significant detrimental impacts not associated with the second alternative. Since both alternatives are reasonable and practical, it would either be necessary to adopt the second, or the authorized officer would attach conditions to his approval of the plan of operations on implementation of the first alternative so that the detrimental impacts would not occur. Similar reasoning applies with respect to determining whether a proposal will cause unnecessary or undue degradation.

45 Fed. Reg. 78905 (November 26, 1980).

Therefore, while BLM must ensure that the proposed operation is in conformance with the prudent operator standard, including consideration of "other resources" which may be particular to a site, it must also ensure that "reasonable and practical" mitigation is chosen that will best protect such resources. See also 45 Fed. Reg. 78906 (speaking of an obligation to prevent degradation of visual resources "only to the extent practicable"). Under this portion of the regulations, then, while BLM may mitigate harm to "other resources," it may not simply prohibit mining altogether in order to protect them.

The "unnecessary or undue degradation" standard does not by itself give BLM authority to prohibit mining altogether on all public lands, because Congress clearly contemplated that some mining could take place on some public lands. See, e.g., 43 U.S.C. § 1701(12) (policy statement that the public lands "be managed in a manner which recognizes the Nation's need for domestic sources of minerals . . . including implementation of the Mining and Minerals Policy Act of 1970 . . . as it pertains to the public lands"[8]); 43 U.S.C. § 1702(c) (the multiple uses for which the

[8]The Mining and Mineral Policy Act, 84 Stat. 1876, 30 U.S.C. §23a, expresses United States policy as encouraging the development of domestic minerals in an efficient, wise, and environmentally sound way.

public lands should be managed include "minerals"). Therefore, "undue degradation" under section 302(b) must encompass something greater than a modicum of harmful impact from a use of public lands that Congress intended to allow. See Sierra Club v. Clark, 774 F.2d 1406, 1410 (9th Cir. 1985) (rejecting an argument that an off-road vehicle race should not be allowed on federal lands because it would cause irreversible and therefore "undue" degradation, on the ground that accepting the argument "would result in a prohibition of ORV use because it is doubtful that any area could withstand such use without degradation . . . [yet] Congress has determined that ORV use is to be provided" on public lands, citing 43 U.S.C. §1781(a)(4)[9]). The question is not whether the proposed gold mine causes any degradation or harmful impacts, but rather, how much and of what character in this specific location.

Understanding the extent of BLM's authority with regard to the Glamis proposal requires that we also consider BLM's authority with respect particularly to the CDCA.

V. California Desert Conservation Area

The proposed Glamis mine is located on lands within the CDCA. As noted earlier, Congress explicitly amended the Mining Law in FLPMA to protect, among other things, enumerated values of importance in the CDCA. Also as noted earlier, Congress found that "the California desert contains historical, scenic, archeological, environmental, biological, cultural, scientific, educational, recreational, and economic resources that are uniquely located adjacent to an area of large population. . . ." 43 U.S.C. §1781(a)(1). The statute gives BLM an additional directive to "protect the scenic, scientific, and environmental values of the public lands of the California Desert Conservation Area against undue impairment, and to assure against pollution of the streams and waters within the California Desert Conservation Area." 43 U.S.C. §1781(f).

The three values named in subsection (f) -- scenic, scientific, and environmental -- are fairly read to include "archeological," "cultural" or "educational" resources of the type threatened by the Glamis proposal. These resources are of substantial interest to science, and may in many cases have scenic and environmental value as well. The fact that subsection (f) does not separately list these resources, while they are named in subsection (a)(1), cannot fairly be interpreted to limit BLM's authority under subsection (f) to prevent their undue impairment, when such resources are encompassed by the values enumerated in subsection (f). Indeed, it would defy common sense to construe "scientific" values as excluding "cultural," "historical" and "archaeological" resources. Any implication to the contrary in the IBLA's dicta in California Portland Cement

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[9]In a section of FLPMA dealing with the California Desert, Congress found "the use of all California desert resources can and should be provided for in a multiple use and sustained yield management plan to conserve these resources for future generations, and to provide present and future use and enjoyment, particularly outdoor recreation uses, including the use, where appropriate, of off-road recreational vehicles." 43 U.S.C. §1781(a)(4) (emphasis added).

Corp., 83 IBLA 11 (1984) is expressly disapproved.[10]

The issues raised by the Glamis proposal are (1) the extent to which the "undue impairment" standard gives BLM authority to protect the CDCA and the cultural and historic resources involved; and (2) whether BLM's authority is affected by the classification of the lands on which the proposed Glamis mine is found as Class L (Limited Use) in BLM's CDCA Management Plan.

A. Undue Impairment Standard

BLM's 1980 subpart 3809 regulations do not elucidate the undue impairment standard applicable in the CDCA, nor do they define the values contained in 43 U.S.C. §1781. Rather, they reiterate the statutory requirement:

> Where specific statutory authority requires the attainment of a stated level of protection or reclamation, such as in the California Desert Conservation Area, Wild and Scenic Rivers, areas designated as part of the National Wilderness System administered by the Bureau of Land Management and other such areas, that level of protection shall be met.

43 C.F.R. §3809.0-5(k).

The preamble to the 1980 rulemaking indicates that "[s]everal comments were received that suggest the promulgation of a separate rulemaking for the California Desert Conservation Area." 45 Fed. Reg. 78902, 78909 (Nov. 26, 1980). BLM rejected that suggestion on the ground that the regulation

> requires the filing of a plan of operations for any activity in the California Desert Conservation Area beyond that covered by casual use. The plan would be evaluated to ensure protection against "undue impairment" and against pollution of the streams and waters within the Area.

Id. This leaves implementation of the section 1781 standard to the stage of reviewing the plan of operations on a site-specific basis, which is where the Glamis proposal is now.

Subsection 601(f) says that mining claims in the CDCA "shall be subject to reasonable

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[10]In California Portland Cement, the IBLA suggested, without elaboration or discussion, that BLM had properly narrowed a stipulation in a mining patent in the California desert to assert authority only to protect "the scenic, scientific, and environmental values of the public lands" rather than explicitly referencing cultural and archeological resources, among others. The Board did not suggest that such resources lacked scientific, scenic or environmental interest.

regulations as the Secretary may prescribe to effectuate the purposes of this section," and that "[s]uch regulations shall provide for such measures as may be reasonable to protect the scenic, scientific, and environmental values of the public lands of the [CDCA] against undue impairment . . . " It might be argued that the Department's decision not to promulgate separate, detailed regulations to implement the "undue impairment" standard, but rather to adopt regulations that implement the directive on a case-by-case basis through the mining plan of operations approval process, is inconsistent with FLPMA's section 601(f). BLM's regulations require the filing of a plan of operations for any activity in the CDCA to be evaluated to ensure protection against "undue impairment." We believe the approach taken in BLM's regulations providing site-specific analysis and protection is an adequate implementation of the statute.[11]

The regulations allow BLM to prevent activities that cause undue impairment to the CDCA separate and apart from BLM's authority to prevent unnecessary or undue degradation. The IBLA has agreed that BLM's obligation to protect the three enumerated CDCA values from "undue impairment" supplements the unnecessary or undue degradation standard for CDCA lands. In Eric L. Price, James C. Thomas, 116 IBLA 210 (1990), the Board held:

> Under 43 C.F.R. §3809.0-5(k), a plan of operations must take "into consideration the effects of operations on other resources and land uses, including those resources and uses outside the area of operations" (emphasis added). Furthermore, a plan of operations affecting lands in the CDCA must take into consideration the specific objectives of section 601(f) of FLPMA, i.e., protecting the scenic, scientific, and environmental values of the affected lands against undue impairment, and to assure against pollution of affected streams and waters. As promulgated by BLM, the general standard contained in the definition of "unnecessary or undue degradation" is to be applied to CDCA lands in accordance with the imperatives of section 601(f) of FLPMA.

Id. at 218-19.[12] It follows that BLM's decision with respect to the Glamis proposal is governed by both the "undue impairment" standard of subsection 601(f)[13] and the "unnecessary or undue

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[11]This site-specific approach to providing protection has recently been endorsed by the National Research Council in a report entitled Hardrock Mining on Federal Lands (National Academy Press, 1999) (see discussion on pp. 120-121 regarding the protection of other resources).

[12]In Price, the IBLA upheld a BLM decision to deny a proposed mining plan of operations, primarily because the proposal caused "undue impairment" in connection with its visual impacts to the CDCA.

[13]The CDCA requirement that the Secretary "assure against pollution of the streams and waters with the California Desert Conservation Area," 43 U.S.C. §1781(f), also must be given

degradation" standard of section 302(b), as implemented by the subpart 3809 regulations.

Utah v. Andrus, 486 F. Supp. 995, 1004 n.14 (D. Utah 1979) is generally consistent with this approach, although it is not directly on point. The court there determined that the word "impairment" as used in FLPMA's wilderness review section (section 603(c), 43 U.S.C. §1782(c)), means something different from the "unnecessary or undue degradation" standard in 43 U.S.C. §1732(b):

> If the standard of undue degradation were not separate and distinct from the impairment standard contained in section 603(c), there would have been no need to include both the last sentence and reference to section 603(c) in section 302(b). By making distinct reference to both standards in 302(b), Congress indicated its intent to formulate two different approaches to management of the public lands.

Section 603(c) requires BLM to prevent "impairment of the suitability" of certain identified areas "for preservation as wilderness," subject to certain exceptions not pertinent here. It does not use the qualifiers "undue" or "unnecessary," except with regard to the exception for the preservation of existing mining and grazing uses. Thus the court was not confronted with the issue of whether "impairment" under section 601 equals "degradation." We do not need to decide that issue here either. We do note, however, that in carrying out its duty to prevent "undue impairment," BLM is not confined to restrictions that may be imposed on a "prudent operator in usual, customary and proficient operations of similar character." 43 C.F.R. §3809.0-5(k). Instead, BLM's mandate to protect the "scenic, scientific, and environmental values" of the land from undue impairment is distinct from and stronger than the prudent operator standard applied by the subpart 3809 regulations on non-CDCA lands.

Section 601(f) twice employs the adjective "reasonable" in the context of regulating hardrock mining operations in the CDCA. Specifically, mining claims are made "subject to reasonable regulations" prescribed by the Secretary, which shall "provide for such measures as may be reasonable to protect" environmental and other values in the CDCA. There is no indication that Congress meant anything by "reasonable" other than that the Secretary must not act arbitrarily in effectuating such regulations, and that they ought to be designed to accomplish their intended task of protecting the other values on the CDCA. BLM's regulations in subpart 3809 that address the CDCA are reasonable and reasonably related to the purposes of FLPMA. Therefore, BLM should examine each proposed plan of operation on a case by case basis and provide for such measures as may be reasonable to protect environmental and other values in the CDCA from undue impairment.

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independent meaning. The extent to which this standard may compel additional regulation of the proposed Glamis mine is beyond the scope of this memorandum. We have not been presented with any facts or questions regarding any "streams and waters" that might be affected by the proposed Glamis mine.

B. CDCA Management Plan

In 1980, the BLM adopted a Management Plan for the CDCA that, with a few minor amendments, is still in force today.[14] This Plan was prepared in response to the mandate of section 601(d), 43 U.S.C. §1781(d):

> The Secretary, in accordance with section 1712 of this title, shall prepare and implement a comprehensive, long-range plan for the management, use, development and protection of the public lands within the [CDCA]. Such plan shall take into account the principles of multiple use and sustained yield in providing for resource use and development, including, but not limited to, maintenance of environmental quality, rights-of-way, and mineral development.

The 1980 Plan placed most of the CDCA lands in four multiple-use categories.[15] The Plan describes itself as providing a "management framework" for, among other things, responding to "future specific land use requests." CDCA Plan, Chapter 3, at p. 21.

The lands where the projected Glamis mine would be located are designated by the CDCA Plan as Multiple Use Class L (Limited Use) land.[16] According to the Plan, Class L "protects sensitive, natural, scenic, ecological, and cultural resource values." CDCA Plan, Chapter 2, at p. 13.[17] This is the second most restrictive of the four categories. About half of the CDCA acreage

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[14]Generally, IBLA has rejected challenges to BLM's implementation of the CDCA Plan. Max Wilson, 131 IBLA 306, 310 (1994); David R. Hinkson, 131 IBLA 251, 254-55 (1994).

[15]Approximately 300,000 acres within the 12.1 million acre CDCA are unclassified. CDCA Plan, Chapter 2, at p. 13.

[16]The Plan designates other lands as: Class C (Controlled Use), which is the most restrictive category, consisting of those areas preliminarily recommended for wilderness designation; Class M (Moderate Use), which reflects "a controlled balance between higher intensity use and protection of public lands"; and Class I (Intensive Use), that provides for concentrated land and resource use to meet human needs. See CDCA Plan Chapter 2, at 13.

[17]There is no indication that the BLM, in crafting the CDCA Plan, understood or took account of the significance of the Indian interests in the lands subject to the Glamis proposal in designating the area as Class L. The Plan noted, at page 24, that only about 5% of the CDCA had, at the time the Plan was proposed, been inventoried for cultural resources. Last year BLM published a Notice of Proposed Withdrawal for the lands on which the proposed Glamis mine would be located. 63 Fed. Reg. 58752 (November 2, 1998). This has the effect of segregating the lands for a period of two years and preventing the location of new mining claims for that period, while not affecting valid existing mining claims.

is designated Class L. Id. According to the Plan, Class L lands are managed to "provide for generally lower-intensity, carefully controlled multiple use of resources, while ensuring that sensitive values are not significantly diminished." Id.

The CDCA Plan establishes "multiple-use class guidelines" which "describe land-use and resource-management guidelines for 19 land uses and resources" within each class. Id.[18] The four classes of land are managed by taking into account these various resources. The Plan acknowledges that:

> Within each multiple-use class designation residual conflicts will occur naturally, although they are most limited in Class C – the "Controlled Use" class – with its dedication to wilderness characteristics and values. The conflicts increase, however, in a Class L – "Limited Use" – designation, where judgment is called for in allowing consumptive uses *only up to the point that sensitive natural and cultural values might be degraded.* Class M – the "Moderate Use class – calls for subsequent tradeoffs between a number of acceptable uses. Even Class I – "Intensive Use" – designed to permit intensive and single uses, is still open to negotiation between those uses.

CDCA Plan, Chapter 3, at p. 21 (emphasis added). As this shows, the CDCA Plan contemplates that, in Class L lands, protection of resources can sometimes outweigh the proposed use of the land.[19]

Another part of the CDCA Plan is the "plan element," which is described as a "more specific application of the multiple use guidelines for a specific resource or activity about which the public has expressed significant concern." Id. at p. 21. The Plan notes that "[m]any uses in a given area will be mutually exclusive and require selective decisions to be made for that area," and that the task of the plan element is to "identify existing or possible conflicts and to assist the manager in resolution." Id.

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[18]A miner on public lands in the CDCA, regardless of the classification of the lands or the size of the proposed operation, must obtain approval of a plan of operations prior to commencement of mining. That is, the streamlined, so-called "notice" provisions of BLM's regulations that allow proposed smaller-scale mining activities on most other public lands to escape BLM's advance environmental approval do not apply in the CDCA. See 43 C.F.R. §3809.1-4(b)(1).

[19]The Plan calls for protection of cultural and Native American resources and values on all classes of CDCA lands. The Cultural and Paleontological Resources guidelines broadly state that "[a]rchaeological and paleontological values will be preserved and protected." Id. at p. 15.

The cultural resource element of the CDCA Plan begins:

> Prehistoric and historic remains within the California Desert are being depleted at a rate which approaches 1 percent per year. . . . These remains represent a national treasure with importance to the public, scientists, Native Americans, and others. Preservation and protection or proper data recovery is essential.

Id. at p. 22. The goals of the Plan's cultural resource element, as amended in 1985, are to "[p]rotect and preserve a representative sample of the full array of the CDCA's cultural resources" and to "[e]nsure that cultural resources are given full consideration in . . . management decisions." CDCA Plan, 1985 Amendment, at p. 14.[20] The Native American element of the Plan, also as amended in 1985, includes as a goal to "[g]ive full consideration to Native American values in all land-use and management decisions, consistent with statute, regulation and policy," and to "[m]anage and protect Native American values wherever prudent and feasible." Id.

Therefore, with respect to the proposed Glamis site, the CDCA Plan contemplates that multiple-use management decisions will be made with the goal of preserving archaeological and paleontological values. In working within the plan to meet that goal, BLM must also give full consideration to the Quechan's religious, cultural and educational values in the area, and must consider how important and unique the resources are that might be destroyed by the Glamis proposal.

The CDCA Plan contains references to the development of mitigation measures where resources cannot be protected. The Plan's guidelines for mineral exploration and development within Class L lands provide, in pertinent part: "Operations on mining claims are subject to the 43 C.F.R. § 3809 Regulations and applicable State and local law. . . . BLM will review plans of operations for potential impacts on sensitive resources identified on lands in this class. ***Mitigation, subject to technical and economic feasibility, will be required.***" CDCA Plan Chapter 2, at 18 ("Mineral Exploration and Development") (emphasis added). Additionally, the CDCA Plan states "[w]hen protection and/or preservation of cultural and paleontological resources cannot be achieved, mitigation through proper recovery or other means will be undertaken as developed through mitigation plans. . . Mitigation will be employed primarily in Classes M and I where resource protection measures cannot override the multiple-use class guidelines." CDCA Plan, Chapter 3, at p. 24.

Glamis has argued that the emphasized language on Mineral Exploration and Development

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[20]The 1985 amendment made minor word changes to the original 1980 Plan in response to a recommendation by a BLM team to rewrite the goals to make them less vague without changing the intent or purpose of the resource element. Record of Decision on 1985 Amendment, at p. 13.

subjects BLM's authority to prevent "undue impairment" of the CDCA's resources to an "economic feasibility" test. See Letter from Glamis Gold, Inc. to Secretary Babbitt (Nov. 10, 1999) at 4. The reference to feasibility in the Plan, however, occurs only in the context of mitigation measures where plans of operation are approved. It does not preclude BLM from deciding to deny approval of a plan of operations. In addition, section 601(f) of FLPMA is broader and has no such limitation. It refers to "measures" to protect the values of the CDCA against undue impairment, which can include things other than mitigation.

Glamis argues further that the mitigation language means that under section 601, as implemented by the CDCA Plan, conflicts between proposed mineral development activity and cultural and historic resources were not intended to be a basis to prevent mineral development from proceeding. Id. This argument ignores the further language suggesting that mitigation is only necessary in Classes M and I, because those are the areas where protection will not override other uses, thus implying that Class L areas will allow protection over other uses. Therefore, in Class L areas protection may at times be paramount and a proposed project can be rejected because it unduly impairs resources.

This conclusion is further supported by the language in the Plan regarding areas of critical environmental concern (ACEC). Glamis notes that such areas are not areas in which no development can occur. Id. (citing CDCA Plan, Chapter 3, at p. 124). However, that argument again fails to acknowledge the remainder of the paragraph, which states:

> Quite often development, when wisely planned and properly managed, will take place in these areas *if the basic intent of protection of historic, cultural, scenic, or natural values is assured.*

CDCA Plan, Chapter 3, at p. 124 (emphasis added). The emphasized language shows further that the CDCA Plan preserves BLM's authority to protect such values. There is no indication in the California Desert Plan itself, or in its formulation, that the Plan's framers intended to modify or relax the standards of existing law or regulations. General statements in the Plan should not be interpreted to place a fundamental limit on the authority of the Department to take all steps necessary to prevent undue impairment of CDCA resources.

"Undue impairment," as explained above, must mean something more than the prudent operator standard currently in the BLM definition of "unnecessary or undue degradation," but it cannot mean so much as vesting the Secretary with authority to prohibit all hardrock mining in the CDCA. Plainly the "undue impairment" standard would permit BLM to impose reasonable mitigation measures on a proposed plan of operations that threatens "undue" harm to cultural, historic or other important resources in the CDCA. Moreover, the reasonableness of those mitigation measures ought not to be judged by whether they make the particular operation uneconomic at current market prices for the mineral commodity proposed to be mined. Beyond that, the "undue impairment" standard might also permit denial of a plan of operations if the

impairment of other resources is particularly "undue," and no reasonable measures are available to mitigate that harm. As stated above, the CDCA Plan clearly appears to contemplate such a result.

VI. Conclusion

Whether the BLM may deny the Glamis plan approval under section 601(f) depends upon the particular facts, including the significance of the resources to be protected. The Advisory Council on Historic Preservation has found that the mitigation measures proposed by the company do not prevent destruction of the area's important cultural, historic and scientific values.[21] Thus, the ultimate question is what "undue impairment" may mean in the context of a mining proposal that would have this effect.

BLM is now in the process of compliance with the National Environmental Policy Act (NEPA) on Glamis's proposed plan of operations; a draft environmental impact statement was issued in November of 1997. That process is well-suited to ventilate the issues necessary to reach a decision on whether to approve the plan of operations. See Kendall's Concerned Area Residents, 129 IBLA 130 (1994) (reversing BLM's approval of a mine plan on the ground, inter alia, that the NEPA documents did not contain a discussion adequate to support a finding of no "unnecessary or undue degradation"). The Advisory Council has weighed in with its view that mitigation measures are unavailable to avoid great harm to the cultural resources of the area.[22]

The ultimate responsibility for making the decision on "undue impairment" is the BLM's. It must consider the Executive Order, the FLPMA standard, and the advice of the Advisory Council in deciding how to protect the CDCA values and resources from "undue" impairment. This is a difficult task, made more difficult by the impossibility of assigning monetary value to something as abstract as a cultural or historic resource. In the end, what is determined to be "undue" is

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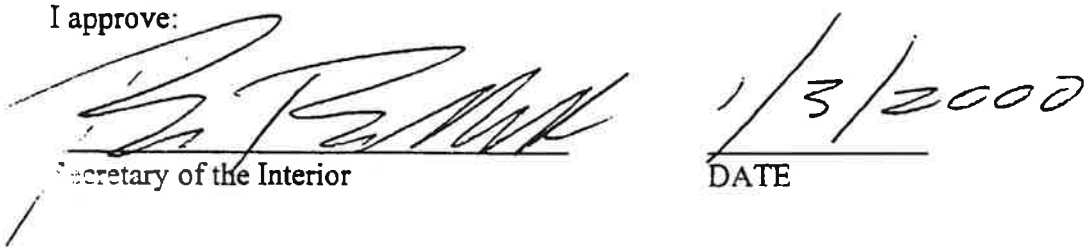
[21]The Advisory Council noted that Glamis had engaged in "laudable" efforts to minimize the impacts of its operation, including some redesign and reconfiguration. The company had indicated a willingness to go further, and to consider backfilling two of the three large open pits, establishing a cultural land bank, and taking other measures. The Advisory Council concluded that these efforts, while praiseworthy, "do little to reduce the devastating impacts on the historic properties and their environment and fall short of compensating for the loss of the traditional religious and cultural values of the ATCC."

[22]As Glamis points out in its letter, the Section 106 process is not intended to impose substantive obligations on BLM. We agree. BLM can, however, consider the recommendations of the Advisory Council in making its own decisions regarding whether to approve or disapprove the proposed mining operation, and whether or not it could cause "undue impairment" of CDCA resources.

founded on the nature of the particular resources at stake and the individual project proposal. If the BLM agrees with the Advisory Council, it has, in our view, the authority to deny approval of the plan of operations.

This Opinion was prepared with the substantial assistance of Elizabeth Rodke of the Division of General Law, Lisa Hemmer (formerly with the Division of Mineral Resources), Karen Hawbecker, and Joel Yudson of the Division of Mineral Resources, Mary Anne Kenworthy of the Division of Indian Affairs, John Payne, Office of the Regional Solicitor, Sacramento, California, Kay Henry, Associate Solicitor for Mineral Resources, Peter Schaumberg, Deputy Associate Solicitor for Mineral Resources and Liz Birnbaum, Special Assistant to the Solicitor.

I approve:



Secretary of the Interior

1/3/2000

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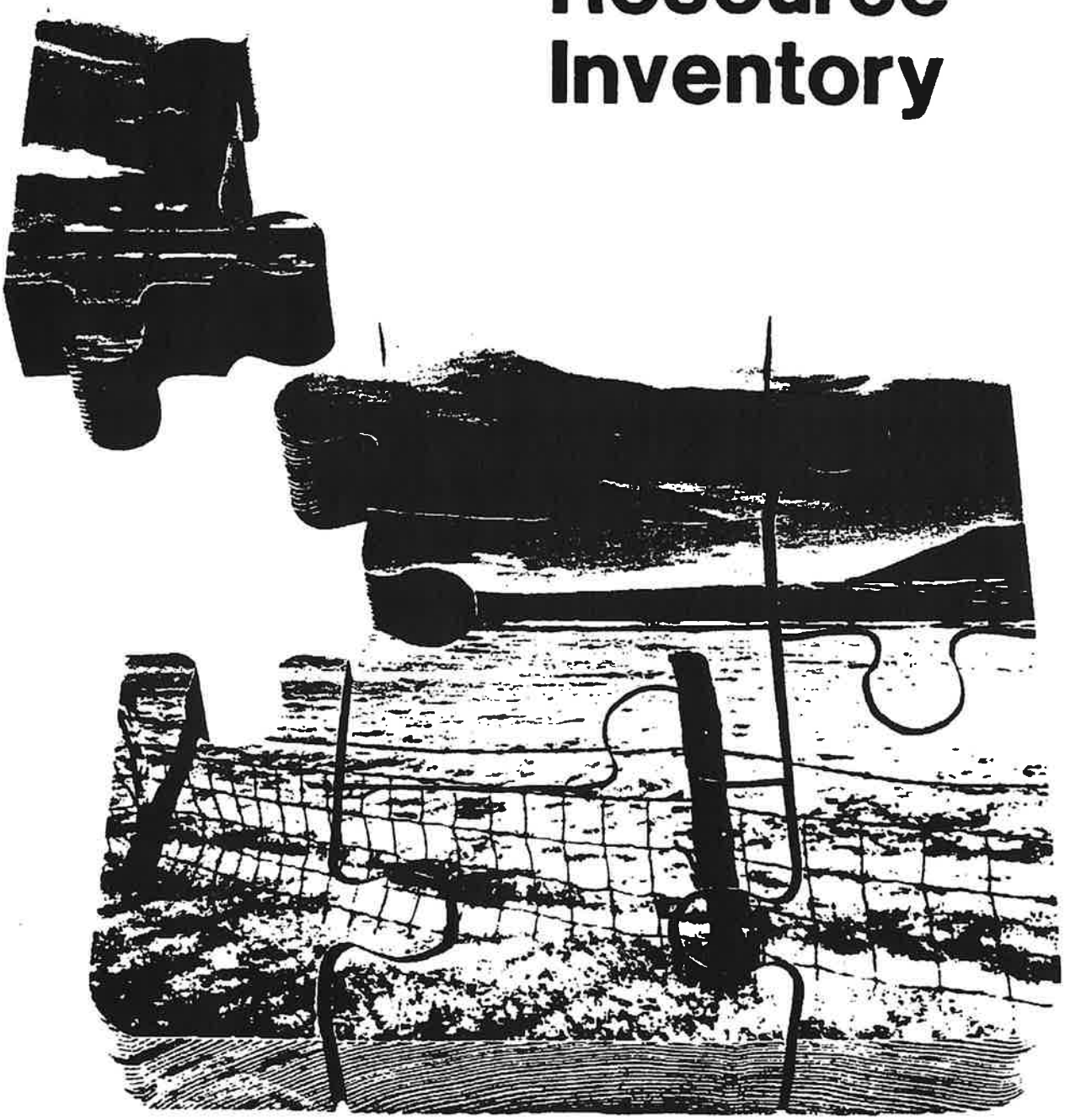
Appendix C

Visual Resources Supporting Documents

Visual Resource Inventory



BLM Manual Handbook 8410-1

H-8410-1 - VISUAL RESOURCE INVENTORY

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H-8410-1 - VISUAL RESOURCE INVENTORY.

I. General Guidance.

A. Overview. The visual resource inventory process provides BLM managers with a means for determining visual values. The inventory consists of a scenic quality evaluation, sensitivity level analysis, and a delineation of distance zones. Based on these three factors, BLM-administered lands are placed into one of four visual resource inventory classes. These inventory classes represent the relative value of the visual resources. Classes I and II being the most valued, Class III representing a moderate value, and Class IV being of least value. The inventory classes provide the basis for considering visual values in the resource management planning (RMP) process. Visual resource management classes are established through the RMP process for all BLM-administered lands (see also Manual 1625.3). During the RMP process, the class boundaries are adjusted as necessary to reflect the resource allocation decisions made in RMP's. Visual management objectives are established for each class. (See Section VB.)

B. Implementation Options. The detail of the inventory will vary with the visual character of the landscapes being inventoried. For example, the flat, colorless, and barren mancos shale area in southeastern Utah should not be given the same treatment as the rugged and colorful formations of the Colorado River area. Sensitive areas such as those near major highways or communities or adjacent to national parks should be given special treatment. It may be necessary to modify or make adaptions to the inventory system in such places as Alaska where the resource characteristics and the land-use patterns are significantly different from those in the Western States. These adaptations must (1) provide a more cost-effective way to complete a quality inventory, and (2) keep the conceptual framework of the Visual Resource Management (VRM) system intact.

C. Material Storage. All visual resource inventory rating forms, overlays, slides, and written material should be filed in the Resource Area Office.

II. Scenic Quality Evaluation. Scenic quality is a measure of the visual appeal of a tract of land. In the visual resource inventory process, public lands are given an A, B, or C rating based on the apparent scenic quality which is determined using seven key factors: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications (see Illustrations 1, 2, 3, and 4). During the rating process, each of these factors are ranked on a comparative basis with similar features within the physiographic province. Use the physiographic provinces as delineated by Fenneman (see Illustrations 5 and 6) to the extent possible. The boundaries of these provinces may be refined to fit local situations. The "Ecoregions of the United States" by R. C. Bailey may be helpful in making these refinements. An important premise of the evaluation is that all public lands have scenic value, but areas with the most variety and most harmonious composition have the greatest scenic value. Another important concept is that the evaluation of scenic quality is done in relationship to the natural landscape. This does not mean that man-made features within a landscape necessarily detract from the scenic value. Man-made features that compliment the natural landscape may enhance the scenic value. Evaluations should avoid any bias against man-made modification to natural landscape.

A. Delineating Scenic Quality Rating Units (SQRU's). The planning area is subdivided into scenic quality rating units for rating purposes. Rating areas are delineated on a basis of: like physiographic characteristics; similar visual patterns, texture, color, variety, etc.; and areas which have similar impacts from man-made modifications. The size of SQRU's may vary from several thousand acres to 100 or less acres, depending on the homogeneity of the landscape features and the detail desired in the inventory. Normally, more detailed attention will be given to highly scenic areas or areas of known high sensitivity. Map and number each SQRU on an overlay as shown in illustration 7.

B. Evaluating Scenic Quality. It is recommended that an interdisciplinary team do the evaluations. Ideally, one team member should have an environmental design arts background. All participants should have an understanding of the visual resource inventory system and be familiar with the areas to be evaluated. Evaluate each SQRU by observing the area from several important viewpoints. Scores should reflect the evaluator's overall impression of the area. After evaluating all the SQRU's, show the scenic ratings on the scenic quality overlay (see Illustration 7). Record the ratings on the Scenic Quality Rating Summary - Bureau Form 8400-5 (see Illustration 4). Bureau Form 8400-1 (see Illustration 3) may be used as a worksheet for completing each scenic quality evaluation. A photographic record should be maintained for the area. Photographs and completed evaluation forms should be filed for future reference.

III. Sensitivity Level Analysis. Sensitivity levels are a measure of public concern for scenic quality. Public lands are assigned high, medium, or low sensitivity levels by analyzing the various indicators of public concern.

A. Factors to Consider.

1. Type of Users. Visual sensitivity will vary with the type of users. Recreational sightseers may be highly sensitive to any changes in visual quality, whereas workers who pass through the area on a regular basis may not be as sensitive to change.

2. Amount of Use. Areas seen and used by large numbers of people are potentially more sensitive. Protection of visual values usually becomes more important as the number of viewers increase.

3. Public Interest. The visual quality of an area may be of concern to local, State, or National groups. Indicators of this concern are usually expressed in public meetings, letters, newspaper or magazine articles, newsletters, land-use plans, etc. Public controversy created in response to proposed activities that would change the landscape character should also be considered.

4. Adjacent Land Uses. The interrelationship with land uses in adjacent lands can effect the visual sensitivity of an area. For example, an area within the viewshed of a residential area may be very sensitive, whereas an area surrounded by commercially developed lands may not be visually sensitive.

5. Special Areas. Management objectives for special areas such as Natural Areas, Wilderness Areas or Wilderness Study Areas, Wild and Scenic Rivers, Scenic Areas, Scenic Roads or Trails, and Areas of Critical Environmental Concern (ACEC), frequently require special consideration for the protection of the visual values. This does not necessarily mean that these areas are scenic, but rather that one of the management objectives may be to preserve the natural landscape setting. The management objectives for these areas may be used as a basis for assigning sensitivity levels.

6. Other Factors. Consider any other information such as research or studies that includes indicators of visual sensitivity.

B. Delineation of Sensitivity Level Rating Units (SLRU's). There is no standard procedure for delineating SLRU's. The boundaries will depend on the factor that is driving the sensitivity consideration. Consequently, a thorough review of the factors referred to in IIIA should be completed before any attempt is made to delineate SLRU's. Distance zone may also play an important role in identifying the SLRU boundaries.

C. Documentation Requirements.

1. Narrative. Prepare a summary statement with the essential facts and rationale to support the conclusions reached on sensitivity levels. The format for presenting this information is optional. As a minimum, the summary data must be entered on Form 8400-6 (see Illustration 8). Backup information used to evaluate each of the factors should be maintained with the inventory record.

2. Map Overlay. Prepare an overlay (see Illustration 9) showing the sensitivity rating units and ratings.

D. Completion of Sensitivity Rating. The instructions for completing the sensitivity ratings are shown in Illustration 8. Ideally, the rating should be done as a team effort involving the Area or District VRM Coordinator, Area Manager, and at least one other staff person. If timing or funding will not allow this approach, the rating may be done by the VRM coordinator and reviewed by the Area Manager. Management should be in agreement on the summary rating for each SLRU.

IV. Distance Zones. Landscapes are subdivided into 3 distance zones based on relative visibility from travel routes or observation points. The 3 zones are: foreground-middleground, background, seldom seen. The foreground-middleground (fm) zone includes areas seen from highways, rivers, or other viewing locations which are less than 3 to 5 miles away. Seen areas beyond the foreground-middleground zone but usually less than 15 miles away are in the background (bg) zone. Areas not seen as foreground-middleground or background (i.e., hidden from view) are in the seldom-seen (ss) zone.

A. Mapping Distance Zones. Prepare a distance zone overlay (see Illustration 10) using a base map common to the scenic quality base map. Distance zones are determined in the field by actually traveling along each route and observing the area that can be viewed. If the route is a highway or trail, it should be traveled in both directions, unless it is a one-way route. River use usually is one way; however, if there is up-river travel, it too should be evaluated from both directions. If a vehicle or boat is used for this field survey, it is best to have both a driver and an observer. Distance zones should be mapped for all areas. While they are not necessary to determine classes in Class A scenic areas or for areas with low sensitivity levels, distance zones can provide valuable data during the RMP process when adjustments to VRM classes are made to resolve resource allocation conflicts.

1. Foreground-Middleground Zone. This is the area that can be seen from each travel route for a distance of 3 to 5 miles where management activities might be viewed in detail. The outer boundary of this distance zone is defined as the point where the texture and form of individual plants are no longer apparent in the landscape. In some areas, atmospheric conditions can reduce visibility and shorten the distances normally covered by each zone. Also, where the foreground-middleground zone from one travel route overlaps the background from another route, use only the foreground-middleground designation.

2. Background Zone. This is the remaining area which can be seen from each travel route to approximately 15 miles. Do not include areas in the background which are so far distant that the only thing discernible is the form or outline. In order to be included within this distance zone, vegetation should be visible at least as patterns of light and dark.

3. Seldom-Seen Zone. These are areas that are not visible within the foreground-middleground and background zones and areas beyond the background zones.

B. Coordinating Distance Zones Delineation and Sensitivity Level Analyses. It is recommended that distance zones be delineated before the sensitivity analysis is done. The distance zone delineations provide valuable information that can be very useful in the sensitivity analysis. For example, the foreground-middleground zones are more visible to the public and changes are more noticeable and are more likely to trigger public concern. Also, the boundaries of the distance zones are very useful in helping to establish sensitivity rating units.

V. Visual Resource Classes and Objectives.

A. Purposes of Visual Resource Classes. Visual resource classes are categories assigned to public lands which serves two purposes: (1) an inventory tool that portrays the relative value of the visual resources, and (2) a management tool that portrays the visual management objectives. There are four classes (I, II, III, and IV).

1. Visual Resource Inventory Classes. Visual resource inventory classes are assigned through the inventory process. Class I is assigned to those areas where a management decision has been made previously to maintain a natural landscape. This includes areas such as national wilderness areas, the wild section of national wild and scenic rivers, and other congressionally and administratively designated areas where decisions have been made to preserve a natural landscape. Classes II, III, and IV are assigned based on a combination of scenic quality, sensitivity level, and distance zones. This is accomplished by combining the 3 overlays for scenic quality, sensitivity levels, and distance zones and using the guidelines shown in Illustration 11 to assign the proper class. The end product is a visual resource inventory class overlay as shown in Illustration 12. Inventory classes are informational in nature and provide the basis for considering visual values in the RMP process. They do not establish management direction and should not be used as a basis for constraining or limiting surface disturbing activities.

2. Visual Resource Management Classes. Visual resource management classes are assigned through RMP's. The assignment of visual management classes is ultimately based on the management decisions made in RMP's. However, visual values must be considered throughout the RMP process. All actions proposed during the RMP process that would result in surface disturbances must consider the importance of the visual values and the impacts the project may have on these values. Management decisions in the RMP must reflect the value of visual resources. In fact, the value of the visual resource may be the driving force for some management decisions. For example, highly scenic areas which need special management attention may be designated as scenic Areas of Critical Environmental Concern and classified as VRM Class I based on the importance of the visual values. A map is developed in each RMP showing the approved visual resource management classes.

B. Objectives for Visual Resource Classes.

1. Class I Objective. The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.

2. Class II Objective. The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

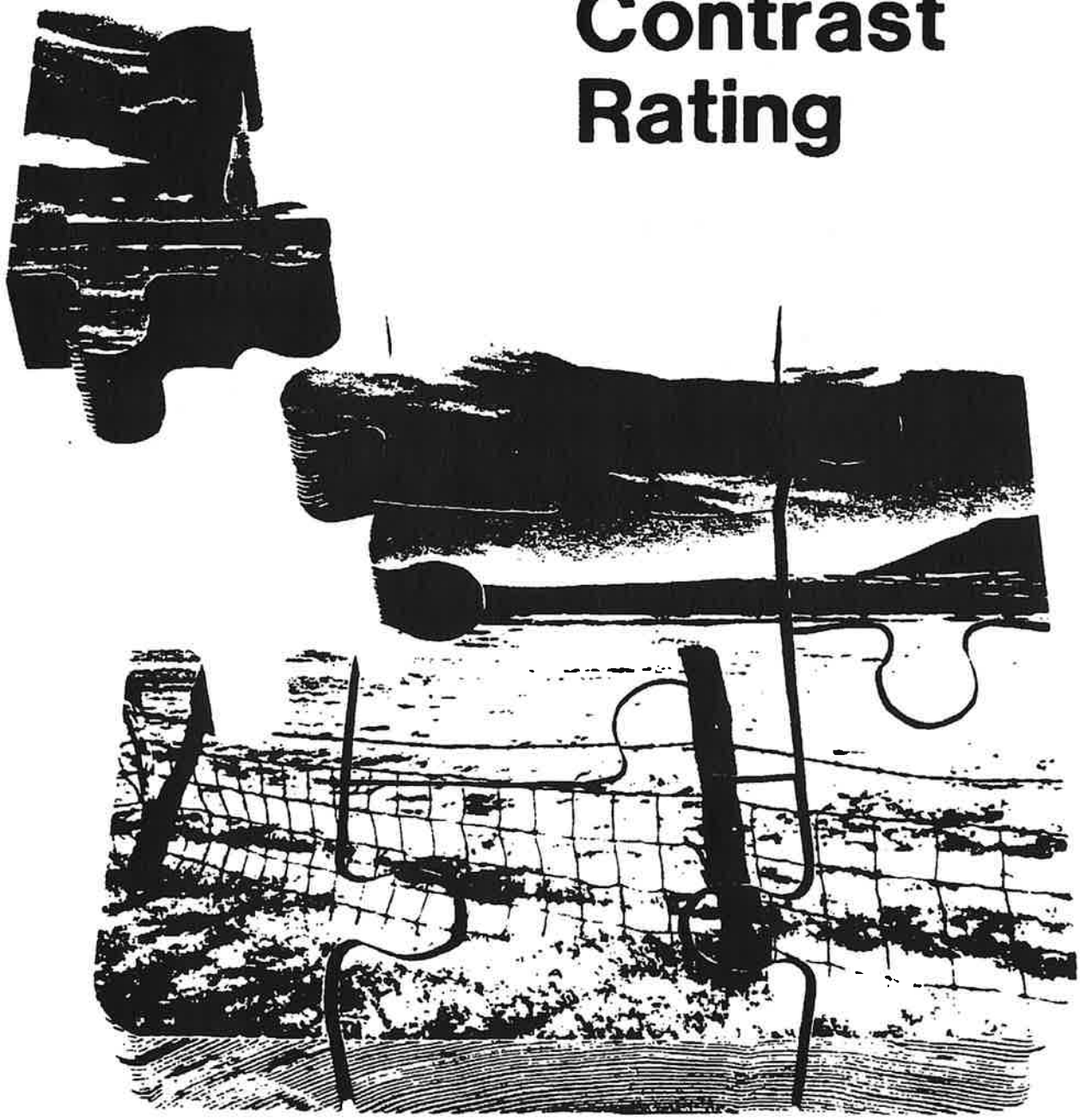
3. Class III Objective. The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

4. Class IV Objective. The objective of this class is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

C. Rehabilitation Areas. Areas in need of rehabilitation from a visual standpoint should be flagged during the inventory process. The level of rehabilitation will be determined through the RMP process by assigning the VRM class approved for that particular area.

D. Interim VRM Classes and Objectives. Interim visual management classes are established where a project is proposed and there are no RMP approved VRM objectives. These classes are developed using the guidelines in Section I to V and must conform with the land-use allocations set forth in the RMP which covers the project area. The establishment of interim VRM classes will not require a RMP amendment, unless the project that is driving the evaluation requires one.

Visual Resource Contrast Rating



BLM Manual Handbook 8431-1

H-8431-1 - VISUAL RESOURCE CONTRAST RATING

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H-8431-1 - VISUAL RESOURCE CONTRAST RATING

I. Introduction.

A. Overview. The contrast rating system is a systematic process used by the Bureau of Land Management (BLM) to analyze potential visual impacts of proposed projects and activities. It is primarily intended to assist Bureau personnel who are not formally trained in the design arts to apply the basic principles of design in the resolution of visual impacts. It is not intended to be the only means of resolving these impacts. It should be used as a guide, tempered by common sense, to ensure that every attempt is made to minimize potential visual impacts. The basic philosophy underlying the system is: The degree to which a management activity affects the visual quality of a landscape depends on the visual contrast created between a project and the existing landscape. The contrast can be measured by comparing the project features with the major features in the existing landscape. The basic design elements of form, line, color, and texture are used to make this comparison and to describe the visual contrast created by the project. This assessment process provides a means for determining visual impacts and for identifying measures to mitigate these impacts.

II. Steps in the Contrast Rating Process.

A. Obtain Project Description. To effectively evaluate the visual impacts of a proposed project, a detailed project description is needed. Appendix 1 provides guidance on the type of information needed. The level of detail required in the description should be commensurate with the type of project proposed. This information is usually supplied by the project sponsor for BLM-initiated projects or by the applicant for non-Bureau of Land Management initiated projects.

B. Identify VRM Objectives. Use the RMP generated objectives when available. Where there are no RMP approved objectives, interim Visual Resource Management (VRM) classes will be developed using the guidelines in Handbook H-8410-1 except: (1) The inventory will be limited to the area affected by the project; and (2) the VRM classes will reflect the management decision made in existing RMP's. An RMP amendment is not required unless the project that is driving the evaluation requires an amendment.

C. Select Key Observation Points (KOP's). The contrast rating is done from the most critical viewpoints. This is usually along commonly traveled routes or at other likely observation points. Factors that should be considered in selecting KOP's are; angle of observation, number of viewers, length of time the project is in view, relative project size, season of use, and light conditions (see Section IIID2b for a more detailed description of these factors). Linear projects such as powerlines should be rated from several viewpoints representing:

- Most critical viewpoints, e.g., views from communities, road crossings.
- Typical views encountered in representative landscapes, if not covered by critical viewpoints.
- Any special project or landscape features such as skyline crossings, river crossings, substations, etc.

D. Prepare Visual Simulations. Visual simulations are an invaluable tool in effectively evaluating the impacts of a proposed project (see Illustration 1). Simulations are strongly recommended for potentially high impact projects. The level of sophistication should be commensurate with the quality of the visual resource and the severity of the anticipated impact. Simulations are extremely important to portray the relative scale and extent of a project. They also help public groups visualize and respond to development proposals, making public participation in the planning process more effective. The BLM publication Visual Simulation Techniques should be consulted for the appropriate simulation methods.

E. Complete the Contrast Rating. Complete contrast rating from key observation point(s) using Bureau Form 8400-4 - Visual Contrast Rating Worksheet (see Illustration 2).

III. Requirements for Completing the Contrast Rating Worksheet.

A. Project Information (Section A). Complete the background information requested. It is important to precisely record the location of the KOP. A sketch of the KOP/project location should be shown in the "location" block. If several different key observation points are used for the project evaluation, give each viewpoint a separate number for reference purposes.

B. Descriptions (Sections B and C). To properly assess the contrasts between the proposed and existing situation, it is necessary to break each down into the basic features (i.e., landform/water, vegetation, and structures) and basic elements (i.e., form, line, color, and texture) so that the specific features and elements that cause contrast can be accurately identified. When describing the project, be sure to include approved mitigating measures. Refer to Illustrations 3, 4, 5, and 6 for the suggested vocabulary for describing characteristic landscapes and the proposed projects.

C. Categorizing Projects Under Features (Sections B and C). It is sometimes difficult to determine which type feature a project fits under. Use the following as a guide to categorize projects:

Landform/Water Features	Vegetative Features	Structural Features
Roads	Timber Harvests	Transmission Lines
Mining	Grazing Systems	Generation Plants
Gravel Pits	Vegetative Manipulations	Oil and Gas Developments
Landfills		Recreation Facilities
Water Impoundments		Water Tanks
		Microwave Stations
		Buildings

D. Contrast Rating (Section D). The actual rating should be completed in the field from the KOP(s). It can be done as a team effort or individually, depending on the sensitivity and impacts of the project and the availability of personnel (see Manual Section 8431.12). If done as a team, it is best to do the ratings individually and then compare ratings. A simulation should be available to show scale, relative placement of disturbing features, and other important information necessary to complete an objective rating.

1. Selecting the Timeframe. Projects may be rated on either a short-term or long-term basis. Short-term is through the first 5 years and long-term is through the life of the project. If the project has significantly different short-term and long-term effects, two contrast ratings should be completed using two separate forms. Check the appropriate block under section D on the rating form to indicate the term of the rating.

2. Rating the Degree of Contrast (Section D1). Using the matrix provided in section D of the form, rate the degree of contrast. Be sure to include the proposed mitigating measures and standard stipulations in the rating. The rating is completed by determining the degree of contrast (i.e., strong, moderate, weak, or none) for each element. Use the following general criteria and factors when rating the degree of contrast:

a. Degree of Contrast Criteria.

Degree of Contrast	Criteria
None	The element contrast is not visible or perceived.
Weak	The element contrast can be seen but does not attract attention.
Moderate	The element contrast begins to attract attention and begins to dominate the characteristic landscape.
Strong	The element contrast demands attention, will not be overlooked, and is dominant in the landscape.

b. Factors to be considered. Consider the following factors when applying the criteria (see also Illustrations 3, 4, 5, and 6):

(1) Distance. The contrast created by a project usually is less as viewing distance increases.

(2) Angle of Observation. The apparent size of a project is directly related to the angle between the viewer's line-of-sight and the slope upon which the project is to take place. As this angle nears 90 degrees (vertical and horizontal), the maximum area is viewable.

(3) Length of Time the Project Is in View. If the viewer has only a brief glimpse of the project, the contrast may not be of great concern. If, however, the project is subject to view for a long period, as from an overlook, the contrast may be very significant.

(4) Relative Size or Scale. The contrast created by the project is directly related to its size and scale as compared to the surroundings in which it is placed (see Illustration 7).

(5) Season of Use. Contrast ratings should consider the physical conditions that exist during the heaviest or most critical visitor use season, such as snow cover and tree defoliation during the winter, leaf color in the fall, and lush vegetation and flowering in the spring.

(6) Light Conditions. The amount of contrast can be substantially affected by the light conditions. The direction and angle of lighting can affect color intensity, reflection, shadow, form, texture, and many other visual aspects of the landscape. Light conditions during heavy use periods must be a consideration in contrast ratings.

(7) Recovery Time. The amount of time required for successful revegetation should be considered. Few projects meet the VRM management objectives during construction activities. Recovery usually takes several years and goes through several phrases (e.g., bare ground to grasses, to shrubs, to trees, etc.). It may be necessary to conduct contrast ratings for each of the phases that extend over long time periods. Those conducting contrast rating should verify the probability and timing of vegetative recovery.

(8) Spatial Relationships. The spacial relationship within a landscape is a major factor in determining the degree of contrast (see Illustration 8).

(9) Atmospheric Conditions. The visibility of projects due to atmospheric conditions such as air pollution or natural haze should be considered.

(10) Motion. Movement such as waterfalls, vehicles, or plumes draw attention to a project.

c. General Guidance for Accessing Contrast.

(1) Form. Contrast in form results from changes in the shape and mass of landforms or structures. The degree of change depends on how dissimilar the introduced forms are to those continuing to exist in the landscape.

(2) Line. Contrasts in line results from changes in edge types and interruption or introduction of edges, bands, and silhouette lines. New lines may differ in their subelements (boldness, complexity, and orientation) from existing lines.

(3) Color. Changes in value and hue tend to create the greatest contrast. Other factors such as chroma, reflectivity, color temperature, may also increase the contrast.

(4) Texture. Noticeable contrast in texture usually stems from differences in the grain, density, and internal contrast. Other factors such as irregularity and directional patterns of texture may affect the rating.

3. Determining Whether VRM Objectives are Met (Section D2). Compare the contrast ratings with the objectives for the approved VRM Class (see Appendix 2 for definitions of VRM classes). For comparative purposes, the four levels of contrast (i.e., none, weak, moderate, and strong) roughly correspond with classes I, II, III, and IV, respectively. This means that a "strong" contrast rating may be acceptable in a class IV area but probably would not meet the VRM objectives for a class III area. In making these comparisons, one must also look at the cumulative effect of all the contrast ratings. Certain combinations of ratings may indicate there is a stronger overall contrast than the individual ratings show. For example, several "moderate" ratings when viewed in combination may warrant an overall "strong" rating. This is a judgmental call that must be documented on the back side of the form. If the rater checks the "no" block on the form, indicating the VRM objectives are not met, the reasons for not meeting the objectives must also be documented on the back of the form.

4. Developing Additional Mitigating Measures (Section D3). Since the overall VRM goal is to minimize visual impacts, mitigating measures should be prepared for all adverse contrasts that can be reduced. This includes reduction of contrast in projects which have met the VRM objectives. Mitigating measures should be written so they can easily be extracted and used as stipulations in leases, permits, contracts, etc. When preparing mitigating measures, keep in mind the concepts of strategic location (in less visible and less sensitive areas), minimizing disturbance, and repetition of the basic elements (form, line, color, and texture). Also make sure that mitigating measures are realistic (i.e., do not propose revegetation where the probability of success is very low). Other suggestions for reducing contrast are shown in Appendix 3. The publications listed in the bibliography of Manual Section 8400 also provide additional guidance on mitigating measures.

Appendix D

National Historic Preservation Act Section 106 Documents

National Historic Preservation Act
Description of Section 106 Review Process

An intensive, pedestrian inventory for and evaluation of cultural/archaeological resources was completed for the proposed mine and process area, ancillary area, overbuilt 92 kV/34.5 transmission line corridor, and buffer areas. During the inventory, which was conducted by KEA Environmental with assistance by members of the Quechan Tribe, 88 sites associated with Native American and/or EuroAmerican activities were identified. Results of the inventory and evaluation may be found in the report by KEA Environmental for the Bureau of Land Management (BLM), which is titled, "Where Trails Cross: Cultural Resources Inventory and Evaluation for the Imperial Project, Imperial County, California," October 1997, and in the EIS/EIR.

The resource sites were evaluated according to criteria of eligibility to the National Register of Historic Places. The criteria for eligibility are significance in American history, architecture, archeology, engineering and culture; as well as integrity of location, design, setting, materials, workmanship, feeling, and association; and (A) association with events that have made a significant contribution to the broad patterns of our history, or (B) association with the lives of persons significant in our past, or (C) embodiment of the distinctive characteristics of a type, period, or method of construction, or representation of the work of a master, or possession of high artistic values, or representation of a significant and distinguishable entity whose components may lack individual distinction, or (D) yield or potential to yield information important in prehistory or history.

Properties evaluated for eligibility to the National Register of Historic Places may reflect significance in architecture, history, archeology, engineering, and culture. One kind of cultural significance refers to the beliefs, customs, and practices of a living community of people that have been passed down through the generations, usually orally or through practice, and that are important in maintaining the continuing cultural identity of the community. Like any other property, a traditional cultural property is evaluated against the standards for integrity and four basic National Register Criteria.

Quechan tribal members identified the project vicinity as a traditional cultural property. They emphasized that the project vicinity is extremely important to their cultural values and integrity, and any destruction of the area would result in destruction of their present and future heritage. An area defined by the distribution of Native American trail segments and other cultural features including geoglyphs, broken quartz, broken ceramic pots, and cleared circles, and which included the project area, was identified as the Indian Pass-Running Man Area of Traditional Cultural Concern (ATCC).

The California State Historic Preservation Officer concurred with BLM that the ATCC met criteria for eligibility to the National Register. The ATCC was designed to focus on the undertaking and the Area of Potential Effect (APE), as identified in the KEA report, which was defined as the power line access rights-of-way and one-quarter of a mile on all sides of the footprint of the project.

STATE OF CALIFORNIA — THE RESOURCES AGENCY

PETE WILSON, *Governor*

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
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(916) 653-6624
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July 21,1998

Reply to: BLM980227A

Carl Rountree, Deputy State Director
Bureau of Land Managment
California State Office
2135 Butano Drive
SACRAMENTO CA 95825-0451

Subject: Glamis Imperial Corporations Open-Pit Heap Leach Precious Metal Mine, Imperial County

Dear Mr. Rountree:

Thank you for the additional information submitted in response to my letter date April 23, 1998.

The Bureau of Land Management (BLM) has clarified my concern over whether the agency had fully taken into account the effects of this undertaking on historic properties. It is evident that the full spectrum of historic properties have been considered in terms of the project effects.

Thank you for the diligent effort to comply with the National Historic Preservation Act during the planning project for this undertaking.

Sincerely,

Ms. Cherilyn E. Widell
State Historic Preservation Officer

Appendix E

Comparison of Permitted Mines within Multiple Use Class L (Limited Use) Areas of the California Desert Conservation Area

Mine	Operator	County/ Area	Date of Approval / Closure	Evidence of Previous Mining Activity	Mine Facility Physiography	Native American/NRHP Issues
America Mine	America Mine Joint Venture	San Bernardino Bullion Mountains BLM POO-Yes	1984 1988	Yes	mine-mountains waste dumps-mountains leach pads- slope	No
Colosseum Mine	Bond Gold	San Bernardino Clark Mountains BLM POO-Yes	1986 1992	Yes	mine-mountains waste dumps-mountains tailings- mountains	No
Picacho Mine	Glamis Gold	Imperial County Picacho Mountains BLM POO-Yes	1986 1998	Yes	mine-mountains waste dumps-mountains leach pads- slope	No
Morning Star Mine	Vanderbuilt Gold Corp.	San Bernardino Southern Ivanpah Range BLM POO-Yes	1986 1990	Yes	mine-mountain waste dumps-foothills leach pads-foothills	No
Castle Mountain	Viceroy Gold	San Bernardino Castle Mountains BLM POO-Yes	1990 --	Yes	mine-mountains waste dumps-mountains leach pads-slope	No
Briggs Mine	Canyon Resources	Inyo County Panamint Mountains BLM POO-Yes	1996 –	Yes (minor)	mine-mountains waste dumps-mountains leach pads-slope	Yes, but plan of operations modified to avoid substantial impacts

Appendix F

Deposit Grade and Reserve Comparisons, U.S.

Deposit Grade and Reserves Comparison for various gold deposits in the United States*

DEPOSIT	PROCESSING MODEL	TONNAGE (1,000 tons)	AVERAGE RESERVE GRADE (Ounce/Ton)	RECOVERY RATE	OUNCES RECOVERED
North Star-NV	Dump Leach	1,000	0.015	65%	9,750
Pinson-NV	Dump Leach	1,300	0.029	93%	35,061
Getchell-NV	Dump Leach	1,900	0.026	75%	37,050
Yankee-NV	Dump Leach	2,000	0.045	70%	63,000
Picacho-CA	Dump Leach	2,900	0.038	75%	82,650
Kinsley-NV	Dump Leach	3,400	0.032	75%	81,600
Gold Quarry-NV	Dump Leach	3,500	0.016	65%	36,400
Mac-NV	Dump Leach	5,400	0.014	65%	49,140
Pete-NV	Dump Leach	6,400	0.026	65%	108,160
Dee-NV	Dump Leach	8,300	0.025	72%	149,400
Tusc-NV	Dump Leach	8,700	0.019	65%	107,445
Bald Mountain-NV	Dump Leach	11,400	0.076	75%	649,800
Bear Track-NV	Dump Leach	22,800	0.034	75%	581,400
Golden Sun-NV	Dump Leach	32,400	0.026	75%	631,800
Post/Betze-NV	Dump Leach	33,900	0.020	90%	610,200
Twin Creeks-NV	Dump Leach	40,900	0.024	65%	638,040
Mesquite-CA	Dump Leach	52,800	0.021	70%	776,160
Rand-CA	Dump Leach	55,200	0.023	75%	952,200
Imperial Project-CA	**Dump Leach**	**95,200**	**0.016**	**80%**	**1,216,000**
Round Mtn-NV	Dump Leach	254,400	0.020	55%	2,798,400

*Table modified from Roger Haskins, Senior Mining Law Specialist, Bureau of Land Management, Washington, DC (1998)

Appendix G

Responses to Comments on FEIS

Public Comments to Final EIS/EIR (Significant Issues Raised and Department/BLM Response)

Of the 24 comments received by BLM on the FEIS, most voiced general opposition to the proposed project and supported the No Action alternative. A few voiced general or specific support of the project. Of those addressing specific issues, either positive or negative to this decision, the following were identified as significant and warranting description and response by the Department of the Interior and BLM.

Issue: The California State Native American Heritage Commission, an official State agency, endorsed the No Action alternative, citing adverse effects to sensitive Native American archeological and cultural resources. **Response:** The resources specified in the Commission's letter were recognized in the FEIS and are noted in the ROD as rationale for the decision not to approve the project.

Issue: A number of comments cited the newly published BLM mining regulations (43 Code of Federal Regulations, Part 3809) as supporting authority for denying the project. **Response:** While the final regulations were published on November 21, 2000, they do not become effective until January 20, 2000 and, therefore, cannot be used as a basis for this decision.

Issue: Two comments addressed the issue of the strategic importance of gold as a decision factor. Comments stated that gold is currently not listed as strategic mineral and should have no impact on BLM's decision. **Response:** Gold's strategic mineral status was not specifically addressed in the FEIS/EIR. However, the ROD discusses the conclusion of the Department that significant and unavoidable adverse environmental impacts outweigh the possible economic benefits of gold mining under the proposed project. As the comments indicate, gold is not currently listed as a strategic mineral by the Defense National Stockpile Center of the Department of Defense.

Issue: Two letters from the Quechan Tribe provide substantial information about the history of the Tribe and an official, government-to-government statement that the mine would "damage sacred sites and trails . . . ." **Response:** This information is considered to be consistent with the Tribe's earlier cultural data provided to BLM, already contained in the FEIS, and is reflected in the ROD.

Issue: The Quechan Tribe also presented further information that the proposed project interferes with the Tribe's First Amendment rights regarding their ability to practice their traditional religion. The Tribe disagrees with the Solicitor's Opinion of December 27, 1999, and its interpretation of this issue in context of the Lyng case, and requests this issue be used in the ROD to deny the mine. **Response:** The Department and BLM have reviewed the legal information and citations provided the Tribe, and conclude that the interpretation in the December 27, 1999 Opinion is still accurate and represents the Department's legal position in this matter.

Issue: Comments indicated that the Imperial Project would not be consistent with the current management direction provided in the Northern and Eastern Colorado Desert Plan (NECO). **Response:** Because NECO will not likely be completed before the second half of 2001, any

application of NECO to the proposed project would be premature, and NECO is not used in this decision.

Issue: Several comments requested that the decision be signed by the "highest level" possible so any challenges can be addressed quickly in Federal Court. **Response:** Given the nature and importance of this decision, and considering the Department of the Interior's trust responsibility to Native American tribes, the Secretary has decided to sign the ROD.

Issue: Several comments noted the withdrawal of 9,360 acres (which includes the proposed project) by Secretarial Order on October 27, 2000 and stated it should be a factor in the decision. **Response:** The withdrawal is a separate agency decision and does not substantially affect existing claims in this area on which the Glamis Imperial proposed mining project is based. Therefore, the withdrawal cannot be a rationale for this decision.

Issue: Comments requested that BLM's visual resources policy documents be included in the ROD. **Response:** Supporting documentation on visual resources is included in the appendices of the ROD.

Issue: Several comments requested that the entirety of the FEIS/EIR be attached to the ROD; other comments requested specific sections be attached, including section 6.2 regarding impairment of CDCA values. **Response:** The attachment of the FEIS/EIR to the ROD is not necessary as the ROD is the decision document issued as a result of the analysis in the FEIS/EIR. The FEIS/EIR was prepared as a tool to assist in the decision making process. Copies of the FEIS/EIR may be obtained from BLM, subject to availability, or may be accessed on the Web at http://www.ca.blm.gov/elcentro/imperial_project.html.

Issue: Several comments challenged the conclusion of the FEIS/EIR that no significant cumulative impacts would result from the proposed project. One comment specifically identified the need to consider potential cumulative impacts such as the future development of the new Town of Felicity. **Response:** With regard to the first statement, BLM agrees, and this ROD reflects consideration of the combined adverse impacts to Native American values, historic properties, and visual quality. As for the proposed Town of Felicity, the development is too speculative at the present time to consider in this ROD.

Issue: One comment indicates that the Section 106 process was not completed in a manner consistent with the regulations in Part 800 of Title 36 of the Code of Federal Regulations. **Response:** BLM followed the requirements of the 1991 Programmatic Agreement with the California SHPO and the Advisory Council on Historic Preservation; adhered to its responsibilities to consult with tribes on a government-to-government basis; followed the MOU with the California Native American Heritage Commission; and applied the requirements of the Sacred Sites Executive Order. The SHPO concurs with BLM's consideration of Section 106 and its determination of adverse effects (see Appendix D).

Issue: A comment indicated that BLM had not consulted with the necessary tribes because the Quechan Tribe is only one of several Yuman speaking tribes that use the area. **Response:** During the collection of the ethnographic data for the EIS/EIR and according to applicable Federal government records, the Quechan Tribe is explicitly identified as the federally recognized tribal government in this particular area. However, other affected tribes were notified by BLM of the project, testified at the Advisory Council's public hearing in Holtville in support of the Quechan, and deferred to the Quechan as the tribal contact with BLM regarding the project.

Issue: One comment stated that the BLM's designation of the Indian Pass-Running Man Area of Traditional Cultural Concern (ATCC) was an administrative determination of BLM and did not represent the entire spectrum of Native American concerns. **Response:** The ATCC was a collaborative determination of the Quechan and BLM. It was identified to provide a basis for analysis in the EIS/EIR of potential effects of the proposed project on sacred sites. The Quechan and BLM understood that the ATCC did not include the entire spectrum of Native American concerns but was of sufficient scope to provide a reasonable basis of analysis. The SHPO concurred with the ATCC as a reasonable approach.

Issue: One comment questioned whether, given a 60-year hiatus in use of the Trail of Dreams, if a mine with the life of 20 years would constitute an unresolvable adverse effect, particularly considering that Interstate 10 crosses the trail. **Response:** The Tribe did not say that its members have not used the area for 60 years, only that they have not used the area regularly during that period. Further, the Quechan have consistently expressed concern over the cumulative impacts of development, such as Interstate 10, on their traditional cultural values.

Issue: Comments raised the issue of environmental justice if the project were approved. **Response:** The FEIS/EIR discussed applicability of Executive Order 12898 on Environmental Justice. Although the FEIS/EIR suggests the proposed project is consistent with Executive Order 12898, the Department's decision not to approve the project is based in part on the finding of disproportionate adverse impacts to the Quechan as further discussed in this ROD.

Issue: A comment stated that the cultural and religious factors to the Quechan should stand alone as a rationale for denial. **Response:** The decision of the Department not to approve the project is based on consideration of the combined environmental impacts of the project compared to the possible economic benefits of mining under the project in light of applicable statutory standards. The environmental effects to the Native American values, historic and archaeological resources and visual quality are closely interrelated.

Issue: Comments stated that the proposed Imperial Project is different from other gold mines previously approved by BLM in the CDCA. **Response:** The Department reviewed the records of permitted mines in the CDCA in comparison to the FEIS/EIR analysis of the proposed project. The comparison demonstrates that the proposed project involves a unique combination of environmental conditions not present in other mines (see Appendix E).

Issue: One comment cited outdated information in the FEIS/EIR, mostly pertaining to dates and other supporting data (including formal government to government consultations conducted with the Quechan Tribe) referenced in the document and requests correction of those dates in the ROD. **Response:** The Quechan consultation dates have been updated and included in the ROD, as well as dates pertaining to the Indian Pass withdrawal.

Issue: One comment stated that BLM has underestimated the significance of the Native American values and historic properties at the project site. **Response:** The ROD directly quotes the Council's views on this matter. The ROD also relies on the Council's determination that this area contains nationally significant historic properties and Native American values as one of the basic rationales for the decision not to approve the project.

Issue: A few comments, both for and against the proposed project, asserted that the Solicitor's Opinion of December 27, 1999, provides a basis for denial of other mining operations, both in the California Desert and throughout the West. **Response:** The Solicitor's Opinion was specifically requested by BLM to address the proposed Glamis Imperial project and its location in a Multiple Use Class L area of the California Desert Plan and an Area of Traditional Cultural Concern with the significant historic properties and Native American values documented as present at the site. However, determining whether the legal analysis of the Opinion may be applicable to other sites is beyond the scope of this ROD.

Issue: One comment takes issue with the conclusion of the Solicitor's Opinion that the Section 106 process under the National Historic Preservation Act (NHPA) is not intended to impose substantive obligations on BLM (see p. 18, footnote 22 of the Opinion) and asserts that a recent court decision (Muckleshoot v. US Forest Service, 1999) interprets this authority more accurately. **Response:** The Department has reviewed the referenced court decision and has determined the Solicitor's Opinion represents the legal position of the Department in this matter. The Federal Land Policy and Management Act, not the NHPA, was the primary legal authority on which the Solicitor based his conclusion that BLM has authority to deny approval of a plan of operations within the CDCA if the plan would impair other resources unduly and no reasonable measures are available to mitigate that harm.

Issue: One comment asserted that the Solicitor's Opinion represents a "new rule" directing a BLM decision and exceeds the statutory authority and intent of the Federal Land Policy and Management Act and the California Desert Protection Act. It further asserts that any decision to deny the mine would be inconsistent with the agency's longstanding practice involving mine development projects in the CDCA. **Response:** The Department has reviewed the information provided and disagrees with the commenter's interpretation. The United States District Court for the District of Southern California has already rejected the argument that the Solicitor's Opinion directs BLM to make a particular decision.

Issue: Some comments stated that the lack of economic benefits of mining must be a rationale for denial. **Response:** It is not the policy of the BLM or the Department to determine whether a business is to be judged by its value to the economy. Rather it is the policy to consider the

possible economic benefits of development of public land resources in the context of all other public land resource values, including environmental, historic, and other values. In this case, the overall adverse environmental impacts of mining a mineral deposit with an average reserve grade of 0.016 ounces of gold per ton were found to outweigh the possible economic benefits to be derived from the proposed project.

Issue: Several comments raised hazardous materials related issues about the project. **Response:** The FEIS/EIR addressed these issues adequately and the proponent, if authorized, would be required to comply with all applicable State and Federal laws pertaining to hazardous materials.

Issue: One comment raised the issue of a pending lawsuit regarding the Endangered Species Act filed against BLM by the Center for Biological Diversity and others, and questions whether that suit affects the Indian Pass area. **Response:** While the complaint filed by the Center addresses the entire CDCA, it does not specifically cite the Indian Pass area (including the proposed mining project). The settlement agreements filed with the court as of the date of this ROD do not involve the Indian Pass area.

Issue: Some comments challenged the adequacy of the FEIS/EIR, stating that the FEIS/EIR does not support project approval or approval of alternatives other than No Action. **Response:** The decision of the Department is not to approve the project. The FEIS/EIR supports this decision.

Attachment 4

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Ridgecrest Field Office
300 S. Richmond Road
Ridgecrest, CA 93555
www.ca.blm.gov/ridgecrest

In Reply Refer To:
CACA-56495
3809(P)
LLCAD05000.51

March 09, 2022

Mojave Precious Metals, Inc.
Attn: Steven Swatton
1020-800 Pender Street W
Vancouver, BC V6C 2VC

Dear Mr. Swatton,

After a thorough review of the Plan of Operations modification that you submitted on behalf of Mojave Precious Metals, Inc. (MPM), the BLM has determined that it will analyze the potential impacts in accordance with the National Environmental Policy Act by preparing an Environmental Impact Statement (EIS). The EIS will analyze the following resources in detail: wildlife, vegetation, special status species, noxious weeds, cultural and Native American resources, special land use designations, recreation, water, soil, and visual resources (and potentially transportation and access). MPM's original Plan of Operations was analyzed in an Environmental Assessment (EA) and the BLM issued its Finding of No Significant Impact (FONSI) and Decision Record in May 2018. In that decision, the BLM approved the alternative that authorized access via helicopter only and created a surface disturbance of 0.2 acres. The current proposed plan modification calls for access via overland travel and road construction and could disturb over 12 acres. Based on the resource concerns expressed by the public, Tribes, and agencies during scoping, the increased surface disturbance of the proposed plan modification, and the increase to 30 drill locations with a total of 120 hole, the BLM has determined that an EIS is warranted.

The BLM also considered the following factors when determining that it will prepare an EIS for the proposed plan modification:

1. The Joshua Tree is now a candidate species under the California Endangered Species Act.
2. The area is considered to be Lands with Wilderness Characteristics (WIU #124-1).
3. Red Ochre clay for which the Timbisha Tribe is named was unearthed during the first drilling project.
4. The largest known population of Inyo thread plant (*Nemacladus inyoensis*) in the southern Inyo Mountains was observed growing in and adjacent to the reclaimed access road. This plant species is new to science as of 2020 and is currently undergoing a California Rare Plant Rank status review (proposed status 1B.2).

5. On a field visit to engage in government-to-government consultation, Tribes told the BLM that the proposed plan modification could impact the holistic value of the area. Tribes explained that the area contains historic trails and sites where men of the tribe would gather for various reasons.
6. Under the Desert Renewable Energy Conservation Plan, portions of the area are designated as Areas of Critical Environmental Concern and California Desert National Conservation Lands.
7. The proposed plan modification would cause an increase in water use, which may result in potential impacts on quantity and quality to water supplies, seeps, springs, streams or water reservoirs. There could also be indirect impacts from water withdrawal, transport, and storage on air quality, dust generation, and traffic.

If you have any questions, please contact me at (760)384-5400 or Randy Porter at (760)384-5452 and rporter@blm.gov.

Respectfully,

CARL SYMONS

Digitally signed by CARL SYMONS
Date: 2022.03.09 10:16:34 -08'00'

Carl Symons
Ridgecrest Field Manager

Attachment 5

BLM

U.S. Department of the Interior
Bureau of Land Management

Finding of No Significant Impact

DOI-BLM-NV-B020-2020-0017-EA

Silicon Exploration Project Plan of Operations
Nevada Reclamation Permit Application

PREPARING OFFICE

U.S. Department of the Interior
Bureau of Land Management
Tonopah Field Office, Nevada

Finding of No Significant Impact

NEPA: DOI-BLM-NV-B020-2020-0017-EA

Case Files: NVN-097820 (Plan)

I have reviewed Environmental Assessment (EA) DOI-BLM-NV-B020-2020-0017-EA dated July 2020. The EA analyzes the Exploration Plan of Operations. After consideration of the environmental effects as described in the EA (and incorporated herein), I have determined that the Proposed Action will not significantly affect the quality of the human environment, individually or cumulatively with other actions in the general area. No environmental effects meet the definition of significance in context or intensity as described in 40 Code of Federal Regulations (CFR) 1508.27; therefore, preparation of an Environmental Impact Statement (EIS) is not required per Section 102(2) (c) of the National Environmental Policy Act (NEPA).

DOI-BLM-NV-B020-2020-0017-EA has been reviewed through the interdisciplinary team process and has been posted for public comment for 45 days.

It has been determined that the Project is in conformance with the approved Tonopah Resource Management Plan, and its amendments, and is consistent with the plans and policies of neighboring local, county, state, tribal, and federal agencies and governments. This finding and conclusion is based on my consideration of the Council on Environmental Quality's (CEQ) criteria for significance (40 CFR 1508.27), both with regard to the context and the intensity of impacts described in the EA.

Context

In September 2019, AngloGold Ashanti North America (AGA) submitted an Exploration Plan of Operations (EPO) for the proposed Silicon Exploration Project (Proposed Action) in southcentral Nevada. This EPO would include the exploration activities on the claim blocks held by AGA and Renaissance Gold Inc. The EPO, baseline reports, and Supplemental Environmental Reports (SERs) used in the preparation of this EA are on file and available for public review at the Bureau of Land Management (BLM) in Tonopah, Nevada, during regular business hours (Monday through Friday, excluding holidays from 7:30 AM to 4:30 PM PST) by appointment.

The BLM has evaluated the EPO titled *Silicon Exploration Project Plan of Operations NVN-097820/Nevada Reclamation Permit Application,* and has prepared an EA, DOI-BLM-NV-B020-2020-0017-EA, that analyzes the affected environment, environmental impacts, and identifies environmental protection measures associated with the Project. The final EPO was submitted April 21, 2020, in accordance with the BLM Surface Management Regulations 43 Code of Federal Regulations (CFR) 3809, as amended. It has been assigned BLM case file number NVN-097820.

The EPO is located approximately seven miles northeast of Beatty in Nye County, Nevada. The legal description of the EPO Area is provided in the table below. The EPO Area encompasses approximately 3,630 acres of public lands administered by the BLM Battle Mountain District Office. The proposed Silicon EPO Area is underlain by 305 lode claims that are owned or controlled by AGA or Renaissance Gold Inc. (EPO, Appendix C, Claim Information).

Project Legal Description*

Townships	Ranges	Sections
11 South	47 East	13, 23 through 27
11 South	48 East	8 through 10, 14 through 22, 27 through 33
12 South	47 East	12 through 17, 23, and 24
12 South	48 East	4 through 7

*Mt. Diablo Base and Meridian, Nevada

AGA is currently acknowledged to conduct 4.75 acres of surface disturbance, including access road and drill site construction, within the Project Area under an Exploration Notice, BLM case file number NVN-095843. AGA proposes to conduct phased mineral exploration-related activities within a 3,630-acre Project Area, that would create up to approximately 150 acres of new surface disturbance for a total Project-related disturbance of approximately 155 acres. Exploration activities would be conducted in phases, with approximately 55 acres of new surface disturbance occurring under Phase I, including up to five acres of Notice-level disturbance. An additional 100 acres of surface disturbing activities would occur under subsequent phases. Under the existing Notice NVN-095843, AGA could conduct up to five acres of disturbance. The proposed surface disturbing activities are anticipated to occur over a period of approximately ten years.

Pursuant to NEPA and the Council on Environmental Quality regulations on implementing NEPA, the EA identifies, describes, and evaluates environmental protection measures (EPMs) that would mitigate the possible impacts of the preferred alternative. The short- and long-term impacts as disclosed in the EA are not considered to be significant to the human environment. The short-term impacts from implementation of the Project are local; they are not regional or national in nature. The long-term impacts resulting from the Project would be mitigated by concurrent reclamation during the life of the Project and meeting all reclamation requirements prior to ending the Project.

Intensity

1. ***Impacts that may be both beneficial and adverse.***

   Potential impacts to the environment as identified in Section 3 of the EA include the following:

   Lands and Realty

   The Proposed Action would not result in effects or changes to land ownership and would not result in conflicts, substantial modifications, or termination of the rights-of-way (ROWs) or land use authorizations within the EPO Area. Effects of the Proposed Action on lands and realty would be minor, short-term, and localized.

   Lands with Wilderness Characteristics

   The Project would result in up to 155 acres of surface disturbance, which could occur anywhere in the Project Area, and potentially within the Yucca Mountain LWC unit. Phase I activities would not occur within the LWC unit, but locations of disturbance under subsequent phases are unknown. These activities, in combination with the February 2020 wilderness characteristics inventory update findings of identifying three Wilderness Inventory Roads within the LWC unit, could eliminate the unit's qualifying wilderness characteristics including naturalness and solitude, by bisecting the LWC unit and consequently reducing the LWC unit to less than 5,000 acres. The three identified Wilderness Inventory Roads experience a variety of uses, and during

the February 11, 2020, field work, one drill rig, two water trucks, and several pick-up trucks associated with the drilling activities were seen driving on one of the three Wilderness Inventory Roads.

The wilderness characteristics of the lands within the unit, particularly "solitude," would be impacted by vehicles associated with Project activities using the three Wilderness Inventory Roads, as mineral exploration activities would likely be seen, heard, and felt by visitors within the LWC unit, as well as other activity (e.g., recreation) on the three roads.

Migratory Birds

Direct or indirect adverse effects to migratory birds from the Proposed Action are not anticipated. Direct effects resulting from the destruction of active nests or disturbance to breeding behavior are considered negligible, short-term, and localized. Indirect effects resulting from the temporary loss of potential foraging and breeding habitat are considered minor, short-term, and localized. The EPM in Section 2.2.6.5 of the EA and reclamation of 155 acres of surface disturbance would minimize any potential adverse effects to migratory birds.

Noxious Weeds, Invasive and Non-native Species

Adverse effects to vegetation resources from noxious weeds, invasive and non-native species could include the spread and establishment of these species during surface disturbing activities, including travel and maintenance of the Project Access Roads. Potential adverse effects from the spread and establishment of noxious weeds, invasive and non-native species would be minimized by the EPM in Section 2.2.6.7 of the EA and concurrent reclamation; potential adverse effects are considered minor, short-term, and localized.

Recreation

Project Area roads would remain open during Project activities, and there would be no fencing to preclude use, except for fences around sumps to protect wildlife. There is other similar land available to dispersed recreational visitors in the vicinity of the Project Area. The organized OHV races contain stipulations for road repairs, and some have stipulations for notifications being sent to area stakeholders prior to the event. Any adverse effects to recreation would be minor, short-term, and localized.

Soils

Soils in the Project Area have a primarily low erosion hazard from water and a moderate erosion hazard from wind. Potential impacts to soils would be reduced by the EPMs outlined in Section 2.2.6.12 requiring the use of BMPs to minimize stormwater erosion. As a result of reclamation of all drill sites, sumps, overland travel, and road construction, the post-exploration topography is expected to be like pre-Project conditions, which would reestablish the site characteristics of slope and aspect of soil associations within the Project Area. As a result of the implementation of the EPMs in Section 2.2.6.12 of the EA and concurrent reclamation efforts, soil loss due to the surface disturbing activities associated with implementation of the Proposed Action would be minor, long-term, and localized.

Special Status Species

Exploration activities, including the construction of roads and overland travel, could disturb special status wildlife species due to the presence of humans and by creating noise and dust. However, foraging activities within the Project Area could continue since the proposed surface disturbance activities only cover approximately four percent of the entire Project Area (155 acres out of a total of 3,630 acres). Indirect, localized, long-term adverse effects to foraging activities would occur due to the temporary loss of vegetation as a result of Project-related surface disturbance.

Two populations of black woollypod were identified during the NNHP data request. The first identified reference area had one *Astragalus* species, but that species lacked the dense, silvery hairs borne on the stems and leaflets that is characteristic of black woollypod and its look-alikes.

One individual in transition to the second identified reference area had dense silvery hairs, but the flowers and fruits that indicate the defining characteristics of black woollypod were not present, so no positive identification was possible. The second identified reference area had approximately ten individuals of the target milkvetch species. These individuals were in varying life stages, but several had flowers and fruits. These were positively identified as black woollypod.

The terrain around the positively identified black woollypod reference population was that of loose talus hillsides of approximately 25 percent slope. The soil underneath the loose talus had a sandy clayey consistency, which appeared to be the limiting factor for the presence of black woollypod.

Four locations were chosen via desktop analysis to review habitat characteristics in relation to black woollypod: two that had characteristics consistent with those of the reference site (e.g., areas of greater than 25 percent slope and with Zibate-Zyplar-Dedas soil association) and two contrasting sites that did not have these characteristics.

Neither of the recon points (Recon Points 1 and 3) for potential positive habitat to support black woollypod had the characteristics observed within the reference population. Both recon points had slopes greater than or equal to 25 percent but had minimal talus present and the soils lacked the clay content necessary to support this species. Recon Point 1 also appeared to have been recently burned from a wildfire and as such had a much higher cover of annual grasses and exposed soils.

The recon points (Recon Points 2 and 5) selected for potential negative habitat lacked all the characteristics necessary to support black woollypod. The slopes were less than 25 percent, talus was not well developed, bare ground was present, and the soils lacked the necessary clay content.

Brewer's sparrow (*Spizella breweri*), loggerhead shrike (*Lanius ludovicianus*), LeConte's thrasher (*Taxostoma lecontei*), and golden eagle were observed during the migratory surveys. Potential adverse effects to breeding from the Project could include possible direct loss of nests (e.g., crushing) or indirect effects (e.g., abandonment) from increased noise and human presence within close proximity to an active nest site. Implementation of the EPM outlined in

Section 2.2.6.5 of the EA for migratory birds would ensure that prior to surface disturbance, a nesting survey for migratory birds (including BLM sensitive avian species) would be conducted and nests avoided if exploration activities occur during the avian breeding season. Vegetation removal would result in a reduction of breeding habitat for BLM sensitive avian species in the Project Area. This acreage would not all be disturbed at one time due to incremental disturbance and concurrent reclamation of the surface exploration disturbance. Potential adverse effects to migratory birds would be minor, long-term, and localized.

There was one golden eagle nest and five possible golden eagle nests within one mile of the Project Area. None of the nests were occupied during 2019 field surveys; however, one nest was active during 2020 field surveys. To avoid impacts to those nests, AGA would implement the EPM in Section 2.2.6.10 that states Project activities would not be conducted between January 1 and August 31 within one mile of a nest. However, if that is not practicable, a survey would be conducted after March 21 at eagle nest sites that are within one mile of the Project Area to determine occupancy. The timing of the surveys may be adjusted due to winter weather conditions and is subject to approval from the NDOW based on consideration of bighorn sheep (*Ovis canadensis*) lambing activity. If a nest has a bird in an incubating/brooding posture, it would be assumed that the nest is active that year, and a one-mile disturbance buffer would be applied until August 31, or until it has been determined that 1) the nest has failed; or 2) the young have fledged and are no longer dependent on the nest. The buffer sizes may be reduced with approval from the US Fish and Wildlife Service (USFWS). If the nest is not active at the time of the surveys, the one-mile buffer would not apply and Project activities could commence.

Survey data collected for this Project indicate high and moderate levels of bat use (defined as roost sites with high acoustic activity and/or moderate to high maternity use) at sites NY-0328, NY-0334, NY-0335, NY-1496, NY-1499, NY-2002, NY-2843, and NY-2844. To minimize potential adverse effects to bats, AGA would implement and follow the EPM outlined in Section 2.2.6.10 of the EA and avoid conducting drilling activities within a 200-yard buffer of the adit opening throughout the life of the Project. Potential adverse effects to bats are considered minor, long-term, and localized.

BLM sensitive big game species, such as bighorn sheep, may avoid the Project Area due to noise and other anthropogenic disturbances generated by the Project. These potential adverse effects would temporarily reduce the available habitat area for BLM sensitive big game species. Potential adverse effects to these BLM sensitive big game species would be considered minor, short-term, and localized. Additionally, sumps associated with drill sites would be built with an incline on one end to allow for egress/ingress for humans and fenced when necessary to preclude access. Implementation of the EPM outlined in Section 2.2.6.13 of the EA would help minimize impacts to BLM sensitive big game species.

Surface and Groundwater Resources

Potential adverse effects to surface water quality would result from spills and sedimentation or erosion from surface disturbing activities. The potential adverse effects to surface water quality from spilled petroleum products would be minimized by the implementation of the Spill Response and Contingency Plan included as Appendix D of the EPO. The potential adverse effects to surface water quality from sedimentation would be minimized by the implementation

of the EPMs outlined in Section 2.2.6.12 of the EA. Therefore, potential adverse effects to surface water resources would be considered negligible, long-term, and localized.

Potential adverse effects to groundwater resources are not anticipated. The proposed Project includes 109 drill pads and drill holes during Phase I activities. The planned breakdown of drilling is approximately 70 RC drill holes (ranging between 60 to 79) and 39 core holes (ranging between 30 and 49). Phase I activities would be implemented over approximately two years. The yearly implementation (approximately 35 RC holes and approximately 19 core holes) is similar to the Notice-level program and can be expected to have the similar net neutral to positive effect on the water resources. Subsequent phases of drilling are not yet planned, but are expected to have similar yearly implementations as the Phase I activities.

AGA has no plans to apply for water rights with NDWR in the Project Area. AGA's intent is to continue to source drill injection waters with annual temporary water right permits with NDWR, in conjunction with BWSD.

The water resources (springs and water rights) along the Amargosa River valley are greater than 3.5 miles away from the recent Notice-level and proposed Project drilling. Due to the net positive water balance observed in the area of the Notice-level drilling and the remote distance of the nearest receptors, impacts to groundwater resources are considered minor, long-term, and localized.

Vegetation

Approximately 155 acres would be disturbed over the ten-year Project life as a result of implementation of the Proposed Action. Approximately 150 acres of proposed disturbance is associated with phased surface exploration activities that could occur in any of the ecological sites in the Project Area. However, since the blackbrush dominated community occurs in almost the entire Project Area, it is anticipated that all proposed disturbance would occur in this community. The surface disturbance associated with exploration activities within the Project Area would be reclaimed and reseeded concurrently whenever feasible. Any surface disturbance related to the Proposed Action would not result in the loss of any unique vegetation community but would still result in a temporary loss of vegetation. Reclamation associated with the Proposed Action would begin upon completion of Project activities using a BLM-approved seed mixture. Monitoring activities are included in the Proposed Action, which would ensure that the revegetation meets reclamation standards. Potential adverse effects to vegetation as a result of surface disturbing activities associated with implementation of the Proposed Action would be minor, long-term, and localized.

Wildlife

Adverse direct effects to wildlife would consist of disturbance from human activity, noise, and potential mortality from vehicle collisions, and indirect impacts would consist of temporary habitat loss and potential infestation of noxious weeds that would reduce the quality of the habitat. Approximately 155 acres of proposed disturbance associated with surface exploration activities could occur anywhere within the Project Area and would be created incrementally over the potential ten-year Project life.

During exploration, sumps associated with drill sites would be constructed with a sloped end for egress and when necessary, fenced, backfilled, or covered within 30 days of construction completion to preclude access. After exploration activities have been terminated, reclamation would involve regrading disturbed areas related to this Project to their approximate original contour, and reseeding with a BLM-approved weed free seed mix. Reclamation would be completed no later than two years after the completion of activities under the Proposed Action, with monitoring for revegetation success continuing until revegetated areas are released. Invasive, non-native species reduce the quality of habitat for wildlife. Project-related activities increase the potential for the spread of these species further reducing the quality of wildlife habitat in the Project Area. AGA would implement EPMs for noxious weeds, outlined in Section 2.2.6.7 of the EA, which would mitigate or reduce the potential adverse effects of noxious weeds and invasive species to wildlife habitat. Potential adverse effects associated with the loss of wildlife habitat are considered minor, long-term, and localized.
Due to surface disturbing activities, there would be a potential of direct mortality to small mammals (e.g., being crushed by vehicles or equipment). Surface disturbing activities would also impact small mammal habitat by removing vegetation and rocks and potentially disturbing burrows. Disturbed habitat would be reseeded with a reclamation seed mix that would include forage species for small mammals. Although mortality of small mammals could occur, potential adverse effects would be considered minor, short-term, and localized.

Large mammals, such as mule deer, may avoid the Project Area due to noise generated by the Project. These potential adverse effects would temporarily reduce the available habitat area for large mammals. Potential adverse effects to these large mammals would be considered minor, short-term, and localized. Additionally, as outlined in the EPM in Section 2.2.6.13 of the EA, sumps associated with drill sites would be constructed with a sloped end for egress and when necessary, fenced, backfilled, or covered within 30 days of construction completion to preclude access.

Reptiles would be impacted by surface disturbing activities, which would remove vegetation and disturb soil. Surface disturbance would remove potential areas for the sagebrush lizard and western whiptail to lay their eggs or could destroy eggs laid within disturbance areas. Loss of vegetative cover and burrows could result in greater mortality due to predators. Temporary disturbance would reduce the foraging area but would be restored through reclamation. Potential adverse effects to reptiles would be minor, short-term, and localized.

2. ***The degree to which the proposed action affects public health and safety.***

The effects of the Project on both public health and safety would not have significant adverse impacts as AGA would be required to follow the Mine Safety and Health Administration regulations along with maintaining all equipment and facilities in a safe and orderly manner.

Through adherence to EPMs, and Best Management Practices (BMPs), the Project would not result in potentially substantial or adverse impacts to public health and safety. Public safety would be maintained throughout the life of the Project. A complete list of EPMs can be found in Section 2.2.6 of the EA.

3. ***Unique characteristics of the geographic area such as proximity of historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.***

AGA would conduct exploration activities in accordance with applicable state and federal regulations. As part of the baseline data collection to support the NEPA analysis for this proposed Project, a Class III cultural resources inventory was conducted in the entire Project Area, to identify cultural sites and sites that are eligible for the National Register of Historic Places (NRHP).

AGA would notify the BLM-authorized officer, by telephone, and with written confirmation, immediately by telephone and in writing within 72 hours upon the discovery of human remains, funerary objects, sacred objects, or objects of cultural patrimony. AGA would immediately stop all activities within 100 meters of the discovery and not commence again until a notice to proceed is issued by the BLM-authorized officer.

Any undiscovered cultural resources identified by AGA, or any person working on their behalf, during the course of activities on federal land would immediately be reported to the authorized officer by telephone and in writing within 72 hours. The permit holder would suspend all operations within 100 meters of such discovery and protect it until an evaluation of the discovery can be made by the authorized officer.

There are no park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas in the Project Area or vicinity.

4. ***The degree to which the effects on the quality of the human environment are likely to be highly controversial.***

The Project is not expected to have effects on the quality of the human environment such that they are highly controversial. The parameters of the Project activities, along with associated reclamation are well established. The Project Area is isolated from human habitations. Except for mineral exploration, wildlife habitat, and recreation uses, the Project Area is typically uninhabited.

Reclamation measures would return the Project Area to its pre-Project uses of wildlife habitat and dispersed recreation.

5. ***The degree to which the possible effects on the human environments are highly uncertain or involve unique or unknown risks.***

There are no known effects of the Project identified in the EA that would be considered highly uncertain or involve unique or unknown risks. Project activities similar to what has been included in the Project have been conducted numerous times over many years on BLM-administered land and the effects are well understood. This is demonstrated through the effects analysis in Section 3 of the EA.

6. ***The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.***

The Project will not establish a precedent for future actions with significant effects or represent a decision about a future consideration. Completion of the EA does not establish a precedent for other assessments or authorization of other development Projects including additional actions in the Project Area. Any future Projects within the area or in surrounding areas will be analyzed on their own merits, independent of the actions currently selected.

7. ***Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.***

Direct and indirect impacts of the Proposed Action were analyzed in Section 3 (Environmental Consequences) of the EA. None of the environmental impacts disclosed under item 1 above and discussed in detail in Section 3 of the EA are considered significant. Past, present, and reasonably foreseeable future actions as identified in Section 4 of the EA have been considered in the cumulative impacts analysis within Section 4 of the EA. The cumulative impacts analysis examined all the affected resources and all other appropriate actions within the Cumulative Effects Study Areas and determined that the Project would not incrementally contribute to any significant impacts. In addition, for any actions that might be proposed in the future, further site-specific environmental analysis, including assessment of cumulative impacts, would be required.

8. ***The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historic resources.***

Adverse effects to cultural resources would not occur, as AGA has committed to avoiding all sites eligible for listing on the NRHP by a buffer of 30 meters, as outlined in the EPM in Section 2.2.6.2 of the EA. Adherence to the EPM would result in a "no historic properties effected" determination.

9. ***The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.***

The USFWS, the Nevada Natural Heritage Program (NNHP), and Nevada Department of Wildlife were contacted to obtain a list of threatened, endangered, and sensitive species that have the potential to occur within the Project Area. In addition, the most recent BLM Sensitive Status Species List, which includes threatened and endangered species, was evaluated to determine if any species had the potential to occur within the Project Area and vicinity.

The USFWS indicated the following two endangered and one threatened species that may be affected by Project activities: southwestern willow flycatcher (*Empidonax traillii extimus*), Endangered; Yuma clapper rail (*Rallus longirostris yumaensis*), Endangered; and desert tortoise (*Gopherus agassizi*), Threatened. There were no critical habitats identified in the Project Area. The NNHP reported that the Funeral Mountain milkvetch (or BLM-preferred naming of black woollypod) (*Astragalus funereus*), a global and state ranked Imperiled and BLM sensitive species, has been recorded in the Project Area.

The southwestern willow flycatcher and Yuma clapper rail were not observed during the 2019 field surveys; the Project Area does not contain suitable habitat for either species as they are riparian obligate species.

Focused desert tortoise protocol-level 100 percent coverage presence/absence surveys were conducted in the Project Area March 1, 2019, to June 5, 2019. Vegetation in the Project Area consisted of mixed desert shrub communities mostly dominated by blackbrush (*Coleogyne ramosissima*). Other common shrubs included spiny menodora (*Menodora spinescens*), Mexican bladdersage (*Salazaria mexicana*), winterfat (*Krascheninnikovia lanata*), jointfir (*Ephedra* sp.), desert-thorn (*Lycium* sp.), Mojave indigobush (*Psorothamnus arborescens*), and Mojave woodyaster (*Xylorhiza tortifolia*). Scattered Joshua trees (*Yucca brevifolia*), creosote bush (*Larrea tridentata*), burrobush (*Ambrosia dumosa*), and sagebrush (*Artemisia* sp.) were also present. Abundant native annuals included phacelia (*Phacelia* sp.), fiddleneck (*Amsinckia* sp.), pincushion (*Chaenactis* sp.), desertdandelion (*Malacothrix* sp.), lupine (*Lupinus* sp.), and milkvetch (*Astragalus* sp.). The invasive grass red brome (*Bromus rubens*) was observed throughout the Project Area. During surveys, there were several areas that biologists determined were not suitable to survey because of the steep terrain and loose rock that made the areas treacherous. After adjusting for the removed areas, biologists surveyed a total length of 533.7 miles of transects and encountered 194 burrows, none of which were definitively identified as constructed by desert tortoise (Class 1, 2, or 3). No live tortoises or tortoise signs were observed during surveys of the Project Area. However, two adult tortoises were encountered incidentally outside of official surveys. One adult female tortoise was encountered approximately two miles south of the Project Area while the survey crew was leaving the Project. The second tortoise was an adult of unknown sex observed by one of the AGA geologists on the western edge of the Project Area. AGA geologists/drilling teams also encountered two carcasses and a live tortoise while undertaking surface mapping and sampling activities within their claims in 2018, which AGA reported to the BLM via email on May 23, 2018.

USFWS formal consultation in compliance with Section 7 of the Endangered Species Act of 1973, as amended (ESA) was completed on November 25, 2019 (08ENVS00-2020-F-0017 and 1-5-01-F-570). The USFWS concluded that the Project is not likely to jeopardize the continued existence of the threatened Mojave desert tortoise (*Gopherus agassizi*). The Proposed Action was appended to the Tonopah Programmatic Biological Opinion.

10. Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environments.

The Project will not violate or threaten to violate any federal, state, or local law or requirement imposed for the protection of the environment.

Perry B. Wickham
Field Manager
Tonopah Field Office

July 24, 2020
Date

Attachment 6

U.S. Fish and Wildlife Service

Environmental Assessment

for the Issuance of an Eagle Take Permit for the Silicon Exploration Project

Nevada

Prepared by:
U.S. Fish and Wildlife Service, California-Great Basin Region
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March 2022

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APPENDICES

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ACRONYMS AND ABBREVIATIONS

ACEPM	Applicant-Committed Environmental Protection Measure
AGA	AngloGold Ashanti North America
Applicant	AngloGold Ashanti North America
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
Eagle Act	Bald and Golden Eagle Protection Act
EA	Environmental Assessment
EIS	Environmental Impact Statement
EMU	Eagle Management Unit
ESA	Endangered Species Act of 1973
LAP	Local Area Populations
mph	miles per hour
NDOW	Nevada Department of Wildlife
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
PEIS	Programmatic Environmental Impact Statement
Plan	Plan of Operations
Project	Silicon Exploration Project
Project area	Silicon Exploration Project Plan of Operations Boundary and a Surrounding Four-mile Radius
REA	Resource Equivalency Analysis
Service	United States Fish and Wildlife Service
SWReGAP	Southwest Regional Gap Analysis Project
U.S.C.	United States Code

1.0 Introduction

This Environmental Assessment (EA) analyzes the environmental consequences of the United States (U.S.) Fish and Wildlife Service (Service) issuing an incidental take permit for the take of golden eagles (*Aquila chrysaetos*) associated with the Silicon Exploration Project (Project) pursuant to the National Environmental Policy Act (NEPA) (42 United States Code [U.S.C.] §§ 4321–4347). Issuance of an eagle take permit by the Service for take that is incidental to otherwise lawful activities under the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. §§ 668–668d and 50 Code of Federal Regulations [CFR] § 22.26) constitutes a discretionary federal action that is subject to NEPA. This EA assists the Service in ensuring compliance with NEPA, and in making a determination as to whether any "significant" impacts could result from the analyzed actions that would require preparation of an Environmental Impact Statement (EIS). This EA evaluates the effects of alternatives for the Service's decision whether to issue an eagle take permit.

The Eagle Act authorizes the Service to issue eagle take permits only when the take is compatible with the preservation of each eagle species, defined as "consistent with the goals of maintaining stable or increasing breeding populations in all eagle management units and the persistence of local populations throughout the geographic range of each species" (50 CFR 22.3).

The Applicant, AngloGold Ashanti North America (AGA, Applicant), is requesting Eagle Act take coverage for resource exploration associated with the Project and has submitted an incidental eagle take permit application to the Service. The Project's Eagle Conservation Plan (ECP) (**Appendix A**) is the foundation of the application from the Applicant.

The Applicant is requesting a permit for reoccurring disturbance to and loss of annual productivity from breeding golden eagles for up to 10 times over no more than 10 years. This EA evaluates whether issuance of the incidental eagle take permit would have significant impacts on the existing human environment. "Significance" under NEPA is defined by regulation at 40 CFR 1508.27, and requires short- and long-term consideration of both the context of a proposal and its intensity.

This proposal conforms with, and carries out, the management approach analyzed in, and adopted subsequent to, the Service's Programmatic Environmental Impact Statement (PEIS) for the Eagle Rule Revision, December 2016 (USFWS 2016a). Project-specific information not considered in the PEIS has been considered in this EA as described below. Based on this Project-specific analysis and application of the criteria provided in the PEIS, the Service has determined that an EA is the appropriate level of review.

1.1 Purpose and Need

The Service's purpose in considering the proposed action is to fulfill their authority under the Eagle Act (16 U.S.C. §§ 668–668e) and its regulations (50 CFR § 22). Applicants whose otherwise lawful activities may result in take of eagles can apply for eagle incidental take permits so that their projects may proceed without potential violations of the Eagle Act. The Service may issue eagle take permits for eagle take that is associated with, but not the purpose of, an activity. Such permits can be issued by the Service when the take that is authorized is compatible with the Eagle Act preservation standard; it is necessary to protect an interest in a particular locality; it is associated with, but not the purpose of, the activity; and it cannot be practicably avoided (50 CFR § 22 and 81 Federal Register 91494).

The need for this action is a decision on an eagle incidental take permit application from AGA. The decision must comply with all applicable regulatory requirements and be compatible with the preservation of eagles.

1.2 Authorities

Service authorities are codified under multiple statutes that address management and conservation of natural resources from many perspectives, including, but not limited to the effects of land, water, and energy development on fish, wildlife, plants, and their habitats. This analysis is based on the Eagle Act (16 U.S.C. 668–668e) and its regulations (50 CFR 22). The PEIS (USFWS 2016a) has a full list of authorities that apply to this action (USFWS 2016a: Section 1.6, pages 7-12), which are incorporated by reference here.

1.3 Background

AGA's Plan of Operations (Plan) has been approved by the BLM Battle Mountain District Office, Tonopah Field Office (BLM 2020). Under the Plan, AGA is approved to conduct exploration drilling within the Project Plan boundary (**Figure 1-1**). The Project is located approximately seven miles northeast of Beatty, Nevada in Nye County and can be accessed in two directions from Beatty, Nevada: 1) traveling south 1.3 miles on U.S. Highway 95 (US 95) and approximately 8.9 miles up Fluorspar Canyon Road (Nye County Road 249) and Tate's Wash Road (Nye County Road 926019); and 2) traveling 3.6 miles north on US 95 and approximately 4.1 miles east on the North Beatty Wash Road (Nye County Road 926026) that connects to the Beatty Wash Road (Nye County Road 926025) at the Project.

The Project includes conducting an exploration drilling program within the approximately 3,630-acre Plan boundary to determine the extent and quality of a mineral resource within the approximately. Surface-disturbing activities are approved for up to 155 acres, and consist of an existing road network for Project access, reverse circulation and core drilling from constructed drill sites, road construction and overland travel, bulk sampling, geotechnical auger holes and geological test pits, geologic and geophysical mapping, water monitoring well and water

extraction well installation, and construction of a meteorological station. The disturbance occurs in phases, and Phase I consists of approximately 50 acres of surface disturbance in addition to five acres of Notice-level surface disturbance for a total of approximately 55 acres. The remaining 100 acres of disturbance will occur under subsequent phases (155 acres total) over approximately 10 years. Exploration activities may occur year-round and 24 hours per day, with up to four drill rigs operating at one time and up to 20 personnel present.

Within the vicinity of the BLM-approved drilling, six nest sites (SI-301, SI-302, SI-303, SI-304, SI-305, and SI-502), thought to represent one breeding pair's territory, are located on natural features. The location of the ore body occurs in the immediate proximity of the nest sites.

The Project area (Silicon Exploration Project Plan of Operations boundary and a surrounding four-mile radius) includes various rock outcrops that serve as potential eagle nesting areas. Vegetation communities are dominated by Mojave Mid-Elevation Mixed Desert Scrub, Sonora-Mojave Creosotebush-White Bursage Desert Scrub, and Inter-Mountain Basins Semi-Desert Shrub Steppe, which provide habitat of varying ranges for golden eagle prey base. Limited water sources are present in the Plan boundary, and the majority of seeps and springs in the Project area are present along the Amargosa River, which is approximately three miles west of the nest sites. In addition, paved and non-paved roads are located in the Project area, including US 95, that provide carrion for eagles and represent potential scavenging habitat.

1.4 Scoping, Consultation, and Coordination

This EA incorporates by reference the scoping performed for the PEIS (USFWS 2016a: Chapter 6, page 175). A draft of this EA, the Applicant's ECP, and a draft Finding of No Significant Impact was made public on the Service's Pacific Southwest Region webpage (https://www.fws.gov/cno/conservation/MigratoryBirds/EaglePermits.html) for 30 days to solicit public comments beginning December 20, 2022. The Service received one public comment letter on the draft EA and revisions were incorporated into the EA as a result of substantive comments, as appropriate. Public comments and responses are included in **Appendix B.**

1.5 Tribal Coordination

Tribal participation is an integral part of the NEPA and the National Historic Preservation Act (NHPA) process, as well as a key component of determining whether to issue an eagle take permit. Cultural and religious concerns regarding eagles were analyzed in the PEIS (USFWS 2016a), and tribal consultation was conducted for the PEIS (USFWS 2016a). The PEIS (USFWS 2016a) identified tribal coordination as an important issue for subsequent analysis, given the cultural importance of eagles to the tribes. In accordance with Executive Order 13175, Consultation and Coordination with tribal governments (65 Federal Register 67249, November 9, 2000), the NHPA Section 106 (36 CFR 800) and the Service's Native American Policy, the Service consults with Native American tribal governments whenever actions taken under the

authority of the Eagle Act may affect tribal lands, resources, or the ability to self-govern. This coordination process is also intended to ensure compliance with the American Indian Religious Freedom Act.

The Service sent letters to eight federally recognized tribal governments located within 109 miles (the natal dispersal distance of golden eagles, thought to adequately define the species local area population [LAP]) of the Project informing them of the received permit application and preparation of this EA, and offering the opportunity for formal consultation regarding potential issuance of the permit. In addition, comments from Tribes are also encouraged and welcomed during the 30-day comment period on the EA.

2.0 Proposed Action and Alternatives

In this analysis, and in our consideration of take authorization to the Applicant, each incident of "take" results in loss of productivity for a single season for a single eagle breeding pair. Take that may result in injury or mortality of eagles is not expected nor would it be authorized under this permit. While the available data indicates one breeding territory is most likely to be impacted by activities, as these pairs have nests located in the vicinity of the Project Area, eagle populations are dynamic with shifting territory boundaries and eagle pairs may establish new nest locations. New territories and new nesting locations may be identified in the Project Area or its vicinity over the life of the permit. To allow for operational flexibility, the Applicant may utilize the 10 take authorizations for no more than ten years and as needed should nesting locations differ within the Project Area. Effects of up to ten incidents of take over ten years is expected to be the same, regardless of exact location.

2.1 Alternative 1: Proposed Action

The Service proposes to issue an incidental eagle take permit, with associated conditions, to the Applicant for disturbance to and loss of annual productivity of breeding golden eagles, as allowed by regulation (Proposed Action). The permit would be issued for up to 10 incidents of take over no more than 10 years.

Under this alternative, all monitoring and adaptive management measures, minimization measures, and detection and reporting measures outlined in Section 2.11-2.13 would be permit requirements. Monitoring associated with the permit would be conducted as outlined in Table 2-1 and by a third party monitor as required by our regulations.

2.1.1 Compensatory Mitigation

Compensatory mitigation would be conducted within the Pacific Flyaway Eagle Management Unit (EMU). The Applicant would provide the compensatory mitigation at the required 1.2:1 ratio by retrofitting electric utility poles, as discussed in the 2016 PEIS. The intent would be to minimize the potential for eagle electrocutions and ensure that the effects of eagle incidental take

are offset at the population level. The amount of compensatory mitigation required for the lost productivity has been determined through the Service's Golden Eagle Resource Equivalency Analysis (REA) (USFWS, 2013). The permit would require 90 to 207 electric utility poles to be retrofitted to offset the impacts to golden eagle breeding territories. The exact number of retrofits depends on the longevity of each pole's retrofit. Simple retrofits are accomplished by placing plastic covers on electric components. As plastic covers are a temporary solution, once retrofitted, the power pole is considered "eagle safe" for 10 years. If a pole is reframed or reconstructed, the pole is made permanently safe for eagles because adequate spacing is provided between electrical components. The Service gives a 30-year credit for this type of retrofit (USFWS, 2013).

AGA would provide compensatory mitigation for five incidents of take no later than 30 days after permit issuance. At the five-year review, the Service and AGA would consult and evaluate the amount of mitigation owed or credited for the remainder of the permit authorization period.

2.1.2 Adaptive Management

Continued monitoring will inform the Applicant on the status of existing nests as well as if new nests are being constructed near the Project and its associated activities. If monitoring determines that multiple take events may occur in a given year, and that the Proponent is approaching their take permit limits (i.e., up to 10 takes over no more than 10 years), adaptive management would be implemented. First, the Applicant would apply avoidance buffers on in-use/occupied nests to prevent incidental take (no surface-disturbing activities within one mile of an in-use/occupied nest during breeding season including early courtship through post fledging nest dependency (i.e., December 15 through July 15). If avoidance is not practicable, the Proponent may request a permit amendment from the Service. During annual monitoring, should a bald eagle nest be discovered in the project area, the Applicant would implement protective buffers and coordinate with the Service.. Additionally, at the five-year review of the permit, the Service may consider additional adaptive management strategies, if necessary, in coordination with the Applicant.

2.1.3 Eagle Nest Monitoring

The Applicant will monitor eagle nest sites annually using independent, third party monitors that report directly to the Service. The project area eagle nest monitoring will inform the applicant and agencies when golden eagle nests are in-use in the project area in order to validate the number of take incidents that occur, and ensure compliance with the permit authorization.

2.1.4 Five Year Review

Long term eagle incidental take permits require we conduct five year reviews. During the five year review process, we would evaluate if take occurred for each known breeding territory in each year. For example, should disturbance occur within one mile of a golden eagle nest during the courtship phase, or egg laying period of the breeding season (January 15 – April 1), the

Service would assume project activities prevented eagles from breeding and a take incident occurred. If the applicant's data validates no disturbance occurred within one mile of a breeding pair's nest site until after April 1 in a given year, and monitoring confirms nests are not in-use, the Applicant could proceed with their Project activities and the Service would determine no take occurred. We would take into consideration any alternate nests used within a given territory when evaluating the Project data and making these determinations.

After assessing how many take incidents occurred during the first five years, we would then evaluate how much compensatory mitigation might be either credited or owed for the remainder of the 10 year permit duration.

2.2 Alternative 2: No Action Alternative

Under the No Action Alternative, the Service would take no further action on AGA's permit application. However, the Service must take action on the permit application and determine whether to deny or issue the permit. Accordingly, this alternative is considered because Service policy requires evaluation of a No Action Alternative and it provides a clear comparison of any potential impacts to the human environment from the Proposed Action. The No Action Alternative in this context analyzes predictable outcomes of the Service not issuing a permit. Should a Permit not be issued, compensatory mitigation would not be required. Thus, for purposes of analyzing the No Action Alternative, the conservation measures proposed in the Permit application package would not be required. The Applicant may choose to voluntarily implement some, none, or all of those conservation measures. Under this alternative, it is assumed that the Applicant would take reasonable steps to avoid taking eagles, but AGA would not be protected from enforcement for violating the Eagle Act should take of an eagle occur.

2.3 Common to All Alternatives

This section describes components of the Project that are the same for the Proposed Action and No Action Alternative whether or not a permit is issued. If a permit is issued, these measures would become permit requirements.

2.3.1 Monitoring

The Applicant will implement all measures required by other agencies and jurisdictions to conduct the activity at this site, including applicant-committed Environmental Protection Measures (ACEPMs). The applicant will implement all conservation measures and commitments summarized below. Monitoring will be implemented over the life of the Project. **Table 2-1** presents a summary of the ACEPMs with monitoring and a schedule for implementation per the existing BLM NEPA document (BLM 2020).

Table 2-1 ACEPM Monitoring Schedule

ACEPM	Monitoring Actions	Duration
ACEPM 1	A nest survey would be conducted by a qualified biologist prior to any surface disturbance associated with exploration activities during the avian breeding season (March 1 through July 31) for raptors and other migratory birds. Pre-disturbance surveys for migratory birds are only valid for 14 days. If the disturbance for the specific location does not occur within 14 days of the survey, another survey would be needed. If active nests are located, or if other evidence of nesting (i.e., mated pairs, territorial defense, carrying nest material, transporting food), a protective buffer (the size depending on the habitat requirements of the species) would be delineated after consultation with the BLM resource specialist. Source: BLM 2020	Annually as needed for the life of the Project.
ACEPM 2	Annual surveys would be conducted at golden eagle nest sites that are within one mile of the Project Area to determine nest status. The timing of the surveys may be adjusted due to winter weather conditions and is subject to approval from the Nevada Department of Wildlife (NDOW) based on consideration of bighorn sheep (Ovis canadensis) lambing activity. Source: BLM 2020	Annually as needed for the life of the Project.
ACEPM 3	Vehicle speeds on undeveloped access roads shall not exceed 15 miles per hour (mph) and 25 mph on more improved main access roads. Source: BLM 2020	For the life of the Project.

Source: BLM 2020

2.3.2 Minimization Measures

AGA is implementing the following measures and will continue to implement the measures to minimize impacts to golden eagles from the Project.

Carcass Management: Staff will remove carcasses from all roadways within the Plan boundary when on site and dispose of them appropriately to reduce the risk of vehicle collisions.

Employee Awareness and Training Program: Staff and contractors working on the Project will be provided training on reducing risks to eagle collisions, reporting eagle and nest observations, and any Service requirements provided within the eagle permit.

2.3.3 Detection and Reporting Measures

Eagle injuries, mortalities, and previously undocumented eagle nests may be detected through incidental observations by AGA personnel and contractors. To improve the probability that injuries and mortalities do not go undetected, AGA field staff will be advised to remain alert for eagles within exploration areas and access roads at all times. The detection of any new nest sites will occur through incidental observations and any monitoring that occurs.

In the event that a new nest is detected within proximity to exploration activities, the AGA Environmental Department or designee will record the circumstances and conditions associated with the observation. Among the information recorded and reported to the Service will be the

date and time of the detection, the Global Positioning System location (North American Datum 83), the status of the nest, and if possible, the species.

When AGA personnel or their contractors encounter a golden eagle injury or mortality within the Plan boundary, they must report the incident to the AGA Environmental Representative. Personnel must not handle dead or injured eagles unless specifically directed to do so by the Service. In the event of an eagle injury, AGA's Environmental Representative will notify the Service and NDOW immediately (the same business day) and in the event of mortality, notification will occur by the next business day.

2.4 Other Alternatives Considered but Not Evaluated in this Environmental Assessment

The Service considered other alternatives based on communication with the Applicant but concluded that these alternatives did not meet the purpose and need underlying the action because they were impracticable for the Applicant to carry out or did not adequately address the risk of take at the Project. Therefore, the Service did not assess the potential environmental impacts of those alternatives. Below is a summary of the alternatives considered but eliminated from further review.

2.4.1 Alternative 3: Deny Permit

Under this alternative, the Service would deny the permit application because the Applicant falls under one of the disqualifying factors and circumstances denoted in 50 CFR 13.21, the application fails to meet all regulatory permit issuance criteria and required determinations listed in 50 CFR 22.26, or because the Service determined that the risk to eagles is so low that a take permit is unnecessary.

Our permit issuance regulations at 50 CFR 13.21(b) set forth a variety of circumstances that disqualify an Applicant from obtaining a permit. None of the disqualifying factors or circumstances denoted in 50 CFR 13.21 apply to AGA. Next, the Service considered whether the Applicant meets all issuance criteria for the type of permit being issued. For eagle take permits, those issuance criteria are found in § 22.26(f). AGA's application meets all the regulatory issuance criteria and required determinations (50 CFR 22.26) for eagle take permits.

When an Applicant for an eagle take permit is not disqualified under 50 CFR 13.21 and meets all the issuance criteria of 50 CFR 22.26, denial of the permit is not a reasonable option. Therefore, this alternative, denial of the permit, was eliminated from further consideration.

3.0 Affected Environment

This section describes the current status of the environmental resources and values that are affected by the Proposed Action and alternatives.

3.1 Golden Eagles

General information on the population trends, distribution, and habitat of golden eagles are detailed in the PEIS (USFWS 2016a: Sections 3.3 and 3.4). This section more specifically describes the golden eagle population in the Project area.

3.1.1 Project Area Habitat

Foraging Habitat

Vegetation communities in the Project area have been mapped by the Southwest Regional Gap Analysis Project (SWReGAP) in land cover files (USGS 2011). The SWReGAP mapping shows 24 vegetation communities occurring within the four-mile radius of the Plan boundary (**Table 3-1**). Three are mapped as over five percent of the Project area: Mojave Mid-Elevation Mixed Desert Scrub (46 percent), Sonora-Mojave Creosotebush-White Bursage Desert Scrub (30 percent), and Inter-Mountain Basins Semi-Desert Shrub Steppe (13 percent). Each of the remaining 21 communities account for approximately 11 percent of the Project area. The potential foraging value of the various habitat types present in the region has not been quantified, but in general, they support golden eagle prey base at varying degrees which supports golden eagle foraging. Cliffs, canyons, and outcrops have the potential to support nesting golden eagles.

Table 3-1 SWReGAP Vegetation Communities within the Project Area

Vegetation Community	Acres	Percent
Agriculture	138	0.12%
Developed, Open Space - Low Intensity	651	0.55%
Great Basin Foothill and Lower Montane Riparian Woodland and Shrubland	6	0.01%
Great Basin Pinyon-Juniper Woodland	178	0.15%
Great Basin Xeric Mixed Sagebrush Shrubland	1,065	0.90%
Inter-Mountain Basins Big Sagebrush Shrubland	474	0.40%
Inter-Mountain Basins Cliff and Canyon	36	0.03%
Inter-Mountain Basins Greasewood Flat	42	0.04%
Inter-Mountain Basins Mixed Salt Desert Scrub	1,199	1.01%
Inter-Mountain Basins Montane Sagebrush Steppe	105	0.09%
Inter-Mountain Basins Semi-Desert Grassland	9	0.01%
Inter-Mountain Basins Semi-Desert Shrub Steppe	**15,443**	**13.04%**
Invasive Annual and Biennial Forbland	2	0.00%
Invasive Annual Grassland	11	0.01%
Mojave Mid-Elevation Mixed Desert Scrub	**54,305**	**45.85%**
North American Arid West Emergent Marsh	27	0.02%
North American Warm Desert Bedrock Cliff and Outcrop	5,653	4.77%
North American Warm Desert Lower Montane Riparian Woodland and Shrubland	266	0.22%
North American Warm Desert Playa	608	0.51%
North American Warm Desert Volcanic Rockland	634	0.54%
North American Warm Desert Wash	26	0.02%
Recently Mined or Quarried	233	0.20%

Vegetation Community	Acres	Percent
Sonora-Mojave Creosotebush-White Bursage Desert Scrub	**35,485**	**29.96%**
Sonora-Mojave Mixed Salt Desert Scrub	1,840	1.55%
Total	**118,438**	**100.00**

*Bold denotes dominant habitat types.

Other habitat types that are believed to represent golden eagle foraging habitats in the region include roads and natural water sources. Paved (e.g., US 95) and non-paved roads are located within the Project area. Golden eagles frequently feed on roadkill and other carrion (especially during winter) even when live prey is available; golden eagles consume fresh carrion during the nesting season (Kochert and Steenhof 2002). Roads within the Project area, particularly improved roads that allow vehicles to travel at higher speeds, represent golden eagle scavenging habitat (note, however, that they also present a substantial hazard to golden eagles, which are at risk of being killed or injured by vehicle strikes). Springs provide a reliable water source for eagle prey and, therefore, have the potential to allow for higher concentrations of eagle prey in those areas. There are multiple seeps and springs and intermittent and ephemeral drainages along the Amargosa River approximately three miles west of the nest sites. Riparian habitats, agricultural pivots, and pastures in the Project area also support populations of rodents and lagomorphs.

Nesting Habitat

Golden eagle nesting habitat includes cliff and rock outcrops in Beatty Wash, the Yucca Mountains to the and east, and the Bare Mountains to the south Golden eagles may nest in trees if available.

Other Topographic Features Attractive to Eagles

Tops of slopes oriented perpendicular to prevailing winds or near ridge crests of cliff edges are features that are conducive to slope soaring and are attractive features for eagles. Mountainous areas that include ridgelines and slopes with a variety of aspects, such that winds from multiple directions would create deflection currents, are also suitable for soaring. Saddles or low points on ridge lines or near riparian corridors may serve as flight paths.

3.1.2 Project Area Golden Eagle Population

The golden eagle nesting territories within the four-mile radius of the Project were delineated based on surveys conducted in 2019 and 2020, as well as information provided by NDOW. A total of four distinct territories were delineated based on proximity of nests to one another and concurrent use of adjacent nests. **Appendix C** summarizes the golden eagle territories and status of nests within the Project area. **Figure 3-1** shows the nest locations in the Project area and vicinity. There is limited data for fledged young in the Project area. One of four territories within the Project area was documented by NDOW as fledging young in 2014 (SWCA 2019). The

nesting rate for 2019 was zero percent (none of four territories in-use) and for 2020 was 25 percent (one of four territories in-use).

3.1.3 Territories Within the Project's Plan Boundary

One known territory occurs within the Plan boundary (**Figure 3-2**). There are six nest sites within the territory (SI-301, SI-302, SI-303, SI-304, SI-305, and SI-502) with five located inside of the Plan boundary and one outside. These nests are within 1.2 miles of each other and have not been simultaneously in use. The territory was documented as occupied and fledged an eaglet in 2014, and was not occupied in 2015, 2018, or 2019 (SWCA 2019). This territory was occupied again in 2020 with an incubating eagle observed on SI-301 (SWCA 2020). The next closest territory is approximately three miles to the southwest.

3.1.4 Project Eagle Population Stressors

Exploration Activities

Exploration activities include preparation of drill pads, development of roads, and drilling. Risks to golden eagles include unintentional disturbance from activity near nest sites, such as noise and visual irritation from surface disturbance, vehicular traffic on roads, and drilling.

Roads

Mobile equipment (i.e., vehicles) used in operations at the Project or traveling to or from the Project could strike and injure or kill wildlife. Road-killed wildlife may attract scavenging eagles, which in turn could be injured or killed by vehicle collision. AGA has speed limits placed on equipment and vehicles operating at the Project. Vehicle speeds on undeveloped access roads shall not exceed 15 mph and 25 mph on more improved main access roads. The greater risk for vehicle mortality is on area roads outside of the Project (e.g. US 95), which are outside of AGA's control, due to higher speeds and additional traffic.

Utilities

Electrical utility infrastructure present in the Project area includes power poles, power lines and guy wires, and transformers. These utilities present risks to eagles from electrocution and collision. Electrical transmission and distribution lines that do not include sufficient spacing between energized lines or between energized lines and ground wires represent an electrocution hazard to large birds. The Project is not authorized to construct additional electrical utility infrastructure; therefore, additional electrical utility infrastructure would not be constructed by the proponent within the Project area.

3.2 Bald Eagles

Bald eagles (*Haliaeetus leucocephalus*) are known to occur in the region, but are not expected to be affected by exploration activities associated with the Project; therefore, disturbance and loss of territory of bald eagles are not expected to result from the Project (BLM 2020).

3.3 Migratory Birds

Effects to migratory birds have been analyzed in the PEIS (USFWS 2016a). A variety of migratory birds have been identified in the Plan boundary; however, issuance of the proposed permit is not anticipated to affect one or more species of migratory birds. Additionally, AGA has ACEPMs to reduce potential impacts to migratory birds within the Plan boundary (BLM 2020).

3.4 Species Listed under the Endangered Species Act

The Mojave desert tortoise (*Gopherus agassizii*), a federally threatened species listed under the Endangered Species Act of 1973 (ESA), as amended (ESA) (16 U.S.C. §§ 1531-1544), has the potential to occur within the Plan boundary (BLM 2020). The Service consultation in compliance with Section 7 of the ESA was completed on November 25, 2019 (08ENVS00-2020-F-0017). The Service concluded that the Project is not likely to jeopardize the continued existence of the threatened Mojave desert tortoise, and the Applicant would implement desert tortoise minimization measures outlined during the consultation. The Service's decision regarding an eagle take permit would not alter the physical footprint of the Project and therefore would not alter the Project impacts to federally threatened and endangered species in the Plan boundary, including the Mojave desert tortoise.

3.5 Coordination with Tribal Governments

Bald and golden eagles are important symbols of U.S. history and sacred to many Native American cultures. Some Native American cultures utilize eagles, eagle feathers, and other eagle parts for religious practices and cultural ceremonies. Outside of rituals and practices, wild eagles as live beings are deeply important to many tribes (Lawrence 1990, as cited by USFWS 2016a). Numerous tribes confirmed the importance of wild eagles during scoping and tribal consultation for the PEIS (Service 2016).

Tribal participation is an integral part of the NEPA and the National Historic Preservation Act (NHPA) process, as well as a key component of the Service's decision whether to issue an eagle take permit. Cultural and religious concerns regarding eagles were analyzed in the PEIS (Service 2016), and tribal consultation already conducted for the PEIS is incorporated by reference into this EA. The PEIS identified tribal coordination as an important issue for subsequent analysis, given the cultural importance of eagles to the tribes. In accordance with Executive Order 13175, Consultation and Coordination with Tribal Governments (65 FR 67249), the NHPA Section 106 (36 CFR § 800) and the Service's Native American Policy, the Service consults with Native

American tribal governments whenever our actions taken under the authority of the Eagle Act may affect tribal lands, resources, or the ability to self-govern. This coordination process is also intended to ensure compliance the American Indian Religious Freedom Act.

To notify Tribes regarding potential issuance of the requested Permit, the Service sent letters to the eight federally-recognized tribal governments located within 109 miles (the natal dispersal distance of golden eagles thought to adequately define the local area population of the eagles) of the Project informing them of the received Permit application and preparation of this EA.

As of the start of the 30-day comment period, no tribes provided comment during scoping and tribal outreach for this EA. The Proposed Action or considered alternatives would not impact cultural or socioeconomic interests beyond the impacts already discussed in the PEIS. Therefore, cultural and socioeconomic interests has not been analyzed further in this EA.

3.6 Climate Change

Climate change was considered in the PEIS (USFWS 2016a; Section 3.9, page 144), and is not analyzed further in this EA.

4.0 Environmental Consequences

This section summarizes the effects on the environment of implementing the Proposed Action or alternatives to the action. The discussion of overall effects to the environment of the eagle take permit program is provided in the PEIS (USFWS 2016a). This section of this EA analyzes only the effects that were not analyzed in the PEIS (USFWS 2016a) that may result from the issuance of an eagle take permit for this Project.

4.1 Alternative 1: Proposed Action

In determining the significance of effects of the Project on eagles, the Service screened the Proposed Action of issuing an eagle take permit for the take of golden eagles against the analysis provided in the PEIS (USFWS 2016a) and the Service's 2016 report, *Bald and Golden Eagles Population Demographics and Estimation of Sustainable Take in the United States, 2016 Update* (USFWS 2016b). The Service assessed Project effects to eagles at the project, local, and regional scales.

4.1.1 Direct and Indirect Effects

Under the Proposed Action, the Applicant is requesting authorization for disturbance to and loss of annual productivity from breeding golden eagles for up to 10 take incidents for no more than 10 years from the date of the issuance of the permit. Within one mile of authorized surface disturbance activities, there is thought to be one breeding pair occupying a territory that consists of six nest sites (SI-301, SI-302, SI-30, SI-304, SI-305, and SI-502) (**Figure 3-2**) which are

located on natural outcrops. During implementation of exploration activities, it is most likely that eagles associated with this territory are the most likely to be the breeding pair impacted. However, there is some potential for a second breeding pair to nest within one mile of surface disturbance that could also be impacted. As such, the Proposed Action would authorize the disturbance to and loss of annual productivity for up to 10 take incidents to breeding golden eagles over a 10 year period regardless of which territory might be disturbed. We acknowledge that the take incidents could occur such that one breeding pair is disturbed per year, or multiple breeding pairs could be disturbed in any given year. Regardless, the Applicant could not exceed 10 take incidents over the 10 year authorization period.

The Proposed Action would have a direct impact to the golden eagles through the presence of drilling in close proximity to their nests, thus causing potential negative impacts to golden eagle breeding and nesting activities.

Disturbance of an occupied golden eagle territory is assumed to result in loss of annual productivity (i.e., number of young reared) from that territory. The Service uses an estimate of 0.59 golden eagle young fledged per occupied nesting territory per year (USFWS 2016c) to estimate loss of annual productivity.

Along with the monitoring and minimization measures outlined in Section 2, the Applicant would provide compensatory mitigation to offset the expected take. To determine the amount of mitigation required, the Service's Golden Eagle REA was used (USFWS 2018) as described in Section 2 of this EA.

The Eagle Act regulations require compensatory mitigation to be conducted in the same Eagle Management Unit (EMU) in which the take occurs. The Project is located in the Pacific Flyway EMU. The site of power poles to be retrofitted has not yet been determined but would be in the Pacific Flyway.

In addition, the Proposed Action incorporates adaptive management and minimization measures as described in Section 2. The proposed ACEPMs would continue to be implemented but as permit stipulations to further reduce the risk of Project-related injury or mortality hazards to eagles within the Project boundary.

The Proposed Action meets the purpose and need as it is consistent with the Eagle Act and its regulations and adequately addresses the risk of take at the Project.

Bald Eagles

Because the Project has not changed in scope, timing, or duration, no significant adverse effects are foreseen to bald eagles as a result of the Project (BLM 2020). Although take of bald eagles is not expected to occur at this Project and take of bald eagles would not be permitted, bald eagles

in the region may benefit from avoidance and minimization measures established to reduce the risk to golden eagles. Bald eagles may benefit from compensatory mitigation actions provided to offset the take of golden eagles under the Proposed Action.

Migratory Birds

Because the Project has not changed in scope, timing, or duration, no significant adverse effects to migratory bird populations are expected as a result of the Project (BLM 2020). Issuance of an eagle take permit to the Project may also provide benefits to migratory birds. Power pole retrofits completed as compensatory mitigation for the eagle take permit may minimize electrocution risk for raptors and other migratory birds, just as with eagles.

Species Listed under the Endangered Species Act

The Mojave desert tortoise (Gopherus agassizii), a federally threatened species listed under the Endangered Species Act of 1973 (ESA), as amended (ESA) (16 U.S.C. §§ 1531-1544), has the potential to occur within the Plan boundary (BLM 2020). The Service consultation in compliance with Section 7 of the ESA was completed on November 25, 2019 (08ENVS00-2020-F-0017). The Service concluded that the Project is not likely to jeopardize the continued existence of the threatened Mojave desert tortoise, and the Applicant would implement desert tortoise minimization measures outlined during the consultation (BLM 2020). The effects of authorizing incidental eagle take is not expected to have effects to species protected by the ESA, including the Mojave desert tortoise.

4.1.2 Cumulative Effects

The purpose of this cumulative effects evaluation is to identify situations where the eagle take proposed under the Proposed Action, combined with take from other present or foreseeable future actions and sources, may be approaching levels that are biologically problematic or that cannot reasonably be offset through compensatory mitigation. Effects of take may be cumulative at the project scale, at the local-area eagle population scale, and at the EMU scale.

At the Project scale, the alteration of the eagle habitat from Project development could cause shifting in eagle pair territory boundaries in the vicinity of the Project, which could cause increased antagonistic interactions with surrounding eagle pairs, potentially creating a ripple-effect of impacts to eagles in areas surrounding the Project.

To ensure that eagle populations at the local scale are not depleted by cumulative take in the local area, the Service analyzed in the PEIS (USFWS 2016a) the amount of take that can be authorized while still maintaining LAP of eagles. The LAP scale is defined for eagles as the median natal dispersal distance for the given species, which for golden eagles is a 109-mile radius (USFWS 2016b). In order to issue a permit, cumulative authorized take must not exceed five percent of a LAP unless the Service can demonstrate why allowing take to exceed that limit

is still compatible with the preservation of eagles. The eagle take permit regulations require the Service to conduct an individual LAP analysis for each permit application as part of the application review.

Therefore, the Service considered cumulative effects to the LAP surrounding the Project Plan boundary (**Figure 4-1**) to evaluate whether the take to be authorized under this permit, together with other sources of permitted take and unpermitted eagle mortality, may be incompatible with the persistence of the Project's LAP. Data provided by AGA, data on other eagle take authorized and permitted by the Service, and other reliably documented unauthorized eagle mortalities has been incorporated to estimate cumulative impacts to the LAP. The cumulative effects analysis was conducted as described in the Service's Eagle Conservation Plan Guidance (USFWS 2013).

The LAP for the Project was estimated to be 365.44 golden eagles. The five percent benchmark for authorized take of that LAP is 18.27 eagles, while current authorized take in the LAP, including that estimated to occur at the Project, is 4.77 golden eagles or 1.31 percent of the LAP per year. The take that would be authorized by this permit for the Project does not exceed one percent of the LAP, so it would not significantly impact the LAP.

Additionally, take of eagles has the potential to affect the larger eagle population. Accordingly, the 2016 PEIS analyzed the cumulative effects of permitting take of golden eagles in combination with ongoing unauthorized sources of human-caused eagle mortality and other present or foreseeable future actions affecting golden eagle populations. As part of the analysis, the Service determined sustainable limits to permitted take within each EMU. The take that would be authorized by this permit would be offset by the compensatory mitigation that would be provided by the Applicant, so it would not significantly impact the EMU eagle population. The minimization measures that would be required under the permit, along with the additional adaptive management measures, are designed to further ensure that the permit is compatible with the preservation of golden eagles at the regional EMU population scale.

4.2 Alternative 2: No Action Alternative

4.2.1 Direct and Indirect Effects

The Service assumes the level of take is the same under the Proposed Action and No Action Alternative, but under the No Action Alternative, the Service would take no action on the permit application. A permit would not be issued, and compensatory mitigation would not be required. Under this alternative, direct impacts of the Project on the golden eagle population would be assumed to be loss of productivity at one nest site in one golden eagle breeding pair's territory, over ten years, and this take would not be offset by compensatory mitigation. The Applicant would continue to implement the monitoring and avoidance measures for the Project as described in Section 2; however, additional measures outside of those referenced in Section 2, including compensatory mitigation, would not be implemented.

This alternative does not meet the purpose and need for the action because, by regulation (50 CFR 13.21), when in receipt of a completed application, the Service must either issue or deny a permit to the Applicant. The No Action Alternative also does not meet the purpose of and need for the action because it would result in the adverse, unmitigated effects to golden eagles described above, and these effects are not compatible with the preservation of golden eagles.

Bald Eagles

Under the No Action Alternative, benefits that bald eagles might incur from minimization measures established under a golden eagle take permit to reduce the risk to golden eagles, as well as from compensatory mitigation actions provided to offset the take of golden eagles, would not occur.

Migratory Birds

Any incidental benefits to migratory birds from minimization measures and compensatory mitigation required under an eagle take permit would not be realized under the No Action Alternative.

Species Listed under the Endangered Species Act

Any incidental effects to federally threatened and endangered species from minimization measures and compensatory mitigation required under an eagle take permit would not be realized under the No Action Alternative.

4.2.2 Cumulative Effects

Cumulative impacts are defined as incremental impacts of the action on the environment when added to other past, present, and reasonably foreseeable future actions. The geographic extent of for the analysis of cumulative impacts is within a 175-kilometer (109-mile) radius surrounding the Project LAP, which represents the average natal dispersal distance of golden eagles (USFWS 2016a). There is incomplete information available regarding the level of unpermitted golden eagle take in the region; thus, golden eagle take in the past, present, and foreseeable future is not fully known. Over the past 25 years, the Service knows of 142 golden eagles killed by a variety of causes. This information suggests that approximately 5.68 golden eagles are killed per year in the LAP. Thus, the known annual unpermitted take suggests an anticipated unpermitted take of approximate 1.52 percent per year for the LAP. Two permits have been previously issued within the LAP (#00542B and 23857D) which have authorized take of 4.18 golden eagles each year. The Service is currently reviewing one additional permit application 20776D, and if issued, take would be fully offset by the compensatory mitigation that would be provided by the permit holder. Overlap of take from pending permit applications (#20776D) within the LAP is approximately 0.59 estimated eagles per year.

The total anticipated cumulative take would be 2.99 percent per year for the LAP. The loss of productivity authorized by permits would be fully offset by the compensatory mitigation that would be provided by the permit holders. The anticipated unpermitted take of approximate 1.52 percent per year for the LAP would not be offset by compensatory mitigation.

4.3 Comparison of Effects of Alternatives

The main differences between the Proposed Action and the No Action Alternative are the issuing of a permit with compensatory mitigation requirements to offset the permitted take under the Proposed Action and the level of concurrent and post-construction monitoring that would occur (**Table 4-1**). The Service assumes the level of take is the same under the Proposed Action and No Action Alternative, but under the No Action Alternative, compensatory mitigation would not be required.

The Proposed Action is likely to have no significant impacts on golden eagles as there is no unmitigated take, and it meets all regulatory requirements and the conservation standard set forth in the 2016 PEIS (USFWS 2016a).

Table 4-1 Comparison of the Proposed Action and No Action Alternative

	Alternative 1: Proposed Action	Alternative 2: No Action Alternative
Eagle Take Levels	Loss of productivity from breeding golden eagles up to 10 incidents over 10 years.	Loss of productivity from breeding golden eagles up to 10 incidents over 10 years.
Avoidance and Minimization	Applicant will continue to implement the measures to minimize impacts to golden eagles (Section 2) at the Project including: vehicle speed limits; employee awareness/training programs; and carcass management.	Same as detailed under the Proposed Action, as the applicant is committed to these measures even without issuance of a permit.
Compensatory Mitigation	Retrofitting of power poles to offset the loss of annual productivity from breeding golden eagles for up to 10 take incident for no more than 10 years from the date of the issuance of the permit.	None provided.
Detection and Reporting	Applicant will continue to meet their BLM requirements from the 2020 EA, implement the measures to minimize impacts to golden eagles (Section 2) including the reporting and detection system to ensure that personnel adhere to the appropriate actions should a previously unidentified nest, injured eagle, or deceased eagle be identified.	Same as detailed under the Proposed Action.
Unmitigated Eagle Take	None.	Loss of productivity from breeding golden eagles up to 10 take incidents over 10 years.

	Alternative 1: Proposed Action	Alternative 2: No Action Alternative
Adaptive Management	If continued monitoring determines that there are multiple takes occurring in a given year and that the Proponent is approaching their take permit limits, adaptive management would be implemented. First, the Applicant would apply avoidance buffers on in-use/occupied nests to prevent incidental take. If avoidance is not practicable, the Proponent may request a permit amendment from the Service. Additionally, at the five-year review of the permit, the Service and the Applicant may consider additional adaptive management strategies.	None.
Data Collection/Monitoring	A qualified third party biologist will monitor golden eagle nests within one mile of the Project annually to determine nest status. Applicant will also document any eagle mortality identified while working at the Project.	AGA will conduct annual nest status monitoring for the Project, as the applicant is committed to these measures even without issuance of a permit.
Company Liability for Eagle Take	None	Yes.

5.0 Mitigation

The Proposed Action incorporates measures to minimize and avoid impacts to the maximum degree practicable, as required by regulation. To ensure that regional eagle populations are maintained consistent with the preservation standard, regulations require that any golden eagle take that cannot practicably be avoided and is above EMU take limits must be offset by compensatory mitigation at a 1.2 to 1 ratio. As golden eagle take limits for all EMUs were determined to be zero (USFWS 2016a), compensatory mitigation is necessary to offset any authorized take of golden eagles. The 1.2 to 1 ratio for compensatory mitigation achieves a net benefit to golden eagle populations, ensuring that regional eagle populations are maintained consistent with the preservation standard of the Eagle Act despite indications of declines in golden eagle populations (USFWS 2016a). As this would fully offset the estimated take, as well as provide an additional net benefit to eagle populations, there would be no significant effects to eagle populations from issuing an eagle take permit under the Proposed Action. Section 2 provides details of the compensatory mitigation and minimization measures that would be completed under the Proposed Action.

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FIGURES

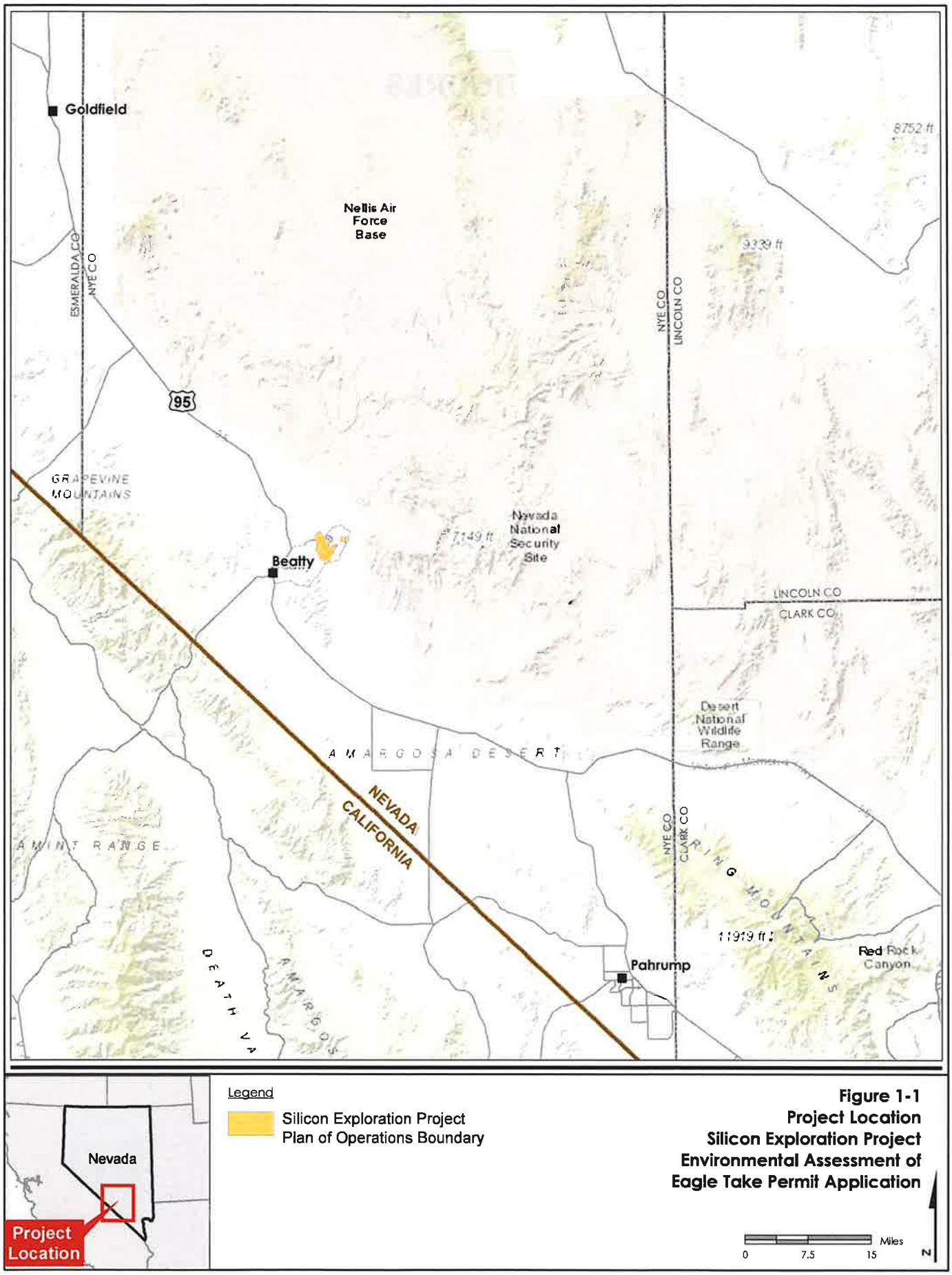

Figure 1-1
Project Location
Silicon Exploration Project
Environmental Assessment of
Eagle Take Permit Application

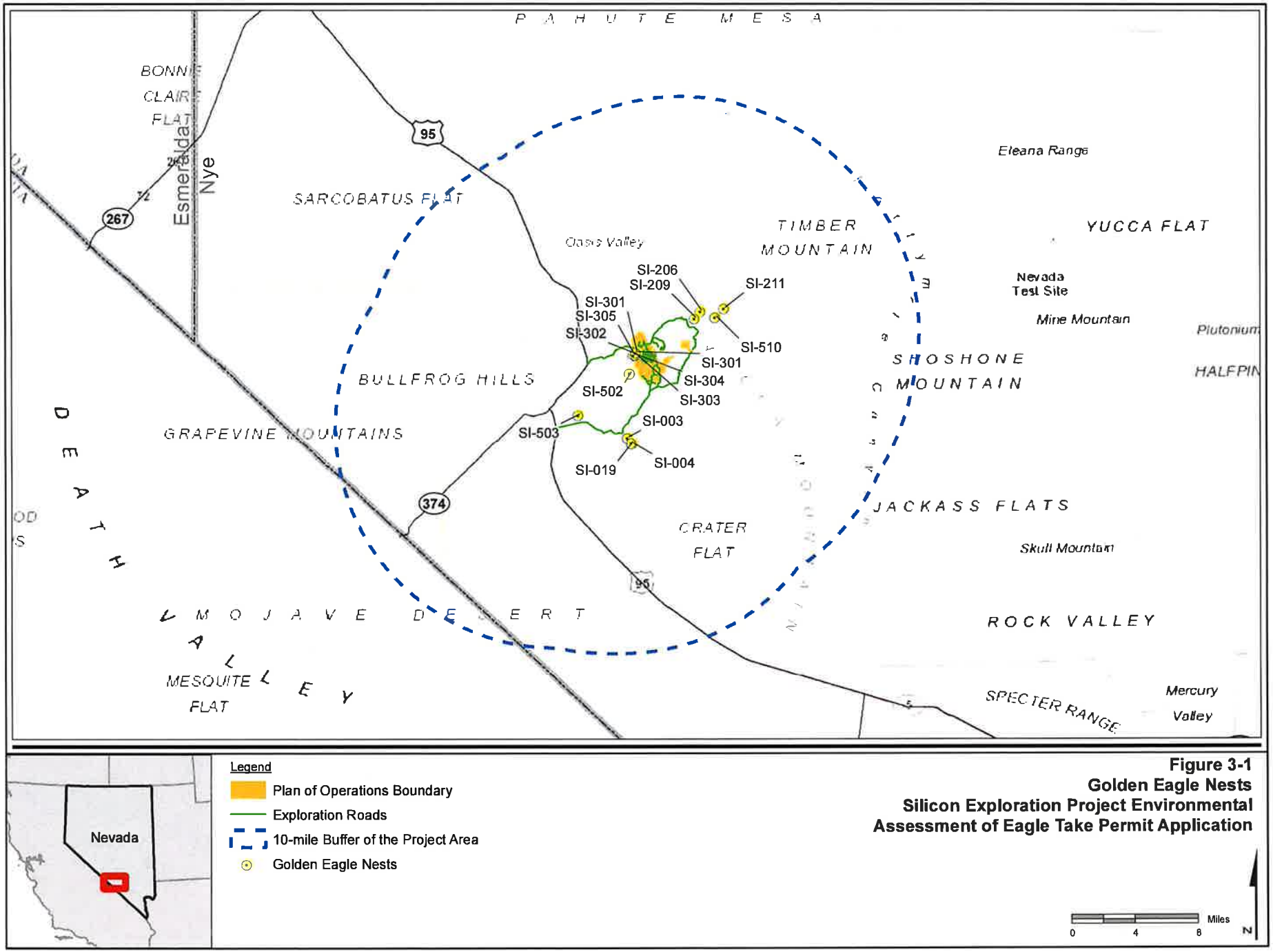

Figure 3-1
Golden Eagle Nests
Silicon Exploration Project Environmental Assessment of Eagle Take Permit Application

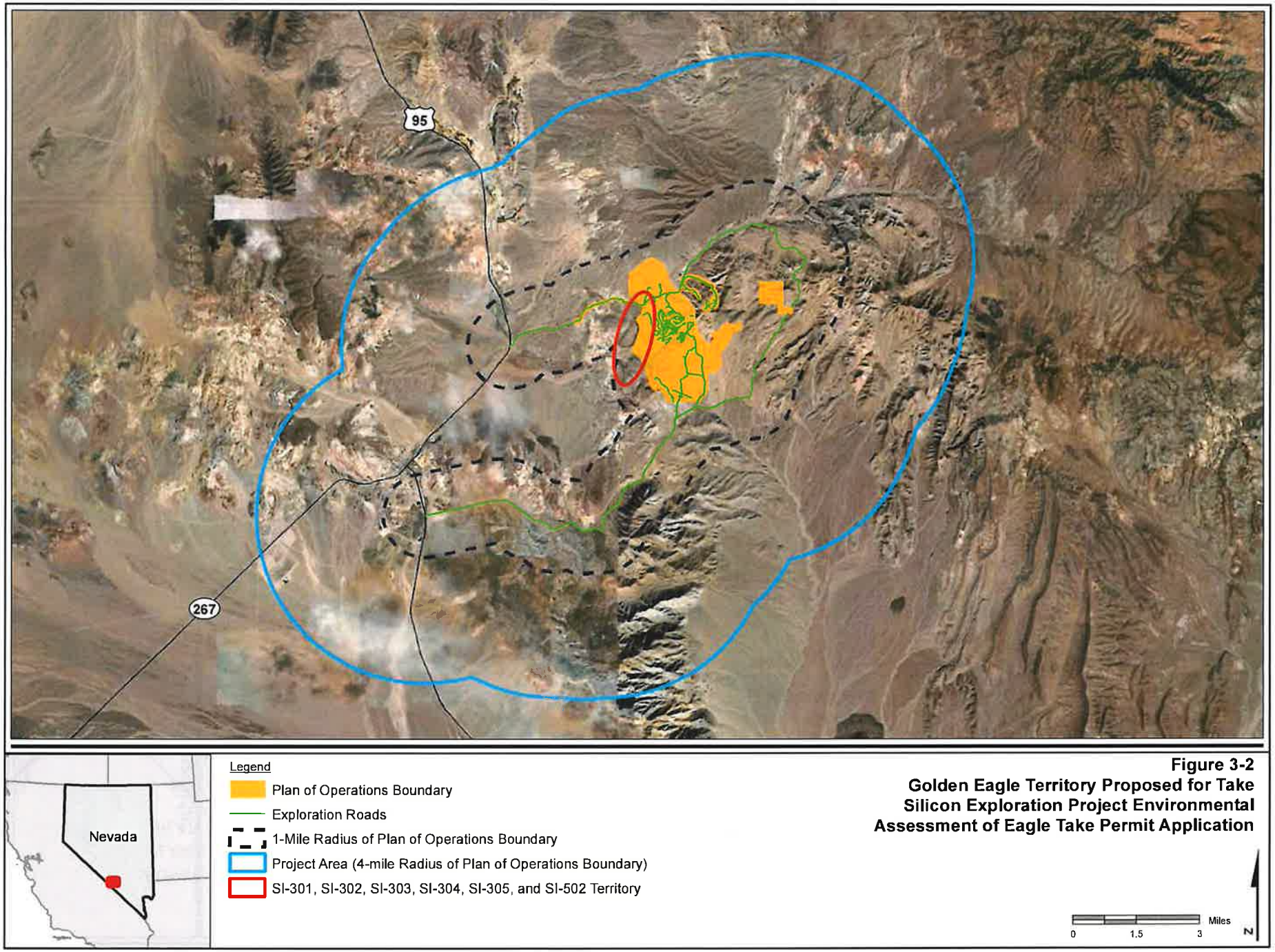

Figure 3-2
Golden Eagle Territory Proposed for Take
Silicon Exploration Project Environmental Assessment of Eagle Take Permit Application

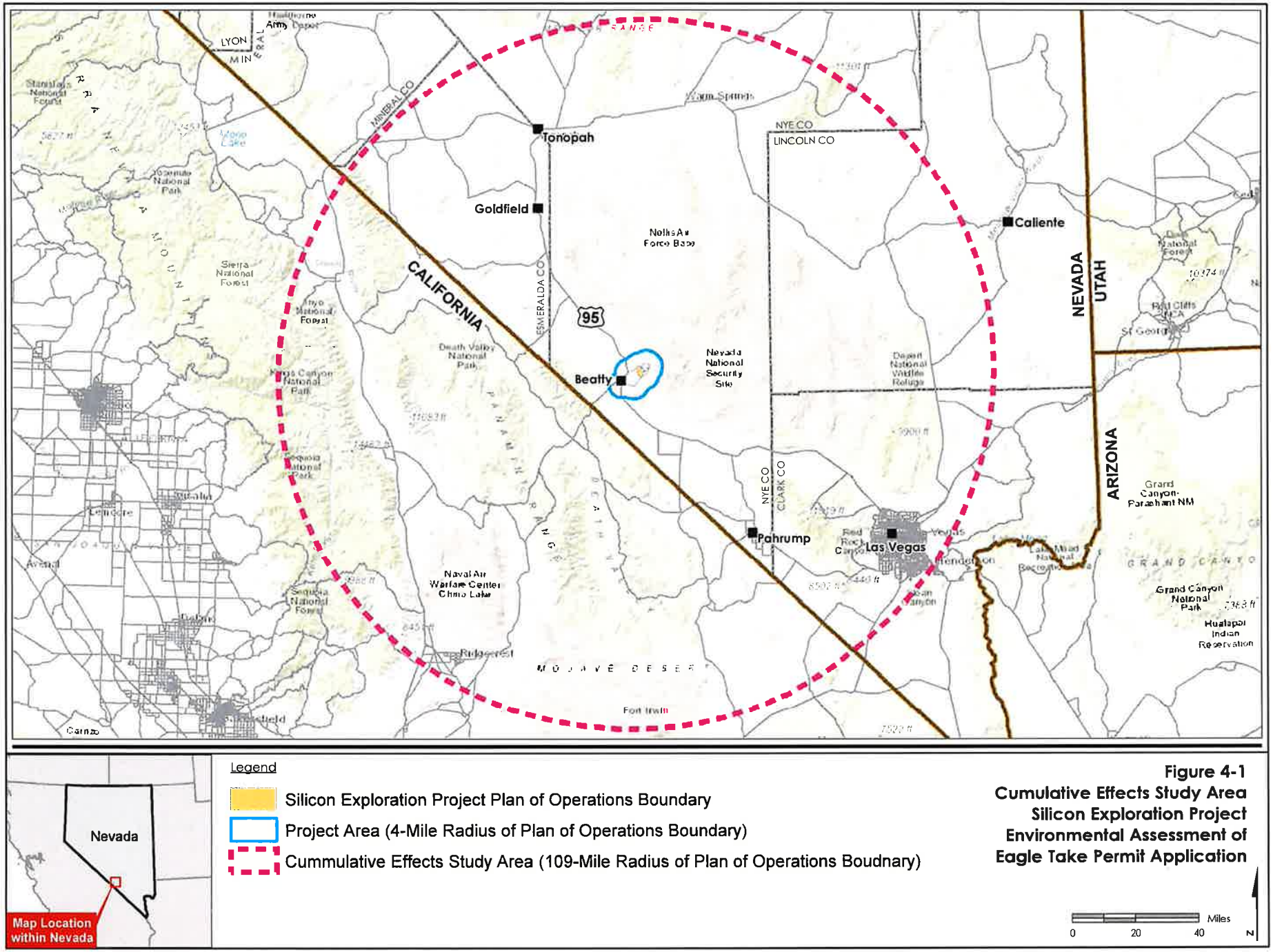

Figure 4-1
Cumulative Effects Study Area
Silicon Exploration Project
Environmental Assessment of
Eagle Take Permit Application

APPENDIX A

Eagle Conservation Plan

EAGLE CONSERVATION PLAN
SILICON EXPLORATION PROJECT
NYE COUNTY, NEVADA

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November 11, 2021

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ACRONYMS AND ABBREVIATIONS

ACEPM	Applicant-committed Environment Protection Measure
AGA	AngloGold Ashanti North America
BGEPA	Bald and Golden Eagle Protection Act of 1940, as amended
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
ECP	Eagle Conservation Plan
km	Kilometer
NDOW	Nevada Department of Wildlife
Plan	Plan of Operations
Project	Silicon Exploration Project
study area	Project Footprint and a Surrounding Four-mile Buffer Area
SWReGAP	Southwest Regional Gap Analysis Project
USFWS	United States Fish and Wildlife Service

1.0 PURPOSE OF THIS PLAN

The purpose of this Eagle Conservation Plan (ECP) is to support an application for a golden eagle (*Aquila chrysaetos*) nest take permit under the permit regulations of the Bald and Golden Eagle Protection Act of 1940, as amended (BGEPA). Specifically, AngloGold Ashanti North America (AGA) is requesting a take permit issued by the United States Fish and Wildlife Service (USFWS) under 50 Code of Federal Regulations (CFR) § 22.26 for the incidental take of golden eagles from otherwise lawful activities associated with the Silicon Exploration Project (Project). The Project is located approximately six miles (10 kilometers [km]) northeast of the town of Beatty, Nevada (**Figure 1**). The Project is a mineral exploration project authorized by the Bureau of Land Management (BLM) Battle Mountain District, Tonopah Field Office in Nye County, Nevada.

The BGEPA (as amended) prohibits the "take" of bald and golden eagles. BGEPA defines "take" to include "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb," and prohibits take of individuals and their parts, nests, or eggs. Permitting regulations (50 CFR Part 22) were issued in 2009 and revised in 2016. Known as the "Eagle Permitting Rule," these regulations allow the USFWS to administer a permit program allowing for the lawful take of eagles and nests.

AGA has prepared this ECP to support their application for a BGEPA eagle "take" permit. This ECP provides information and materials to support an eagle nest take permit application and demonstrates that the proposed take is compatible with the preservation of golden eagles and the issuance criteria in 50 CFR § 22.26. There are six golden eagle nest sites (SI-301, SI-302, SI-303, SI-304, SI-305, and SI-502) associated with one territory within the one-mile buffer of authorized Project disturbance. This ECP supports the eagle nest take permit application that has been submitted by AGA requesting authorization for reoccurring disturbance to and loss of annual productivity from breeding golden eagles no more than 10 times up to 10 years (2022-2032).

An application for a take permit under 50 CFR § 22.26 requires the information listed below. Also provided is a reference to where in this ECP the information is provided.

- The duration of the Project for the permit is 10 years (see Section 1);
- A description of approved activities at the Project and surrounding area (Section 2);
- A discussion of eagle habitat, as it relates to foraging, nesting, and topography, found in the four-mile radius of the Project area (Section 3);
- A brief description of the golden eagle nesting population within a four-mile radius of the proposed Plan of Operations (Plan) boundary and territories proposed for take (Section 4);
- An assessment of the risks to golden eagles posed by the Project (Section 5);
- A review of practicable avoidance and minimization measures that AGA could and are employing to abate the potential risk (Section 6); and
- Monitoring and adaptive management of eagle populations (Section 7).

2.0 INTRODUCTION AND BACKGROUND

2.1 LOCATION AND EXPLORATION HISTORY

The project is located on the western end of the Yucca Mountains and is located approximately six miles (10 km) northeast of the town of Beatty in Nye County, Nevada. The Project can be assessed in two directions from Beatty, Nevada: 1) traveling south 1.3 miles (2.1 km) on U.S. Highway 95 (US 95) and approximately 8.9 miles (14.3 km) up Fluorspar Canyon Road (Nye County Road 249) and Tate's Wash Road (Nye County Road 926019); and 2) traveling 3.6 miles (5.8 km) north on US 95 and approximately 4.1 miles (6.6 km) east on the North Beatty Wash Road (Nye County Road 926026) that connects to the Beatty Wash Road (Nye County Road 926025) at the Project. AGA submitted a notice of intent (Notice N-95843) in 2019, the Plan was approved by BLM in 2020 (NVN-097820) (BLM, 2020a), and a Finding of No Significant Impact and Decision Record were issued by the BLM on July 24, 2020 (BLM, 2020b).

2.2 AUTHORIZED AND PROPOSED FACILITIES

AGA is authorized to conduct phased mineral exploration-related activities within a 3,630-acre area (Project Area) to determine the extent and quality of a mineral resource. Surface-disturbing activities are approved for up to 155 acres. The following are authorized disturbances that could occur as a result of the Project, which are also shown on **Figure 2**: reverse circulation and core drilling from constructed drill sites, road construction and overland travel, bulk sampling, geotechnical auger holes and geological test pits, geologic and geophysical mapping, water monitoring well and water extraction well installation, and construction of a meteorological station. Some of these features have not yet been constructed, and these disturbances occur in phases. Phase I consists of approximately 50 acres of surface disturbance in addition to five acres of Notice-level surface disturbance for a total of approximately 55 acres. The remaining 100 acres of disturbance will occur under subsequent phases over approximately 10 years. Exploration activities may occur year-round and 24 hours per day, with up to four drill rigs operating at one time and up to 20 personnel on site. In addition to AGA's authorized disturbance, there is an existing road network throughout the Project area used for Project access.

3.0 AREA HABITATS

The Eagle Conservation Plan Guidance Module 1 – Land-based Wind Energy, Version 2 recommends that an analysis of potential impacts on nesting golden eagles include the Project footprint itself (Plan boundary) and a surrounding four-mile buffer area (study area) (**Figure 1**). Although this guidance was designed for wind energy, no such guidance exists for mining, and is the best available guidance for analysis of potential impacts.

3.1 FORAGING HABITAT

Vegetation communities in the study area have been mapped by the Southwest Regional Gap Analysis Project (SWReGAP) in land cover types (**Figure 3**) (USGS, 2011). The SWReGAP mapping shows 24 vegetation communities occurring within the study area. **Table 1** presents the total acres of the vegetation communities within the study area. Three vegetation communities are mapped as over five percent of the Project area: Mojave Mid-Elevation Mixed Desert Scrub (51 percent), Sonora-Mojave Creosotebush-White Bursage Desert Scrub (24 percent), and Inter-Mountain Basins Semi-Desert Shrub Steppe (16 percent). Each of the remaining 21 communities account for approximately nine percent of the study area. Golden eagle prey species, such as black-tailed jackrabbits (*Lepus californicus*), mountain cottontails (*Sylvilagus nuttallii*), and larger diurnal rodents (i.e., yellow-bellied marmots [*Marmota flaviventris*]), are commonly found within many of the vegetation communities present in the study area. The potential foraging value of the various habitat types present in the region has not been quantified, but in general, they are believed to represent high-value native foraging habitats.

Other habitat types that are believed to represent important golden eagle foraging habitats in the region include roads and natural water sources. Paved (e.g., US 95) and non-paved roads are located within the study area. Golden eagles frequently feed on roadkill and other carrion (especially during winter) even when live prey is available; golden eagles consume fresh carrion during the nesting season (Kochert and Steenhof, 2002). Roads within the Project area, particularly improved roads that allow vehicles to travel at higher speeds, represent potentially high-value golden eagle scavenging habitat. Springs provide a reliable water source for eagle prey and, therefore, have the potential to allow for higher concentrations of eagle prey in those areas. There are multiple seeps and springs and intermittent and ephemeral drainages along the Amargosa River approximately three miles west of the nest sites. Riparian habitats, agricultural pivots, and pastures in the Project area also support populations of rodents and lagomorphs.

3.2 NESTING HABITAT

Within the study area, various rock outcrops were identified as areas with nesting golden eagles. In 2020, there was one in-use/occupied golden eagle nest (SI-301) documented in the study area, which was on a rock outcrop. Golden eagle nesting habitat includes cliff and rock outcrops in Beatty Wash, the Yucca Mountains to the north and east, and the Bare Mountains to the south. Golden eagles may nest in tree if available.

3.3 TOPOGRAPHIC FEATURES ATTRACTIVE TO EAGLES

Tops of slopes oriented perpendicular to prevailing winds or near ridge crests of cliff edges are features that are conducive to slope soaring and are attractive features for eagles. Saddles or low points on ridge lines or near riparian corridors may serve as flight paths. Nearby perch and roost sites may also attract eagles. As described above, the area surrounding the Project represents golden eagle potential foraging habitat, though the value of this habitat varies in quality.

Cliffs and outcrops occur in the Beatty Wash, the Yucca Mountains to the north and east, and the Bare Mountains to the south. Mountainous areas that include ridgelines and slopes with a variety of aspects, such that winds from multiple directions would create deflection currents, are suitable for soaring. Habitats surrounding the Project include perch and roost sites, and the area is suitable golden eagle nesting and foraging habitat as described above.

Table 1 SWReGAP Vegetation Communities within the Study Area (Four-mile Radius)

Vegetation Community	Acres	Percent
Developed, Open Space - Low Intensity	66	0.09
Great Basin Foothill and Lower Montane Riparian Woodland and Shrubland	6	0.01
Great Basin Pinyon-Juniper Woodland	165	0.23
Great Basin Xeric Mixed Sagebrush Shrubland	1,009	1.39
Inter-Mountain Basins Big Sagebrush Shrubland	376	0.52
Inter-Mountain Basins Cliff and Canyon	35	0.05
Inter-Mountain Basins Greasewood Flat	37	0.05
Inter-Mountain Basins Mixed Salt Desert Scrub	822	1.13
Inter-Mountain Basins Montane Sagebrush Steppe	3	<0.01
Inter-Mountain Basins Semi-Desert Grassland	9	0.01
Inter-Mountain Basins Semi-Desert Shrub Steppe	**12,119**	**16.65**
Invasive Annual and Biennial Forbland	2	<0.01
Invasive Annual Grassland	10	0.01
Mojave Mid-Elevation Mixed Desert Scrub	**37,014**	**50.86**
North American Arid West Emergent Marsh	26	0.04
North American Warm Desert Bedrock Cliff and Outcrop	892	1.23
North American Warm Desert Lower Montane Riparian Woodland and Shrubland	266	0.37
North American Warm Desert Playa	364	0.5
North American Warm Desert Volcanic Rockland	612	0.84
Recently Mined or Quarried	233	0.32
Sonora-Mojave Creosotebush-White Bursage Desert Scrub	**17,212**	**23.65**
Sonora-Mojave Mixed Salt Desert Scrub	1,491	2.05
Total	**72,771**	**100**

*Bold denotes dominant habitat types.

4.0 TERRITORIES PROPOSED FOR TAKE

A major component of the risk assessment is to identify Project activities that could result in a take. Those territories proposed for take are those that have been identified within the Plan boundary and are in the USFWS's one-mile buffer of surface disturbance activities. Golden eagle surveys have been conducted around the Project area in 2019, 2020, and 2021 (SWCA, 2019, 2020, 2021), and additional data regarding the Beatty Wash Territory was provided by Nevada Department of Wildlife (NDOW) for 2014, 2015, and 2018 (SWCA, 2019). Inventory and monitoring efforts of 2019, 2020, and 2021 have followed Pagel et al. (2010), which is the standard golden eagle survey protocol accepted by the USFWS. In 2019 and 2020, surveys were ground based due to restricted airspace of the Nevada Test and Training Range, and NDOW had previously expressed concern of potential impacts of aerial surveys to desert bighorn sheep (*Ovis canadensis nelsoni*) during the lambing season. These two surveys (2019 and 2020) focused on completing a thorough inventory of nests within a four-mile radius and capturing information regarding nest occupancy, productivity, and success. The 2021 survey was ground-based but only focused eight nests from two territories (Beatty Wash and Upper Beatty Wash) that were considered in-use/occupied during 2019 and 2020.

The 2019 surveys were conducted between January 10-25 and March 12-17, and the 2020 surveys were conducted between January 15-24 and February 20-27. The 2021 surveys were conducted between January 13-16 and March 2-22.

A total of 14 golden eagle nest sites have been documented within four-mile radius of the study area during six surveys over the last eight years (2014, 2015, 2018, 2019, 2020, and 2021). During these six surveys, two nests (SI-301 and SI-510) were considered in-use/occupied by golden eagles (**Table 2**). In addition to the current nests known to occur and breeding pairs using the four-mile radius, there is potential for additional nests, territories, and breeding pairs to nest in the area.

One in-use/occupied nest (SI-301) and five alternative nests (SI-302, SI-303, SI-304, and SI-305) are less than one-mile of the proposed surface disturbance and within the Project boundary. The remaining alternate nest (SI-502) is within one mile of the proposed surface disturbance and located outside Project boundary. These six nests have been considered a territory referred to as Beatty Wash. As such, the potential impacts of the Project include the indirect take of the Beatty Wash territory. A viewshed analysis has been conducted using proposed disturbance, topography, and Geographic Information System tools for each nest to illustrate the portions of anthropogenic activity that are within line-of-sight from the golden eagle nests subject to take (**Figure 4**). Due to their sensitive nature, nest locations are not shown in this figure.

Table 2 Golden Eagle Nests Within the Vicinity of the Project and Status (2014-2021)

Territory	Nest ID	Year and Territory Status						Number of Seasons Territory was In-Use /Occupied	Territory Occupancy Rate
		2014[1]	2015[1]	2018[1]	2019[1]	2020[2]	2021[3]		
Beatty Wash	SI-301	In-Use/Occupied	Unoccupied	Unoccupied	Unoccupied	n-Use/Occupied	Unoccupied	2	0.33
	SI-302								
	SI-303								
	SI-304								
	SI-305								
	SI-502								
Upper Beatty Wash	SI-206	--	--	--	In-Use/Occupied	Unoccupied	Unoccupied*	1	0.5
	SI-209								
	SI-211								
	SI-510								
Fluorspar Canyon	SI-503	--	--	--	Unoccupied	Unoccupied	--	0	0
Specie Spring	SI-003	--	--	--	Unoccupied	Unoccupied	--	0	0
	SI-004								
	SI-019								
Total Number of In-Use/Occupied Territories/Total Territories Surveyed		1/1	0/1	0/1	1/4	1/4	0/1		
Territory Occupancy Rate		1	0	0	0.25	0.25	0		

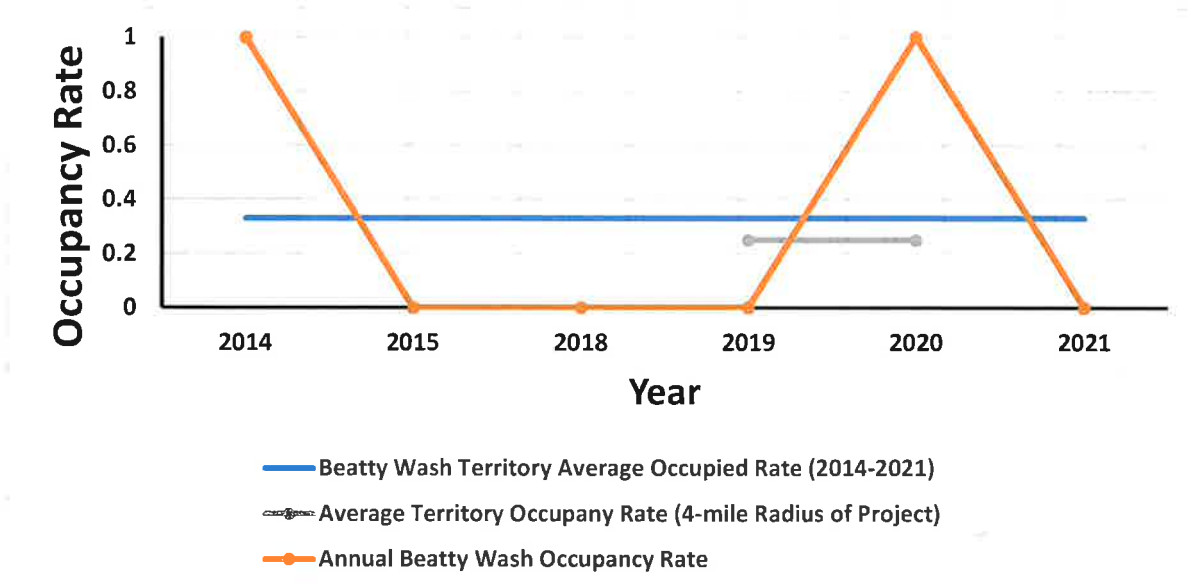
Bold territory is proposed for take
[1] SWCA, 2019 – No specific-nest information provided for 2014, 2015, and 2018 surveys
[2] SWCA, 2020
[3] SWCA, 2021
*Only SI-211 and SI-510 were monitored
In-Use/Occupied = an eagle (bald or golden) nest characterized by the presence of egg(s), dependent young, or an adult on the nest in the past 10 days during the breeding season
Unoccupied (alternative nest) = one of potentially several nests within a nesting territory that is not an in-use/occupied nest at the current time. When there is not an in-use/occupied nest, all nests in the territory are alternate nest

4.1 BEATTY WASH TERRITORY: SI-301, SI-302, SI-303, SI-304, SI-305, AND SI-502

The Beatty Wash territory consists of six nests (SI-301, SI-302, SI-303, SI-304, SI-305, and SI-502) on the western of the Project boundary along Beatty Wash on the western portion of the Yucca Mountains. These nests are within 1.1 miles of each other and have not been simultaneously in use. The closest nest (SI-003) is 4.1 miles southwest of SI-502, and the next closest nest (SI-503) is 4.2 miles to the southwest of SI-502. Both closest nests are thought to be part of a separate territory.

All six nests were surveyed from 2019 to 2021, and these nests were found and identified as golden eagle nests in 2019. However, NDOW data suggests that one nest within the territory was in-use/occupied (in-use) in 2014 (SWCA, 2019); therefore, some of these nests in Beatty Wash territory were potentially identified earlier than 2019. Because nest-specific data is not available for 2014 to 2018, occupancy was calculated for individual nests using the 2019 to 2021 data and it should be recognized that the actual occupancy per nest is likely different. During this period, SI-301 was in-use/occupied in 2020 resulting in an occupancy rate of 33 percent. All other nests within Beatty Wash territory were never in-use/occupied resulting in an occupancy rate of zero percent. Overall, the territory was documented as in-use/occupied in 2014 and 2020 resulting in a territory occupancy rate of 33 percent. The territory is above the average occupancy when compared to territories within the study area (average occupancy per territory per year is 16.7 percent). **Graph 1** presents the Beatty Wash territory status per year compared to the average for the territories defined with the study area.

Graph 1 Beatty Wash Territory Occupancy Rate Compared to Average Territory Occupancy Rates of Study Area



5.0 RISK ASSESSMENT

A major component of the risk assessment is to identify project activities that could result in a take. This section presents a discussion of the assessment of the level of risk from the Project to the golden eagle breeding population in the vicinity of the Project. Principal risks to golden eagles from mineral exploration are generally low, and include activities associated with exploration drill pads, drilling, and exploration roads, and other proposed/authorized mining activities listed in Section 2.0. The greatest risk-factor to golden eagles associated with a mineral exploration project is likely occur during the courtship, nesting, and fledging season. This is especially true when golden eagle breeding territories are located within one mile of surface activity.

A summary of proposed take to golden eagles anticipated from activities associated with Project is provided in **Table 3**. Discussion of the risk that could be posed by the Project to golden eagles is described below.

Table 3 Summary of Impacts to Eagles at the Silicon Exploration Project

Eagle Impact	Silicon Impacts
Direct take (mortality)	Sections 5.2 and 5.3: None anticipated, low risk
Indirect take (loss of productivity from disturbance)	Section 4.0: Breeding Golden Eagles and Associated Territories No More than 10 times for up to 10 years
Habitat loss	Section 5.1
Territory loss (number of territories)	Section 4.0: Breeding Golden Eagles and Associated Territories No More than 10 times for up to 10 years
Nest removal (number of nests for each territory involved)	None

5.1 HABITAT-RELATED RISKS

The Project is approved for total surface disturbance of up to 155 acres. Reduction of habitat because of direct exploration disturbance has the potential to impact golden eagles. Specifically, impacts to functional shrublands that support jackrabbit populations could influence prey availability to golden eagles, especially during the breeding season when adults are foraging routinely to provide adequate food for their young. However, due to the extensive amount of available foraging habitat within the four-mile buffer of the Project (**Table 1** and **Figure 3**), scarcity of food because of direct loss of habitat is not likely to be a limiting factor to the local golden eagle breeding population.

5.2 VEHICLE COLLISION-RELATED RISKS

Mobile equipment (i.e., vehicles) used in operations at the Project or traveling to or from the Project could strike and injure or kill wildlife. Road-killed wildlife may attract scavenging eagles, which in turn could be injured or killed by vehicle collision. Because AGA already implements conservation measures associated with reducing road mortality risk (see Section 6.0), the potential for eagle mortality due to vehicle collision at the Project is low. Additional traffic controls can be implemented by AGA as necessary through direct communication regarding road hazards.

6.0 AVOIDANCE AND MINIMIZATION MEASURES

AGA currently employs conservation measures associated with the authorized Plan, including applicant-committed Environmental Protection Measures (ACEPMs). The applicant will implement all conservation measures and commitments summarized below. Upon issuance of a take permit, monitoring would be conducted as required per permit stipulations, including being conducted by a third party over the life of the Project. **Table 4** presents a summary of the ACEPMs with monitoring and a schedule for implementation. Although not specific to golden eagle protection, the implementation and continuation of the following plans will continue to benefit golden eagle conservation: 1) noxious weed control, 2) solid and hazardous wastes 3) management, reclamation, 4) carcass management on roadways; 5) employee awareness and training program, and 6) detection and reporting measures.

Table 4 Golden Eagle Protection Measures

ACEPM	Monitoring Actions	Duration
ACEPM 1	A nest survey would be conducted by a qualified biologist prior to any surface disturbance associated with exploration activities during the avian breeding season (March 1 through July 31) for raptors and other migratory birds. Pre-disturbance surveys for migratory birds are only valid for 14 days. If the disturbance for the specific location does not occur within 14 days of the survey, another survey would be needed. If in-use/occupied nests are located, or if other evidence of nesting (i.e., mated pairs, territorial defense, carrying nest material, transporting food), a protective buffer (the size depending on the habitat requirements of the species) would be delineated after consultation with the BLM resource specialist. Source: BLM, 2020a	Annually as needed for the life of the Project.
ACEPM 2	Annual surveys would be conducted at golden eagle nest sites that are within one mile of the Project Area to determine occupancy. The timing of the surveys may be adjusted due to winter weather conditions and is subject to approval from NDOW based on consideration of bighorn sheep (*Ovis canadensis*) lambing activity. Source: BLM, 2020a	Annually as needed for the life of the Project.
ACEPM 3	Vehicle speeds on undeveloped access roads shall not exceed 15 miles per hour and 25 miles per hour on more improved main access roads. Source: BLM, 2020a	For the life of the Project.

7.0 MONITORING AND ADAPTIVE MANAGEMENT

Upon issuance of a take permit, AGA will conduct aerial and ground surveys of the eagle population within the one-mile radius of the Plan boundary for the duration of exploration operations following Pagel et al. (2010) using a third-party contractor. Monitoring objectives include: 1) to track occupancy, productivity, and success of nests within the Plan boundary; and 2) to further delineate and refine the understanding of eagle territories within the one-mile radius. As needed, golden eagle nests within proximity to active mining will be monitored to document nest occupancy. Reports associated with this monitoring will be prepared and provided as specified in the take permit conditions.

For adaptive management purposes, verification of implemented avoidance and minimization measures, as provided in Section 6.0, is necessary. AGA currently has a monitoring and reporting system for incidents related to wildlife fatality. Any incident that results in wildlife fatality or death must be reported to NDOW. Any golden eagle injuries or mortalities must be reported to NDOW and the USFWS.

AGA will continue to monitor the area golden eagle population for additional golden eagle nests. During the life of the Project, AGA recognizes the possibility for new construction of golden eagle nests within the Plan boundary and one-mile radius. Continued monitoring will inform the Applicant on the status of existing nests as well as if new nests are being constructed near the Project and its associated activities. If monitoring determines that there are multiple takes occurring in a given year and that the Proponent is approaching their take permit limits (i.e., up to 10 takes over no more than 10 years), adaptive management would be implemented. First, the Applicant would apply avoidance buffers on in-use/occupied nests to prevent incidental take (no surface-disturbing activities within one mile of an in-use/occupied nest during breeding season including early courtship through post fledging nest dependency (i.e., December 15 through July 15). If avoidance is not practicable, the Proponent may request a permit amendment from the Service. Additionally, at the five-year review of the permit, the Service may consider additional adaptive management strategies, if necessary, in coordination with the Applicant.

8.0 REFERENCES

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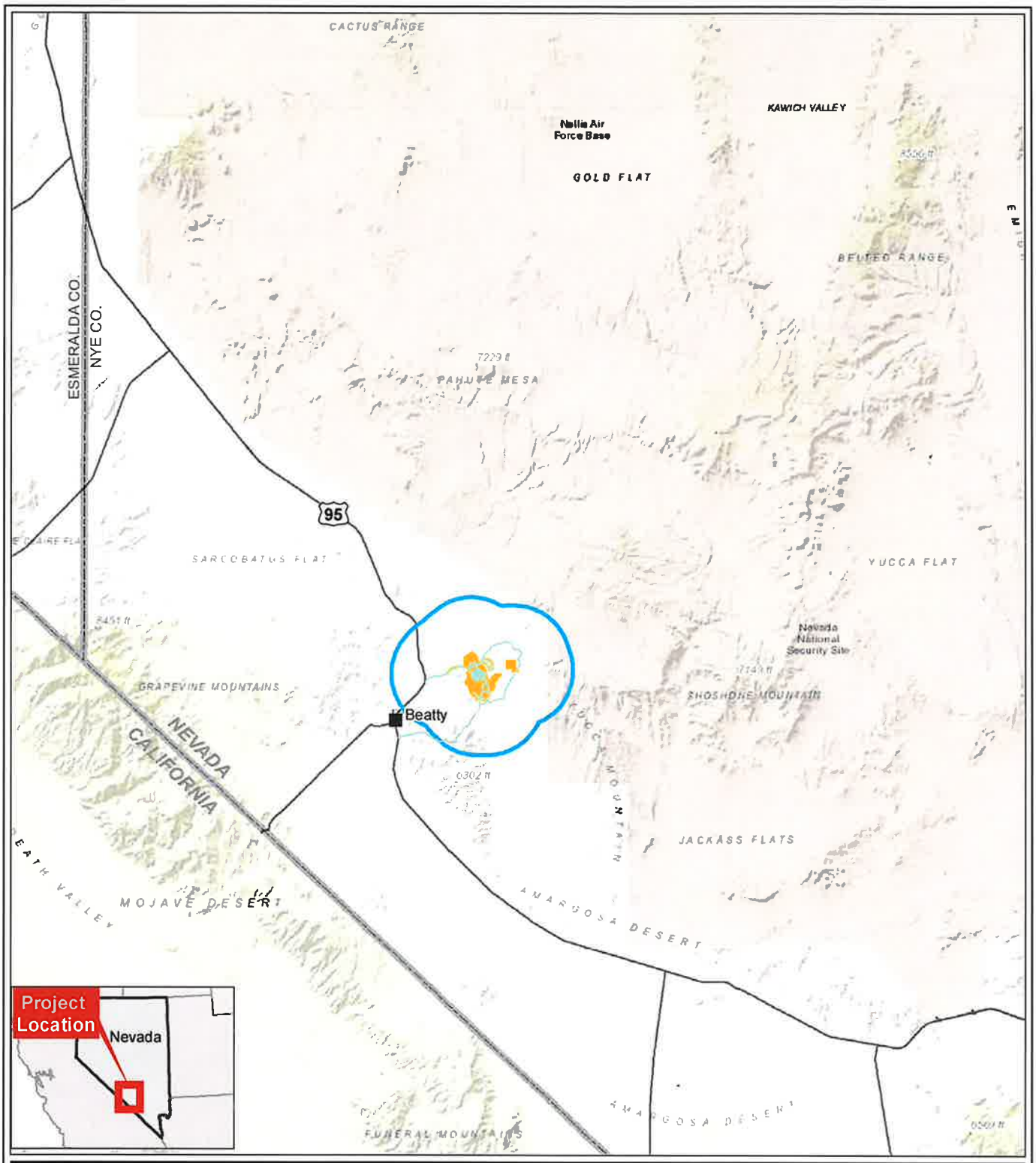
FIGURES



Legend

- Silicon Project Boundary
- Raptor Survey Area (4-Mile Radius)
- Exploration Roads

N

Stantec

0 5 10 Miles

1 in = 10 miles

Nye County, NV
NAD 1983 UTM Zone 11N

DRAWN BY: CJ	1ST REVIEW: BT	2ND REVIEW: JE
DATE: 7/6/2021	PROJECT NO: 203722317	

Anglo Ashanti North America
Eagle Conservation Plan
Silicon Exploration Project

Figure 1
Project Location and Study Area

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Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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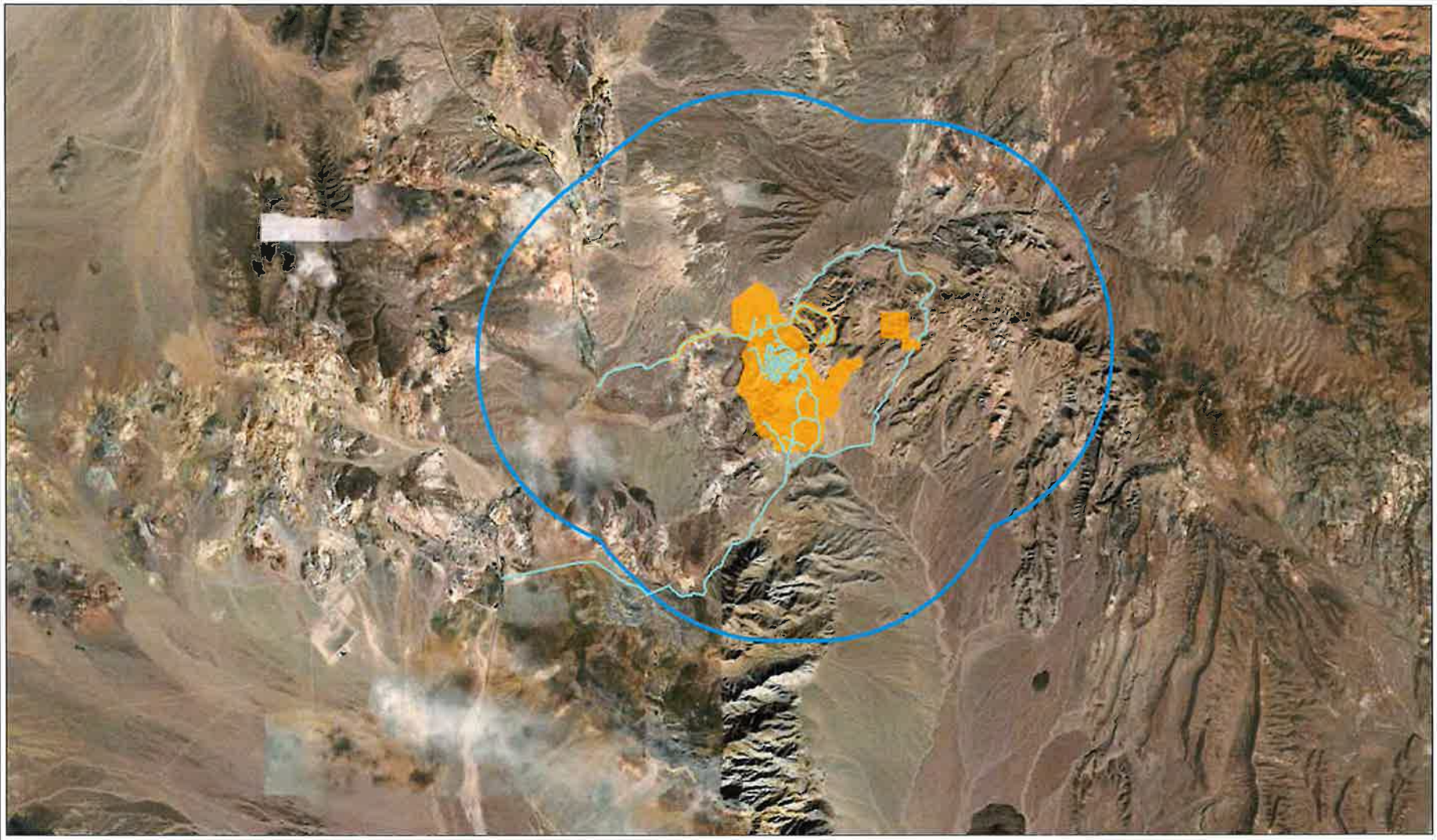

Legend

- Silicon Project Boundary
- Raptor Survey Area (4-mile Radius)
- Exploration Roads

N

Stantec

0 1.5 3 Miles

1 in = 3 miles

Nye County, NV
NAD 1983 UTM Zone 11N

DRAWN BY: CJ	1ST REVIEW: BT	2ND REVIEW: JE
DATE: 7/6/2021	PROJECT NO: 2037222317	

Anglo Ashanti North America
Eagle Conservation Plan
Silicon Exploration Project

Figure 2
Existing and Proposed Facililties

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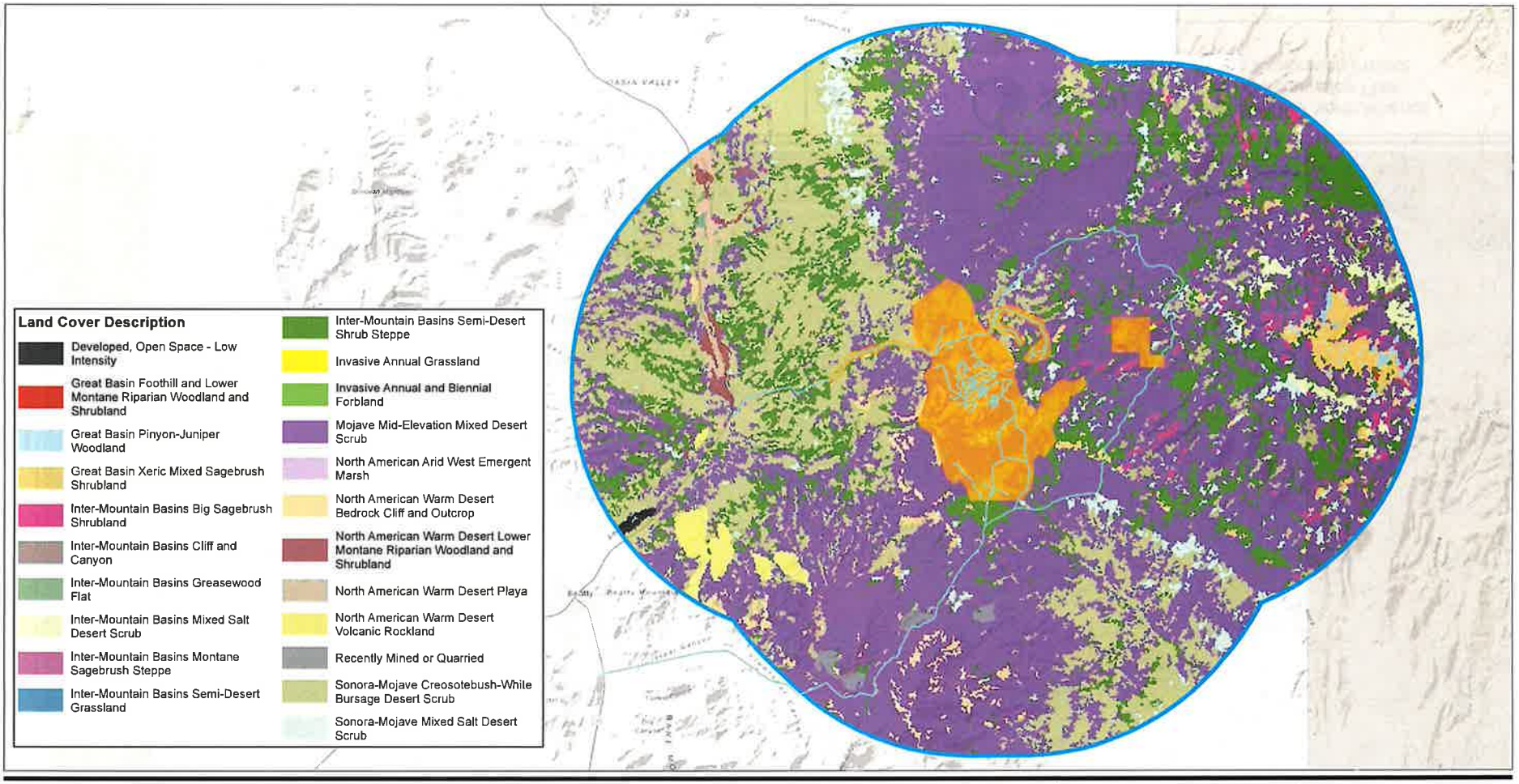

Legend

- Silicon Project Boundary
- Raptor Survey Area (Alternate 4-Mile Radius)
- Exploration Roads

N

Stantec

Feet
0 4,100 8,200 1 in = 8,000 feet

Nye County, NV
NAD 1983 UTM Zone 11N

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DATE: 7/6/2021	PROJECT NO: 2037222317	

Anglo Ashanti North America
Eagle Conservation Plan
Silicon Exploration Project

Figure 3
Foraging Habitat Within Study Area

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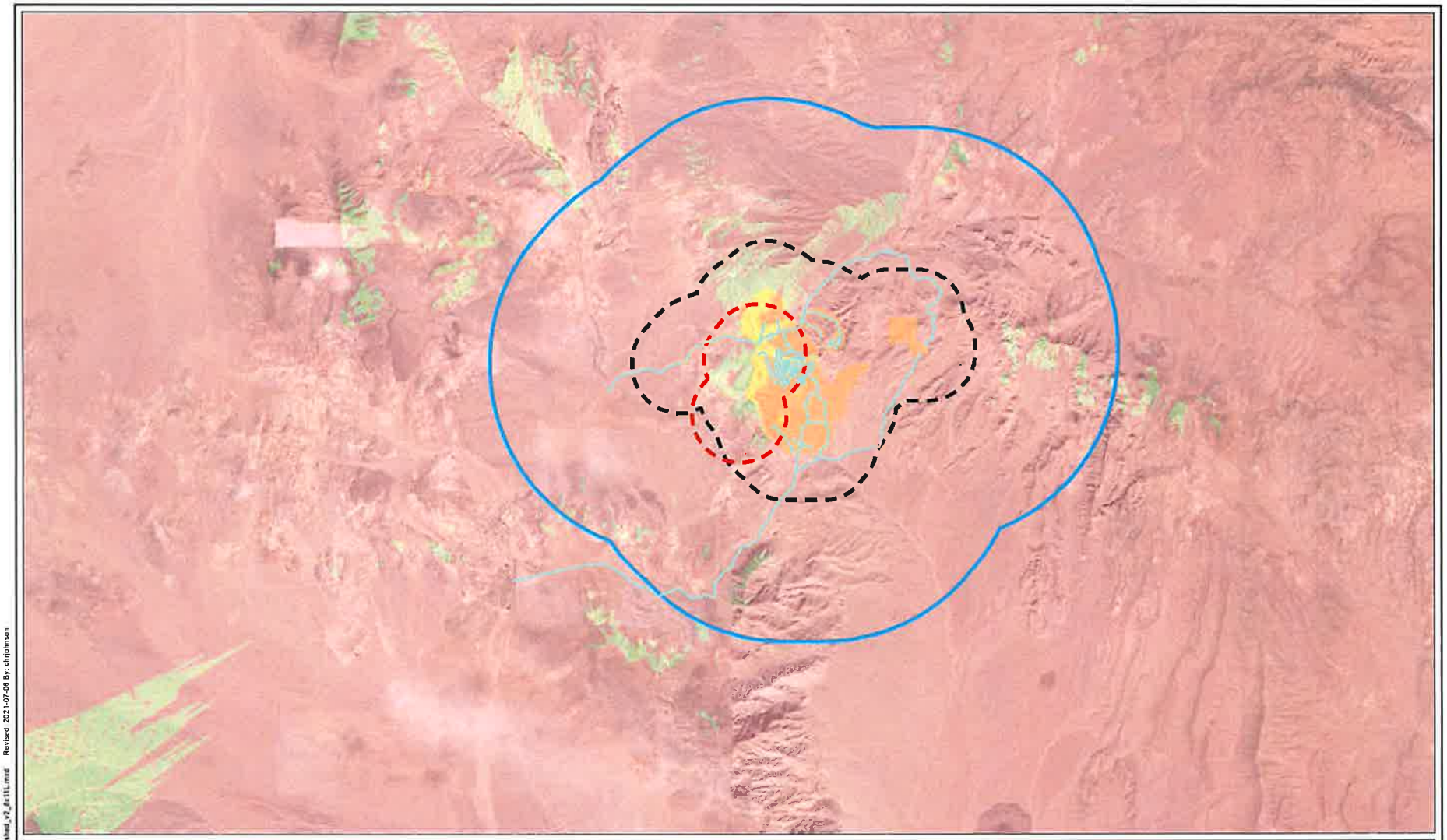

Legend

- Silicon Project Boundary
- Raptor Survey Area (4-mile Radius)
- Exploration Roads
- Golden Eagle Territory
- Project Boundary 1-mile Radius

Viewshed

- Not Visible
- Visible

N

Stantec

Miles
0 1.5 3 1 in = 3 miles

Nye County, NV
NAD 1983 UTM Zone 11N

DRAWN BY: CJ	1ST REVIEW: BT	2ND REVIEW: JE
DATE: 7/6/2021	PROJECT NO: 2037222317	

Anglo Ashanti North America
Eagle Conservation Plan
Silicon Exploration Project

Figure 4
Golden Eagle Nests Viewshed

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APPENDIX B

Public Comments and Responses

Silicon Exploration Project Eagle Take Permit Application
Draft Environmental Assessment Public Comments and Responses

Letter ID #	Comment ID #	Name/Entity	Comment	Response
1	1.1	Basin and Range Watch/Western Watersheds Project/Center for Biological Diversity	We would like to request that the permit only be issued for 5 Takes instead of ten.	Comment noted. Under Alternative 1: Proposed Action, the Service has analyzed the impacts of 10 incidents of take per the application submitted by the Applicant for the Project and we will make a decision for the requested permit based on our analysis as presented in the EA.
1	1.2	Basin and Range Watch/Western Watersheds Project/Center for Biological Diversity	Members of Basin and Range Watch and Western Watersheds Project live within 4 miles of the Silicon Exploration Project and have watched nearly in a daily basis, their operation and mitigation violations that happen sometimes.	Concerns regarding the Applicant's compliance with the BLMs applicant committed environmental protection measures (ACEPMs) and mitigation are beyond the scope of this EA; however, these concerns have been shared with the BLM Tonopah Field Office as they are the under purview of the BLM Decision Record and their EA for the Project.
1	1.3	Basin and Range Watch/Western Watersheds Project/Center for Biological Diversity	We request this because AngloGold Ashanti North America has not been within adequate compliance with the regulations of the Bureau of Land Management Decision Record mitigation which approved the Silicon Exploration Project. In particular, the drillers for the company have not complied with the regulations to mitigate night lighting or noise. The exploration project runs on a 24/7 schedule and for safety reasons, the exploration sites have been extensively illuminated. The BLM Environmental Assessment for the project in 2020 required that night lighting be mitigated to a point of less intensity.	Concerns regarding the Applicant's compliance with the BLMs applicant committed environmental protection measures (ACEPMs) and mitigation are beyond the scope of this EA; however, these concerns have been shared with the BLM Tonopah Field Office as they are the under purview of the BLM Decision Record and their EA for the Project. In addition we will continue our coordination with the BLM and the industry to consider and evaluate best management practices for birds when using night lighting
1	1.4	Basin and Range Watch/Western Watersheds Project/Center for Biological Diversity	We have observed golden eagles regularly across this region, including over the hills where gold exploration is occurring, as well as foraging over adjacent creosote desert rolling terrain and Oasis Valley. We have viewed nests with binoculars on the nearby Bare Mountains.	Comment noted. The existing environment and baseline data for known presence of golden eagles and foraging habitat are discussed within Chapter 3.0 Affected Environment of the EA, noting the current existence of territories and individual nests observed and documented within the area of analysis.
1	1.5	Basin and Range Watch/Western Watersheds Project/Center for Biological Diversity	**Lights:** Since August of 2020, members of Basin and Range Watch have complained to the BLM about 8 different times asking that AngloGold's requirement to mitigate light pollution be enforced. The fall out of compliance about every other month. The BLM EA states:	Concerns regarding the Applicant's compliance with the BLMs ACEPMs and mitigation are beyond the scope of this EA. However, we shared the commenter's concerns about lights with the BLM Tonopah Field Office as they are the under purview of the BLM Decision Record and their EA for the Project. We also discussed the commenters concerns with the Applicant focused on understanding potential measures available to

Silicon Exploration Project Eagle Take Permit Application
Draft Environmental Assessment Public Comments and Responses

Letter ID #	Comment ID #	Name/Entity	Comment	Response
			"To minimize effects from lighting, AGA would utilize hooded stationary lights and light plants. Lighting would be directed onto the pertinent site only and away from adjacent areas not in use, with safety and proper lighting of the active work areas being the primary goal. Lighting fixtures would be hooded and shielded as appropriate. AGA would utilize lighting designed to reduce the impacts to night skies." At any given time, there can be as many as 5 different bright lights on the mountain they are exploring on. Some of the lights are pointed west as well as east and are brighter than moonlight. The complaints have been mostly based on aesthetics, but these lights are clearly too bright to mitigate impacts to wildlife. These lights most likely are attracting and impacting eagles, other migratory birds and bats. The problems do commonly occur in winter during eagle nesting seasons.	implement lighting Best Management Practices to minimizing impacts to birds. The Service will continue to coordinate with the BLM, the Applicant, and the industry to understand current practices and to explore opportunities for improvements.

Silicon Exploration Project Eagle Take Permit Application
Draft Environmental Assessment Public Comments and Responses

1	1.6	Basin and Range Watch/Western Watersheds Project/Center for Biological Diversity	**Noise:** The drill rigs are very loud. They must drill bits down hundreds of feet. They also continuously change the drill bits which makes a very loud "clink" noise. The noise can be heard as far as three miles away but becomes more intense about one mile away. The acoustic environment has a major influence in shaping animal behavior. A growing number of studies quantify the impact of nonlethal human disturbance on the behavior and reproductive success of animals. Most researchers agree that noise can effect an animal's physiology and behavior, and if it becomes a chronic stress, noise can be injurious to an animal's energy budget, reproductive success and long-term survival. In draft guidelines for human disturbance of breeding golden eagles, Hansen et al. (2017) state that ground disturbance and noise can be more significant than aerial noise to raptors: In general, animals appear to be more responsive to louder sounds than to quieter ones (Bowles 1995). For example, Mexican spotted owls only flushed in response to helicopters and chainsaws when sound energy was above certain levels (chainsaws: 46 dBA, helicopters: 92 dBA; Delaney et al. 1999). Awbry and Bowles (1990:21 cited in USFWS 2006) stated that "what little published literature (on raptors) is available suggests that noise begins to disturb most birds at around 80–85 decibels (dB) sound levels and that the threshold for the flight response is around 95 dB." The Service (USFWS 2006) noted in its review of effects of human disturbance on northern spotted owls that raptors tend to be more sensitive to visual disturbances than to auditory ones. However, auditory and visual stimuli from human activities may often interact synergistically in their effects on wildlife (USFWS 2006). This synergistic effect could be responsible for findings that raptors are often more strongly affected by terrestrial activities than aerial activities (USFWS 2006; e.g., Fraser et al. 1985, Delaney et al. 1999, Grubb et al. 2010). The Service (USFWS 2006) recommended an injury threshold for northern spotted owls of 46 dBA for terrestrial	Comment noted. The Service acknowledges the potential for noise to affect eagles, as is reflected in our regional buffer guidance that recommends a 1 mile no disturbance buffer for most activities, and a 2 mile buffer for blasting. If buffers are not practical for a project to implement, in most situations we recommend the project proponent apply for an incidental eagle take permit.. We evaluated the Applicant's request for an eagle incidental take permit accordingly in this EA, considering potential for disturbance to eagles from Project exploration activities including noise. Under the Bald and Golden Eagle Protection Act permit regulations (50 CFR 22.26) we must consider, among other things, if an eagle take request is necessary to protect a legitimate interest in a particular locality. As the BLM had previously authorized the Project's exploration activities, these activities are a legitimate interest. Therefore, our EA analyzed the Applicant's eagle take request as allowed by our regulations. If issued an incidental eagle take permit, the Applicant's impacts to golden eagles would be offset through required compensatory mitigation. To address long term population concerns, our Regional Migratory Bird Program is actively engaged in coordination efforts with the other agencies, including the BLM, industries, researchers, and non-government organizations in our efforts to manage for sustainable populations of eagles and birds throughout Nevada..

Silicon Exploration Project Eagle Take Permit Application
Draft Environmental Assessment Public Comments and Responses

Letter ID #	Comment ID #	Name/Entity	Comment	Response
			activities due to the potential for stronger effects of ground-based activities than of aerial activities. Road traffic by trucks, water trucks, and heavy machinery can impact eagles. In wildlife considerations in planning and managing road corridors little attention has been given to the effects of disturbance by traffic on populations of breeding birds. Recent studies, however, show evidence of strongly reduced densities of many species of woodland and open habitat in broad zones adjacent to busy roads. The density reduction is related to a reduced habitat quality, and traffic noise is probably the most critical factor. Because density can underestimate the habitat quality, the effects on breeding populations are probably larger than have been established (Reijnen et al. 1997). Long-term disturbance could lead to declines in animal populations, including eagles. We recommend that heavy and loud mining and traffic activities should not be allowed 1.2 km from an active golden eagle nest during the period January 1 to August 1.	
1	1.7	Basin and Range Watch/Western Watersheds Project/Center for Biological Diversity	Mining activities that produce extremely loud noises should be avoided within 1/2 mile of active nests (or within 1 mile in open areas), unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.	In general, we recommend that a project may demonstrate compliance with the Eagle Act in two ways, by either implementing no disturbance buffers recommended by the Service, or by applying for an eagle incidental take permit. As described in the EA, we would authorize disturbance incidental to the project's activities, thereby alleviating the need for the project to implement nest buffers. The comment is noted and will be retained in our records.
1	1.8	Basin and Range Watch/Western Watersheds Project/Center for Biological Diversity	Nests should be monitored during the mining activity.	Per Table 2-1 of the Service's EA (page 6-7), annual nest surveys are to be conducted by a qualified biologist prior to surface disturbing activities during the avian breeding season (March 1 through July 31) for the life of the Project. Additionally, annual surveys are to be conducted at golden eagle nests documented within one mile of the Project.
1	1.9	Basin and Range Watch/Western Watersheds Project/Center for Biological Diversity	**Loss of Foraging Habitat:** About 40 percent of the main ridge AngloGold is exploring on has been impacted. Many plant communities have been removed including creosote/bursage, Joshua tree, blackbrush and several others.	Concerns regarding the Applicant's compliance with the ACEPMs for mitigation of impacts to golden eagle foraging habitat are beyond the scope of this EA; however, these concerns have been shared with the BLM Tonopah Field Office as they are the under purview of the BLM Decision Record and their EA for the Project.

Silicon Exploration Project Eagle Take Permit Application
Draft Environmental Assessment Public Comments and Responses

Letter ID #	Comment ID #	Name/Entity	Comment	Response
			According to the BLM EA: *"The depth of cut for newly constructed exploration roads would be minimal. During reclamation activities at the Project, potential growth media stored in the form of berms and push piles, created during construction activities, would be distributed over surface disturbance areas. Distribution of the salvaged growth media during the earthwork portion of reclamation would support effective recontouring and seedbed preparation prior to seeding. Soil amendments are not considered necessary in those areas where sufficient growth media are available."* Very few of these mitigation measures have been implemented to minimize damage to foraging habitat.	
1	1.10	Basin and Range Watch/Western Watersheds Project/Center for Biological Diversity	**Bald Eagles:** The BLM EA stated that: *Bald eagles (Haliaeetus leucocephalus) are known to occur in the region, but are not expected to be affected by exploration activities associated with the Project; therefore, disturbance and loss of territory of bald eagles are not expected to result from the Project (BLM 2020).* Members of Basin and Range Watch have sited bald eagles a number of times at the Parker Ranch, which is included in the Silicon "project area" defined by the eagle report from the EA. Cunningham observed an immature bald eagle on January 3, 2022, roosting on a cottonwood in Oasis Valley in the morning within view of the Silicon Mine project; it flew off. The area may be a migration corridor and foraging habitat for bald eagles given that some artificial ponds and lakes are stocked with bass.	The Service's determination that disturbance and loss of territory of bald eagles is not anticipated as a result of Project activities is based on baseline data collected and annual monitoring survey results within the area of analysis. While bald eagles are known to occur in the region, territories and individual nests have not been documented within the area of analysis; therefore, we determined take of bald eagles is not likely under the proposed project. Section 2.1.2 of the EA (page 5) includes adaptive management measures that would apply to bald eagles.
1	1.11	Basin and Range Watch/Western Watersheds Project/Center for Biological Diversity	**Conclusion:** Please do not issue ten takes for eagles for this company. They are just trying to make their lack of compliance legal. Please only issue 5 Takes for the next ten years.	Comment noted. We have considered the applicant's permit request as allowed under our Eagle Act incidental take permit regulations (50 CFR 22.26). We have determined that issuance of a permit to the Applicant allowing for up to 10 incidents of take from disturbance over 10 years is appropriate and would not result in population level impacts.

APPENDIX C

Project Area Golden Eagle Territories and Nest Data Summary

Appendix C Project Area Golden Eagle Territories and Nest Data Summary

Annual golden eagle ground surveys have been conducted within a four-mile radius of the Project in 2019 and 2020. Additionally, some data from earlier years is available from Nevada Department of Wildlife (NDOW). A summary of golden eagle nest survey data for nests within four miles of the Project from 2019 and 2020 is presented in **Table 1**.

Table 1 Summary of Nest Surveys from 2019 and 2020

Year	2019	2020
Golden Eagle (or Possible Golden Eagle) Nests Surveyed	14	14
In-use[1] Golden Eagle Nests	0	1
Not in-use[2] Golden Eagle (or Possible Golden Eagle) Nests	14	13

[1] In-use Nest – A nest used for breeding in the current year by a pair of golden eagles.
[2] Not in-use – Those nests not selected by golden eagles for use in the current nesting season.
Sources: SWCA 2019 and 2020

In addition, the golden eagle nesting territories within the four-mile radius of the Project were delineated (SWCA 2019). Four distinct territories were delineated based on proximity of nests to one another, concurrent use of adjacent nests, alternating use (from year to year) of adjacent nests, and nearest available quality nesting substrate obtained from surveys and monitoring at the Project. Figure 3 from SWCA's 2019 report displays the four golden eagle nesting territories relative to the Project area and the 14 nest sites. This figure has not been included in this document due to the sensitive nature of eagle nest locations. **Table 2** summarizes the golden eagle territories and use within the Project area.

Of the four territories delineated, the survey area and methods are only consistent in the Project area for 2019 and 2020 data, and there is limited data available for the Project area from 2014, 2015 and 2018. Data available for 2014, 2015 and 2018 were provided to SWCA by NDOW (SWCA 2019). Of the territories delineated, one was in-use in 2014, none were in-use in 2015, 2018, or 2019, and one was in-use in 2020. In 2014, NDOW identified that one of the nests in the Beatty Wash territory successfully fledged eaglets (SWCA 2019). There is no additional data available for fledging success of the territories surveyed.

Table 2 Territories within the Project Area and Status

Territory	Nest ID	Year and Territory Status					Number of Seasons Territory was In-use	Territory Use Rate
		2014	2015	2018	2019	2020		
Beatty Wash	SI-301	In-use	Not In-use	Not In-use	Not In-use	In-use	2	0.40
	SI-302							
	SI-303							
	SI-304							
	SI-305							
	SI-502							
Upper Beatty Wash	SI-206	--	--	--	Not In-use	Not In-use	0	0.00
	SI-209							
	SI-211							
	SI-510							
Fluorspar Canyon	SI-503	--	--	--	Not In-use	Not In-use	0	0.00
Specie Spring	SI-003	--	--	--	Not In-use	Not In-use	0	0.00
	SI-004							
	SI-019							
Total Number of In-use Territories/Total Territories Surveyed		1/1	0/1	0/1	0/4	1/4		
Territory Use Rate		1.00	0.00	0.00	0.00	0.25		

Note: Of the four territories delineated, the survey area and methods are only consistent in the Project area for 2019 and 2020.
Source: SWCA 2019 and 2020

References

SWCA Environmental Consultants. 2019. Silicon Exploration Project Golden Eagle Nest Survey Report. Prepared for AngloGold Ashanti north America and Bureau of Land Management Tonopah Field Office. July 2019.

SWCA Environmental Consultants. 2020. Silicon Exploration Project Golden Eagle Nest Follow-up Occupancy Survey, Proposed Silicon Exploration Project, Nye County, Nevada. August 5, 2020.

Attachment 7

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Exploring the Boundaries of Historic Landscape Preservation

Cari Goetcheus

Eric MacDonald

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Exploring the Boundaries
of Historic Landscape Preservation

Proceedings of the Twenty-ninth Annual Meeting
of the Alliance for Historic Landscape Preservation 2007

AHLP
The Alliance for Historic Preservation

Sunshine Point Alders by Jonathan Higgins

Exploring the Boundaries of Historic Landscape Preservation

The Alliance for Historic Landscape Preservation is dedicated to the preservation and conservation of historic landscapes in all their variety, from formal gardens and public parks to rural and natural expanses. It is an interdisciplinary professional organization that provides a forum for communication and exchange of information regarding landscape change.

The Alliance was founded in 1978, when a small group of people from diverse backgrounds met at New Harmony, Indiana, to share their mutual interests and concerns about the growing field of landscape preservation. From this initial symposium came recognition of the need for increased commitment to the interdisciplinary nature of the field.

Today the Alliance is an international organization with members from more than 30 U.S. states, several Canadian provinces and Europe. Members include educators, private practitioners and representatives from non-profit organizations and government agencies. Geography, history, horticulture, landscape architecture, planning, public administration and architecture are just some of the professional specialties represented. This multi-faceted character is one of the great strengths of the Alliance (www.ahlp.org).

Exploring the Boundaries of Historic Landscape Preservation

Proceedings of the Twenty-ninth Annual Meeting
of the Alliance for Historic Landscape Preservation 2007
Athens, Georgia

Edited by **Cari Goetcheus,** Assistant Professor, Department of Planning and Landscape Architecture, Clemson University, Clemson, South Carolina, United States

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Georgia O'Keeffe, *Red Hills with the Pedernal (Pedernal with Red Hills),* 1936, oil on linen, 19 3/4" x 29 3/4" inches. Collection of the Museum of Fine Arts, New Mexico. Bequest of Helen Miller Jones, 1986. Every effort has been made to trace all copyright-holders, but if any have been inadvertently overlooked, the publisher will be pleased to make the necessary arrangement at the first opportunity.

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Ethnographic Trail Systems as Large-Scale Cultural Landscapes: Preservation and Management Issues

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Abstract

Native American belief systems do not distinguish geographic boundaries for revered landscapes, and the appropriate scale at which to assess ethnographic landscapes may not be readily apparent, as they range greatly from small scale to large. The cultural landscape associated with the *Xam Kwatcan* trail in California, Arizona and Nevada is 160 miles in length. It incorporates extant trails, associated ceremonial sites, and highly revered geographic places. This vast size raises management concerns, but Native American cultural perspectives can be clearly described and taken into account under relevant federal laws (i.e., Section 106 of the National Historic Preservation Act) using ethnographic interviews. Landscape scale is a useful construct in understanding that a place may be simultaneously significant on several scales.

Key Words

Ethnographic landscapes, Native American trails, regional-scale landscapes, southwestern United States

Introduction

It is well known that Native American ethnographic landscapes can encompass relatively large geographic expanses (Hardesty 2000; Parker and King 1992). Sacred mountains, such as Mt. Shasta in California, San Francisco Peak in Arizona, and Devils Tower in Wyoming, are examples. What is less widely appreciated is that Native American belief systems often not only refrain from delineating geographic boundaries with respect to specific revered landforms, such as mountains, but also insist on a critical interconnection among what might otherwise be considered separate landscapes. Boundary definition can be problematic for all types of cultural landscapes, but this problem can seem even more daunting when specific locations such as mountain peaks, intermontane basins, river valleys, and residential areas are inextricably interconnected through a complex belief system. In the case of Native American ethnographic landscapes, song cycles and other sacred texts often weave huge geographies together to form an interconnected whole—a whole seen by modern tribes as critical to their cultural continuity. Because of these widespread interconnections, scales for ethnographic landscape assessments can range from the relatively local to the regional and trans-regional. As a result, the appropriate scale of assessment may not be readily

apparent to non-native resource management agencies or cultural resource professionals who are not trained specialists.

This paper focuses on a large-scale regional cultural landscape associated with a trail system in the arid southwestern United States. Trails of cultural significance to Native Americans in this region range from relatively short ceremonial pathways (Hedges and Hamann 1992; Van Vlack and Stoffle 2006) to trans-regional trails that are closely tied to epic accounts of tribal history, tribal identity, and cultural continuity. A well-known example of a regional trail system is the Chacoan Road network (Hardesty 2000). Lesser-known examples, but equally daunting in scale, are the Salt Song Trail of the Paiute and Chemehuevi tribes and the *Xam Kwatcan* trail system of the Quechan Tribe. The Salt Song Trail traverses southwestern Utah, southern Nevada and much of southern California. The "Salt Song" tells of the trail and its surrounding landscape:

> It's telling about different landmarks, different mountains, the beauty of this mountain, what it stands for, what medicines are found in that mountain. The Salt Song tells all of that. If you understood it, you'd be a scholar (Eddy 2004).

The *Xam Kwatcan* trail system, the primary focus of this paper, is 160 miles or more in length, encompasses portions of three states (California, Arizona, and Nevada), and traverses the traditional territory of multiple Native American tribes. It incorporates extant trails still visible on the desert surface, associated ceremonial sites, and elements of the natural landscape, including highly revered geographic places. A component of this trail system is currently a focus of legal action under the North American Free Trade Agreement (NAFTA), which challenges the impact of a large open-pit mine on such a vast landscape.

The present paper concludes that when adequate ethnographic interviews have been undertaken, Native American cultural perspectives can be clearly described and taken into account under the U.S. National Historic Preservation Act (NHPA).

As defined by the National Park Service, an ethnographic landscape is an area containing a variety of natural and cultural resources, including plant and animal communities that associated people define as heritage resources (USDI, NPS-28 1998). Further, the NHPA defines a traditional cultural property (TCP) as one that is eligible for inclusion in the National Register of Historic Places (National Register) because of its association with cultural practices or beliefs of a living community that are (a) rooted in that community's history, and (b) important in maintaining the continuing cultural identity of the community (USDI, NPS, NRB 1998). By these definitions, the *Xam Kwatcan* trail system can be considered a significant ethnographic landscape and a traditional cultural property. Beyond these definitions, what about its scale?

The concept of landscape scale must include the understanding that a specific ethnographic landscape may be significant because it operates simultaneously on several scales – local, regional, and trans-regional. "Region" is a tricky word that may connote a variety of geographic scales, depending on the context. In this paper, I use the term "regional-scale ethnographic landscape" to denote an area that has geographic unity in terms of its natural and cultural environment and corresponds to a verifiable ethnographic construct. While a local-scale landscape might entail a particular valley or mountain range and vary in

size up to a few hundred square miles, a regional-scale landscape might encompass several mountain ranges and valleys and range up to an area of a few thousand square miles.

The *Xam Kwatcan* Trail System and the Trail of Dreams

Ethnographically, the Native American tribes who occupied most of western Arizona and southeastern California were speakers of related languages of the Yuman family. (Figure 1) The lowland Yuman tribes, including the Quechan, Mojave, Kamia, Cocopah, Halchidhoma, and Maricopa shared many cultural elements, including mythic traditions, cosmology, and religion. They strongly resisted missionization and continued to practice their traditional life ways through the mid-nineteenth century.

The regional environment was strongly dichotomous—the hyper-arid Sonora desert, crossed by the "linear oasis" of the Colorado River (Stone 1991). Structured by this environment, the economy was based on floodplain agriculture, fishing, and harvesting of wild plant foods. For most lowland tribes, hunting was decidedly a secondary subsistence activity. These groups traveled widely across the desert for purposes of social visitation, religious pilgrimages, trade, alliance building, and warfare (Altschul and Ezzo 1994; Forbes 1965; Forde 1931; Kroeber 1925). The construction of a regional trail system was a key component of this cultural system (Baksh 1997; Cleland and Apple 2003; Johnson 1985, 2001; Rogers 1936; Von Werlhof 1987).

The regional trail system plays an important role in the origin legends and the religious practice of the Yuman peoples. According to Quechan cultural tradition:

> In the beginning ... [the Creator] Kwikumat ... created real people. ... The several Yuman tribes all descended from the top of Avikwame[Spirit Mountain near Laughlin, Nevada] and spread to their respective territories. The Quechan, however, took a special trail called xam kwatcán ('another going down'). As a result, the Quechan adopted their tribal name, which is a form of the word kwatcán (Forbes 1965, 3-4).

Thus, contemporary tribal identity is directly tied to the *Xam Kwatcan* trail.

For the lowland Yuman groups, dreaming is considered the primary road to spiritual knowledge and wisdom. Dreams are acquired during sleep, but are interpreted via mythological narratives. It is noteworthy that dreaming is also directly tied in with the regional trail system. A contemporary Quechan put it this way:

> They [Quechan] were taught that dreaming enabled them to have direct contact with various supernatural beings in order to gain advice and teaching on how to solve the problems of the living. While dreaming, their souls returned [following trails] to the time of creation to learn. ... So the mountains along the Colorado River region are highly significant in regional Native American cultural and ethnic identity. Spiritual activities and events are deeply associated with numerous intaglios, petroglyphs, trails, lithic scatters, and cleared circles present along the Colorado River and surrounding hills (Cachora 1994, 14).

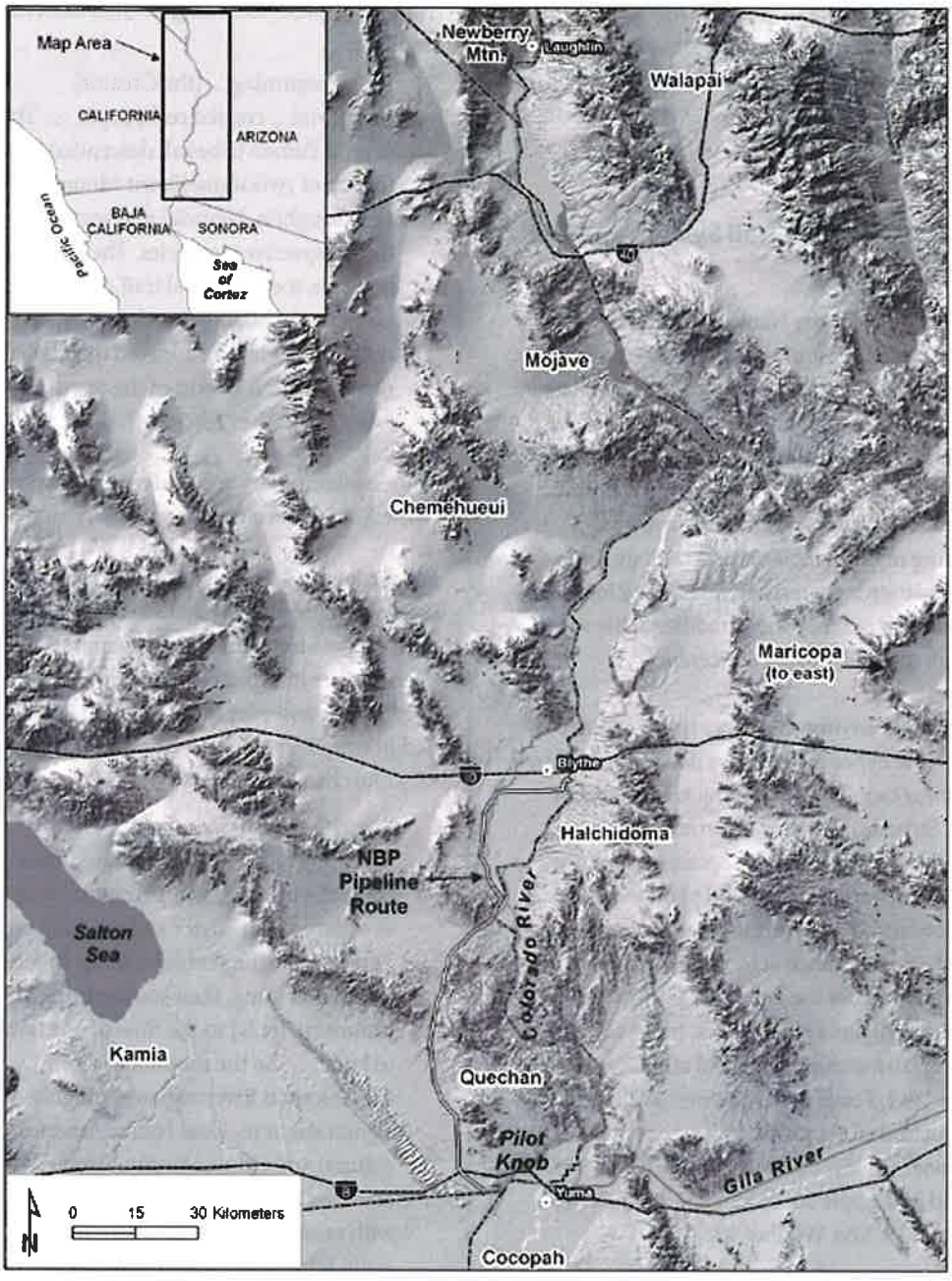

Figure 1. Native American tribes of the Lower Colorado River. (Kroeber 1925)

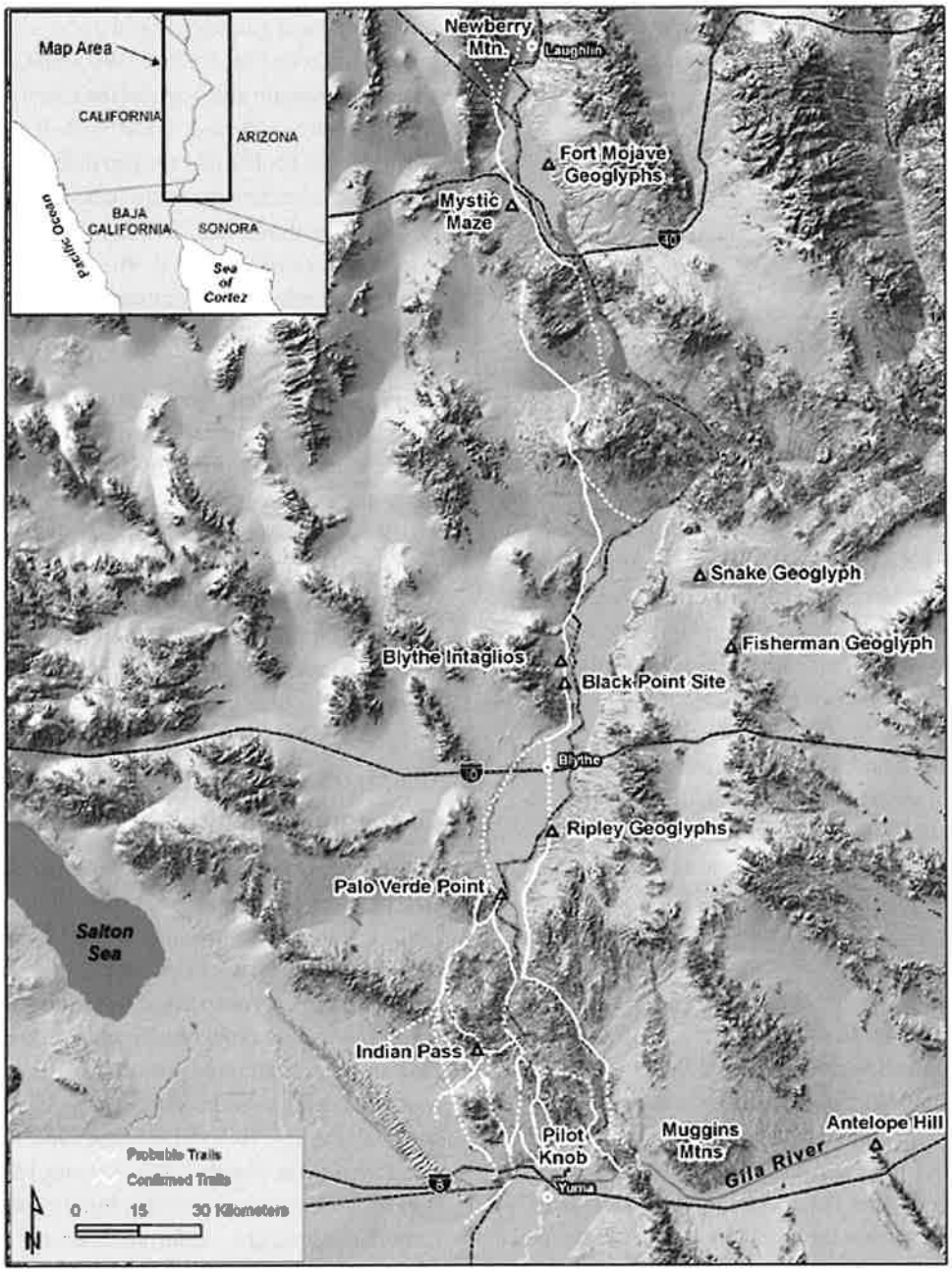

Figure 2. Map of Xam Kwatcan Trail and related places. (Baksh, 1995, 1997; Johnson 1985, 2001; Raven and Raven 1986)

Writing of the Mojave at the turn of the twentieth century, Kroeber (1925, 454-455) wrote:

> [A] Mohave can not tell a story or a dream without *naming the exact spot at which each character journeyed or slept or stood or looked about* [emphasis added]...

The naming and description of distant places on the vast desert landscape was a common thread in the lowland Yuman narrative tradition, reinforcing and facilitating the culture of long-distance travel. Kroeber continued about the important connection between dreaming and narrative:

> Dreams, then are the foundation of Mohave life; and dreams throughout are cast in a mythological mold. There is no people whose activities are more shaped by this psychic state... and none *whose civilization is so completely, so deliberately, reflected in their myths.*

Thus, myth and dreams are somewhat interchangeable but are set in real space on the landscape—a respected dreamer usually related his dreams in terms of mythic traditions, and as Kroeber noted, these mythic traditions molded lowland Yuman culture to an exceptionally high degree.

Another important connection between the trail system and traditional religious practice was the *keruk,* or cremation ceremony. The *keruk* was the most important religious ceremony and often the occasion for relatively large social gatherings (Altschul and Ezzo 1994; Forbes 1965; Forde 1931). Pilot Knob near Yuma was the site of the mythic first cremation – the cremation of the Creator god – and served as an ongoing location for major *keruks.* Following completion of the keruk, people seeking spiritual guidance would undertake a pilgrimage from Pilot Knob to Avikwame, the creation mountain and home of the Creator, near Laughlin, some 160 miles to the north. It is said that a pilgrim could make the trip in four days, quite a feat of endurance, and a tribute to the quality of the trail system. The *Xam Kwatcan* trail system connected Pilot Knob with the creation mountain (Forbes 1965; Johnson 1985; Raven and Raven 1986) and was used in the *keruk* pilgrimage.

According to contemporary Quechan, there were two major branches of the *Xam Kwatcan* trail leading north from Pilot Knob. (Figure 2) The more easterly branch is referred to as the Medicine Trail and the more westerly branch is referred to as the Trail of Dreams (Baksh 1997). The two branches merge near a major rock art complex (Figure 3) near Palo Verde Point on the Colorado River.

Character-Defining Elements of the Contemporary Cultural Landscape

In the lower Colorado River culture area, Native American groups continue to occupy their traditional territories and maintain exceptionally strong cultural continuity, as evidenced in contemporary culture by the unbroken use of native languages, the maintenance of oral history and traditional oral narratives, the continued practice of certain ritual and ceremonial activities, and a strong identification with the land (Baksh 1997; Bee 1981; Raven and Raven 1986; Woods 2001). A strong identification with the land is typical of cultural persistence throughout southern California (Bean and Vane 1978). Tribes continue to occupy their pre-contact homeland and express a close personal affinity with

Figure 3. One of many petroglyph panels at Palo Verde Point. (Hedges in Cleland and Apple 2003)

the places of their ancestors. For many of the desert groups, not only are places in or near reservations remembered and revered, but quite distant places continue to have cultural meaning and importance. As an example, Avikwame, the creation mountain, is over 150 miles from the Quechan Reservation, but remains central in narrative, ceremony, and identity.

Lowland Yuman cultural authorities stress the interconnectedness of places and recoil from regulatory imperatives to divide the landscape and assess the resulting parts individually:

> The sites in that area tie in with something that is bigger in the long run. As I've said before, the whole area along the Colorado River is sacred (Baksh 1997, 21).

> The Quechan note that all the sites in their traditional range are connected spatially, culturally, and spiritually. They should not, therefore, be considered as isolated occurrences, but rather as part of a greater network of cultural heritage. As such, effects to one site create effects on all the others (Woods 2001, 20).

This point of view can be appreciated by recalling Kroeber's remark that every story and dream is manifested at specific places within the desert landscape, and that stories and dreams are central to the Yuman cultural experience.

Constructed Elements

Traditional cultural activities, some of which are ongoing, have left a coherent body of material remains on the desert landscape, connected by a largely extant trail system (Figure 4). The trail system connects cultural and natural elements, such as specific mountains, which the Lower Colorado groups identify as culturally significant. Many trails were intentionally created and are not simply a result of repeated use (Johnson 1985; von Werlhof 1987). The Native American trail system

Figure 4. Recording a portion of the Xam Kwatcan trail system. (Photo by author)

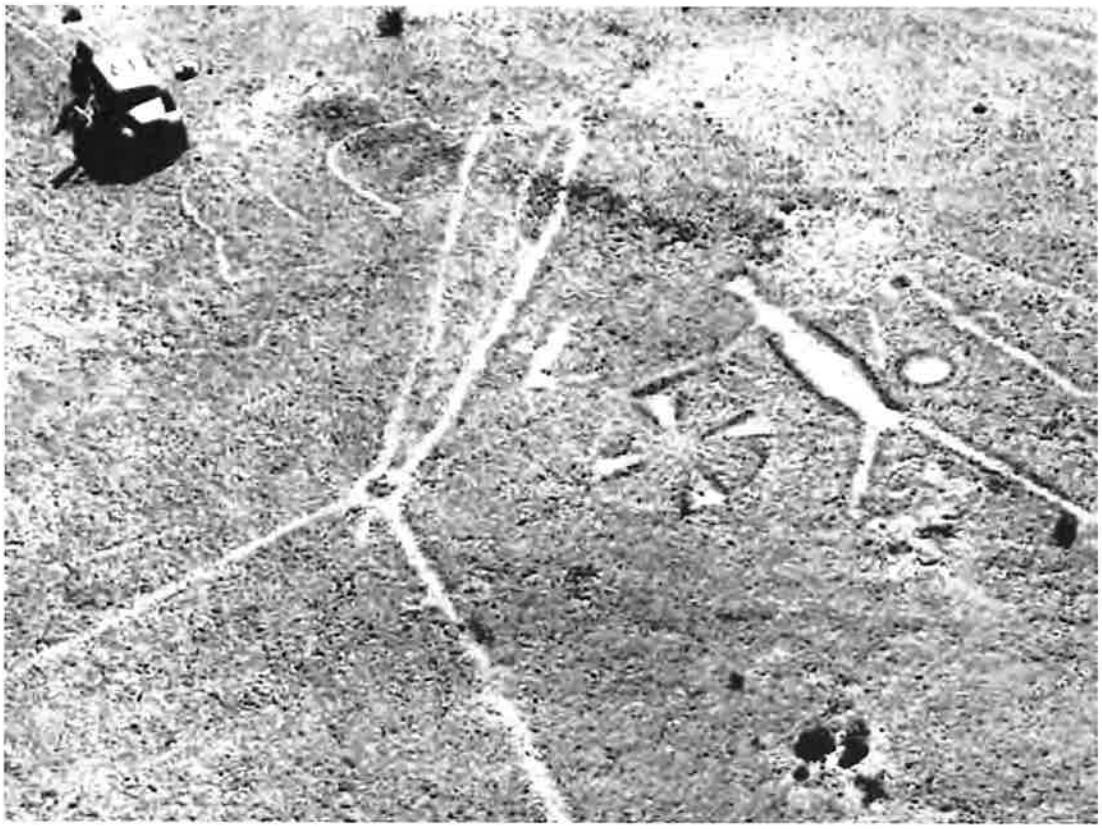

Figure 5: Historic aerial photograph of an expansive geoglyph associated with the Xam Kwatcan Trail. (Setzler and Stewart 1952)

clearly reflects the distribution of prehistoric sites in the region. A recent large-scale survey revealed that 40 percent of the 120-plus recorded prehistoric sites had trail features.

Geoglyphs and rock features constitute other important types of Native American landscape construction. (Figure 5) Geoglyphs (sometimes referred to as intaglios) are naturalistic abstract figures typically incised into the surface of the desert so that the lighter colored subsurface is exposed, creating light-on-dark images. These figures are unique to the Sonora and southern Mojave deserts and can be expansive in scale with individual elements exceeding 30 m (100 ft.) in length (Johnson 1985). Others may measure only a meter or two across. Sonora Desert archaeologists (Johnson 1985; Von Werlhof 2004) have made a convincing case that some anthropomorphic geoglyphs represent mythological characters and events. These constructions are concentrated at locations of particular traditional significance (Altschul and Ezzo 1994; Baksh 1995; Pigniolo et al. 1997; Raven and Raven 1986). Cleared circles

and other cleared areas on desert pavements constitute another key type of cultural landscape construction encountered in areas of high cultural significance.

Elements of the Natural Landscape

Mojave historical narratives (e.g., Kroeber 1925; Kroeber and Kroeber 1973) make it clear that the lowland Yuman groups "catalogued" and remembered the names of many distant places (Kroeber and Kroeber 1973). Forde (1931) noted that the Quechan, too, remembered a vast array of named places, but did not record many of them individually. These named places had varying prominence within the core narrative literature and its correlated belief system. Not every named place rises to the same level of significance.

Several mountains had particular importance, but not all highly revered places were topographic prominences. The Indian Pass area, where two major trails (including the Trail of Dreams) crossed, was particularly esteemed as a teaching place where initiates were brought to learn arcane cultural traditions considered critical to the maintenance of Quechan culture. Mesas surrounding important peaks (Pilot Knob Mesa, for example) are considered especially sensitive and contain high frequencies of constructed cultural elements such as geoglyphs, rock rings, and cleared circles (Ezzo and Altschul 1993; Raven and Raven 1986).

Beyond the physiography of place, lowland Yuman tradition puts significant emphasis on the plants and animals native to each place. Speaking of the culturally-related Chemehuevi, Halmo (2001) noted:

> Given the intimate interrelationship between plants, animals, soil and water, Chemehuevi concerns for these resources are clear. Plants and animals are considered sacred resources that must be used appropriately. ... As mentioned, all traditional Chemehuevi territory is perceived to be a sacred homeland given to the people by their Creator. Any inappropriate treatment of the land is viewed as upsetting the balance with adverse consequences.

In sum, traditional Yuman cultural beliefs interact to create the need to address an integrated cultural landscape comprised of archaeological sites, natural formations, the biotic community, and trails that is truly regional in scale. The National Park Service originally defined an ethnographic landscape as a "landscape containing a variety of natural and cultural resources that associated people define as heritage resources" (Birnbaum 1994). Contemporary Native American consultants and ethnographic testimony gathered in the early twentieth century agree that the associated people (in this case existing Yuman tribes) define an expansive, holistic landscape across the desert as an important heritage resource.

Management Issues

The immensity of regional-scale ethnographic landscapes and the insistence by many contemporary Native American spokespeople on the interconnectedness of the natural and cultural elements of these landscapes raises serious management issues. Can such a landscape be considered a cultural property under U.S. laws and regulations? If so, how would its boundaries be

determined and whose responsibility would it be to define the boundaries? Then, there is the issue of integrity. Typically, any regional-scale ethnographic landscape would have already been subject to some severe disturbance. How would one even begin to assess whether historical values still exist? In the case of the ethnographic landscape associated with the Xam Quechan trail system, three east-west Interstate highways cross it, several modern cities have been developed within it, and the once wild Colorado River has been tamed by dams and levees, and irrigated agricultural fields have replaced wetlands and sloughs.

Having faced these issues on several major projects involving land-management decisions within this regional-scale landscape, I have come to the conclusion that most of the objections to considering regional landscapes result from a too-rigid set of assumptions as to what U.S. regulations actually say and require. Through experience, I have come to understand that current laws, regulations, and guidelines contain most of the tools necessary to come to reasonable and balanced land-management decisions that take into account Native American values.

To put this conclusion into perspective, I will examine an ongoing NAFTA claim (U.S. Department of State 2007) by a Canadian mining company denied the right to develop a massive open-pit gold mine that would have impacted the Trail of Dreams and a specific place—Indian Pass as well as the regional ethnographic landscape as a whole. The issues and regulatory processes at issue in this case are exceedingly complex, and I will only attempt to summarize some of the cultural resources issues. This could be a precedent-setting case, and its high profile is underscored by the fact that the National Trust for Historic Preservation put Indian Pass on its most endangered list in 2002.

Indian Pass had been known since the 1920s as an area rich in archaeological material, as evidenced by surface collections and excavations conducted by Malcolm Rogers (1936, 1939, 1966; Waters 1982). However, Rogers' work was never fully reported, and many archaeologists remained unaware of the value of the area. And, no one had thought to ask the Native American tribes what they thought until the Glamis Imperial Mine was proposed.

Native American values for the area started to come to light during public scoping meetings held by Bureau of Land Management (BLM) under the auspices of the National Environmental Policy Act (NEPA). Native American representatives voiced strong opposition to the project. BLM then retained the services of a cultural anthropologist who had previous experience with lowland Yuman tribes to assess the basis of this opposition. Ethnographic interviews revealed that many Quechan were concerned about all ancestral sites in their traditional territory; too many had already been destroyed. The Trail of Dreams passes through the proposed mine area, while the Medicine Trail was already cut-through by another open-pit gold mine. The Quechan believe that the construction of the proposed mine would preclude their ability to perform the pilgrimage from Pilot Knob to the creation mountain, physically and in dreams. The Indian Pass area is also of special significance. It is a "strong" place and ancestral spirits are thought to dwell there. Landscape features were of importance, as were aspects of the constructed environment. The intersection of

the two trails is an important aspect. Additionally, and of critical importance, the Indian Pass area is a teaching place that must be visited to learn traditional cultural practices. It is the first in a series of such places. The other places would be useless if the first place were destroyed. No mitigation could lessen the cultural damage that would be done if the mine were to proceed.

My company (EDAW, Inc.) conducted the archaeological survey required to conform to both NEPA and Section 106. Suffice it to say, the archaeological data supported the Quechan claims. The proposed site for the mine was found to hold a high concentration of features of probable ceremonial significance, and these features probably span at least a thousand-year period (Pigniolo et al. 1997). A trail associated with many ceremonial features can still be seen on the ground extending from the major trail intersection through the proposed open pit mine. This trail has been identified in the field by Native Americans as the Trail of Dreams. Based partly on the impacts to traditional cultural properties, the Department of the Interior denied the permit application in January 2001. This denial was subsequently reversed, but the State of California also moved to block the project.

Attorneys and an expert witness for the mining company have been critical of some of the cultural resources findings, raising issues of fact as well as procedural issues (Sebastian 2006). Of most importance for present purposes is the issue of scale. The mining company argues that since the Native Americans are concerned about a cultural landscape that is regional in scale, the impact of the mine itself would have to be considered relatively minor, only a few square miles out of many thousands (McKee 2005).

How valid is this criticism? I think it is fair to say that it would be impossible to stop all development in a regional scale landscape just because it would adversely impact that landscape. As noted above, the area in question contains modern towns and numerous modern transportation routes. If all projects are not stopped, why would one project be singled out for denial while another is allowed to go forward? This question underscores one of the major points I want to make. In the Imperial Mine case, if the regional-level landscape was the only issue, then it is doubtful that the government would have blocked the project. Rather, it was the confluence of landscapes on several scales at the proposed mine site that led to the government's decision. Not only was there a regional issue, there was the issue of the Indian Pass area itself and the local manifestation of the Trail of Dreams within that more restricted landscape. Although I cannot speak for Native Americans, my experience on other projects is that strident objections to projects are not raised based solely on regional concerns. While many Native Americans would prefer to see all new development restricted to previously disturbed areas, it is only when a project severely affects a more localized landscape of particular concern that the level of opposition raises to criticality.

Conclusions and Recommendations

In a more general sense, then, how is a regional scale landscape to be dealt with and managed? There might be a tendency either to panic and say "Oh, it's just too big, we can't possibly deal with it," or to shrug and say "Well, if everything is important, what difference does it make?" Neither of these reactions can be justified under current

Federal regulations and guidelines. My recommendation is to take regional cultural landscapes seriously first by acknowledging the existence of such landscapes for purposes of full disclosure. If a good case can be made for the existence of a regional scale landscape, it only makes sense that land managers and cultural resources professionals should take it into account in decision-making. Moreover, in the case of ethnographic landscapes, federal guidelines are quite clear that the concerns of the affected cultural group should be sought out and considered (Parker and King 1992). However, does this mean that a regional scale landscape should be formally evaluated for National Register eligibility as a TCP or ethnographic landscape? In my view, little would be gained in most cases by such an effort. In a rare case, such an assessment might become necessary to avoid a legal challenge, but this would not normally be the case.

What then is the proper format for taking a regional-scale landscape into account? In case of a federal undertaking subject to NEPA, impacts to the regional landscape would have to be addressed separately in the required cumulative impact assessment. This is a point that attorneys for Native American groups are beginning to recognize and advocate for. In addition, undertakings under Section 106 would address the regional landscape in the consultation documents, either in an agreement document like a memorandum of agreement or in agreeing that there would be no effect. Finally, in long-term land management programs, regional scale landscape concerns can be addressed with a formal plan for stewardship. Regional thinking would help lead the cultural resources profession toward large-scale planning similar to the ecosystem-management approach that is gaining popularity relative to rare and endangered species.

In conclusion, the idea of scale in cultural landscape analysis helps to illuminate and explain varying kinds of traditional cultural concerns: concerns dealing on the one hand with holistic regional landscapes and on the other with more localized places and their roles within the larger regional landscapes. This approach serves better to integrate Native American concerns and guide appropriate, informed management decisions. Issues of boundary determination and scale are more readily conceived and resolved within the context of a holistic landscape analysis than within a more partitive approach.

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Attachment 8

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Prepared in cooperation with the Bureau of Reclamation

Update of the Accounting Surface Along the Lower Colorado River

Scientific Investigations Report 2008–5113

U.S. Department of the Interior
U.S. Geological Survey

FRONT COVER—Looking upstream at Palo Verde Dam on the Colorado River near Blythe, California.
Photo taken by Sandra J. Owen-Joyce, July 25, 2007.

Update of the Accounting Surface Along the Lower Colorado River

By Stephen M. Wiele, Stanley A. Leake, Sandra J. Owen-Joyce, and Emmet H. McGuire

Prepared in cooperation with the Bureau of Reclamation

Scientific Investigations Report 2008–5113

U.S. Department of the Interior
U.S. Geological Survey

U.S. Department of the Interior
KEN SALAZAR, Secretary

U.S. Geological Survey
Suzette M. Kimball, Acting Director

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Conversion Factors and Datum

Inch/Pound to SI

Multiply	By	To obtain
	Length	
foot (ft)	0.3048	meter (m)
mile (mi)	1.609	kilometer (km)
	Volume	
acre-foot (acre-ft)	1,233	cubic meter (m^3)
acre-foot (acre-ft)	0.001233	cubic hectometer (hm^3)
	Flow rate	
foot per day (ft/d)	0.3048	meter per day (m/d)
cubic foot per second (ft^3/s)	0.02832	cubic meter per second (m^3/s)

Vertical coordinate information is referenced to the "National Vertical Geodetic Datum of 1929 (NGVD 29)."
Horizontal coordinate information is referenced to the "North American Datum of 1927 (NAD 27)."
Elevation, as used in this report, refers to distance above the vertical datum.

Update of the Accounting Surface Along the Lower Colorado River

By Stephen M. Wiele, Stanley A. Leake, Sandra J. Owen-Joyce, and Emmet H. McGuire

Abstract

The accounting-surface method was developed in the 1990s by the U.S. Geological Survey, in cooperation with the Bureau of Reclamation, to identify wells outside the flood plain of the lower Colorado River that yield water that will be replaced by water from the river. This method was needed to identify which wells require an entitlement for diversion of water from the Colorado River and need to be included in accounting for consumptive use of Colorado River water as outlined in the Consolidated Decree of the United States Supreme Court in *Arizona v. California*. The method is based on the concept of a river aquifer and an accounting surface within the river aquifer. The study area includes the valley adjacent to the lower Colorado River and parts of some adjacent valleys in Arizona, California, Nevada, and Utah and extends from the east end of Lake Mead south to the southerly international boundary with Mexico. Contours for the original accounting surface were hand drawn based on the shape of the aquifer, water-surface elevations in the Colorado River and drainage ditches, and hydrologic judgment. This report documents an update of the original accounting surface based on updated water-surface elevations in the Colorado River and drainage ditches and the use of simple, physically based ground-water flow models to calculate the accounting surface in four areas adjacent to the free-flowing river.

Introduction

The accounting-surface method was developed in the 1990s by the U.S. Geological Survey (USGS), in cooperation with the Bureau of Reclamation (Reclamation), to identify wells outside the flood plain of the lower Colorado River that yield water that will be replaced by water from the river (Wilson and Owen-Joyce, 1994; Owen-Joyce and others, 2000). Prior to the development of the accounting-surface method, water pumped from many wells outside the flood plain was not included when accounting for consumptive use of river water. A method was needed to identify which wells pump water that will be replaced by water from the Colorado River and need to be included in accounting for consumptive use of Colorado River water as outlined in the Consolidated Decree of the United States Supreme Court in *Arizona v. California*, 547 U.S.150 (2006). The method is based on the concept of a river aquifer and an accounting surface within the river aquifer. The study area includes the valley adjacent to the lower Colorado River and parts of some adjacent valleys in Arizona, California, Nevada, and Utah and extends from the east end of Lake Mead south to the southerly international boundary with Mexico (fig. 1). Nearly 15 years have passed since the development of the original accounting surface. Prior to the issuance of a proposed rule to define the accounting procedure, an update of the accounting surface is needed for use in the process of Decree accounting for the following reasons:

1. The original accounting surface was generated on the basis of water-surface profiles of the lower Colorado River computed for the highest median monthly projected discharge for 1992–2001 and assuming delivery of full allocations of river water to users in the United States. Since that time, historical data are available that represent the current and anticipated future operation of the Colorado River for the delivery of full allocation of river water to users in the United States and treaty deliveries to Mexico.

2. The original water-surface profiles were generated with a surface-water model representing river-channel conditions surveyed between 1980 and 1988. More recent river stage information is available, and the target elevations for Lakes Mohave and Havasu have changed slightly since the original accounting surface was developed.

3. The original accounting surface in parts of the Parker and Palo Verde areas was based on water-surface elevations in drainage ditches or wells along the edge of the flood plain that represented regulated flow conditions of the late 1980s and early 1990s. Furthermore, the elevations from the drainage ditches used in the Palo Verde Valley were based on a nonstandard vertical datum, adding an error to the elevation of the accounting surface in that area.

4. Improved ground-water flow modeling is now available that will allow efficient construction of an accounting surface tied to the river in reaches not adjacent to reservoirs. An accounting surface computed with a physically

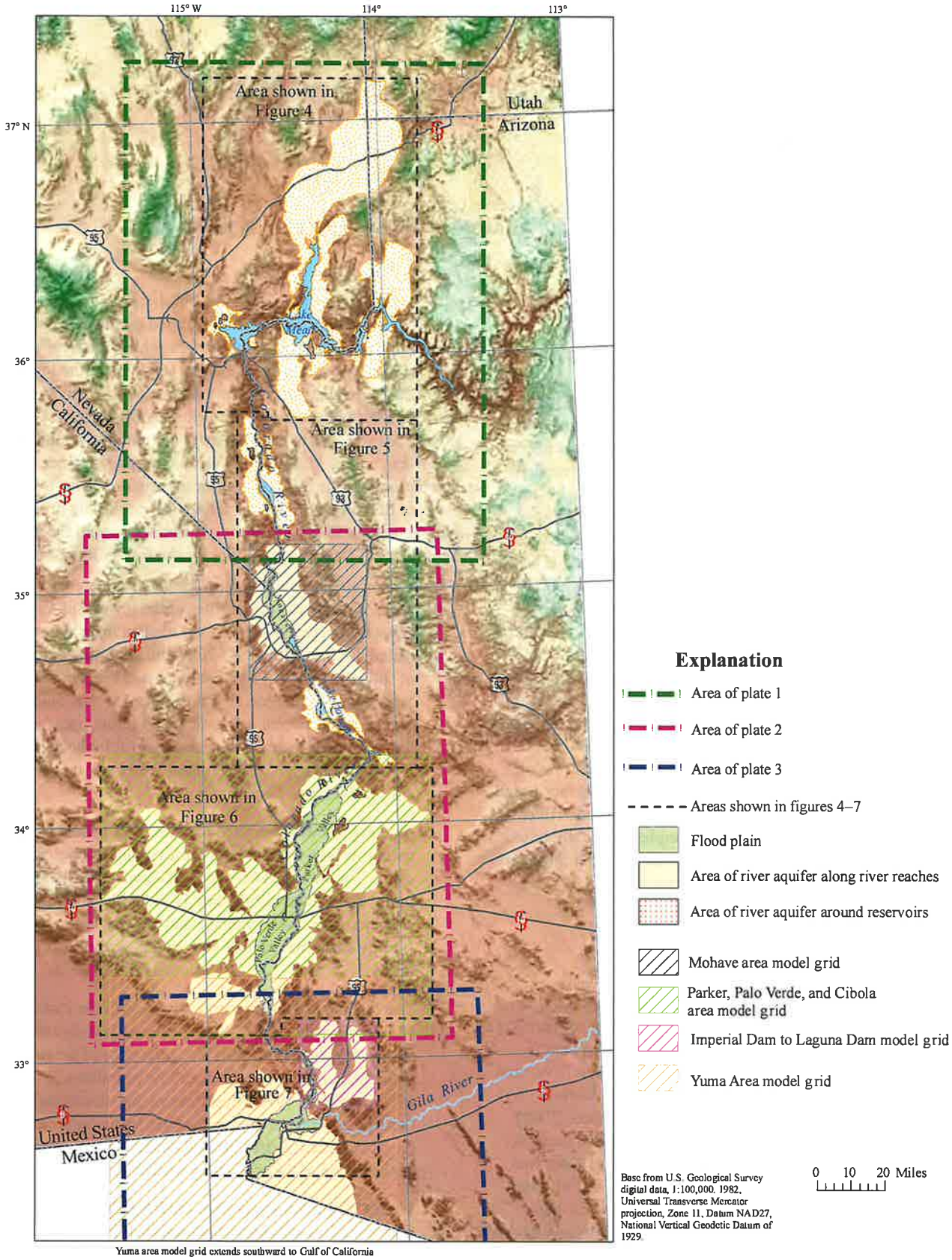

Figure 1. Map showing the lower Colorado River and areal extent of the river aquifer.

based model is an improvement on the original accounting surface, which was hand-drawn based on hydrologic judgment, and can be easily replicated and quickly updated as required.

Legal Framework

The Colorado River Compact of 1922 apportions the waters of the Colorado River between the upper basin and the lower basin (U.S. Congress, 1948, p. A17-A22). The requirement for participation of the USGS and Reclamation is stated in Article V:

> The chief official of each signatory State charged with the administration of water rights, together with the Director of the United States Reclamation Service and the Director of the United States Geological Survey shall cooperate, ex-officio:
>
> (a) To promote the systematic determination and coordination of the facts as to flow, appropriation, consumption, and use of water in the Colorado River Basin, and the interchange of available information in such matters.

Water in the lower Colorado River is apportioned among the States of California, Arizona, and Nevada by the Boulder Canyon Project Act of December 21, 1928 (U.S. Congress, 1948, p. A213–A225) and confirmed by the Consolidated Decree (U.S. Supreme Court, 2006) in terms of consumptive use. The decree is specific about the responsibility of the Secretary of the Interior to account for consumptive use of water from the mainstream. Consumptive use is defined to include "water drawn from the mainstream by underground pumping." Article V of the Consolidated Decree (U.S. Supreme Court, 2006) states in part:

> The United States shall prepare and maintain, or provide for the preparation and maintenance of, and shall make available, annually and at such shorter intervals as the Secretary of the Interior shall deem necessary or advisable, for inspection by interested persons at all reasonable times and at a reasonable place or places, complete, detailed and accurate records of: * * *
>
> * * * (B) Diversions of water from the mainstream, return flow of such water to the stream as is available for consumptive use in the United States or in satisfaction of the Mexican treaty obligation, and consumptive use of such water. These quantities shall be stated separately as to each diverter from the mainstream, each point of diversion, and each of the States of Arizona, California, and Nevada; * * *

Article I of the decree defines terminology and states in part:

> (A) "Consumptive use" means diversions from the stream less such return flow thereto as is available for consumptive use in the United States or in satisfaction of the Mexican treaty obligation;
>
> (B) "Mainstream" means the mainstream of the Colorado River downstream from Lee Ferry within the United States, including the reservoirs thereon;
>
> (C) Consumptive use from the mainstream within a state shall include all consumptive uses of water of the mainstream, including water drawn from the mainstream by underground pumping, and including but not limited to, consumptive uses made by persons, by agencies of that state, and by the United States for the benefit of Indian reservations and other federal establishments within the state; * * *

Ground water in the river aquifer beneath the flood plain is considered to be Colorado River water, and water pumped from wells on the flood plain is presumed to be river water and is accounted for as Colorado River water. Drainage ditches that lie along the edge of the flood plain contain a mixture of river water (recharged on the flood plain from the application of diverted irrigation water) and tributary water.

Purpose and Scope

This report documents the updates to the data and method used to generate the accounting surface in previous reports (Wilson and Owen-Joyce, 1994; Owen-Joyce and others, 2000) and presents the updated accounting surface needed to identify wells outside the flood plain of the lower Colorado River that yield water that will be replaced by water from the Colorado River. The report describes the process to update the accounting surface using simple, physically based ground-water flow models and contains maps (figs. 4–7 and plates 1–3) that show the elevation and contours of the updated accounting surface. Site-specific data were collected where needed to update the accounting surface.

Data Collection

The USGS collected hydrologic data for the study during 2007–08. Most field work was done along the drainage ditches on the flood plain in Parker and Cibola Valleys in Arizona, in Palo Verde Valley in California, and in the Yuma area in Arizona and California. Additional data were collected along reaches of the river between Parker and Headgate Rock Dams and from upstream of Imperial Dam to the northerly international boundary (NIB) with Mexico. Water-surface elevations in drainage ditches were determined by use of Global Positioning System (GPS) surveys (Remondi, 1985). The data are stored in a database of the Arizona Water Science Center of the U.S. Geological Survey, Tucson, Arizona.

Precise GPS was used to collect water-level elevation data in the drainage ditches of agricultural areas along the

lower Colorado River in Parker, Cibola, and Palo Verde Valleys and in the Yuma area. Field collection of data for the Palo Verde Valley drainage-ditch survey was conducted during the weeks of August 13 and 27, 2007. Data for the drainage ditches in Parker Valley were collected during the weeks of August 27 and September 10, 2007. Data for the Cibola Valley drainage ditches were collected during the week of November 5, 2007. Data for the drainage ditches in the Yuma area were collected January 30–31, 2008. Precise GPS was also used to collect data for specific reaches along the Colorado River. Data for the river between Parker Dam and Headgate Rock Dam were collected January 24, 2008. Data for the river in the Yuma area were collected the week of February 4, 2008.

Survey methods included collecting survey data by using Real-Time Kinematic (RTK)-Infill and static GPS. RTK GPS was used to collect edge-of-water or staff-gage elevations in the drainage ditches. RTK base-station positions were located at higher topographic locations near the drainage ditches. The base-station positions were selected by virtue of line-of-sight capability with the area of the drainage ditch to be surveyed. Because most survey points within the drainage ditches were obscured from the base station by the embankments, two technicians conducted the survey for safety and to ensure line-of-site radio link between the RTK base station and rover unit. One technician entered the drainage ditch to place the rover GPS antenna pole at the edge of water or, when available, on top of a staff gage, while the second technician remained at the top of the drainage ditch with the rover radio receiver. Down-to-water measurements were made from the top-of-staff gage or other measuring-point positions.

Static GPS methods included the occupation of surrounding survey benchmarks that have coordinates published by the National Geodetic Survey (NGS). Data collected from the static occupations were used to tie-in, correct, and check the coordinates of individual RTK base-station positions for each of the individual drainage-ditch surveys. In addition, individual base-station positions from each of the drainage ditches were surveyed to a single benchmark located just west of the right bank cableway tie-back at the Colorado River below Palo Verde Dam (USGS 09429100) streamflow-gaging station. Selected top-of-staff measuring points and surrounding NGS benchmarks, when available, were reoccupied with RTK GPS to check for survey accuracy and repeatability. The accuracy of the surveyed elevations was ±0.20 feet.

Various precise GPS methods were used to collect water-level elevation data depending on the conditions that existed in those areas. Traditional RTK and faststatic techniques were not feasible due to line-of-sight problems and the absence of an established faststatic base station in the area between Parker and Headgate Rock Dams. Data were collected at eleven points along this reach of the river by treating each point as a base station and obtaining an Online Positioning User Service (OPUS) solution for each point. In the Yuma area, where there is an established base station surveyed in at the Yuma USGS office, data were collected at 28 points in drainage ditches and at 6 wells using the faststatic technique. Along the river in the reach upstream from Laguna Dam, 15 elevation points were collected by using the faststatic technique with the Yuma base station at the USGS office. Along the river in the Yuma area downstream from Laguna Dam to the NIB with Mexico, the RTK technique was used to collect data at 14 points by using both the AMVD and COCO base stations, which are developed benchmarks established by the City of Yuma.

Previous Investigations

The accounting-surface method is described for two areas in separate reports—the area upstream from Laguna Dam in Wilson and Owen-Joyce (1994) and the area downstream from Laguna Dam in Owen-Joyce and others (2000). Previous geohydrologic studies of the lower Colorado River valley from Davis Dam to Yuma defined and described the formations that constitute the river aquifer, discussed the geologic structures and framework of the lower Colorado River valley, and described the occurrence and movement of ground water (Metzger, 1965, 1968; Metzger and Loeltz, 1973; Metzger and others, 1973; Olmsted and others, 1973). The major emphasis of these studies was the ground-water flow system beneath the flood plain and its relation to the Colorado River because few wells were available outside the flood plain to provide water levels or samples for chemical analysis. Refinement of the hydrogeologic framework, updated maps of ground-water flow, estimates of ground-water storage in the mound under Yuma Mesa, water-chemistry analyses, and water-budget components are topics covered in a recent study of the Yuma area (Dickinson and others, 2006). Additional work to develop procedures to apply the accounting-surface method to water-level data from wells applied geographic information system (GIS) methods to identify areas where wells pump water that will be replaced by water from the Colorado River (Spangler and others, 2007).

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Accounting-Surface Method

The accounting-surface method was developed to identify wells outside the flood plain of the lower Colorado River that yield water that will be replaced by water from the river (Wilson and Owen-Joyce, 1994; Owen-Joyce and others, 2000). The method is based on the concept of a river aquifer

and an accounting surface within the river aquifer. The method provides a uniform criterion for all users pumping water from wells by determining whether the elevation of the static water table at a well is above or below the accounting surface. The elevation of the static water table at a well is determined by measuring the elevation of the static water level in the well. The static water level is the level of the water in a well that is not being affected by ground-water withdrawal or the level to which water will rise in a tightly cased well under its full pressure head. Wells that have a static water-level elevation equal to or below the accounting surface are presumed to yield water that will be replaced by water from the river. Wells that have a static water-level elevation above the accounting surface are presumed to yield water that will be replaced by water from precipitation and inflow from tributary valleys (fig. 2). Ground water in the river aquifer beneath the flood plain is considered to be Colorado River water regardless of water levels. Water pumped from wells on the flood plain is presumed to be river water and is accounted for as Colorado River water.

The accounting surface is defined to represent the elevation and slope of the static water table in the river aquifer outside the flood plain and the reservoirs of the Colorado River that would exist if the water in the river aquifer were derived only from the river (Wilson and Owen-Joyce, 1994). The accounting surface extends outward from the edges of the flood plain or a reservoir to the subsurface boundary of the river aquifer. Initial attempts to compare the water level in wells to the accounting surface were stymied by the inability to obtain water levels in every well (Spangler and others, 2007). Consequently, a method was devised by Spangler and others (2007) to estimate the water surface from available data and a new category—near the accounting surface—was added to the existing categories of well water levels—at, below, or above the accounting surface. GIS methods were used to create maps from measured water-level data that were then used to delineate areas where the water levels in wells were above or below the accounting surface. Estimations of water elevation can be made for wells without a measured water level (Spangler and others, 2007) from these maps. Water levels in wells were measured with calibrated steel or electrical tapes that are accurate to within tenths or hundredths of a foot. A differential GPS was used to determine land-surface elevations to within an operational accuracy of ±0.43 ft, resulting in calculated water-level elevations having a 95-percent confidence interval of ±0.84 ft. GIS interpolation tools were used to delineate areas within the river aquifer where water-level elevations are presumed to be above, below, and near (within ±0.84 ft at the 95-percent confidence interval) the elevation of the accounting surface.

The criterion in the accounting-surface method for all users pumping water from wells was changed by Spangler and others (2007) to determining whether the elevation of the static water table at a well is above, near, or below the accounting surface. Wells that have a static water-level

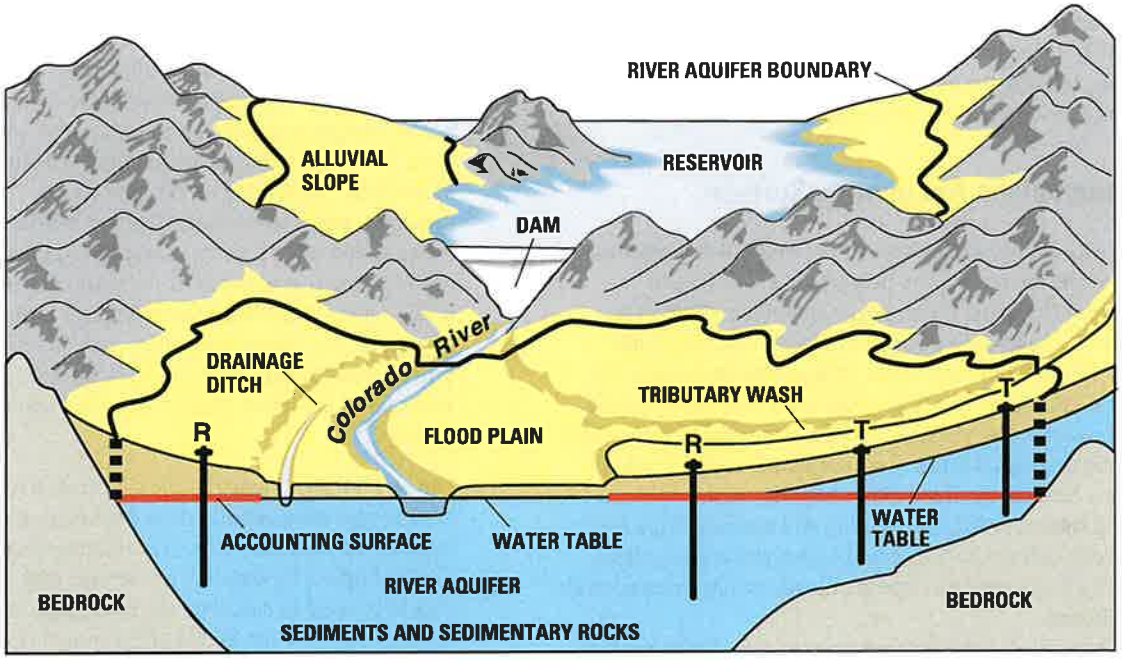

Figure 2. Schematic diagram showing the river aquifer and accounting surface (red line) of the lower Colorado River. Wells labeled "R" have a static water-level elevation equal to or below the accounting surface and are presumed to yield water that will be replaced by water from the river. Wells labeled "T" have a static water-level elevation above the accounting surface and are presumed to yield water that will be replaced by water from precipitation and inflow from tributary valleys (Modified from Wilson and Owen-Joyce, 1994).

elevation near, equal to, or below the accounting surface are presumed to yield water that will be replaced by water from the river. Wells that have a static water-level elevation above the accounting surface are presumed to yield water that will be replaced by water from precipitation and inflow from tributary valleys.

River Aquifer

The boundary of the area that contains the accounting surface was defined as the river aquifer and delineated in the previous studies (Wilson and Owen-Joyce, 1994; Owen-Joyce and others, 2000). The river aquifer consists of permeable, partly saturated sediments and sedimentary rocks that are hydraulically connected to the Colorado River so that water can move between the river and the aquifer in response to withdrawal of water from the aquifer or differences in water-level elevations between the river and the aquifer. The subsurface limit of the river aquifer is the nearly impermeable bedrock of the bottom and sides of the basins that underlie the Colorado River valley and adjacent tributary valleys, which is a barrier to ground-water flow. For this study the boundary of the river aquifer remains the same as defined previously (fig. 1).

The river aquifer beneath the area where the accounting surface exists can be divided into two areas. The first area is where the water table is controlled by reservoirs, and the second area is where the water table is controlled by the Colorado River, drainage ditches on the flood plain, or both. In areas controlled by reservoirs, the accounting surface is set at a constant elevation defined by a representative reservoir level specified by Reclamation. In areas controlled by the Colorado River, drainage ditches, or both, the accounting surface varies depending on the shape of the aquifer and the surface-water elevations.

Generation of the Accounting Surface

The accounting surface adjacent to free-flowing reaches of the river between reservoirs published by Wilson and Owen-Joyce (1994) and Owen-Joyce and others (2000) was represented by hand-drawn contours based on surface-water profiles. In Parker and Palo Verde Valleys, drainage ditches or wells along the edge of the flood plain were used to define the level of the accounting surface. Reclamation considers the water levels in the drainage ditches to represent the level of Colorado River water beneath the flood plain. Adjacent to reservoirs, the accounting surface is flat, and is set to an elevation of the adjacent reservoir defined by the annual high water-surface elevation used by Reclamation to operate the reservoirs under normal flow conditions.

The general strategy for updating the accounting surface was as follows:

1. The extent of the river aquifer and area over which the accounting surface was defined by Wilson and Owen-Joyce (1994) and Owen-Joyce and others (2000) was retained.
2. Water-surface profiles of the Colorado River and drainage ditches used in defining the accounting surface were updated using the most recent information available. Drainage ditches were used in Parker, Palo Verde, and Cibola Valleys in defining the accounting surface.
3. Water-surface elevations in reservoirs were updated on the basis of current operating conditions for Lakes Mead, Mohave, and Havasu.
4. Contours of the accounting surface adjacent to free-flowing reaches of the Colorado River were generated using simple steady-state ground-water models that simulate two-dimensional flow, using a constant transmissivity value, with river and drainage-ditch elevations as boundary conditions.

The discharges along the free-flowing reaches of the Colorado River and the water-surface elevations in reservoirs used to define the accounting surface were specified by Reclamation. Implementation of this general strategy is discussed in more detail in the following sections.

Criteria for Establishing Reservoir Water-Surface Elevations and Colorado River Flow Conditions Used to Generate the Accounting Surface

The water-surface elevations in the Colorado River, reservoirs, and drainage ditches satisfy the following criteria (Jeffrey C. Addiego, Bureau of Reclamation, written commun., 2007):

- The Colorado River is flowing under normal operating conditions. Normal operating conditions exist when releases from the reservoirs are being made to accommodate downstream requirements where each State is using its full apportionment (consumptive use in Arizona + California + Nevada equals 7.5 million acre-feet) and a treaty-specified 1.5 million acre-feet is being delivered to Mexico (approximately 1.36 million acre-feet at the NIB with Mexico and 0.14 million acre-feet at the land boundary near San Luis). Flow and (or) river stage values can be either historical or modeled values, and should exclude flood flows from the lower basin tributaries and side-wash inflows.
- The hydraulic influence of the Colorado River under normal operating conditions is defined by the mean stage of the Colorado River (excluding reservoirs) during the highest flow month of the year (the flow that should be used to calculate the river stage is the mean monthly flow for the highest flow month of the year).
- The elevations used for the reservoirs (Lakes Mohave and Havasu) are the high monthly target elevation for the year used when operating under normal operating conditions—644 feet for Lake Mohave and 448.7 feet for Lake Havasu.

- The maximum elevation of the accounting surface for Lake Mead is the top of the spillway gates in their fixed (down) position (1,205.4 feet). This elevation corresponds to an elevation (and corresponding area) in the vicinity of Lake Mead where a well would have the potential to pump Colorado River water. Whether a well would be considered to pump Colorado River water in the Lake Mead area would depend upon the actual lake elevations during the accounting year.
- The flows and river stage values account for major diversions from and return flows to the river at their respective locations. These diversions and return flows include, at minimum, the diversion at Headgate Rock Dam and major drainage ditches from the Colorado River Indian Reservation, the diversion at Palo Verde Diversion Dam and major drainage ditches from the Palo Verde Irrigation District, the diversions from Lake Havasu by the Central Arizona Project and the Metropolitan Water District canals, the diversions at Imperial Dam and major returns below Imperial Dam. As many diversions and return flow points are used as practical given the available data and the practical influence upon the resultant values.

Table 1. Discharges used to determine the water-surface elevation of the Colorado River used in the ground water-flow models.

[River miles start at the southerly international boundary with Mexico and increase upstream (Bureau of Reclamation, 2001)]

Colorado River gaging station	River mile	Discharge, in cubic feet per second
Below Hoover Dam	342.0	17,634
Below Davis Dam	275.5	17,069
At Big Bend	264.7	19,567
Below Parker Dam	192.2	12,370
Forebay at Headgate Rock Dam	177.7	11,402
At Parker	175.3	11,970
At Water Wheel	151.5	11,157
Below Palo Verde Diversion Dam	132.7	10,924
At Taylor Ferry	106.4	9,825
At Lower Cibola Bridge	86.9	10,399
Above Imperial Dam	49.2	10,222
Below Imperial Dam	49.2	549
Below Laguna Dam	41.7	716
Below Yuma Main Canal Wasteway	29.4	1,527

Areas of the River Aquifer Controlled by Reservoirs

The accounting surface elevations in the river aquifer surrounding Lake Havasu, Lake Mohave, and Lake Mead are determined by the reservoir levels. Reclamation has determined that the accounting-surface elevations are 448.7 ft for Lake Havasu, 644.0 ft for Lake Mohave, and 1205.4 ft for Lake Mead.

Areas of the River Aquifer Controlled by the Colorado River, Drainage Ditches, or Both

River Reaches

Along reaches of the Colorado River without irrigation on the flood plain where the river loses water to the aquifer, the accounting surface is determined by the water surface of the Colorado River. Under predevelopment conditions and where the flood plain is not irrigated with diverted river water, groundwater levels in areas outside the flood plain that are higher than the Colorado River are caused only by tributary ground-water inflow. In this case, the river controls the elevation of the water table under the flood plain, and the accounting surface would be lower than the higher water level caused by tributary groundwater inflow. Water pumped from a well with a static water level above the accounting surface would be deemed tributary water, and an entitlement would not be needed.

A calibrated and documented step-backwater model was not available for the study area, and development of such a model was beyond the scope of this study. Reclamation

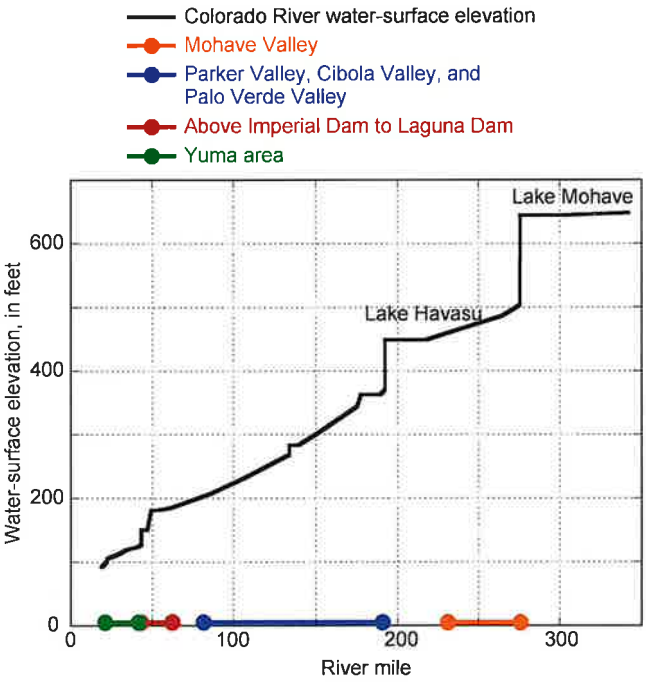

Figure 3. Water surface profile of the Colorado River used in the ground-water flow models. The approximate extent of the accounting surface in each of the four modeled areas is also displayed as a function of river mile. River miles (Bureau of Reclamation, 2001) start at the southerly international boundary with Mexico and increase upstream.

Table 2. Streamflow-gaging station data used to define the water-surface elevation used in the ground-water flow models.

[Agency: USGS, U.S. Geological Survey; Reclamation, Bureau of Reclamation; IBWC, International Boundary and Water Commission]

Colorado River gaging station	UTM coordintate[1], in meters		Elevation, in feet	River mile	Agency
	Easting	Northing			
Below Davis Dam (09423000)	721369	3895914	503.17	275.40	USGS
Big Bend	717750	3884573	486.60	264.70	Reclamation
Below Needles Bridge	721649	3855318	462.20	243.30	Reclamation
RS41 (below Topock Marsh)	731394	3844023	454.14	233.60	Reclamation
Below Parker Dam (09427500)	763366	3798537	370.45	192.20	USGS
Forebay at Headgate Rock Dam	750315	3783939	362.62	177.70	Reclamation
Parker	748190	3781783	344.00	175.30	Reclamation
Water Wheel	728171	3756367	302.63	151.50	Reclamation
Below Palo Verde Diversion Dam	732289	3732777	267.02	132.70	Reclamation
Taylor Ferry (TFLC)	720531	3701245	231.57	106.40	Reclamation
Lower Cibola Bridge	716492	3676582	208.38	86.90	Reclamation
Below Imperial Dam (09429500)	736985	3640727	180.72	49.20	USGS
Below Laguna Dam (0942600)	732742	3633016	127.06	41.7	USGS
Below Yuma Main Canal Wasteway (09521100)	720849	3623858	113.22	29.50	USGS
Above Rockwood Weir	713707	3622116	106.80	23.10	IBWC
Above Morelos Dam	712976	3620783	105.00	22.10	IBWC
Below Morelos Dam	712939	3620723	100.20	22.11	IBWC
Eleven-mile gage	711163	3616163	92.20	18.80	IBWC

[1] Universal Transverse Mercator, Zone 11 coordinates, North American Datum of 1927.

reevaluated the discharges below dams and streamflow-gaging stations along the river used to establish the water-surface elevations according to the criteria described above (Douglas B. Blatchford, Bureau of Reclamation, written commun., 2007) and produced the discharges in table 1. The water-surface profile of the Colorado River was based on a profile linearly interpolated between streamflow-gaging stations that was provided by Reclamation (Shana G. Tighi, written commun., 2008) that included streamflow data collected at gaging stations operated by Reclamation, USGS, and the International Boundary and Water Commission (IBWC). That profile was modified by additional water-surface elevation measurements made by the USGS. Water-surface measurements were made where the linearly interpolated profile deviated significantly from the profiles used in the previous studies (Wilson and Owen-Joyce, 1994; Owen-Joyce and others, 2000). The water-surface profile of the Colorado River used in the ground-water flow models is shown in figure 3. Data from streamflow-gaging stations and USGS measurements are listed in tables 2 and 3. Tables containing the water-surface elevations in the drainage ditches, the path of the Colorado River in Universal Transverse Mercator (UTM) coordinates, and the digitized surface elevations used to represent the Colorado River south of Eleven-mile gage are in the appendixes (available only online at http://pubs.usgs.gov/sir/2008/5113/appendixes/).

Mohave Valley—The water-surface profile was determined from the stage-discharge relations at four streamflow-gaging stations at river miles 275.4 (Colorado River below Davis Dam), 264.7 (Colorado River at Big Bend), 243.4 (Colorado River below Needles Bridge), and 233.6 (Colorado River near Topock [at RS41]), and the elevation of Lake Havasu.

Parker Valley and Palo Verde Valley—The linearly interpolated profile was based on streamflow-gaging station data at river miles 192.2 (Colorado River below Parker Dam), 177.7 (Colorado River Forebay above Headgate Rock), 175.3 (Colorado River at Parker), 151.5 (Colorado River at Water Wheel), 132.7 (Colorado River below Palo Verde Diversion Dam), 106.4 (Colorado River at Taylor Ferry), and 86.9 (Colorado River at Lower Cibola Bridge) and Reclamation GIS coverages of the extent of the Palo Verde Dam and Headgate Rock Dam forebays (Shana Tighi, Bureau of Reclamation, written commun. 2008). Water-surface elevation measurements were made between

Table 3. Colorado River water-surface elevation measurements used to define the water-surface elevation used in the ground-water flow models.

River mile	UTM Coordinates[1], in meters		Elevation, in feet
	Easting	Northing	
191.74	763447	3798135	368.3
190.77	763714	3796614	367.1
189.00	763681	3794281	362.2
188.56	763001	3794254	365.1
187.31	761528	3793982	365.0
186.14	760340	3793027	364.9
184.34	758613	3790855	365.2
182.92	757106	3789138	365.0
181.33	755824	3787245	364.8
179.68	754201	3785508	364.8
178.07	752000	3784263	365.0
47.86	736669	3639365	156.2
47.72	736624	3639178	150.8
46.81	736281	3638125	150.8
44.43	735168	3635338	150.8
40.98	731882	3631582	[2]122.9
38.47	731591	3627923	[2]121.3
35.93	731039	3624107	[2]119.8
34.46	729226	3622800	[2]118.6
34.31	728990	3622783	[2]118.4
33.39	727531	3622993	[2]117.7
31.55	724802	3623457	[2]114.7
31.41	724567	3623385	[2]114.8
30.98	723908	3623357	[2]114.1
29.70	721982	3623768	[3]112.0
28.88	720667	3623899	[3]111.1
28.20	719580	3623936	[3]110.1
26.69	717318	3624355	[3]108.5
25.83	716056	3624828	[3]107.7

[1] Universal Transverse Mercator, Zone 11 coordinates, North American Datum of 1927.

[2] These elevations were increased by 0.8 ft for use in the ground-water model to account for difference in discharge specified for the accounting surface and the discharge during the stage measurements. See the section *Yuma Area* for further explanation.

[3] These elevations were increased by 1.2 ft for use in the ground-water model to account for difference in discharge specified for the accounting surface and the discharge during the stage measurements. See the section *Yuma Area* for further explanation.

Parker Dam and Headgate Rock Dam during this study because the interpolated profile showed the forebay behind Headgate Rock Dam extending upstream to around river mile 189, whereas the earlier profile had a sloping water surface, resulting in higher water-surface elevations. The measurements supported the extent of the forebay represented in the interpolated profile.

Above Imperial Dam to Laguna Dam—The linearly interpolated profile was based on a streamflow-gaging station at river mile 49.2 (Colorado River below Imperial Dam) and Reclamation GIS coverages of the Imperial and Laguna Dam forebays. Water-surface elevation measurements were made above Imperial Dam and showed that the linearly interpolated profile overestimates the extent of the forebay. The measurements, which show a sloping water surface, were used in the ground-water model. The measurements were made at a discharge of about 6,000 ft^3/s, whereas the discharge specified for the accounting surface in this reach was 10,222 ft^3/s. Stage-discharge relations were not available for this reach and a correction for the difference between the two discharges was not made. Water-surface measurements made between Imperial Dam and Laguna Dam supported the linearly interpolated profile drawn from the Reclamation GIS coverage of the Laguna Dam forebay.

Yuma area—The following six streamflow-gaging stations were used for this reach: Colorado River below Laguna Dam, below Yuma Main Canal Wasteway, above Rockwood Weir at the NIB (International Boundary and Water Commission (IBWC) 095-219.00), immediately above Morelos Dam (IBWC 09-5220.21), immediately below Morelos Dam (IBWC 09-5220.41), and at Eleven-mile gage (IBWC 09-5221.00). The previous water-surface profile (Owen-Joyce and others, 2000) showed considerable variability in the water-surface profile between Laguna and Morelos Dams that was not represented by the linearly interpolated profile, so water-surface elevation measurements were made in this reach. The measurements were made at lower discharges than specified for the updated accounting surface. Corrections to water-surface elevations that account for the differences in discharge were estimated from the stage-discharge rating curves at the below Laguna Dam streamflow-gaging station and the below Yuma Main Canal Wasteway streamflow-gaging station. Between Laguna Dam and the below Yuma Main Canal Wasteway streamflow-gaging station, the updated accounting surface discharge was 716 ft^3/s, whereas the discharge measured during the water-surface elevation measurements was 440 ft^3/s. The water-surface profile between Laguna Dam and the below Yuma Main Canal Wasteway streamflow-gaging station was defined in the ground-water model by the measurements plus a correction of 0.8 ft, based on the stage-discharge rating curve at the below Laguna Dam streamflow-gaging station. In the reach between the below Yuma Main Canal Wasteway streamflow-gaging station and Morelos Dam, the discharge specified for the updated accounting surface was 1,526 ft^3/s. The discharges measured during the water-surface elevation measurements were 670 and 778 ft^3/s. The water-surface profile between the below Yuma Main Canal Wasteway streamflow-gaging station and the above Rockwood Weir streamflow-gaging

station was defined in the ground-water model by the measurements plus a correction of 1.2 ft, based on the stage-discharge rating curve at the below Yuma Main Canal Wasteway streamflow-gaging station and the average of the measured discharges in that reach. An analysis of streamflow-gaging station records by Jeffrey C. Addiego (Bureau of Reclamation, written commun., 2008) provided the water-surface elevation at the above Rockwood Weir streamflow-gaging station. Just above and below Morelos Dam and at the Eleven-mile gage (at river mile 18.8), the average monthly high stages at the IBWC streamflow-gaging stations were used to establish the water-surface elevations. Below Eleven-mile gage, the land surface digitized along the path of the Colorado River was used as the water-surface boundary condition in the ground-water flow model.

Drainage Ditch Reaches

Along reaches of the Colorado River where water is diverted for irrigation on the flood plain, drainage ditches intercept return flow to the river and the river gains water from the aquifer. In these reaches, the accounting surface is defined by using the water-surface elevation in the drainage ditches along the edge of the flood plain. Flood-plain irrigation with diverted Colorado River water causes a higher ground-water level under the flood plain because irrigation water not consumptively used by crops percolates down to the water table and causes the water table to rise. There is a constant flow of irrigation with diverted river water, percolation to the drainage ditches or river, and flow in the drainage ditches to the river. Interception of the percolated irrigation water by a network of drainage ditches connected to the Colorado River keeps the water table from rising up into the root zone and this level is higher than it would be if controlled by the river. Because water in the drainage ditches is considered Colorado River water for accounting surface purposes, it warrants the same level of protection from depletion without an entitlement as water in the Colorado River and stored in reservoirs. Where drainage ditches intercept percolated irrigation water, the water-surface elevations in the drainage ditches were used to define the accounting surface. Drainage ditches along the edge of the flood plain could not be used in the Yuma area because the elevation of the water surface is controlled mainly by recharge from the unlined canals that are above the flood-plain elevation and run parallel to the edge of the flood plain rather than by percolation from irrigation on the flood plain. Water-surface elevations in the drainage ditches were determined from USGS measurements in 2007 and 2008.

Ground-Water Flow Models

In the previous studies, the accounting surface was hand-drawn using hydrologic judgment to extend water-surface elevations into the river aquifer based on the shape of the river aquifer. This study refines that procedure by using simple physically based steady-state numerical models to calculate the updated accounting surface.

The river aquifer was represented as a single model layer of uniform aquifer thickness and spatially invariant or constant transmissivity. Because transmissivity is the product of the aquifer thickness and hydraulic conductivity, hydraulic conductivity in the model also is constant. With the assumption of a spatially invariant or constant transmissivity throughout the model domain, the governing equation of steady-state flow in two dimensions is:

$$\frac{\partial^2 h}{\partial x^2} + \frac{\partial^2 h}{\partial y^2} = 0 \qquad (1)$$

where h is hydraulic head and x and y represent Cartesian coordinates along orthogonal axes. Aquifer thickness and conductivity are not present in equation 1; the distribution of heads in the modeled river aquifer depends only on the aquifer boundaries and the specified water-surface elevations in the drainage ditches in the flood plain and in the Colorado River. Flow rates through the aquifer would depend on the aquifer transmissivity, but flow rates are not considered in this study.

The river aquifer adjacent to the Colorado River is unconfined. The assumption of constant transmissivity neglects spatial variations in transmissivity that would arise from the spatial variations in the vertical position of the water table. The assumption also neglects variations in transmissivity that occur from variations in the vertical position of the aquifer bottom as well as spatial variations in hydraulic conductivity. A more rigorous approach would be to use the nonlinear Boussinesq equation instead of the simpler linear Laplace equation (equation 1). That approach, however, would have required unavailable information on aquifer geometry and hydraulic properties. Use of equation 1 is in keeping with a long history in the field of ground-water hydrology of using simple linear equations with the assumption of homogeneous properties to approximate ground-water conditions and responses and is consistent with the overall parsimonious approach taken in the concept, definition, and application of an accounting surface.

The accounting surface in the four areas was modeled with MODFLOW 2000 (Harbaugh and others, 2000) using the water-surface elevations in the Colorado River and drainage ditches as constant-head boundaries. The grid spacing in the models was 0.25 mi along model rows and columns. General characteristics of the model grids are given in table 4 and the extent of the model grids is shown in figure 1. The path and distribution of Colorado River and drainage ditch water-surface elevations were established on the model grids using the RIVGRID program (Leake and Claar, 1999). The water-surface elevations defined by RIVGRID were then incorporated into the models as nodes with a constant head.

Areas of the river aquifer adjacent to the Colorado River for which the accounting surface was modeled include (1) Mohave Valley; (2) Parker, Palo Verde, and Cibola Valleys; (3) Imperial Dam to Laguna Dam; and (4) the Yuma area. Each area was modeled with a single horizontal layer of cells of thickness 500 ft and hydraulic conductivity 39.2 ft/day; however, as pointed out in the discussion of equation 1, the model predictions of the accounting surface are independent of thickness and hydraulic

conductivity. Tests were carried out by varying hydraulic conductivity and thickness to verify that computed head distributions were independent of these parameters. Rows and columns of the model grids were oriented in east-west and north-south directions in the UTM, Zone 11, coordinate system.

Updated Accounting Surface

The accounting surface around reservoirs was updated using a reservoir elevation. The accounting surface is set at its maximum possible level of 1,205.4 ft in the river aquifer around Lake Mead (fig. 4 and plate 1) and has not changed from the original accounting surface. The accounting surface is set at 644.0 ft in the river aquifer around Lake Mohave (fig. 5 and plate 1), and at 448.7 ft in the river aquifer around Lake Havasu (fig. 5 and plate 2), the current high monthly target elevations for these reservoirs. These elevations are slightly different from the high monthly target elevation used for the original accounting surface. In the river aquifer between the major reservoirs, ground-water flow models with boundary conditions set by Colorado River and drainage ditch water-surface elevations were used to contour the accounting surface. The models computed water-level elevations over the entire river aquifer; however, only contours in the river aquifer where the accounting surface exists are shown for modeled areas (figs. 4–7 and plates 1–3). The updated accounting surface is shown on maps for Mohave Valley and adjacent tributary areas (fig. 5 and plate 2); for Parker, Palo Verde, and Cibola Valleys and adjacent tributary areas (fig. 6 and plate 2); and for the Yuma area upstream and downstream from Laguna Dam and adjacent tributary areas (fig. 7 and plate 3). The model grid in the Yuma area extends to the south of the accounting surface, but only contours in the area with the accounting surface are shown.

Summary

An update of the accounting surface developed in the 1990s to identify wells outside the flood plain of the lower Colorado River that yield water that will be replaced by water from the river was required as a result of changes in the ground and surface water systems and a datum correction to the water surface elevations in drainage ditches. The updated accounting surface will be used to identify which wells need an entitlement for diversion of water from the Colorado River and need to be included in accounting for consumptive use of Colorado River water as outlined in the Consolidated Decree of the United States Supreme Court in Arizona v. California, 547 U.S.150 (2006). Contours of the original accounting surface were hand drawn based on the shape of the aquifer, water-surface elevations in the Colorado River and drainage ditches, and hydrologic judgment.

The original accounting surface was updated based on updated water-surface elevations in the Colorado River and drainage ditches, and the use of a simple, physically based ground-water flow model to calculate the accounting surface. The water-surface elevation of the Colorado River was determined for discharges specified by Reclamation. The water-surface elevations were derived from a linearly interpolated profile between USGS and Reclamation streamflow-gaging stations and supplemented by IBWC streamflow-gaging stations downstream from the northerly international boundary with Mexico. In addition, water-surface elevations were measured where the linearly interpolated profile deviated significantly from the water-surface profile used to develop the original accounting surface. The USGS also measured water-surface elevations in drainage ditches in the Parker, Palo Verde, and Cibola Valleys.

The accounting surface was modeled with MODFLOW 2000 (Harbaugh and others, 2000) using the water-surface elevations in the Colorado River and drainage ditches as constant-head boundaries. Reaches of the river aquifer adjacent to the Colorado River for which the accounting surface was modeled include (1) Mohave Valley, (2) Parker, Palo Verde, and Cibola Valleys, (3) Imperial Dam to Laguna Dam, and (4) the Yuma area. The development and application of computer models will make further updating of the accounting surface, if necessary, a straightforward task. In the river aquifer adjacent to reservoirs, the accounting surface was determined by a reservoir elevation specified by Reclamation.

Table 4. Properties of ground-water flow models used to compute the accounting surface for areas along the lower Colorado River.

Area modeled	UTM Coordinates of northwest corner of model grid[1], in meters		Number of model rows	Number of model columns	Number of active cells[2]
	Easting	Northing			
Mohave Valley	706260.7	3897829.0	160	139	13,264
Parker, Palo Verde, and Cibola Valleys	636449.1	3797916.0	329	388	87,176
Imperial Dam to Laguna Dam	730975.8	3672261.3	103	88	4,702
Yuma Area	640414.6	3691950.0	511	340	69,814

[1] Universal Transverse Mercator, Zone 11 coordinates, North American Datum of 1927.

[2] Includes cells with computed head and constant-head cells used to represent water-surface features.

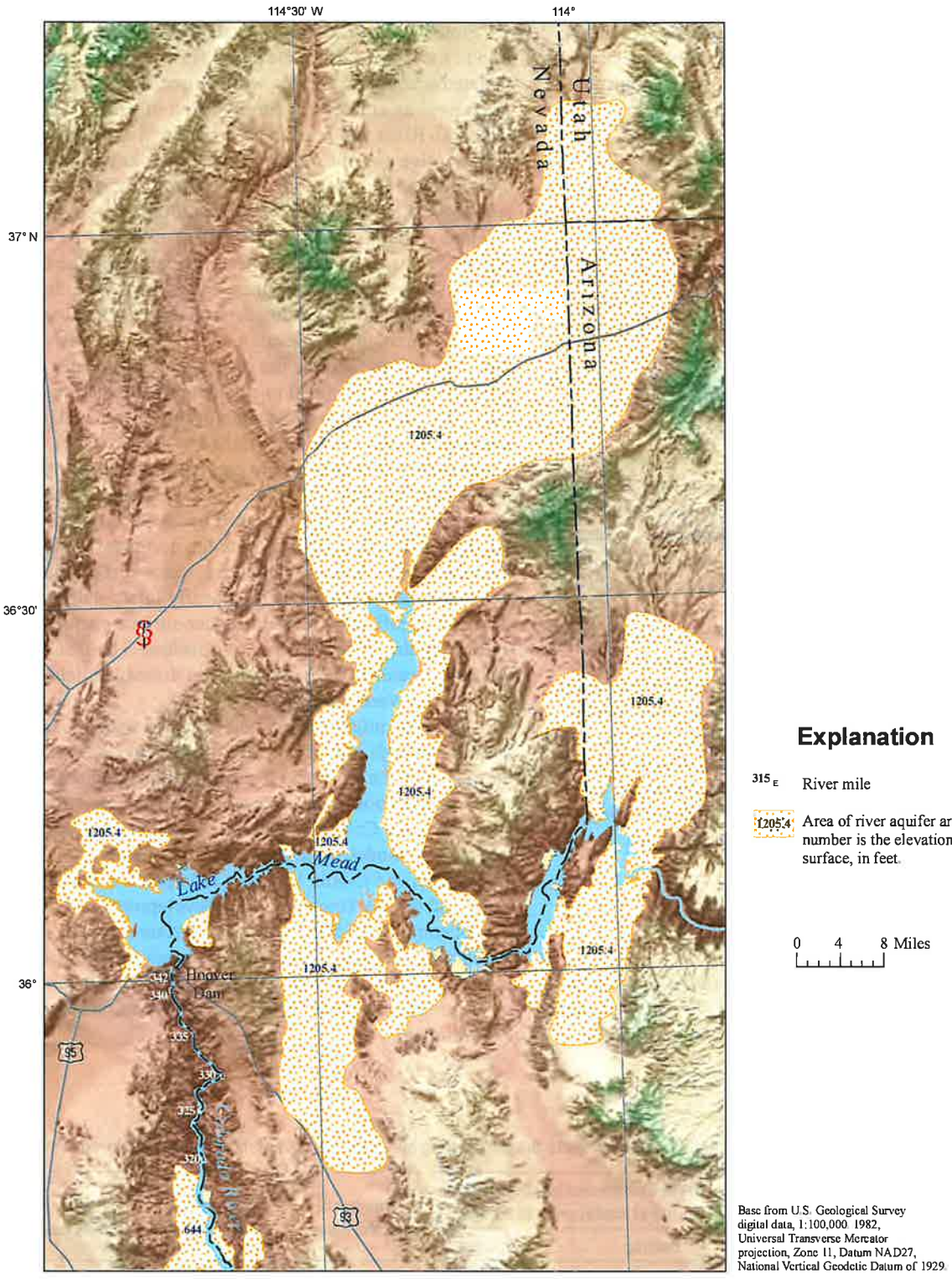

Figure 4. Map showing the accounting surface in the areas surrounding Lake Mead, Arizona, Utah, and Nevada.

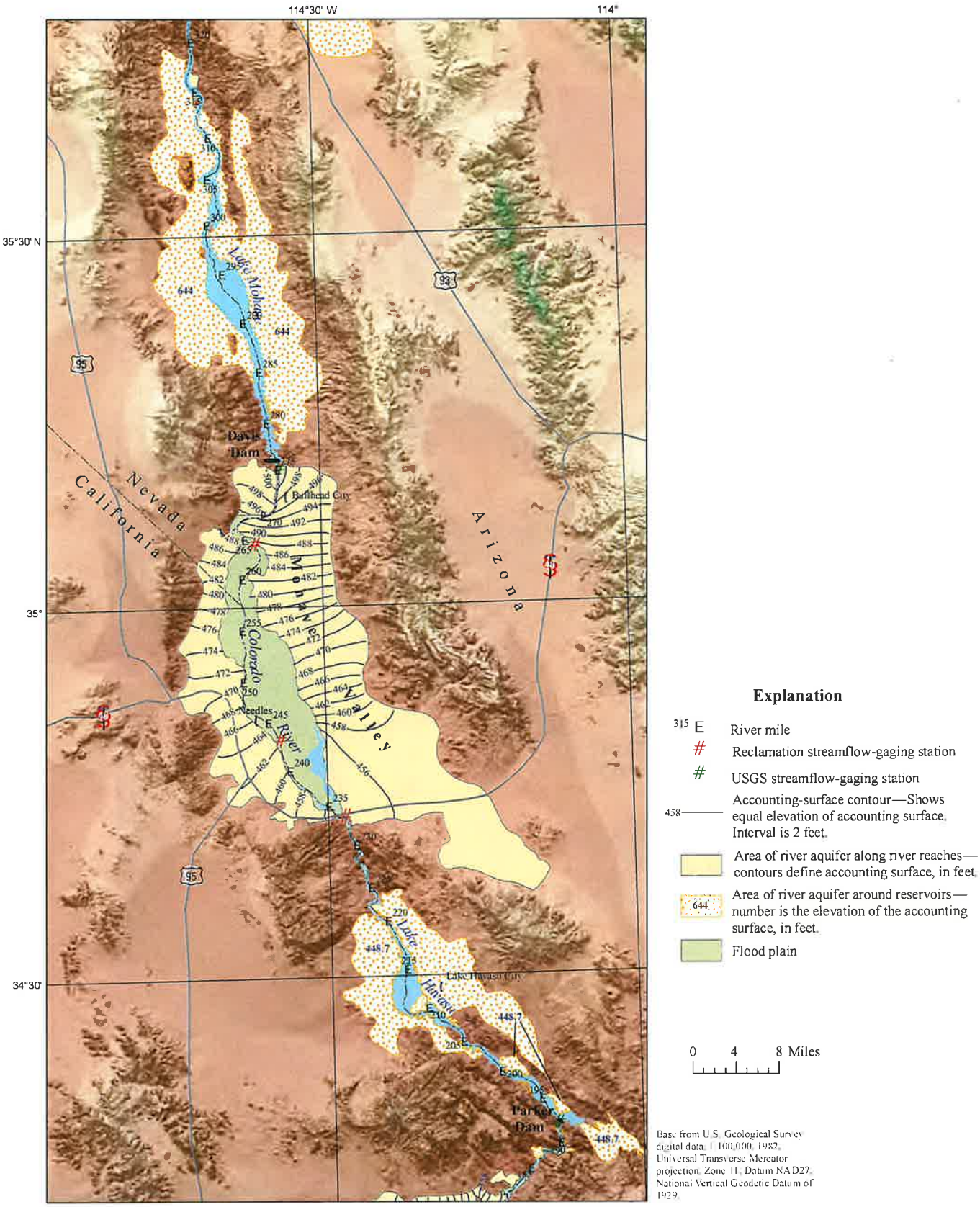

Figure 5. Map showing the accounting surface in Mohave Valley and adjacent tributary areas in Arizona, California, and Nevada.

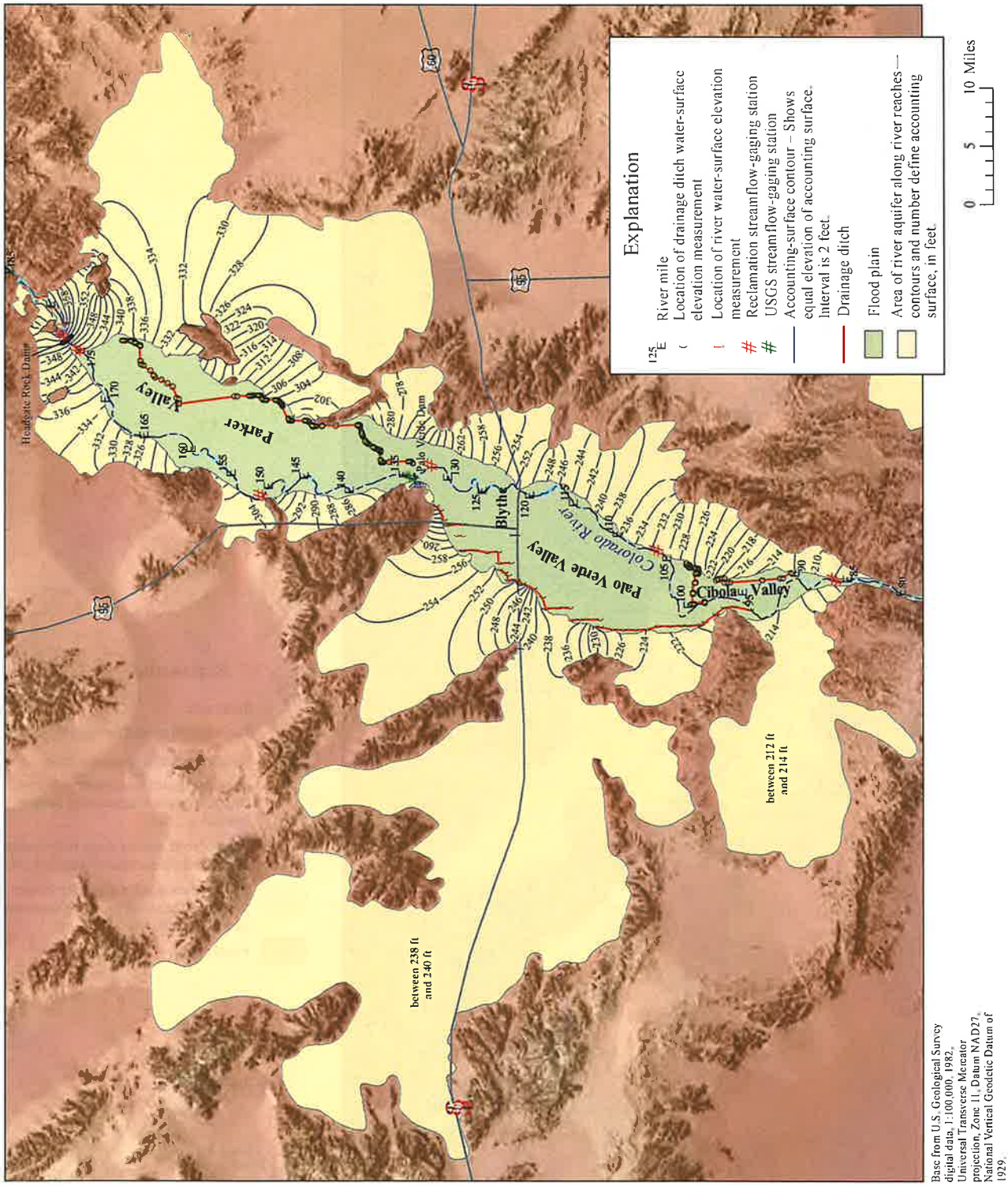

Figure 6. Map showing the accounting surface in Parker, Palo Verde, and Cibola Valleys and adjacent tributary areas in Arizona and California.

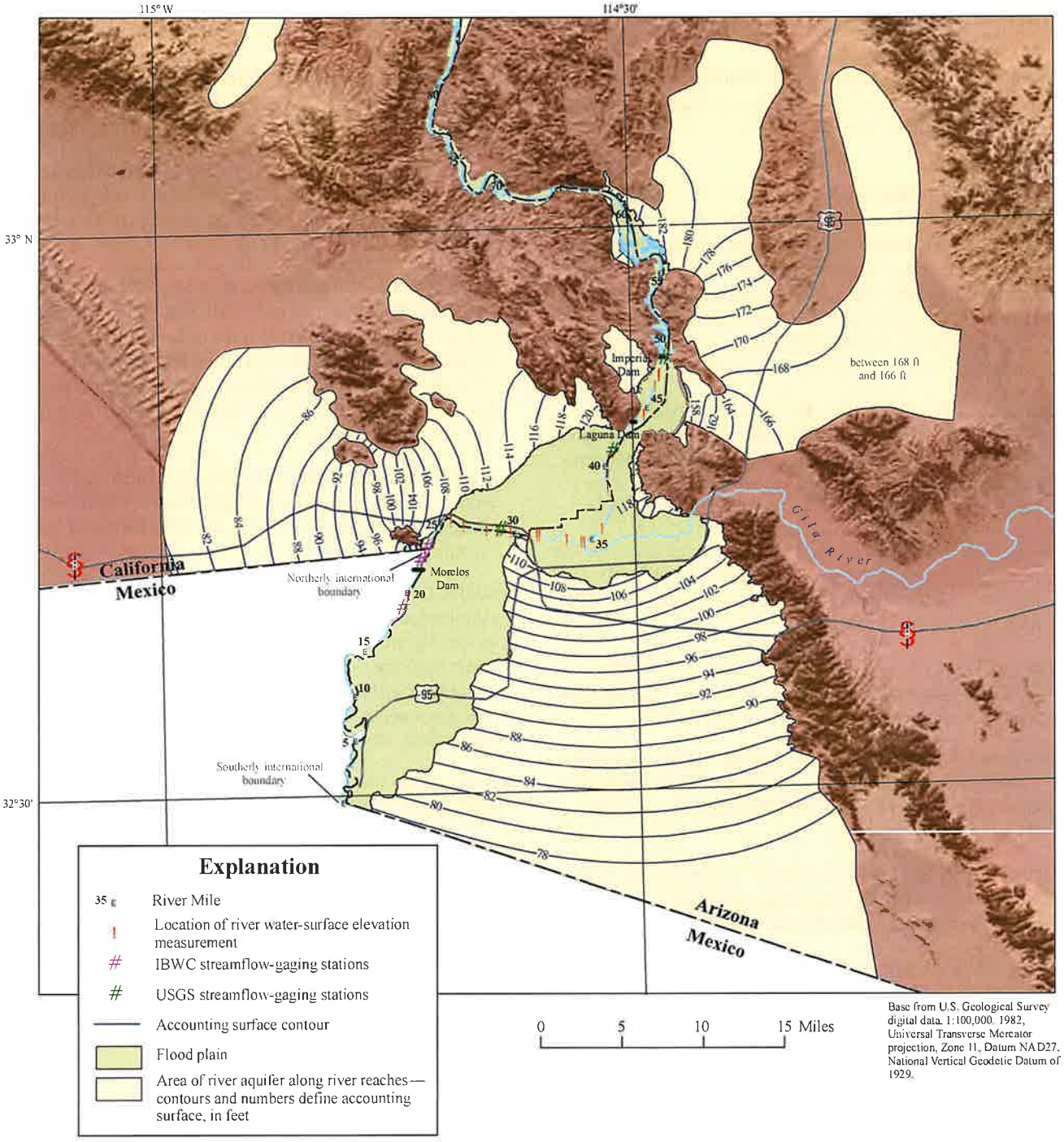

Figure 7. Map showing the accounting surface in the Yuma area upstream and downstream from Laguna Dam and adjacent tributary areas in Arizona and California.

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Wiele and others—**Update of the Accounting Surface Along the Lower Colorado River**—Scientific Investigations Report 2008–5113

ISBN 978-1-4113-2481-7

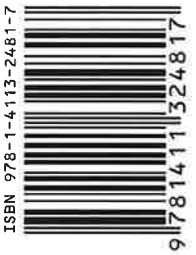

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Exhibit C

CENTER for BIOLOGICAL DIVERSITY Because life is good.

January 20, 2023

Sent via email

Michael Abraham
Assistant Director
Imperial County Planning and Development Services Department
801 Main St
El Centro, CA 92243
MichaelAbraham@co.imperial.ca.us
ICPDSCommentLetters@co.imperial.ca.us.
442-265-1736

Re: Comments on IS21-0029 SMP Gold Corp (Oro Cruz) Reclamation Plan #21-0001, a Mineral Exploration Project (SCH No. 2022120331) Environmental Assessment and Mitigated Negative Declaration

Dear Mr. Abraham:

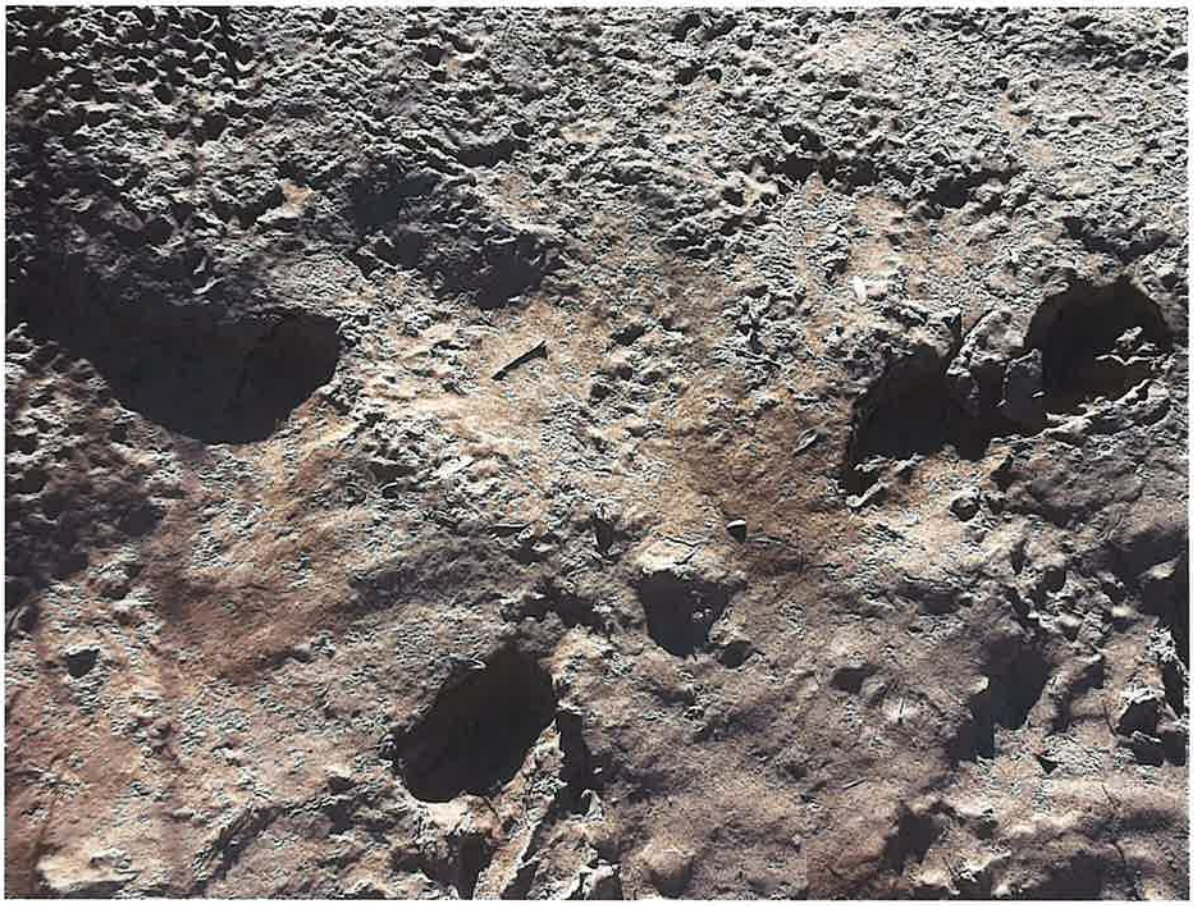
Please find included with this cover letter photographs taken at the site of the proposed IS21-0029 SMP Gold Corp (Oro Cruz) Reclamation Plan #21-0001 Mineral Exploration Project (SCH No. 2022120331). These photographs were taken on January 20, 2023.

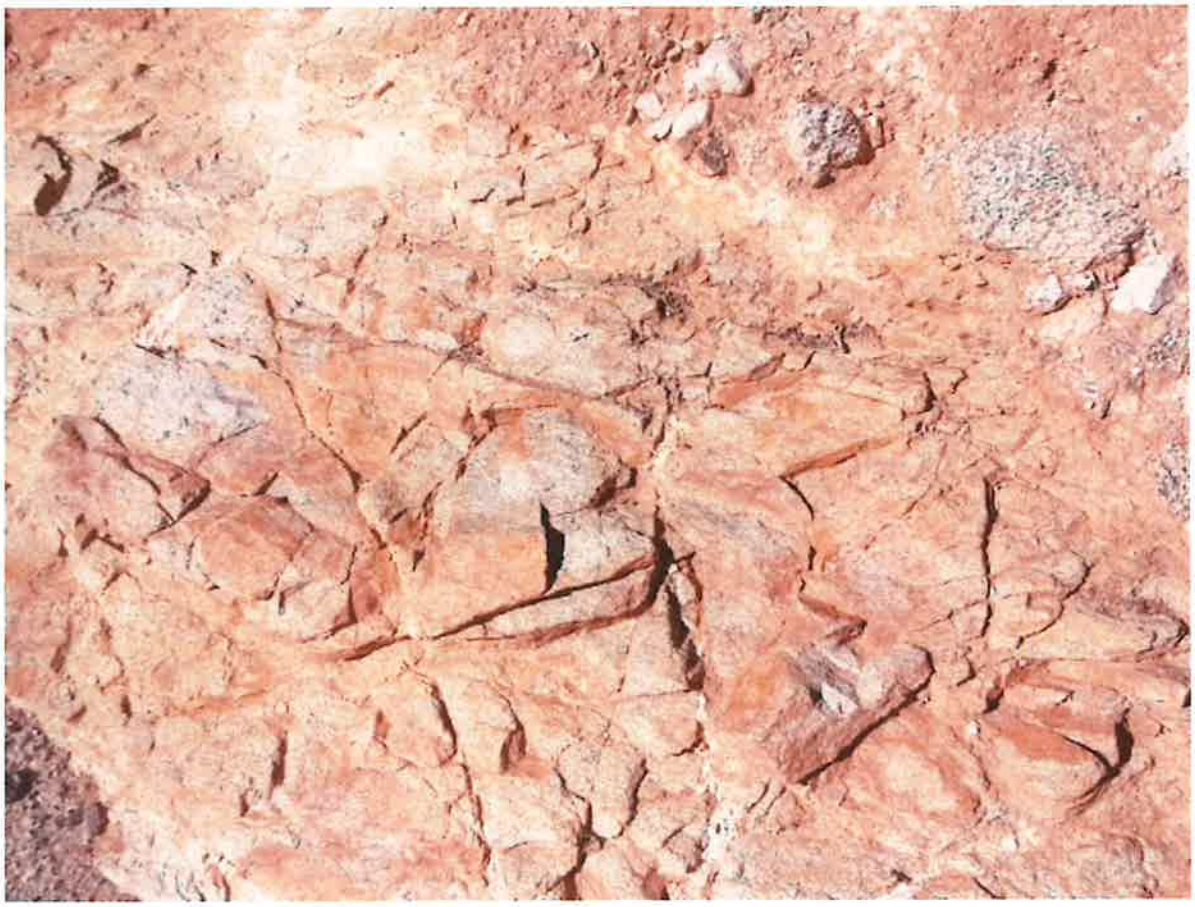
Please include these materials in the County's files, and the administrative record, for the Project.

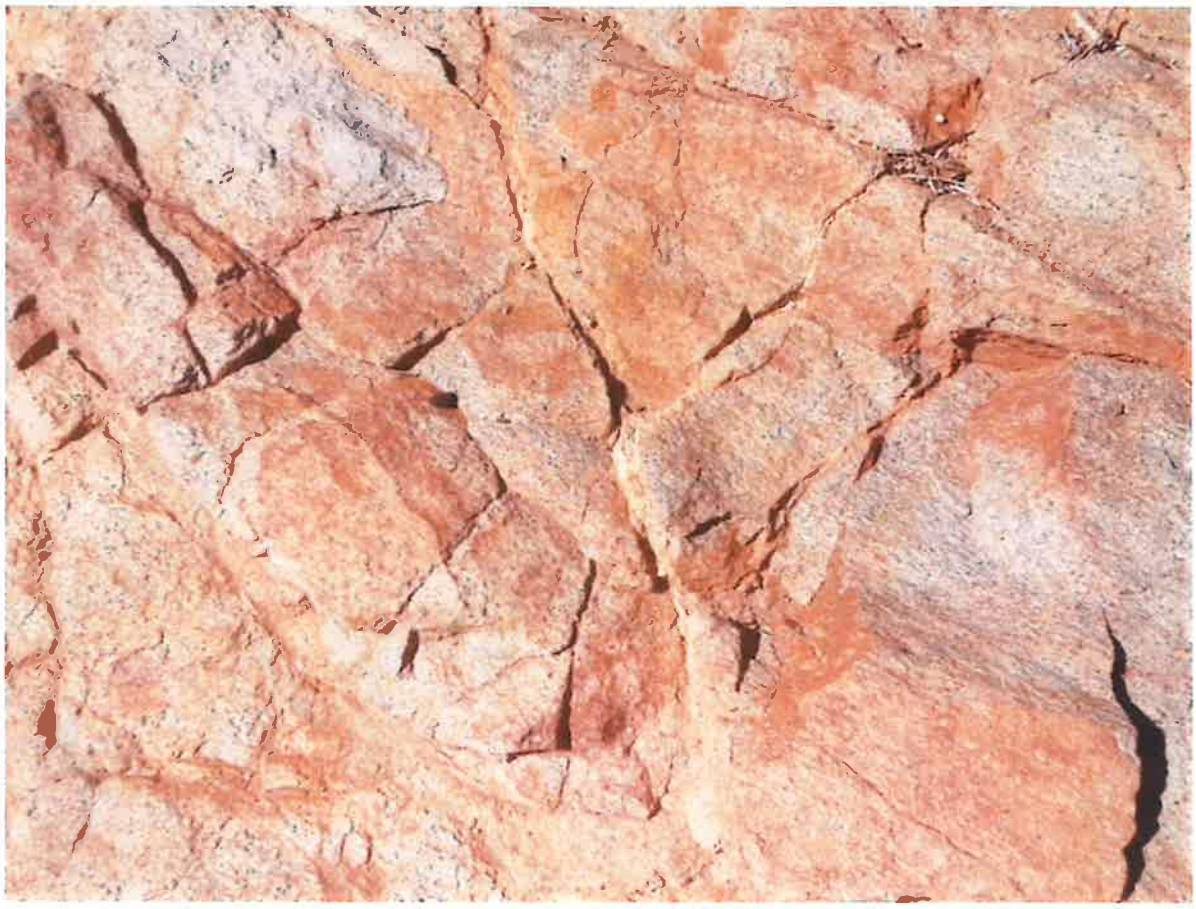
Sincerely,

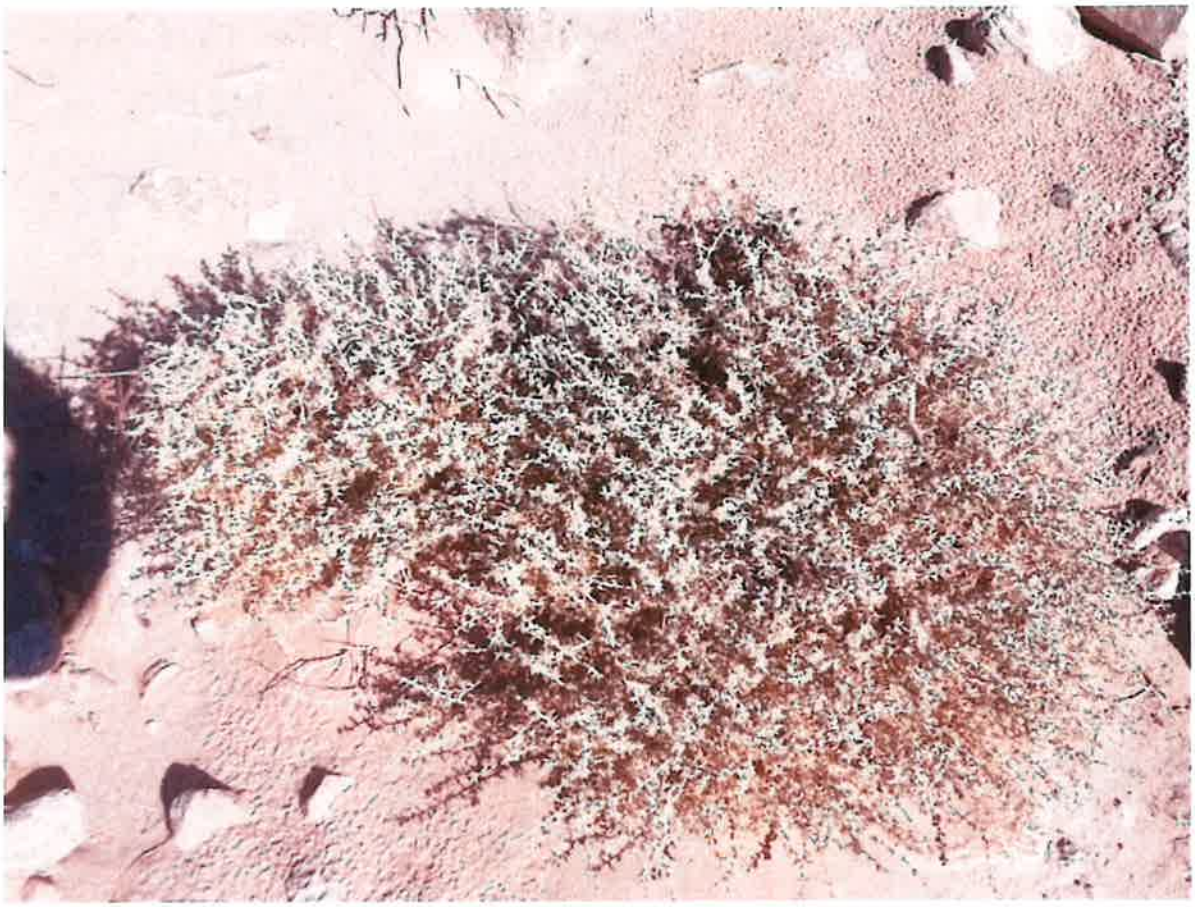
Lisa Belenky, Senior Attorney
Hallie Kutak, Staff Attorney
Center for Biological Diversity
lbelenky@biologicaldiversity.org
hkutak@biologicaldiversity.org

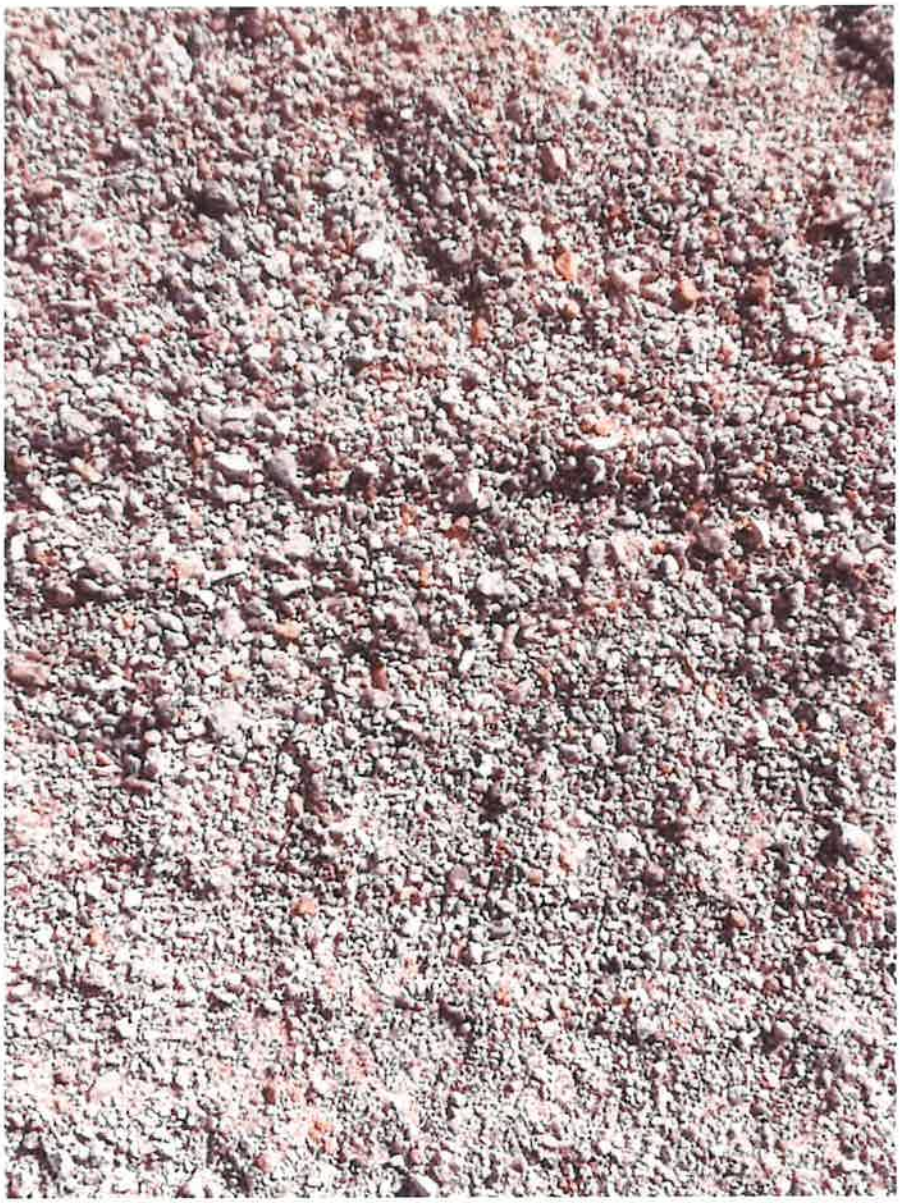
Cc:
Mayra Martinez, Bureau of Land Management, mymartinez@blm.gov
Brian Croft, US Fish and Wildlife Services, Brian_Croft@fws.gov
Magdalena Rodriguez, CDFW, Magdalena.Rodriguez@wildlife.ca.gov
Tom Plenys, EPA, Plenys.Thomas@epa.gov
Chris Harris, Executive Director, Colorado River Board of California crb@crb.ca.gov
Julianne Polanco, State Historic Preservation Officer (SHPO), julianne.polanco@parks.ca.gov
Commissioner Laura Miranda, California Native American Heritage Commission. Chairperson
Laura.Miranda@nahc.ca.gov, nahc@nahc.ca.gov











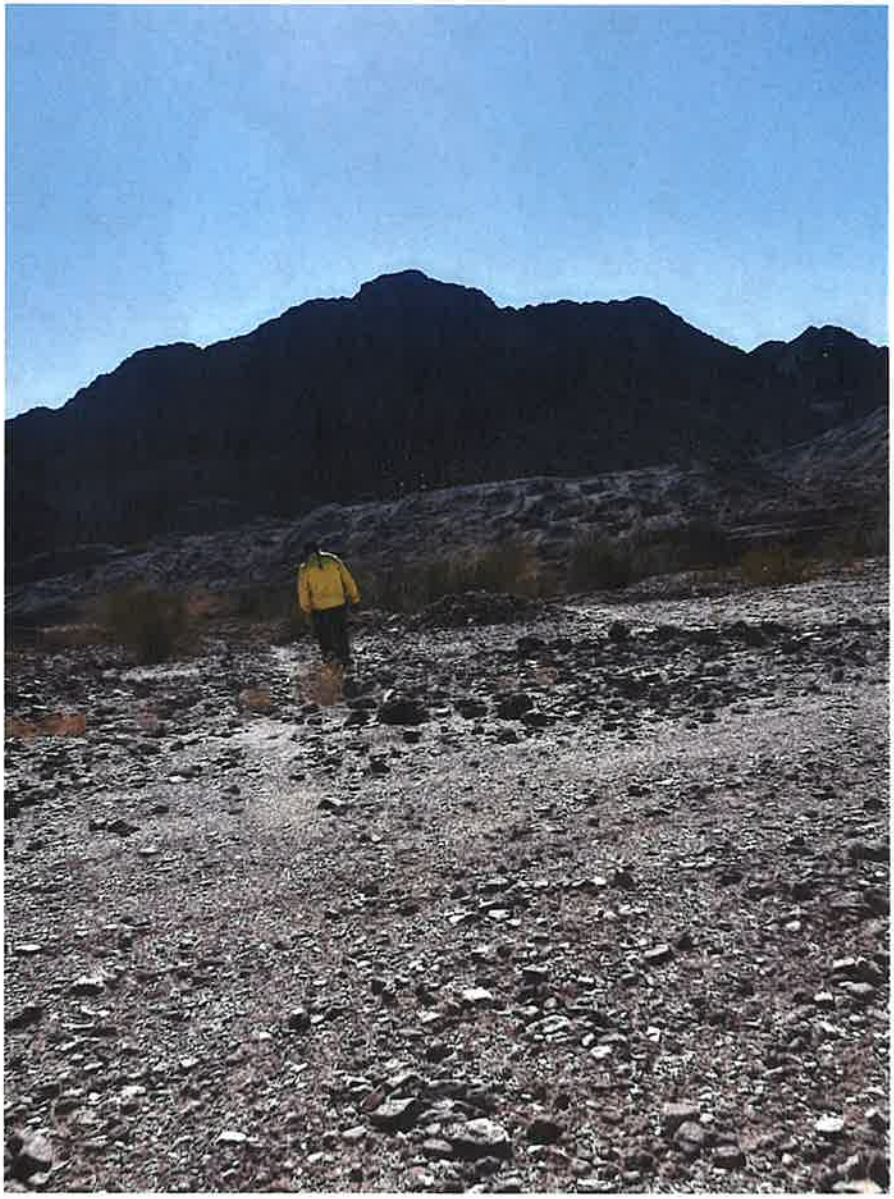


Exhibit D

CALIFORNIA
NATIVE PLANT SOCIETY
2707 K Street, Suite 1, Sacramento, CA 95816-5130 (916) 447.2677 www.cnps.org

Protecting
California's native
flora since 1965

December 16, 2022

Bureau of Land Management
El Centro Field Office
Attn: Mayra Martinez
1661 S 4th St.
El Centro, California 92243

Submitted via email to: mymartinez@blm.gov csahagun@blm.gov kmiyamoto@blm.gov

Re: California Native Plant Society Comments on Oro Cruz Exploration Project DOI-BLM-CA-D070-2022-0012-EA

Dear Ms. Martinez:

Thank you for the opportunity to comment on the Environmental Assessment/Mitigated Negative Declaration (EA/MND) for the Oro Cruz Exploration Project. The following comments are submitted on behalf of the California Native Plant Society (CNPS), a non-profit environmental organization with over 12,000 members in 36 Chapters across California and Baja California, Mexico. CNPS's mission is to protect California's native plant heritage and preserve it for future generations through the application of science, research, education, and conservation. We work closely with decision-makers, scientists, and local planners to advocate for well-informed policies, regulations, and land management practices.

This EA/MND claims that the impacts from this project are expected to be negligible, short-term, and localized, but the project does not adhere to Area of Critical Environmental Concern (ACEC) management requirements or local ordinances, fails to adequately establish baseline conditions on the project site, and does not consider impacts to seasonal waterways and sensitive natural communities. Approving exploration would lay the groundwork for future mining projects in this area and this exploratory project should not be pursued. At a minimum, the BLM needs to properly establish baseline conditions for special-status and locally protected plant species through protocol-level floristic surveys and circulate a revised environmental review document. Given the potentially significant impacts and unique ecological and cultural resources in the area, the BLM should prepare an EIS that accurately analyzes the project's potential impacts to botanical resources.

Picacho Area of Critical Environmental Concern

While mineral exploration and development is not prohibited in the Picacho ACEC, introducing mining would not align with the management objectives of protecting critical desert tortoise habitat and other biological resources and preserving the wilderness character of the area. The Federal Land Policy and Management Act of 1976 (FLPMA) (43 U.S.C. § 1712 Sec. 202 (c)(3)) requires the BLM to prioritize the protection of ACECs. As defined, ACECs are "public lands where special management attention is required to protect and prevent irreparable damage." This exploratory action could lead to a full scale mining operation which would have much greater impacts than exploration alone. Allowing exploration opens the door to future mining in this area, which would contradict the mandate to prioritize protection or uphold the initial intent of the designation of this ACEC. We urge the BLM to prioritize the conservation of the biological resources in the Picacho ACEC and to not jeopardize its ecological values by re-introducing mining operations into the area.

Special-Status Plant Species

The plant lists from the WestLand and Stantec surveys are inconsistent with each other, and both include inaccurate scientific names and may have potentially misidentified *Prosopis juliflora* (which does not appear to be native to this area). In light of these flaws, neither survey effort seems to be accurate or comprehensive enough to establish baseline conditions. The EA/MND concludes that the project will result in disturbance of 20.54 acres of potential habitat for special status plant species, but that "no direct impact to sensitive plant species would occur from direct removal of individuals or populations." (Section 3.20.2, p. 79). This conclusion apparently is based on the statement that "No special status plant species have been identified within the Project Area," which is based on an inaccurate baseline setting and is contradicted by the evidence provided in the EA/MND. The EA/MND states that no special-status plant species have been identified in the project area, however pink fairyduster (*Calliandra eriophylla*) was identified during the WestLand Resources survey in tables 1 and 6, although it was mis-spelled as *Cylindropuntia eriophylla* in table 1. The map in figure 7 appears to show the pink fairyduster being located in drill area 2. These surveys are insufficient to conclude that additional habitat assessments or surveys would not be required, as stated in LUPA BIO-1. It is unlikely that project work would occur at a time that monitors would be able to accurately identify special status plant species, as described in PDF-33, and therefore it is unlikely that impacts to occurrences of this species will be adequately avoided or minimized.

An EIS should be prepared that includes appropriate botanical surveys, so that the analysis of potential impacts can be based on an accurate environmental baseline. As stated by WestLand on page ES-1 "Plant species observations do not represent a complete floristic survey." According to the California Department of Fish and Wildlife's (CDFW) Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities (protocols),[1] "Botanical field surveys and subsequent reporting should be comprehensive and floristic in nature and not restricted to or focused only on a list." The

[1] https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18959&inline

EA/MND should describe the baseline physical conditions on the project site through which the lead agency will determine whether an impact is significant (CEQA Guidelines, § 15125(a)(1)), and shall succinctly describe the environment of the area(s) to be affected (NEPA Guidelines, § 1502.15). The failure to conduct floristic surveys precludes the agency from being able to accurately establish the baseline physical conditions, and thereby precludes the EA/MND from meeting the CEQA and NEPA mandates of making an evidence-based determination of the project's impacts to botanical resources and mitigating those impacts if they are significant. The CDFW protocols recommend the following regarding the extent, timing, and number of surveys that would be needed to capture baseline conditions:

> Survey Extent - "Botanical field surveys should be comprehensive over the entire project area, including areas that will be directly or indirectly impacted by the project. Adjoining properties should also be surveyed where direct or indirect project effects could occur, such as those from fuel modification, herbicide application, invasive species, and altered hydrology. Surveys restricted to known locations of special status plants may not identify all special status plants and sensitive natural communities present, and therefore do not provide a sufficient level of information to determine potential impacts."
>
> Timing and Number of Visits - "Conduct botanical field surveys in the field at the times of year when plants will be both evident and identifiable. Usually this is during flowering or fruiting. Space botanical field survey visits throughout the growing season to accurately determine what plants exist in the project area. This usually involves multiple visits to the project area (e.g., in early, mid, and late-season) to capture the floristic diversity at a level necessary to determine if special status plants are present. The timing and number of visits necessary to determine if special status plants are present is determined by geographic location, the natural communities present, and the weather patterns of the year(s) in which botanical field surveys are conducted."

The BLM's Survey Protocols Required for NEPA and ESA Compliance for BLM Special Status Plant Species (CA IB-2010-012) echo many of the CDFW guidelines, and should be followed to identify special status plant species in this DEIR.

> "A single inventory on a single date will seldom suffice. For example, when one special status plant species suspected to be in the inventory can only be found and identified in April and another species can only be located and identified in August, at least two inventories are necessary."
>
> "In advance of the project site inventory, contractors should visit known populations of the target species in similar habitat conditions to determine current-year growth conditions and phenology. If, based on these visits to known populations, it appears likely that the project site inventory will fail to detect occurrences because of drought conditions (as may be the case for annual plant

species or geophytic plants), BLM may require contractors to perform additional inventories in the following year."

There is no indication that reference sites of known populations were used to verify that special-status populations would be detectable. The Stantec surveys were conducted in January and the WestLand surveys were conducted in March. The March survey may have been able to identify many species, however this survey was on the leading edge of the bloom period for *Croton wigginsii* and *Pholisma sonorae*, and without establishing reference sites it is unsure whether these species would have been identifiable during these surveys. A nine-quad CNPS Rare Plant Inventory search of the surrounding area showed that *Colubrina californica*, *Koeberlinia spinosa var. tenuispina*, and *Panicum hirticaule ssp. hirticaule* all have the potential to occur here, and all bloom outside of the window of the surveys. These surveys need to be conducted not only during times when plant species would be identifiable, but also in years with sufficient rain that they would be identifiable, as verified by reference sites.

Chapter 12.48 of the County Code of Ordinances prohibits the destruction (e.g., dig up, remove, mutilate, or destroy) or disturbance of specific tree and flower species. Though the EA states that none of these species were found in the project area, two of these species appear in table 1 (Plant species observed in the Analysis Area during the field survey) of the WestLand Resources Biological Resources Technical Report. The beavertail pricklypear (*Opuntia basilaris*) and ocotillo (*Fouquieria splendens*) are both protected from destruction or disturbance. The locations of these species should be recorded during the floristic surveys recommended above, along with any other locally protected or special-status species that are discovered. Any additional protected or special-status species should be analyzed for potential impacts and added to figure 7.

The description of pre-clearance surveys performed pursuant to CMA LUPA-BIO-2 should be clarified to reflect that special-status plants would be identified and PDF-33 should be amended to include a requirement that pre-construction or pre-clearance surveys be conducted to identify botanical resources.

Sensitive Natural Communities

Though the 2021 baseline surveys done by WestLand stated that there were no streams or riparian areas located in the project area (page 102 of EA/MND), the map in figure 2-1 clearly shows a stream running directly through the project area. The road improvements running south from the existing access road into drill area 4 crosses through ephemeral streams and washes of Tumco wash and the new permanent access road would impact the American Girl wash. The construction and improvement of these roads should be evaluated for impacts to these habitats, including the potential for

introducing illegal OHV use to this area. Additionally WestLand identified Blue palo verde-ironwood alliance in xeroriparian habitat across 2% of the project area; this natural community is classified as sensitive by the CDFW. Creosote-brittlebush alliance covers 74% of the project area and is also listed by CDFW as a sensitive natural community. The potential impacts to the seasonal streams illustrated in figure 3.1 and the sensitive natural communities that make up the vast majority of the project area need to be addressed in an EIS.

The Picacho ACEC is covered by the Desert Renewable Energy Conservation Plan (DRECP), and therefore the project must comply with all applicable Conservation and Management Actions (CMAs). LUPA-BIO-SVF-1 states that "For activity-specific NEPA analysis, a map delineating potential sites and habitat assessment of the following special vegetation features is required: Yucca clones, creosote rings, Saguaro cactus, Joshua tree woodland, microphyll woodland, Crucifixion thorn stands" and goes on to state that "Resource not found on the project site" although areas of microphyll woodland are present and would likely be impacted by the road improvements and by the new permanent access road. Despite being identified, the required map identifying microphyll woodlands is not included in the EA/MND. LUPA-BIO-SVF-6 goes on to say that "impacts to microphyll woodlands will be avoided, except for minor incursions," citing the Glossary of Terms to define "microphyll woodlands" and "minor incursions" however this glossary does not appear to have been included in this document. The meaning of "minor incursion" is key to understanding the potential impacts to microphyll woodlands. The EA/MND fails to show that these CMAs have been followed.

We urge the BLM to not approve this application for exploratory drilling, as mining is not a desirable use for the area given the extensive environmental risks it poses to the natural resources, and mining is inconsistent with the management and protection of critical habitat and resources in the ACEC. The project should also not be approved until an EIS is produced to correct the errors in the botanical resources analysis and adequately describe the baseline conditions of the project site. Thank you for the opportunity to comment on this project and please contact me if you have any questions.

Sincerely,

Brendan Wilce
Conservation Program Coordinator
California Native Plant Society
bwilce@cnps.org

Exhibit E

NATIVE AMERICAN LAND CONSERVANCY
TO ACQUIRE, PRESERVE, AND PROTECT OUR SACRED LANDS
A 501 (C)(3) NONPROFIT REGISTERED WITH THE STATE OF CALIFORNIA

December 16, 2022

Bureau of Land Management
Attn: Mayra Martinez
1661 S 4th St.
El Centro, CA 92243
mymartinez@blm.gov

RE: Public comment period for the Oro Cruz exploration project

Dear Ms. Martinez,

I write on behalf of the Native American Land Conservancy to express serious concerns about the proposed SMP Gold Corp. Oro Cruz Exploration Project within the Picacho Area of Critical Environmental Concern. This excavation would take place at Indian Pass, the traditional cultural homelands of the Fort Yuma Quechan Tribe and a place of great spiritual significance.

The Native American Land Conservancy (NALC) is a nonprofit, intertribal organization. Our mission is to acquire, preserve, and protect our sacred lands. We do this through land acquisition, education, cultural programming, and the survey and monitoring of Tribal historic properties. The NALC provides culturally appropriate protective management and stewardship of natural and cultural areas, engaging Tribal communities in California, Arizona, and Nevada. Through our Learning Landscapes program, we inspire Tribal youth to engage with their history and culture on the land.

Indian Pass is of paramount importance to the continued health and wellbeing of the Quechan people. It is part of a greater interconnected landscape which they term a Tribal Cultural Place, and it is central to their day-to-day life and religion. It contains ancestral trails, cultural sites, sleeping circles, and other evidence of the Quechan people's historic and continued presence in the area. The Oro Cruz Exploration Project would put future generations of Quechan people and their cultural survival in jeopardy.

The processes required for gold mining - such as extensive topsoil removal - create irreparable and permanent harm to the land. Gold mines leak, despite assurances by companies to say otherwise, and they release contaminates such as arsenic, cyanide, and other hazardous materials. The 2015 Gold King Mine disaster, which contaminated the Animas River and endangered multiple Tribal communities, is just one example of the catastrophic consequences resulting from gold mining. The Oro Cruz Exploration Project would negatively impact the landscape's water, air, and soil quality, creating dangerous outcomes for plants, animals, insects, and nearby communities long into the future. The Picacho Area of Critical Environmental Concern is also critical habitat for the threatened Mojave Desert Tortoise.

NATIVE AMERICAN LAND CONSERVANCY
TO ACQUIRE, PRESERVE, AND PROTECT OUR SACRED LANDS
A 501 (c)(3) NONPROFIT REGISTERED WITH THE STATE OF CALIFORNIA

The Oro Cruz Exploration Project threatens the entire ecosystem at Indian Pass, as well as the cultural heritage and religious values of the Quechan people. For centuries, Indigenous peoples across the United States have been greatly impacted by the damages caused by mining projects. This proposal, if approved, would continue this harmful legacy and cause irreversible damage to a landscape of great cultural, religious, and spiritual importance. Indian Pass is a sacred place of healing, growth, and learning for the Quechan people, and it must be protected for all future generations.

NALC stands with the Fort Yuma Quechan Tribe in opposing the Oro Cruz Exploration Project proposal. Additionally, we request the Bureau of Land Management to require an Environmental Impact Statement to evaluate the comprehensive impacts of this proposal.

Thank you for your consideration of this request. Please feel free to contact me at rprzeklasa@nativamericanland.org if you have any additional questions.

Sincerely,

T. Robert Przeklasa

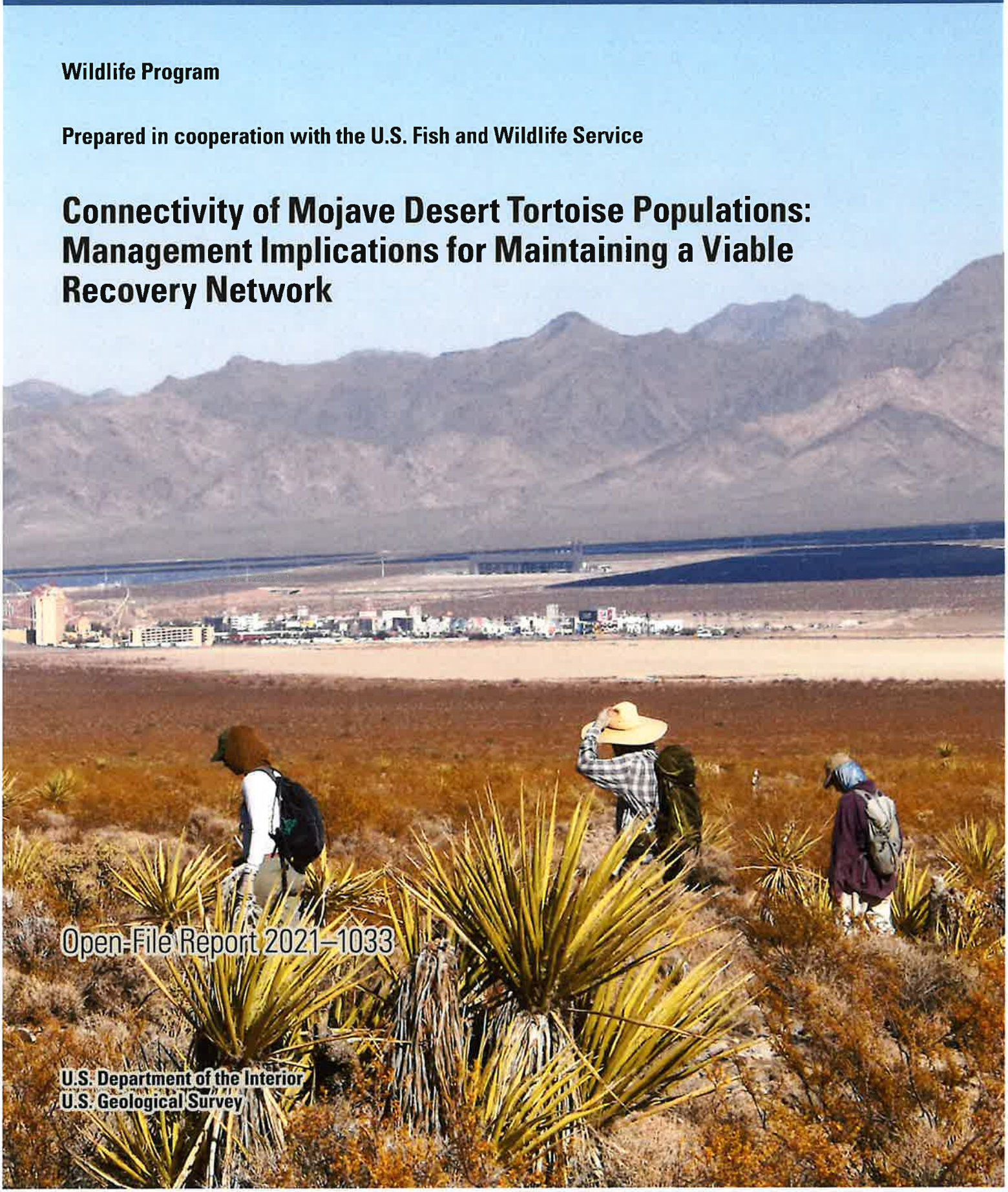
T. Robert Przeklasa, Ph. D.
Executive Director

USGS
science for a changing world

Wildlife Program

Prepared in cooperation with the U.S. Fish and Wildlife Service

Connectivity of Mojave Desert Tortoise Populations: Management Implications for Maintaining a Viable Recovery Network



Open-File Report 2021–1033

U.S. Department of the Interior
U.S. Geological Survey

Cover photo: View of field team searching for tortoises in northern Ivanpah Valley, on the border between California and Nevada and central to the Mojave Desert ecoregion. This area is an important habitat connectivity corridor for the Mojave desert tortoise. Photograph by T.C. Esque, U.S. Geological Survey, October 5, 2019.

Connectivity of Mojave Desert Tortoise Populations: Management Implications for Maintaining a Viable Recovery Network

By Roy C. Averill-Murray, Todd C. Esque, Linda J. Allison, Scott Bassett, Sarah K. Carter, Kirsten E. Dutcher, Steven J. Hromada, Ken E. Nussear, and Kevin Shoemaker

Wildlife Program

Prepared in cooperation with the U.S. Fish and Wildlife Service

Open-File Report 2021–1033

U.S. Department of the Interior
U.S. Geological Survey

U.S. Geological Survey, Reston, Virginia: 2021

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Conversion Factors

U.S. customary units to International System of Units

Multiply	By	To obtain
	Area	
acre	4,047	square meter (m^2)
acre	0.4047	hectare (ha)
acre	0.004047	square kilometer (km^2)
square mile (mi^2)	259.0	hectare (ha)
square mile (mi^2)	2.590	square kilometer (km^2)
mile	1.609	kilometer

International System of Units to U.S. customary units

Multiply	By	To obtain
	Area	
square meter (m^2)	0.0002471	acre
hectare (ha)	2.471	acre
square kilometer (km^2)	247.1	acre
hectare (ha)	0.003861	square mile (mi^2)
square kilometer (km^2)	0.3861	square mile (mi^2)
kilometer	0.6214	mile

Abbreviations

DRECP	Desert Renewable Energy Conservation Plan
TCA	tortoise conservation area
USFWS	U.S. Fish and Wildlife Service

Connectivity of Mojave Desert Tortoise Populations: Management Implications for Maintaining a Viable Recovery Network

By Roy C. Averill-Murray[1], Todd C. Esque[2], Linda J. Allison[1], Scott Bassett[3], Sarah K. Carter[2], Kirsten E. Dutcher[3], Steven J. Hromada[3], Ken E. Nussear[3], Kevin Shoemaker[3]

Executive Summary

The historic distribution of Mojave desert tortoises (*Gopherus agassizii*) was relatively continuous across the range, and the importance of tortoise habitat outside of designated tortoise conservation areas (TCAs) to recovery has long been recognized for its contributions to supporting gene flow between TCAs and to minimizing impacts and edge effects within TCAs. However, connectivity of Mojave desert tortoise populations has become a concern because of recent and proposed development of large tracts of desert tortoise habitat that cross, fragment, and surround designated conservation areas. This paper summarizes the underlying concepts and importance of connectivity for Mojave desert tortoise populations by reviewing current information on connectivity and providing information to managers for maintaining or enhancing desert tortoise population connectivity as they consider future proposals for development and management actions.

Maintaining an ecological network for the Mojave desert tortoise, with a system of core habitats (TCAs) connected by linkages, is necessary to support demographically viable populations and long-term gene flow within and between TCAs. There are four points for wildlife and land-management agencies to consider when making decisions that could affect connectivity of Mojave desert tortoise populations (for example, in updating actions in resource management plans or amendments that could help maintain or restore functional connectivity in light of the latest information):

1. ***Management of all desert tortoise habitat for persistence and connectivity.*** Desert tortoise populations continue to decline within most TCAs, and it is unlikely that trends are better in populations outside protected areas. Fragmentation exacerbates negative population trends by breaking large continuous populations into smaller isolated populations. Connectivity within large populations can enhance resilience to localized disturbances due to rescue by neighboring individuals. In contrast, smaller fragmented populations are resistant to rescue by their isolation and thus could suffer irreversible declines to extirpation from a variety of threats and stochastic events. Enhanced threat reduction to reverse declines within TCAs and to maintain occupied habitat in the surrounding matrix would help reduce the variability in population growth rates and improve the resilience of protected populations even while implementing efforts to improve connectivity.

Each TCA has unique strengths and weaknesses regarding its ability to support minimum sustainable populations based on areal extent and its ability to support population increases based on landscape connection with adjacent populations. Considering how proposed projects (inside or outside of TCAs) affect connectivity and the ability of TCAs to support at least 5,000 adult tortoises (the numerical goal for each TCA) could help managers to maintain the resilience of TCAs to population declines. The same project, in an alternative location, could have very different impacts on local and regional populations. For example, within the habitat matrix surrounding TCAs, narrowly delineated corridors may not allow for natural population dynamics if they do not accommodate overlapping home ranges along most of their widths so that tortoises reside, grow, find mates, and produce offspring that can replace older tortoises. In addition, most habitat outside TCAs may receive more surface disturbance than habitat within TCAs. Therefore, managing the entire remaining matrix of desert tortoise habitat for permeability may be better than delineating fixed corridors. These concepts apply, especially given uncertainty about long-term condition of habitat, within and outside of TCAs under a changing climate.

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Ultimately, questions such as "*What are the critical linkages that need to be protected?*" could be better framed as "*How can we manage the remaining habitat matrix in ways that sustain ecological processes and habitat suitability for special status species?*" Land-management decisions made in the context of the latter question may be more conducive to maintenance of a functional ecological network.

2. ***Limitations on landscape-level disturbance across habitat managed for the desert tortoise.*** Clearly delineating habitat linkages and differentiating them from non-delineated areas by the uses that are permitted or prohibited within them by specific management guidelines can help achieve functional connectivity. Such guidelines would be most effective if they considered and accounted for all surface disturbances (for example, temporary disturbances such as fiberoptic lines or off-highway vehicle routes, right-of-ways, utility-scale solar development, urbanization) to the extent possible. A weighted framework that varies with the permanence or severity of the disturbance, and can be additive to quantify cumulative effects, could be useful (Xiong, 2020). For example, minor roads can alter tortoise movements independently of other features (Peaden and others, 2017; Hromada and others, 2020), but if the isolated dirt road is accompanied by a powerline that encourages raven predation (Xiong, 2020), then the two features together may be additive. Ignoring minor or temporary disturbance on the landscape could result in a cumulatively large impact that is not explicitly acknowledged (Goble, 2009); therefore, understanding and quantifying all surface disturbance on a given landscape is prudent.

    a. In California, the Bureau of Land Management established 0.1–1.0 percent caps on new surface-disturbance for TCAs and mapped linkages that address the issues described in number 1 of this list.

    b. Nevada, Utah, and Arizona currently do not have surface-disturbance limits. Limits comparable to those in the Desert Renewable Energy Conservation Plan (DRECP) would be 0.5 percent within TCAs and 1 percent within the linkages modeled by Averill-Murray and others (2013). Limits in some areas of California within the Desert Renewable Energy Conservation Plan, such as Ivanpah Valley, are more restrictive, at 0.1 percent. Continuity across the state line in Nevada could be achieved with comparable limits in the adjacent portion of Ivanpah Valley, as well as the Greater Trout Canyon Translocation Area and the Stump Springs Regional Augmentation Site. These more restrictive limits would help protect remaining habitat in the major interstate connectivity pathway through Ivanpah Valley and focal areas of population augmentation that provide additional population connectivity along the western flank of the Spring Mountains.

    c. In a recent study that analyzed 13 years of desert tortoise monitoring data, nearly all desert tortoise observations were at sites in which 5 percent or less of the surrounding landscape within 1 kilometer was disturbed (Carter and others, 2020a). To help maintain tortoise habitability and permeability across all other non-conservation-designated tortoise habitat, all surface disturbance could be limited to less than 5-percent development per square kilometer because the 5-percent threshold for development is the point at which tortoise occupation drops precipitously (Carter and others, 2020a). However, although individual desert tortoises were observed at development levels up to 5 percent, we do not know the fitness or reproductive characteristics of these individuals. This level of development also may not allow for long-term persistence of healthy populations that are of adequate size needed for demographic or functional connectivity; therefore, a conservative interpretation suggests that, ideally, development could be lower. Lower development levels would be particularly useful in areas within the upper 5th percentile of connectivity values modeled by Gray and others (2019).

    d. Reducing ancillary threats in places where connectivity is restricted to narrow strips of habitat, for example, narrow mountain passes or vegetated strips between solar development, could enhance the functionality of these vulnerable linkages. In such areas, maintaining multiple, redundant linkages could further enhance overall connectivity.

3. ***Minimization of mortality from roads and maximization of passage under roads.*** Roads pose a significant threat to the long-term persistence of local tortoise populations, and roads of high traffic volume lead to severe population declines, which ultimately fragments populations farther away from the roads. Three points (a.–c.) pertain to reducing direct mortality of tortoises on the many paved roads that cross desert tortoise habitat and to maintaining a minimal level of permeability across these roads:

    a. Tortoise-exclusion fencing tied into culverts, underpasses, overpasses, or other passages below roads in desert tortoise habitat, would limit vehicular mortality of tortoises and provide opportunities for movement across the roads. Installation of shade structures on the habitat side of fences installed in areas with narrow population-depletion zones would limit overheating of tortoises that may pace the fence.

b. Passages below highways could be maintained or retrofitted to ensure safe tortoise access, for example, by filling eroded drop-offs or modifying erosion-control features such as rip-rap to make them safer and more passable for tortoises. Wildlife management agencies could work with transportation departments to develop construction standards that are consistent with hydrologic/erosion management goals, while also incorporating a design and materials consistent with tortoise survival and passage and make the standards widely available. The process would be most effective if the status of passages was regularly monitored and built into management plans.

c. Healthy tortoise populations along fenced highways could be supported by ensuring that land inside tortoise-exclusion fences is not so degraded that it leads to degradation of tortoise habitat outside the exclusion areas. For example, severe invasive plant infestations inside a highway exclusion could cause an increase of invasive plants outside the exclusion area and degrade habitat; therefore, invasive plants inside road rights of way could be mown or treated with herbicide to limit their spread into adjacent tortoise habitat and minimize the risk of these plants carrying wildfires into adjacent habitat.

4. ***Adaptation of management based on new information.*** Future research will continue to build upon and refine models related to desert tortoise population connectivity and develop new ones. New models could consider landscape levels of development and be constructed such that they share common foundations to support future synthesis efforts. If model development was undertaken in partnership with entities that are responsible for management of desert tortoise habitat, it would facilitate incorporation of current and future modeling results into their land management decisions. There are specific topics that may be clarified with further evaluation:

   a. The effects of climate change on desert tortoise habitat, distribution, and population connectivity;

   b. The effects of large-scale fires, especially within repeatedly burned habitat, on desert tortoise distribution and population connectivity;

   c. The ability of solar energy facilities or similar developments to support tortoise movement and presence by leaving washes intact; leaving native vegetation intact whenever possible, or if not possible, mowing the site, allowing vegetation to re-sprout, and managing weeds; and allowing tortoises to occupy the sites; and

   d. The design and frequency of underpasses necessary to maintain functional demographic and genetic connectivity across linear features, like highways.

Introduction

Connectivity of Mojave desert tortoise (*Gopherus agassizii*) populations has become an issue of increasing concern due to recent and proposed development of large tracts of desert tortoise habitat that cross, fragment, and surround designated conservation areas. Much of this development is a result of the recent renewable energy boom, but also includes long-planned urban expansion and infrastructure projects that are reaching the implementation phase. Researchers have studied the implications of existing tortoise conservation areas becoming isolated due to this development and have modeled past, current, and potential future population connectivity across the desert tortoise's range (see later in the text). Managers have incorporated much of the available information into individual planning decisions (for example, Desert Renewable Energy and Conversation Plan Land Use Plan Amendment to the California Desert Conservation Plan of 1980 [DRECP], draft Apple Valley Habitat Conservation Plan). However, general principles for maintaining functionally connected desert tortoise populations have not been synthesized to assist with a comprehensive, species-wide analysis, and several existing land-management plans lack the focus on desert tortoise population connectivity present in other plans such as the DRECP. The Management Oversight Group for the Mojave Desert Tortoise requested guidance to clarify the needs of the Mojave desert tortoise for habitat connectivity from the Western Ecological Research Center of the U.S. Geological Survey and the Recovery Office of the U.S. Fish and Wildlife Service for the Mojave Desert Tortoise. This report is a collaboration to provide that guidance by summarizing the underlying concepts and importance of connectivity for Mojave desert tortoise populations by (1) reviewing current information on connectivity and (2) providing information to managers for maintaining or enhancing desert tortoise population connectivity as they consider future proposals for development and management actions.

The Framework for Mojave Desert Tortoise Recovery

Historic Population Connectivity

The historic distribution of Mojave desert tortoises was relatively continuous across the range, broken only by major topographic barriers, such as the Baker Sink and Death Valley, California, and the Spring Mountains, Nevada (Germano and others, 1994; Nussear and others, 2009, respectively). Although desert tortoises generally do not move long distances over their lifetimes, historically, modest dispersal and connected home ranges occurred over a relatively continuous distribution across the tortoise's range. This contiguous distribution fostered historically high levels of gene flow and a population structure characterized as isolation-by-distance (Murphy and others, 2007; Hagerty and Tracy, 2010; Hagerty and others, 2011). Maintaining functionally connected landscapes is necessary to conserve historic genetic gradation (Frankham, 2006). Large, connected landscapes also are necessary to facilitate natural range shifts in response to climate change (Krosby and others, 2010; National Fish, Wildlife, and Plants Climate Adaptation Partnership, 2012; Hilty and others, 2020). Nevertheless, though gene flow and adaptive capacity are critically important in the long term, the need for extensive, unfragmented habitat is of more immediate concern for supporting populations that are demographically viable on time scales relative to management (Kuo and Janzen, 2004).

Design and Goals of the Current Network of Tortoise Conservation Areas

Tortoise conservation areas (TCAs[1]) form the foundation of the desert tortoise recovery strategy and are centered around 12 designated critical habitat units that range in area from approximately 220 to 4,131 square miles (U.S. Fish and Wildlife Service, 2011). Effective conservation areas are designed to support species viability according to ecological concepts of representation, redundancy, and resilience (U.S. Fish and Wildlife Service, 1994, 2016; Shaffer and Stein, 2000).

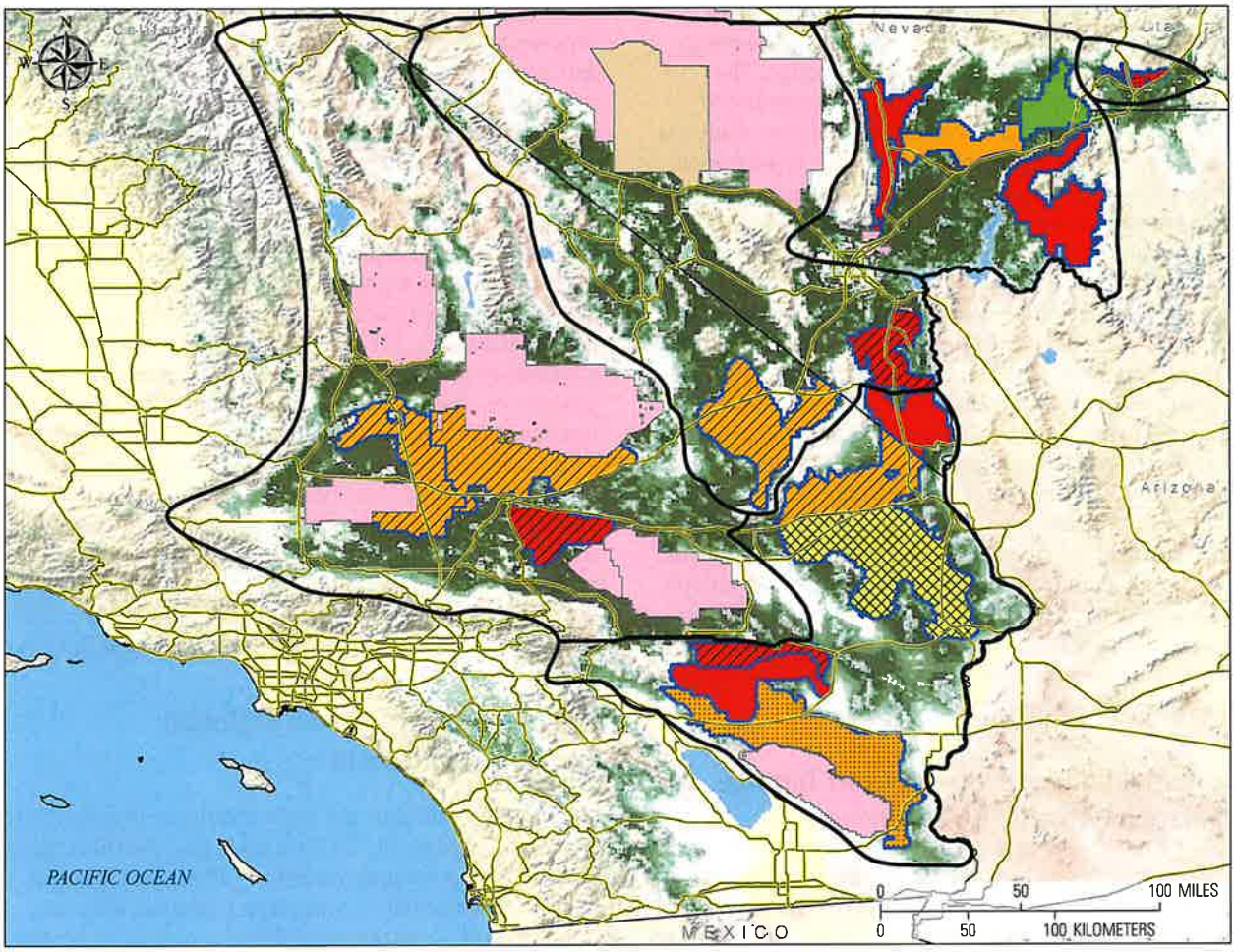
- Representation captures the breadth of genetic or ecological diversity of a species, and recovery units are distributed across the range in a pattern designed to capture this breadth (U.S. Fish and Wildlife Service, 2011).
- Redundancy, having multiple protected populations within representative units, protects against catastrophic loss of any particular population. In the case of the Mojave desert tortoise, each of the recovery units identified in the 2011 recovery plan contain multiple TCAs, except for the Upper Virgin River Recovery Unit in Utah (U.S. Fish and Wildlife Service, 2011).
- Resilience represents the ability of populations to recover from stochastic setbacks, such as drought-induced population declines or localized disease outbreaks. To maintain resilience, TCAs were envisioned to sustain a population of at least 5,000 adult tortoises (U.S. Fish and Wildlife Service, 1994). In situations where a critical habitat unit was smaller than the threshold of 1,295 square kilometers (km^2), or if the number of tortoises was found to be fewer than 5,000, land management was expected to maintain connectivity to larger populations outside the critical habitat unit and to other critical habitat units (U.S. Fish and Wildlife Service, 1994).

The importance of tortoise habitat outside of TCAs, to recovery, has long been recognized for its contributions to supporting gene flow among TCAs and to minimizing impacts and edge effects within TCAs (U.S. Fish and Wildlife Service, 1994, 2011). This dependence, on a reserve design of protected areas supported by surrounding areas that are not necessarily protected, is considered the linchpin of sustaining a resilient protected area network (U.S. Fish and Wildlife Service, 2011).

Challenges and Weaknesses of the Current Network of Tortoise Conservation Areas

When the original recovery plan was developed, there were no reliable abundance estimates for tortoises in any critical habitat unit. However, one unit in particular, the Upper Virgin River Critical Habitat Unit, was insufficient in size to support the necessary 5,000 adult tortoises, thus, it was identified as requiring intensive management since its establishment (U.S. Fish and Wildlife Service, 1994). Range-wide monitoring since 2004 (1999 in Upper Virgin River) provides population estimates and recent changes in tortoise density for each TCA. As of 2014, 11 of 17 TCAs had negative population trends, and 8 of 17 were estimated to contain fewer than 5,000 adult tortoises (Allison and McLuckie, 2018; fig. 1).

[1]Tortoise conservation areas include desert tortoise habitat within designated critical habitat, Desert Wildlife Management Areas, Areas of Critical Environmental Concern, Grand Canyon-Parashant National Monument, Desert National Wildlife Refuge, National Park Service lands, Red Cliffs Desert Reserve, and other conservation areas or easements managed for desert tortoises (U.S. Fish and Wildlife, 2011).



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EXPLANATION

2014 Abundance (adult tortoises)
- 1,241–4,874
- 5,146–9,304
- 10,469
- 18,220

2009 USGS habitat model
- High probability
- Low probability
- Department of Defense
- Nevada National Security Site

2004–14 Trend (%/yr)
- –10.4
- –9.5 to –6.8
- –4.7 to –3.1
- 4.8 to 21.6

Monitoring strata

Recovery units

Highways

Figure 1. Population trends and abundance of adult Mojave desert tortoises within tortoise conservation areas (TCAs). Yellow lines represent major roads and highways. Color ramp from white to green represents low to high probability of tortoise presence, respectively.

In addition to concerns about the status of tortoise populations within the TCAs, the configuration of several TCAs is inconsistent with optimal reserve design. The theoretically optimal reserve shape would be circular to minimize the perimeter and potential edge effects relative to the area because the quality of habitat within conservation areas can be affected by factors present outside conservation area boundaries (Harrison and Bruna, 1999; Environmental Law Institute, 2003; Radeloff and others, 2010). For example, subsidized predators within the urban-wildland interface can affect tortoise populations well within TCAs (Kristan and Boarman, 2003; Esque and others, 2010). However, to capture the actual pattern of suitable habitat while accommodating land ownership considerations, all TCAs have complex perimeters, often with narrow extensions or projections into relatively unprotected habitat (fig. 1). This is partly because, prior to TCA establishment, the landscape already had many inholdings and disturbances that were avoided because they rendered the habitat incompatible for tortoise use. The result of this configuration is a network of land parcels of variable habitat quality and tortoise permeability (Gray and others, 2019). All of these issues emphasize the importance of maintaining, and ideally increasing, the availability of habitat connectivity within and among TCAs.

Functional Connectivity of Desert Tortoise Populations Across the Landscape

Connectivity can be viewed as the degree to which regional landscapes, encompassing a variety of natural, semi-natural, and developed land-cover types, are conducive to wildlife movement and to sustaining ecological processes (Ament and others, 2014; Hilty and others, 2020). Functionally, connectivity describes the degree to which landscapes facilitate or impede the movement of organisms and processes (Meiklejohn and others, 2010; Hilty and others, 2020). Decreased connectivity results from various degrees of landscape resistance. For example, natural linear features that entirely preclude movement for tortoises include impassable vertical cliffs, talus slopes, and large rivers. Semi-permeable features include natural habitats with questionably sufficient thermal cover, such as burned areas or playa edges, or other features typical of the urban-wildland interface, such as ploughed lots, roads, railways, and large berms, all of which can act as filters that reduce connectivity between populations in the absence of appropriate underpasses or overpasses (Peaden and others, 2015; Rautsaw and others, 2018; Dutcher and others, 2020a; Hromada and others, 2020).

The features listed in the previous paragraph are widespread across the Mojave Desert; for example, almost all TCAs are divided internally or separated from adjacent units by major roads and highways (fig. 1). Abundance of tortoise sign decreases closer to unfenced roadways, resulting in a zone of population depletion of up to 4 kilometers (km) from highways with the highest traffic volumes (Hoff and Marlow, 2002; Boarman and Sazaki, 2006; Nafus and others, 2013; Peaden and others, 2015). These depleted zones effectively eliminate or severely reduce connectivity of tortoise populations across the range. Many miles of tortoise-barrier fencing have been installed along roads, primarily within TCAs, with this fencing connected to culverts. Although individual tortoises cross through culverts (Boarman and others, 1998; Hromada and others, 2020), the effectiveness of culverts in mitigating the fragmenting effects of highways at a population scale is unknown. Even culverts designed to reduce resistance across linear barriers can be ineffective if materials such as rip-rap of talus-sized rocks prevent access by tortoises.

Structure and Dynamics of Desert Tortoise Populations

Desert tortoises do not occur at uniform densities across the landscape (Krzysik, 2002). Local population abundances fluctuate asynchronously because of differences in habitat quality and variability in precipitation patterns, such as localized declines attributed to drought, disease, or predation events (Peterson, 1994; Longshore and others, 2003; Tracy and others, 2004; Esque and others, 2010; Emblidge and others, 2015) or stochastic population dynamics (U.S. Fish and Wildlife Service, 2011). Adjacent habitat patches of sufficient quality to support healthy tortoise populations are necessary for local population declines or extinctions to be rescued by recolonization (Fahrig and Merriam, 1994). As habitat is lost and fragmented, habitat patches become smaller, patch populations (for example, clusters of tortoises) have fewer tortoises and become more disjunct, extinction probabilities within patches increase, and the number of occupied patches decreases (Fahrig, 2002; Ovaskainen and others, 2002). As described earlier, tortoise populations adjacent to and contiguous with populations within TCAs are essential for long-term species viability and recovery given the limitations of the existing TCA reserve design (fig. 2).

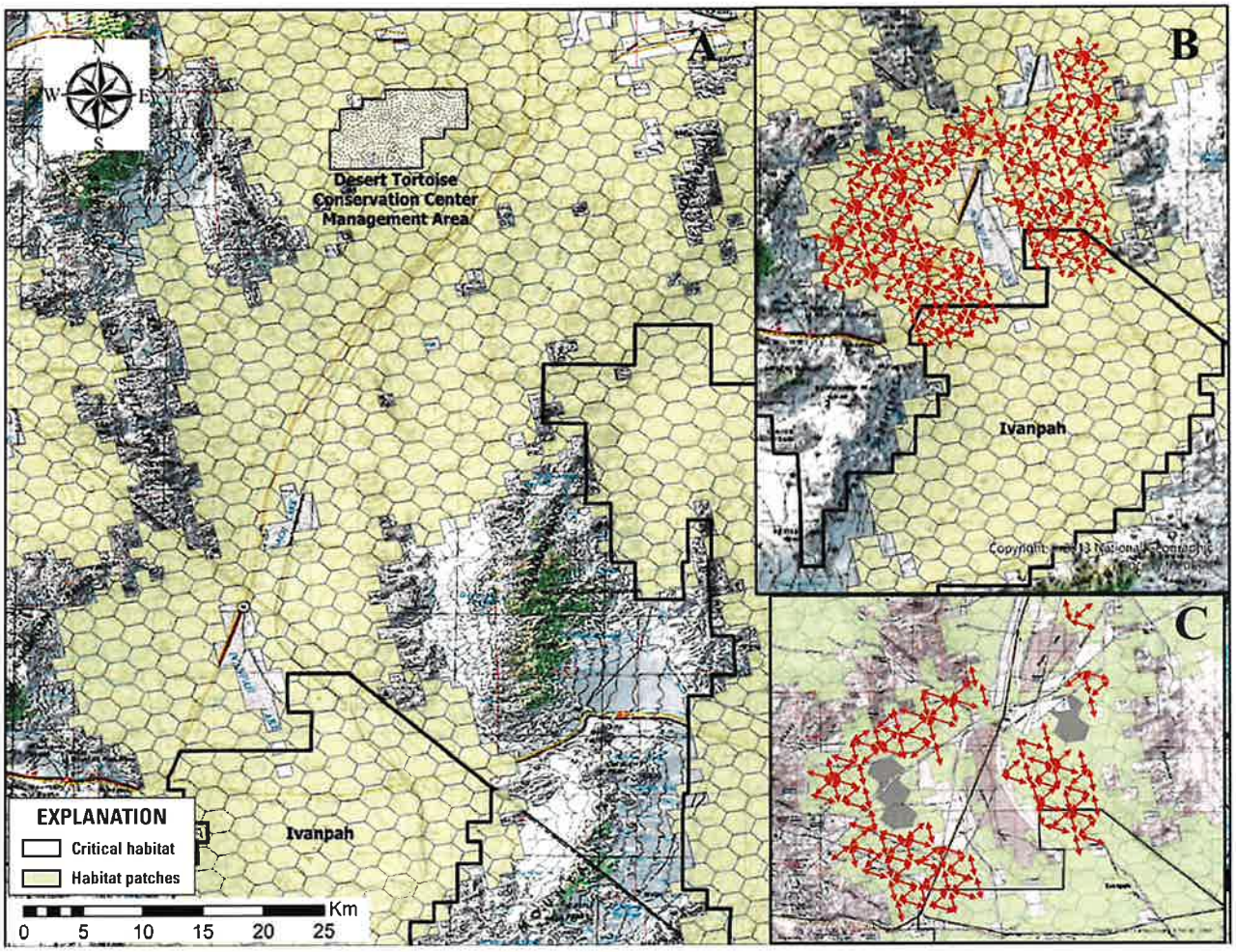

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Figure 2. Inter-patch habitat connectivity of Mojave desert tortoises. Each hexagon represents a 259-hectare (640-acre) habitat patch. *A*, Historically interconnected habitat constrained by major topographic barriers; *B*, Inter-patch relationships across a part of the landscape are represented by red arrows; and *C*, Reduction in patch connections occurs with habitat loss and fragmentation, conceptually represented by gray patches.

Large expanses of high-quality habitat are necessary to increase the likelihood that tortoises from local areas, with higher recruitment, will emigrate and repopulate (or "rescue") adjacent areas of suitable habitat (for example, within TCAs) that may have fewer tortoises due to low recruitment or high mortality (Germano and Joyner, 1988; Morafka, 1994; Tracy and others, 2004). This rescue effect has been described and studied using island biogeography concepts and principles that lead us to expect that the probability a population will persist is related to the size and isolation of the habitat patch on which it exists (MacArthur and Wilson, 1967; Brown and Kodric-Brown, 1977). Figure 2*B* provides an example of the historical relationship between habitat patches for desert tortoises in the Mojave Desert. Patches suffering localized declines in tortoise numbers could be recolonized by tortoises emigrating from adjacent patches. As habitat is degraded, lost, or fragmented by anthropogenic barriers, however, inter-patch relationships may break down, resulting in a decreased likelihood that recolonizations will occur. In short, tortoises within remaining patches that have fewer connections are more likely to be extirpated and less likely to be replaced than tortoises inhabiting patches surrounded by permeable habitats with intact connections (fig. 2*C*; Lefkovitch and Fahrig, 1985). Such fragmentation could isolate and reduce the viability of regional populations, including those within TCAs, creating an "extinction debt" (Kuussaari and others, 2009; Hylander and Ehrlén, 2013) that extends well beyond the perimeters of parcels of lost habitats. Rescue of unoccupied habitat patches may not occur, or may be delayed, if few tortoises disperse from nearby small or declining populations (Adler and Nuernberger, 1994). Unoccupied patches present a special problem if the source of the decline is unknown because evidence is lacking to indicate whether the decline was due to temporary conditions for the occupants or if the site can no longer sustain tortoises. Obtaining better information about habitat quality requirements may resolve some of this uncertainty.

Effectively Connecting Current Desert Tortoise Habitat to Recover Populations

The patterns of population distribution and dynamics described earlier represent those of a "patchy" metapopulation (Harrison, 1991). For species with this type of metapopulation dynamic to persist over the long term, connectivity between patches must be provided through contiguous viable habitat. The Mojave desert tortoise requires interconnected habitat across its range to sustain populations within and outside of TCAs over multiple generations (Tracy and others, 2004). Low-mobility species, such as the desert tortoise, are considered "corridor dwellers" that may spend their entire life within corridors (Beier and Loe, 1992). In effect, low mobility of the species means that interconnected local populations of tortoises must persist across the landscape to ensure overall species persistence (fig. 2*B*).

In contrast, passage species may move through corridors between protected areas in days or weeks, even at large spatial scales (Beier and Loe, 1992). Though individual desert tortoises can move many kilometers in one season (Berry, 1986; Edwards and others, 2004), this type of movement has been observed in large, open areas rather than a long (for example, tens of kilometers), narrow strip of habitat a few meters—or even a few hundred meters—wide. Tortoises may traverse short culverts and thereby navigate the otherwise absolute barrier of a fenced road (Boarman and others, 1998) or may occupy narrow mountain passes (Dutcher and others, 2020b; Hromada and others, 2020), but tortoise movement patterns do not lead us to expect that a tortoise in one TCA would traverse a long narrow strip of preserved desert vegetation to another TCA many kilometers distant in its lifetime. For all these reasons, habitat linkages among TCAs must be wide enough to sustain multiple home ranges or local clusters of resident tortoises (Beier and others, 2008; Morafka, 1994), while accounting for edge effects, in order to sustain regional tortoise populations.

Recent Research Relevant to Desert Tortoise Habitat and Connectivity

A variety of spatial habitat models have been developed for the management of desert tortoise habitat, including models describing habitat suitability, levels of development within modeled habitat, landscape genetics, tortoise habitat linkages, and connectivity (appendix 1; figs. 1.1–1.4). These models have been used for project-proponent and regulatory planning, establishing survey requirements, evaluating reports for project compliance, and as base inputs for subsequent spatial models. Furthermore, many of the natural resource layers developed for these models (for example, soil texture layer by Nowicki and others, 2019; wash layers by Gray and others, 2019) have been applied to understand habitats for other species of management concern across the southwestern United States (for example, Mohave Ground Squirrel by Inman and others, 2013; multiple species and energy development by Vandergast and others, 2013).

Spatial models that focus on habitat connectivity that are in development were presented at the annual symposium of the Desert Tortoise Council in February 2020 (https://deserttortoise.org/wp-content/uploads/ABSTRACTS_2020-DTC-FINAL-Feb72020.pdf), and included syntheses of habitat status (Nussear and others, 2020), genetic responses to landscape disturbances (Dutcher and others, 2020a), desert tortoise movements (Hromada and others, 2020), demographics (Shoemaker and others, 2020), and alternative future habitat scenarios (Bassett and others, 2020). The development of these models is ongoing and dynamic. For example, three of the 'working' models have been published since the presentation in February (Dutcher and others, 2020b; Carter and others, 2020a; Hromada and others, 2020). In particular, these studies reinforced evidence of reduced movements and gene flow across linear barriers (highways and railroads), while reporting movements and gene flow across mountain passes (Dutcher and others, 2020b), and documented limited tortoise observations in areas with greater than 5-percent surface disturbance per km^2 (fig. 3; Carter and others, 2020a). For these models, surface disturbance was derived for nationally available datasets, and does not necessarily include temporary disturbance.

Several additional models are still in development but can be accessed as they become ready for distribution. Available data and modelling, along with the models still in development, will further inform management agencies seeking to address connectivity issues for the Mojave desert tortoise.

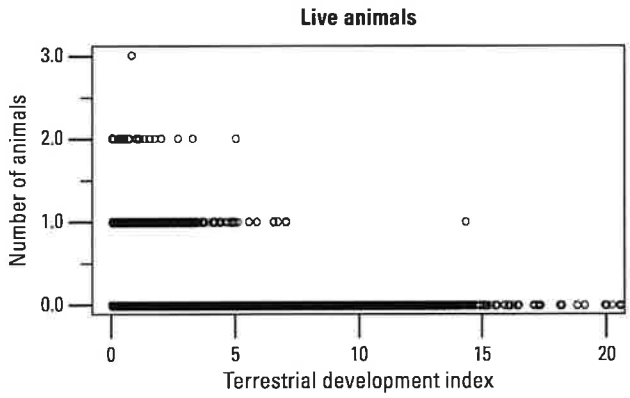

Figure 3. Observations of live Mojave desert tortoises from the U.S. Fish and Wildlife Service range-wide monitoring program relative to the proportion of development in the surrounding landscape within 1 kilometer (km) of the observation location (Terrestrial Development Index). A development index value of 5 indicates that 5 percent of the area within 1 km of that location has been altered by development. Adapted from Carter and others (2020a).

Management Implications

Maintaining an ecological network (recovery network) for the Mojave desert tortoise, with a system of core habitats (TCAs) connected by linkages (Hilty and others, 2020), is necessary to support demographically viable populations and long-term gene flow within and between TCAs. There are three points for wildlife and land-management agencies to consider when making decisions that could affect connectivity of Mojave desert tortoise populations (for example, in updating actions in resource management plans or amendments that could help maintain or restore functional connectivity in light of the latest information).

(1) Management of All Desert Tortoise Habitat for Persistence and Connectivity

Desert tortoise populations continue to decline within most TCAs (Allison and McLuckie, 2018), and it is unlikely that trends are better in populations outside protected areas. Fragmentation exacerbates negative trends by increasing the probability that isolated populations will suffer irreversible declines due to stochastic (unpredictable) effects acting on their smaller local abundances, especially when combined with multiple external threats within the population fragments. Enhanced threat reduction to reverse declines within TCAs and maintained occupied habitat in the surrounding matrix would help reduce the variability in population growth rates and improve the resilience of protected populations, while implementing efforts to improve connectivity.

Each TCA has unique strengths and weaknesses regarding its ability to support minimum sustainable populations based on areal extent, and its ability to support population increases based on landscape connection with adjacent populations. Considering how proposed projects (inside or outside of TCAs) affect connectivity and the ability of TCAs to support at least 5,000 (the numerical goal for each TCA) adult tortoises could help managers maintain the resilience of TCAs to population declines. The same project in an alternative location may have very different impacts on local or regional connectivity. For example, within the habitat matrix surrounding TCAs, narrowly delineated corridors may not allow for natural population dynamics if they do not accommodate overlapping home ranges along most of their widths so that tortoises reside, grow, find mates, and produce offspring that can replace older tortoises (Beier and Loe, 1992; Beier, 2018). In addition, most habitat outside TCAs may receive more surface disturbance than habitat within TCAs (Carter and others, 2020a). Therefore, managing the entire remaining matrix of desert tortoise habitat for permeability may be better than delineating fixed corridors (Beier, 2018; Gray and others, 2019). These concepts apply, especially given uncertainty about long-term condition of habitat within and outside of TCAs under a changing climate.

Ultimately, questions such as "*What are the critical linkages that need to be protected?*" may be better framed as "*How can we manage the remaining habitat matrix in ways that sustain ecological processes and habitat suitability for special status species.*" Land-management decisions made in the context of the latter question could be more conducive to maintenance of a functional ecological network and the recovery of the Mojave desert tortoise.

(2) Limitations on Landscape-level Disturbance Across Habitat Managed for the Desert Tortoise

Clearly delineating habitat linkages and differentiating them from non-delineated areas by the uses that are permitted or prohibited within them by specific management guidelines can help achieve functional connectivity. Such guidelines would be most effective if they considered and accounted for all surface disturbances (for example, temporary disturbances such as fiberoptic lines or off-highway vehicle routes, right-of-ways, utility-scale solar development, urbanization) to the extent possible. A weighted framework that varies with the permanence or severity of the disturbance and can be additive to quantify cumulative effects may be useful. For example, minor roads can alter tortoise movements independently of other features (Hromada and others, 2020; Peaden and others, 2017), but if the isolated dirt road is accompanied by a powerline that encourages raven predation (Xiong, 2020), the two features together may be additive. Ignoring minor or temporary disturbance on the landscape could result in a cumulatively large impact that is not explicitly acknowledged (Goble, 2009). Therefore, a commitment to understanding and quantifying all surface disturbance on a given landscape is needed.

a. In California, the Bureau of Land Management established 0.1–1.0-percent new surface-disturbance caps for TCAs and mapped linkages that address the issues described in the "(1) Management of All Desert Tortoise Habitat for Persistence and Connectivity" section (fig. 4; table 1; U.S. Bureau of Land Management, 2016).

b. Nevada, Utah, and Arizona currently do not have surface-disturbance limits. Limits comparable to those in the DRECP would be 0.5 percent within TCAs and 1 percent within the linkages modeled by Averill-Murray and others (2013). Limits in some areas of California within the DRECP, such as Ivanpah Valley, are more restrictive at 0.1 percent (fig. 4; table 1). Continuity across the state line in Nevada could be achieved with comparable limits in the adjacent portion of Ivanpah Valley, as well as the Greater Trout Canyon translocation area and the Stump Springs Regional Augmentation Site (fig. 5). These more restrictive limits help protect remaining habitat in the major interstate connectivity pathway through Ivanpah Valley (Hagerty and others, 2011) and focal areas of population augmentation that provide additional population connectivity along the western flank of the Spring Mountains.

c. In a recent study that analyzed 13 years of desert tortoise monitoring data, nearly all desert tortoise observations were at sites in which 5 percent or less of the surrounding landscape within 1 km was disturbed (Carter and others, 2020a). To help maintain tortoise inhabitance and permeability across all other non-conservation-designated tortoise habitat, all surface disturbance could be limited to less than 5-percent development per square kilometer because the 5-percent threshold for development is the point at which tortoise occupation drops precipitously (Carter and others, 2020a; fig. 3). However, it is important to note that 5 percent may not maintain population sizes needed for demographic or functional connectivity; therefore, ideally, development thresholds should be lower. Lower development thresholds would be particularly useful in areas within the upper 5th percentile of connectivity values modeled by Gray and others (2019; fig. 1.3; fig. 5).

However, although individual desert tortoises were observed at development levels up to 5 percent, we do not know the fitness or reproductive characteristics of these individuals. This level of development also may not allow for long-term persistence of healthy populations that are of adequate size needed for demographic or functional connectivity; therefore, ideally development should be lower. This would be particularly useful in areas within the upper 5th percentile of connectivity values modeled by Gray and others (2019).

d. Reducing ancillary threats in places where connectivity is restricted to narrow strips of habitat, for example, narrow mountain passes or vegetated strips between solar development, could enhance the functionality of these vulnerable linkages. In such areas, maintaining multiple, redundant linkages could further enhance overall connectivity. Attention to the spatial configuration of allowed disturbances also would help ensure that any existing bottlenecks to connectivity are not severed.

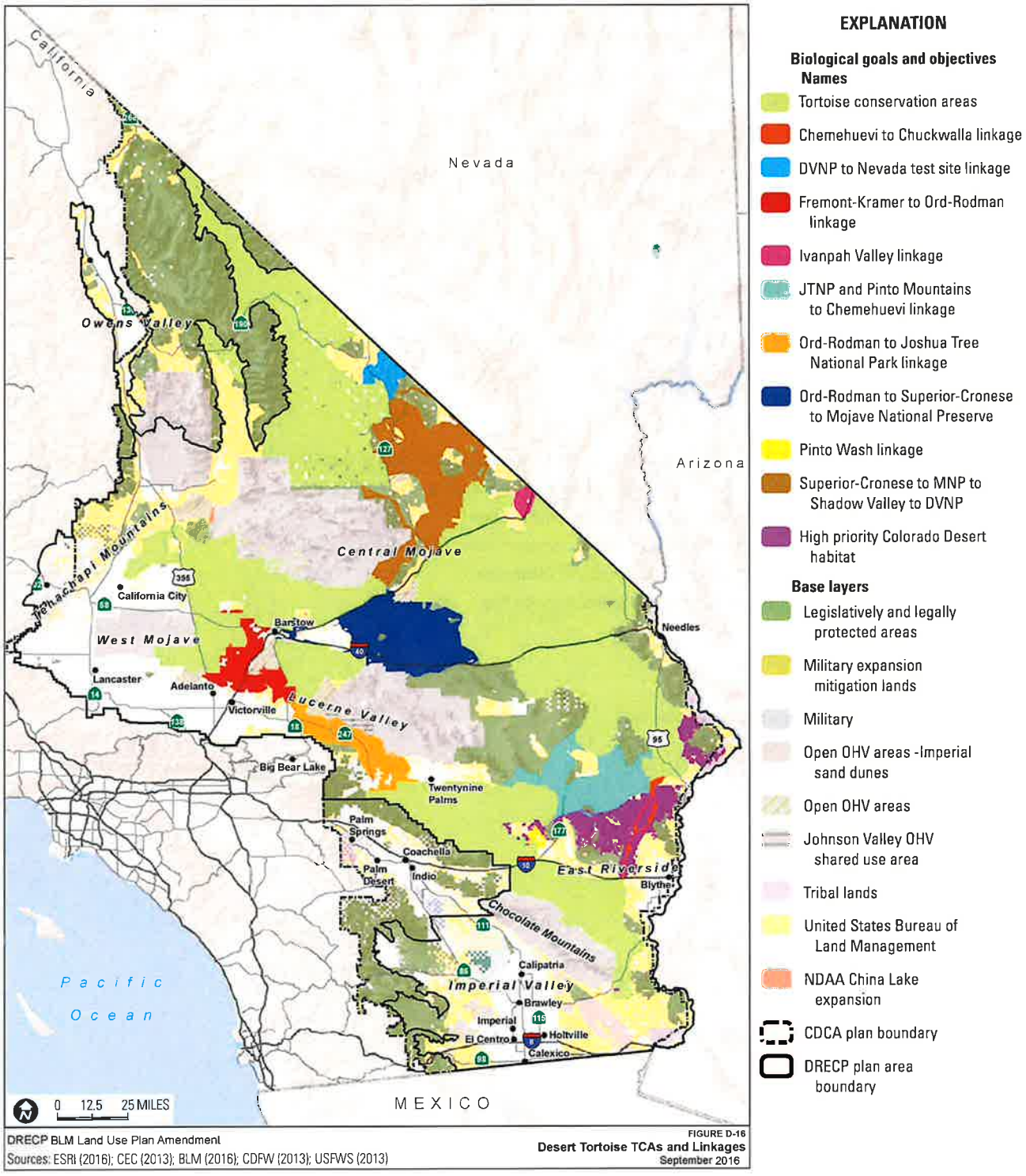

Figure 4. Desert tortoise conservation areas (TCAs) and linkages in the California Desert Renewable Energy Conservation Plan (U.S. Bureau of Land Management, 2016). Tortoise conservation areas are labeled according to table 1.

Table 1. Surface-disturbance caps in desert tortoise conservation areas and linkages in the California Desert Renewable Energy Conservation Plan (U.S. Bureau of Land Management, 2016).

[ACEC, Area of Critical Environmental Concern; CHU, critical habitat unit]

Location	Disturbance cap (percentage)
Tortoise conservation area (numbers correspond to fig. 4)	
1. Desert Tortoise Research Natural Area	0.1
2. Fremont-Kramer ACEC and CHU	0.5
3. Superior-Cronese ACEC and CHU	0.5
4. Ord-Rodman ACEC and CHU	0.5
5. Pinto Mountains ACEC and CHU	0.5
6. Chuckwalla ACEC and CHU	0.5
7. Chemehuevi Desert ACEC and CHU	0.5
8. Piute Valley ACEC and CHU	0.5
9. Shadow Valley ACEC	0.5
10. Ivanpah Valley ACEC (includes critical habitat on Bureau of Land Management land)	0.1
Desert tortoise linkages (see legend in fig. 4)	
Ord-Rodman to Superior-Cronese to Mojave National Preserve	1
Superior-Cronese to Mojave National Preserve to Shadow Valley to Death Valley National Park	1
Joshua Tree National Park and Pinto Mountains to Chemehuevi	1
Death Valley National Park to Nevada National Security Site	1
Ivanpah Valley	0.1
Chemehuevi to Chuckwalla	0.1
Pinto Wash	0.1
Ord-Rodman to Joshua Tree National Park	0.5
Fremont-Kramer to Ord-Rodman	0.5
High-value Colorado Desert Habitat	1

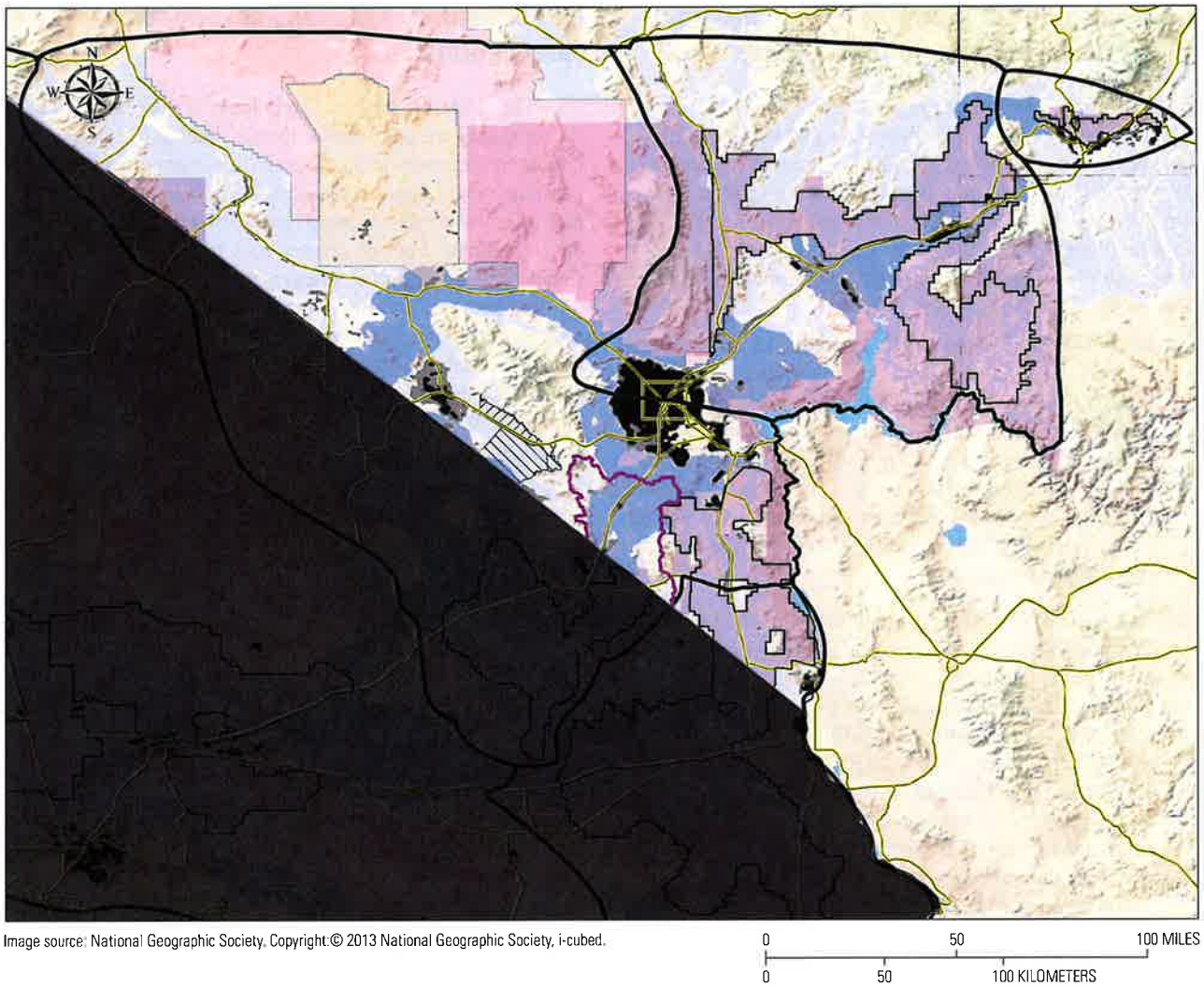

Figure 5. Tortoise conservation areas, linkages, and other habitat managed for desert tortoise population connectivity in Nevada, Utah, and Arizona.

(3) Minimization of Mortality from Roads and Maximization of Passage Under Roads

Roads pose a significant threat to the long-term persistence of local tortoise populations, and roads of high traffic volume lead to severe population declines (Peaden, 2017), which ultimately fragments populations farther away from the roads. Three points pertain to reducing direct mortality of tortoises on the many paved roads that cross desert tortoise habitat and maintaining a minimal level of permeability across these roads.

a. Tortoise-exclusion fencing tied into culverts, underpasses or overpasses, or other passages below roads in desert tortoise habitat, would limit vehicular mortality of tortoises and would provide opportunities for movement across the roads (Boarman and others, 1997). Installation of shade structures on the habitat side of fences installed in areas with narrow population-depletion zones would limit overheating of tortoises that may pace the fence (Peaden and others, 2017).

b. Passages below highways could be maintained or retrofitted to ensure safe tortoise access, for example, by filling eroded drop-offs or by modifying erosion-control features, such as rip-rap, to make them safer and more passable for tortoises. Wildlife management agencies could work with transportation departments to develop construction standards that are consistent with hydrologic/erosion management goals, which would also maximize the potential for tortoise survival and passage and make the standards widely available. The process would be most effective if the status of passages was regularly monitored and built into management plans.

c. Healthy tortoise populations along fenced highways could be supported by ensuring that land inside tortoise-exclusion fences is not so degraded that it leads to degradation of tortoise habitat outside the exclusion areas. As one example, invasive plants inside road rights of way could be mown or treated with herbicide to limit their spread into adjacent tortoise habitat and to minimize the risk of these plants carrying wildfires into adjacent habitat.

(4) Adaptation of Management Based on New Information

The models described herein have already been useful for informing management of tortoise habitat to support population recovery and connectivity. Future research will continue to build upon and refine these models and develop new ones. New models could consider landscape levels of development and be constructed such that they share common foundations to support future synthesis efforts. If model development was undertaken in partnership with entities that are responsible for management of desert tortoise habitat, it would facilitate incorporation of current and future modeling results into their land management decisions (Carter and others, 2020b). There are specific topics that could be clarified with further evaluation:

a. The effects of climate change on desert tortoise habitat, distribution, and population connectivity (Nussear and others, 2020; Shoemaker and others, 2020);

b. The effects of large-scale fires, especially within repeatedly burned habitat, on desert tortoise distribution and population connectivity;

c. The ability of solar energy facilities or similar developments to support tortoise movement and presence by leaving washes intact, leaving native vegetation intact whenever possible, or if not possible, mowing the site to allow vegetation to re-sprout, managing weeds, and allowing tortoises to occupy the sites; and

d. The design and frequency of underpasses necessary to maintain functional demographic and genetic connectivity across linear features such as highways.

Summary

This report summarizes the underlying concepts and importance of landscape connectivity for Mojave desert tortoise populations by reviewing current information on connectivity and providing information to managers for maintaining or enhancing desert tortoise population connectivity as they consider future proposals for development and management actions.

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Appendix 1. Recent Desert Tortoise Habitat and Connectivity Models

The figures provided in this appendix (figs. 1.1–1.4) were important in the development of guidance on the habitat connectivity needs of the Mojave desert tortoise for natural resource managers.

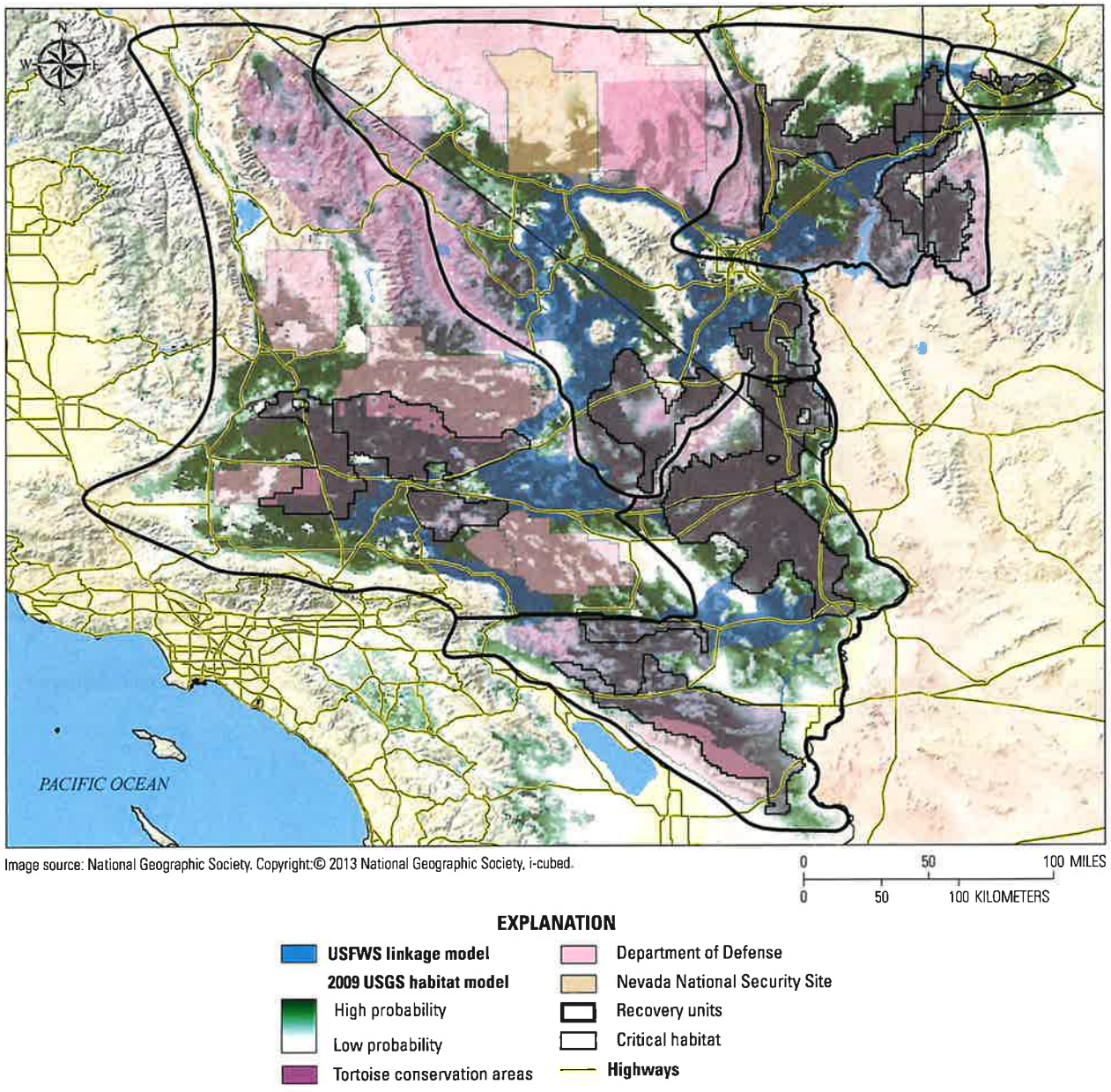

Figure 1.1. Range-wide Mojave desert tortoise habitat probability model (Nussear and others, 2009) overlain by the U.S. Fish and Wildlife Service (USFWS) linkage model (Averill-Murray and others, 2013) that connects designated tortoise conservation areas. The color ramp from white to green represents the probability of tortoise presence from low to high, respectively.

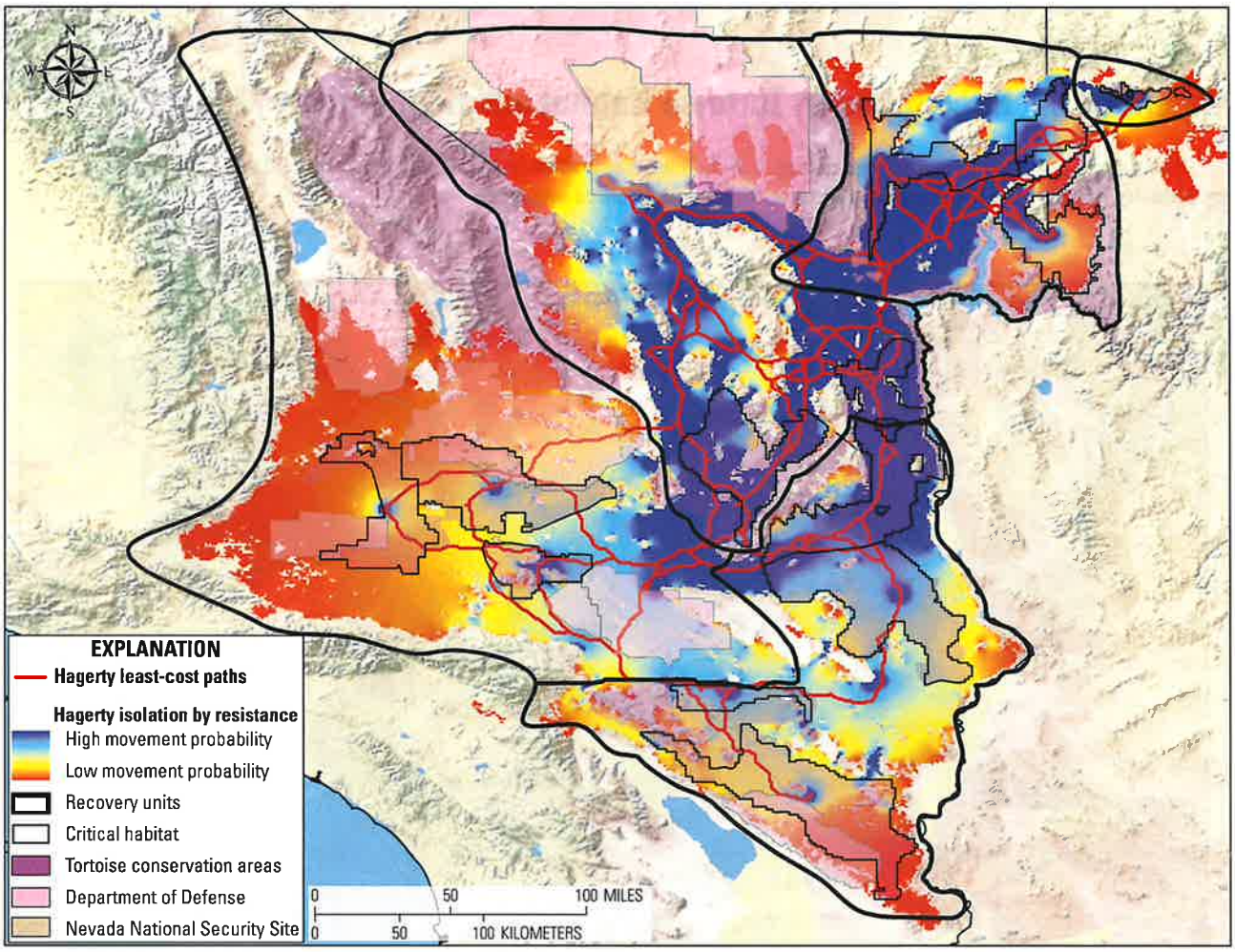

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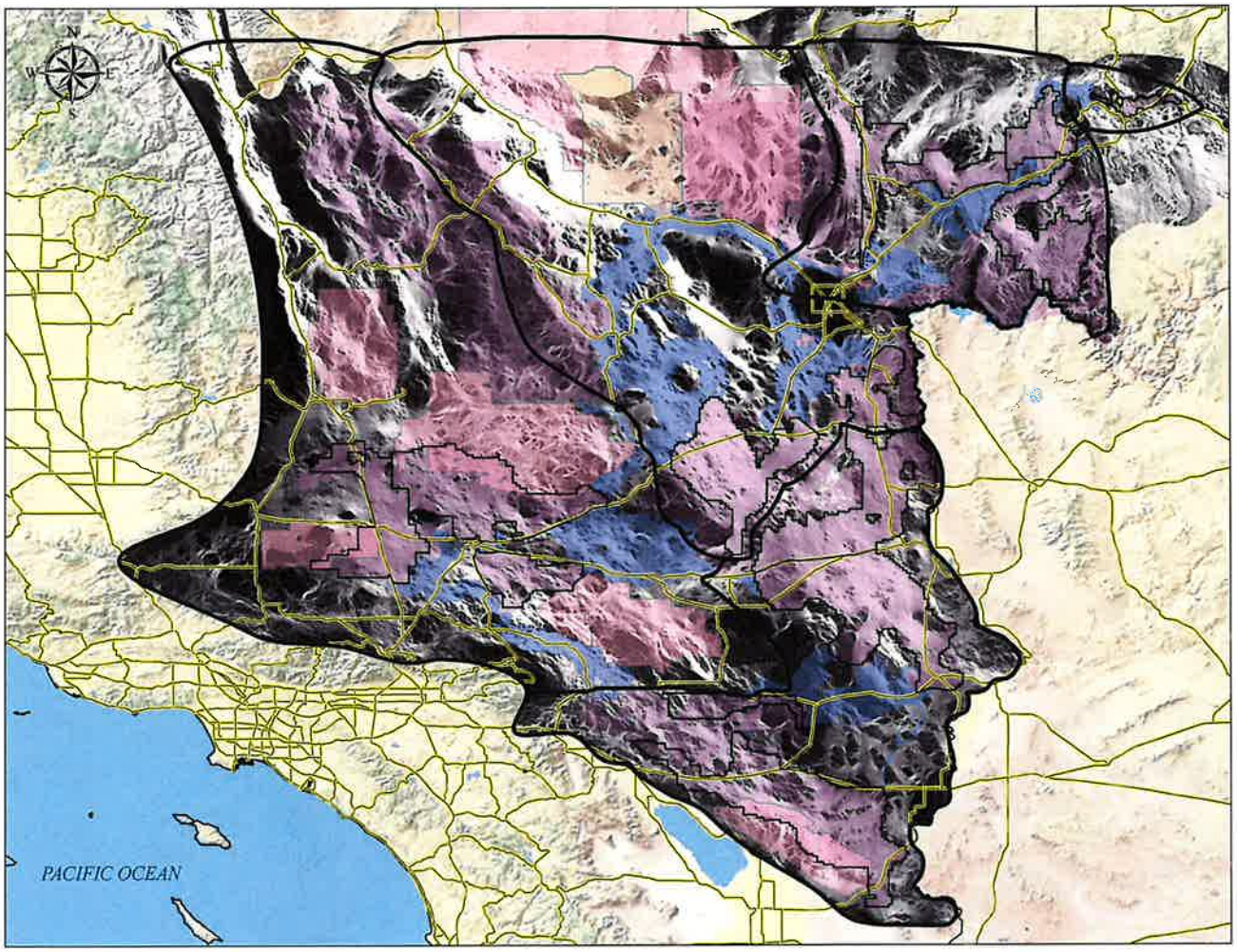
Figure 1.2. Mojave desert tortoise landscape genetics modeled by Hagerty and others (2011) showing least-cost paths between sampled population centroids overlying an isolation-by-resistance surface.



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0 50 100 MILES
0 50 100 KILOMETERS

EXPLANATION

Omnidirectional connectivity model
- High connectivity
- Low connectivity

USFWS linkage model

Tortoise conservation areas

Department of Defense

Nevada National Security Site

Recovery units

Critical habitat

Highways

Figure 1.3. Range-wide omnidirectional connectivity model (Gray and others, 2019) for the Mojave desert tortoise overlain by the U.S. Fish and Wildlife Service (USFWS) linkage model (blue) that connects designated tortoise conservation areas (Averill-Murray and others, 2013).

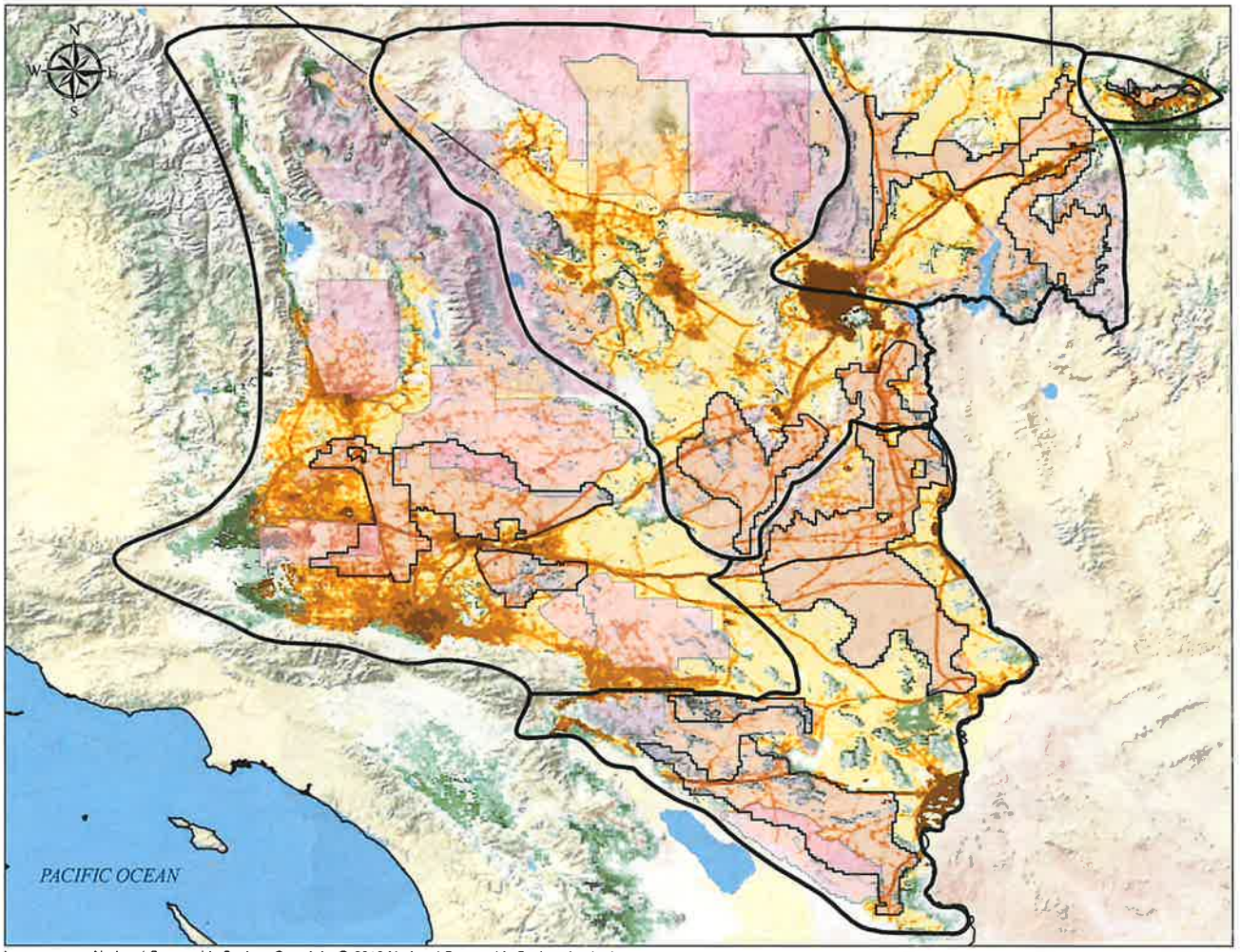

Figure 1.4. Terrestrial development index modeled by Carter and others (2020).

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N | O | P | Q | R | S | T | U | V | W | X | Y | Z

Panicum hirticaule subsp. hirticaule

ROUGHSTALK WITCH GRASS

Higher Taxonomy

Family: Poaceae (Gramineae)	View Description	Dichotomous Key
Genus: Panicum	View Description	Dichotomous Key

Panicum hirticaule* J. Presl subsp. *hirticaule

NATIVE

Habit: Annual. **Stem:** 1--8 dm. **Leaf:** sheath 2--6 cm, axis glabrous to short-hairy; ligule membrane 0.5--2 mm, ciliate; blade 7--20 cm, 3--15 mm wide, upper surface gener sparsely short-hairy. **Inflorescence:** 5--20 cm, open; 1° branches 3--8 cm, glabrous; spikelets 1--2 per node, stalk 0.5--3 mm, generally appressed. **Spikelet:** +- 2.5--3 mm mm wide, lanceolate to ovate, green; axis between glumes and florets visible; lower glume +- 1.5--2.5 mm, generally 5-veined, acute; lower floret sterile, lemma 7-veined, acuminate to acute, palea generally < lemma; upper floret 0.7--0.8 × lower floret, stipitate, with paired crescent-shaped scars, often enlarged.
Ecology: Sandy soils, open sites, creosote-bush scrub; **Elevation:** < 1400 m. **Bioregional Distribution:** D; **Distribution Outside California:** to Texas, South America. **Flo Time:** Aug--Dec
Synonyms: Panicum hirticaule var. hirticaule
Jepson eFlora Author: Robert W. Freckmann & Robert Webster
Reference: Freckmann & Lelong 2003 FNANM 25:406--450, 450--488
Index of California Plant Names (ICPN; linked via the Jepson Online Interchange)
Listed on CNPS Rare Plant Inventory

List of species

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Next taxon: Panicum miliaceum subsp. miliaceum

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Citation for the whole project: Jepson Flora Project (eds.) 2023, *Jepson eFlora*, https://ucjeps.berkeley.edu/eflora/, accessed on September 11, 2023.

Panicum hirticaule subsp. hirticaule

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Geographic subdivisions for Panicum hirticaule subsp. hirticaule:
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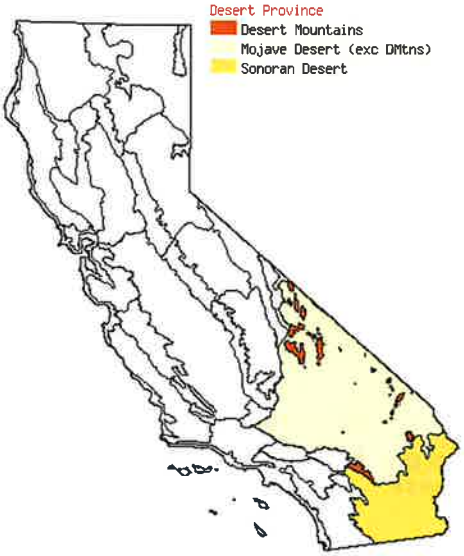

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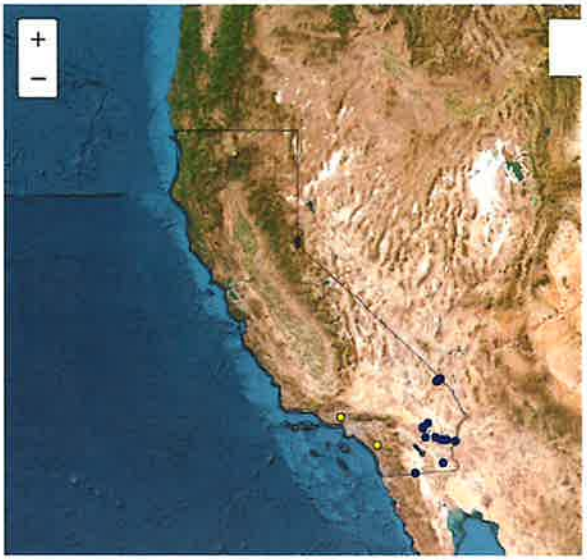

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1				1				10	8	3	1	n=24

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Pholisma sonorae

SAND FOOD

Higher Taxonomy

Family: Lennoaceae	View Description	
Genus: Pholisma	View Description	Dichotomous Key

Pholisma sonorae **(Torr. ex A. Gray) Yatsk.**

NATIVE

Stem: 5--15 dm, 0.5--2 cm diam. **Flower:** calyx lobes linear; corolla pink to purple, abaxially glabrous, margin white; ovary chambers 12--32. **Chromosomes:** 2n=36.
Ecology: Dunes, sandy areas; **Elevation:** < 200 m. **Bioregional Distribution:** DSon (se Imperial Co.); **Distribution Outside California:** western Arizona, northwestern Me
Flowering Time: Apr--May **Note:** Parasitic on *Eriogonum*, *Tiquilia*, *Ambrosia*, *Pluchea*. Threatened by off-road vehicles.
Synonyms: Ammobroma sonorae A. Gray
Jepson eFlora Author: George Yatskievych
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Pholisma sonorae
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DSon (se Imperial Co.)

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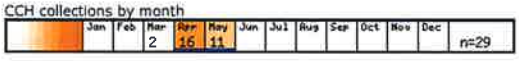

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water

MDPI

Article

Evaluation of the Effect of Gold Mining on the Water Quality in Monterrey, Bolívar (Colombia)

Alison Martín [1,2], Juliana Arias [1], Jennifer López [1], Lorena Santos [1], Camilo Venegas [1], Marcela Duarte [3], Andrés Ortíz-Ardila [4], Nubia de Parra [3], Claudia Campos [1] and Crispín Celis Zambrano [2,*]

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Received: 7 August 2020; Accepted: 4 September 2020; Published: 10 September 2020

Abstract: Gold mining uses chemicals that are discharged into rivers without any control when there are no good mining practices, generating environmental and public health problems, especially for downstream inhabitants who use the water for consumption, as is the case in Monterrey township, where the Boque River water is consumed. In this study, we evaluate Boque River water quality analyzing some physicochemical parameters such as pH, heavy metals, Hg, and cyanide; bioassays (*Lactuca sativa, Hydra attenuata*, and *Daphnia magna*), mutagenicity (Ames test), and microbiological assays. The results show that some physicochemical parameters exceed permitted concentrations (Hg, Cd, and cyanide). *D. magna* showed sensitivity and *L. sativa* showed inhibition and excessive growth in the analyzed water. Mutagenic values were obtained for all of the sample stations. The presence of bacteria and somatic coliphages in the water show a health risk to inhabitants. In conclusion, the presence of Cd, Hg, and cyanide in the waters for domestic consumption was evidenced in concentrations that can affect the environment and the health of the Monterrey inhabitants. The mutagenic index indicates the possibility of mutations in the population that consumes this type of water. Bioassays stand out as an alert system when concentrations of chemical contaminants cannot be analytically detected.

Keywords: bioassays; gold mining; health risk; mercury; microbiological indicators; mutagenicity; toxicity

1. Introduction

Gold mining in developing countries is the main source of income for 30 million miners globally. About 12% of global gold production is through illegal mining that provides a significant economic benefit to miners but also proves hazardous/harmful for the environment by causing impacts such as water source sedimentation, land cover degradation, deforestation, soil degradation, and chemical contamination with mercury, cyanide, nitric acid, and zinc [1–3]. In Colombia, despite the various alternatives to avoid the use of Hg in gold extraction, the use of the elemental Hg–Au amalgamation method in small-scale artisanal mining areas is extensive [4,5].

Within the gold mining protocols, mercury and cyanide play an important role. These materials are easy to use, available at a low-cost, and easily accessible. However, there is little awareness among

the users or villagers about the use risk of cyanide and mercury in the gold extraction process [1,2]. This activity has led to serious pollution of terrestrial and aquatic ecosystems in emerging countries, impacting mining and fishing communities, and also these polluting elements can reach human beings [4–7].

According to the records of the Colombian Mining Association (ACM), gold production increased in 2020, going from 8.9 tons in 2019 to 9.5 tons in the first quarter of 2020, this represents a growth of 7% [8]. On the other hand, for gold extraction, 86% is considered illegal, taking place without a recognized mining title or without being registered. Medium-scale mining constitutes up to 26% and large-scale mining only takes up 2% of the total [9,10]. The population of the Bolívar department is 2,195,811 inhabitants, according to DANE's (National Statistics Administrative Department) projection for 2019 [11]. According to Carranza-Lopez et al. [4] the gold-mining districts (GMDs) at the department of Bolívar have extensive Hg contamination, and this situation requires special attention to reduce environmental and human health problems.

Municipalities of Montecristo, Santa Rosa del Sur, San Martín de Loba, Morales, San Pablo, Barranco de Loba, and Simití that are in Bolívar are where gold mining mainly takes place. Simití is known as the municipality that has the largest gold mining activity within the Bolívar department. It has an estimated population of 10,360 inhabitants in an area of 1345 km^2, the mining activity occurs in the Boque River, which flows in Simití. It starts on Serranía San Lucas, passes through Monterrey district, and flows into Magdalena River [12–14] (Figure 1).

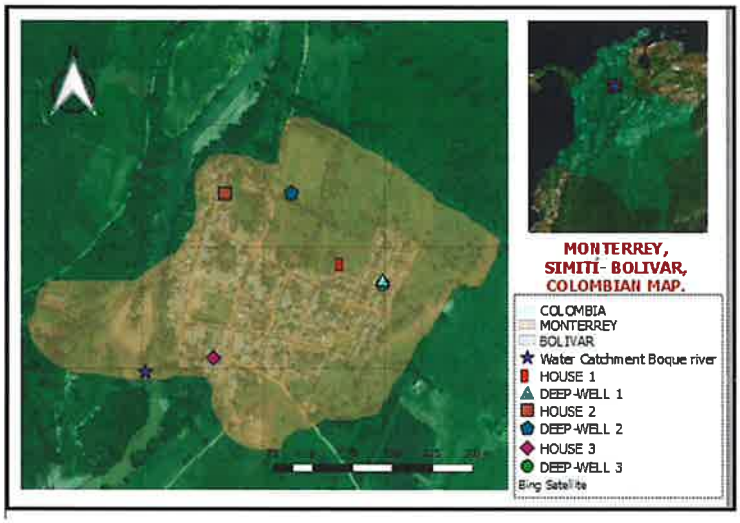

Figure 1. Location of sampling stations in Monterrey, Simití-Bolívar, Colombia. Source: authors.

Gold mining in Middle Magdalena has been carried out through artisanal practices, without considering the implications in the community and ecosystems due to the practice of non-regulated techniques affecting the environment, natural resources as well as health conditions and welfare of the population. Gold mining severely affects water resources, biodiversity, animals, flora, and fauna in its geographical area. In addition, the presence of certain types of mining settlements bring to pass certain types of domestic wastewater discharges without treatment to the Boque River, affecting the quality of the water and the inhabitants downstream [15–19]. The discharge of wastewater into a water body involves a large number and diversity of heavy toxic chemicals, many of which are unknown. These chemicals may react with each other, which can increase the toxicity level, which creates a negative impact on the structure and functioning of the natural ecosystem [4,20].

To determine the effect of gold extraction in the region, the evaluation of physicochemical parameters of the water is required. Nevertheless, the illegal settlements do not have sanitation

systems, so microbiological contamination becomes an additional problem. However, even if in some of the above-mentioned situations the parameters could be between the legal requirements, it should be considered that trace heavy elements might have an impact on the population and the ecosystem after long periods of exposure. Thus, it is necessary to test different representatives of the trophic chain to identify the impact of the pollutants through bioassays tests [20–23].

Bioassays are described as alert mechanisms for long-term periods of exposure to chemical pollutants. These are used as indicators of substances that are harmful to living cells and tissues, useful even in the cases where physicochemical parameters fulfill the requirements of water quality [24]. Likewise, this possible bioaccumulation of chemical elements in the trophic chains can generate mutagenicity or toxicity, which is why it is important to be able to establish whether a complex system such as a water sample from a mining region has these undesirable characteristics, which can be detected by the Ames test or bioassays [25–27]. Some Latin American countries have made progress in the application of toxicity tests, while for Colombia, toxicity tests in natural environments are scarce compared to the evaluation of hazardous waste and industrial dumping [28,29]. On the other hand, the Ames test has proven to be effective for the identification of potentially carcinogenic or mutagenic chemicals, achieving its immediate adoption and its requirement by regulatory authorities around the world [30]. In the Ames test, *Salmonella typhimurium* (*S. typhimurium*) is used as an indicator of bacterial mutagenesis as a consequence of exposure to chemical contaminants [25,26].

Taking into consideration that the water of the Boque River is used in human consumption without treatment and it collects chemical pollutants from the mining activity, such as mercury and cyanide, the use of the Ames test in the evaluation of this water will permit the evaluation of its possible carcinogenic or mutagenic effect, making it a relevant issue for the inhabitants of Simití. For this reason, it is necessary to have data on bioassays and Ames test indicators in environmental samples, especially in mining, which has become one of the most important fonts of economic resources in Colombia and at the same time of damage not sufficiently evaluated to date. In order to have a complete evaluation of the water quality in relation to the possible presence of bacteria, viruses, and parasites and the risk to the inhabitants, it is necessary to use indicators of fecal contamination, with the most used indicators being total coliforms and *Escherichia coli* as bacterial indicators and somatic phages as viral indicators, which allow indication of the presence of pathogenic microorganisms in the water.

The aim of this research is to evaluate the impact generated by the exploitation of bad mining practices such as the use of dangerous chemical compounds in gold mining, which are drained into surface waters such as the Boque River in the South of Bolívar, Colombia, as well as the waste generated in the mining settlements. The assessment of the impact on the environment, living organisms, and human health will be done through the detection of heavy metals, microbiological indicators, and bioassays, which through a joint assessment will provide important aspects to protect the health of the inhabitants of Monterrey.

2. Materials and Methods

2.1. Study Area

The Boque River has an approximate area of 876 km^2 and merges into the Magdalena River. The Monterrey district belongs to the Municipality of Simití, Department of Bolívar (Colombia). The inhabitants who live within the Monterey township collect and use the water from the Boque River for different activities, this being the main source of water supply (Figure 1) [27].

2.2. Water Physicochemical Analysis, Heavy Metals, and Cyanide Detection

Some physicochemical parameters were analyzed such as pH (pH/T tester pHep®4, Hanna Instruments, RI, USA) [31], chemical oxygen demand (COD photometer Hanna Instruments, New England, RI, USA) [32], and total solids by the gravimetric method [33]. The detection of heavy metals was performed using a Varian SpectrAA 220 G Atomic Absorption Spectrometer(Varian-Agilent

Inst., Palo Alto, San Francisco, CA, USA), following previous publications: cadmium, chromium, zinc, and nickel [34]; mercury in a direct mercury analyzer (DMA-80, Milestone Inc., Sorisole, Italy) [35]; and cyanide in a portable photometer (Hanna Instruments, RI, USA) [36]. All reactive, analytical standards and reference materials were purchased from Merck (Merck KGaA, Darmstadt, Germany). The results obtained in the samples from Village Gato, Village Tigui, and the water catchment of the Boque River were compared with normative 0631/2015 [37], which establishes the parameters to be monitored and maximum permissible limits in the specific discharges of non-domestic wastewater (precious minerals and gold). While for houses and deep-well underground sites, they were evaluated in compliance with normative 2115/2007 [38], which regulates water for human consumption.

2.3. Bioassays

In the bioassays, *Lactuca sativa (L. sativa)* [39] and *Hydra attenuata (H. attenuata)* [40] were used as a biological indicators of water quality. After the follow-up of the results of the two first collections of water samples, a modification of the protocol was performed replacing *Daphnia magna (D. magna)* [41] instead of *H. attenuata* due to no evidence of sensitivity against the possible harmful substances that might be present in the water samples by *H. attenuata*. The effects on organisms can be inhibition, sublethality, and lethality volume/volume (v/v). The water samples were diluted in four different concentrations 25%, 50%, 75%, and 100% (v/v); reconstituted hard water (160–180 mg/L $CaCO_3$) was used as diluent for the *D. magna* and *H. attenuata*; while for *L. sativa*, distilled water was used. The response of *H. attenuata* was read using a binocular stereoscope (Leica). Before taking the readings, the containers were shaken in a circular way to reactivate the movement of *D. magna* and confirm their state. In the case of *L. sativa*, graph paper was used to measure the length of the radicle.

2.3.1. Endpoint and Toxic Response Model

L. sativa, half-maximal inhibitory concentration (IC_{50}): root growth reduction or inhibitory effects on lettuce seed germination and root growth after 5 days. *D. magna*, lethal concentration (LC_{50}): number dead/total number or lethal effects of water were observed after 48 h of exposure, and *H. attenuata*, median effective concentration (EC_{50}): density reduction or lethality test, produced by irreversible morphological changes after 96 h of exposure.

2.3.2. Toxicity

To calculate the lethal concentration (LC_{50}), the half-maximal inhibitory concentration (IC_{50}), and median effective concentration (EC_{50}), the method used was Environmental Protection Agency (EPA) Probit analysis model [42–44]. When results in $EC_{50}/LC_{50}/IC_{50}$ cannot be reported by the statistical program, they are reported as the percentage of effect (%) in the lowest concentration at which the event is still present on the evaluated population [20].

2.4. Ames Test

The method was applied according to Ames [45] using *Salmonella typhimurium* (*S. typhimurium*) TA98 and TA100 strains to evaluate possible mutagenicity. The cultures were grown in Oxoid nutrient broth No. 2. The samples of water were diluted in four different concentrations 25%, 50%, 75%, and 100% (*v/v*). The mutagenic effect was evaluated from the number of revertant colonies per plate. The plates were prepared in triplicate for every test sample, and the result presented was the mean of triplicate observation. The mutagenic activity was detected after 120 h of exposure at 37 (±2) °C. The revertant colonies' readings were counted using an automatic colony counter (Industrial Scientific). For accuracy of the results, mutagenic index (MI) values greater than or equal to two (≥2) were considered mutagenic [46].

2.5. Statistic Analysis

To establish whether there is a relationship between evaluated physicochemical parameters and heavy metals with results of bioassays, a one-way analysis of variance (ANOVA) was performed with a significance level of $p < 0.05$.

2.6. Microbiological Analysis

The determination of total coliforms and *E. coli* as indicators of bacterial fecal contamination was performed according to the ISO 9308-1 standard method [47]. Cellulose acetate membranes of 0.45 µm × 47 mm (Sartorius) were used for the filtration. Dark blue/purple colonies on Chromocult agar (Merck) were presumed to be *E. coli*. The detection and quantification of somatic coliphages as indicators of viral fecal contamination was performed according to the ISO 10705-2 standard procedure and modified Scholten's agar (MSA) (OXOID) was used for the detection of coliphages [48].

The results obtained in the samples from Village Gato, Village Tigui, and the water catchment of the Boque River were compared with normative 1594/1984 [49], which regulates waters that can be treated by conventional systems for human consumption. While for houses and deep-well underground sites, they were evaluated in compliance with normative 2115/2007 [38], which regulates water for human consumption. Normative 2115/2007 only beholds the microbiological quality concerning total coliforms and *E. coli*. Although coliphage concentrations are not regulated within Colombian normatives, their detection is relevant since they confirm contamination of fecal origin and the possible presence of pathogenic viruses, both in drinking water and in water for human consumption.

3. Results

3.1. Physicochemical Parameters

Parameters such as COD, total solids, and pH did not exceed the limits of Colombian normative 0631/2015 [37], in the first three sample stations. However, the level of cadmium was excessive in the Village Gato station in the first sampling with a concentration of 0.05 mg/L. Chromium did surpass the limit in the first sampling in Village Tigui. Likewise, mercury in Village Gato exceeded the limit in the third sampling (0.0029 mg/L). Moreover, in the Village Tigui station, the measurements in the second sampling exceeded 0.0025 mg/L and those in the water catchment of the Boque River in the first sampling were also excessive with 0.0022 mg/L. Furthermore, the permitted concentration of cyanides in the first and second sampling with a concentration of 1.02 and 1.32 mg/L, respectively, was excessive at the Village Tigui sampling station. While in the water catchment of the Boque River station, the prescribed cyanide level was exceeded in the second sampling with a concentration of 1.57 mg/L (Appendix A—Table A1).

The values of heavy metals analyzed in the last two sampling stations were compared with normative 2115/2007 [38] based on waters for human consumption. On one hand, the level of cadmium exceeded the limits established by the regulations for the house station in the second and third sampling with concentrations of 0.03 and 0.01 mg/L, respectively. While the cyanide concentration was exceeded only in the second sampling (1.11 mg/L). On the other hand, the established values of cadmium exceeded only in the second sampling in deep-well underground, presenting a concentration of 0.01 mg/L. Mercury was detected in each of the samples for both the house and deep-well underground stations, but the concentrations did not exceed the limits established in normative 2115 of 2007 [38]. The other metals evaluated (Zn, Ni, and Cr) were not detected in any of the samples analyzed (Appendix A—Table A2).

3.2. Bioassays

Table 1 shows the different percentages of growth inhibition of *L. sativa* in three samples for five evaluated stations. As the results show, there was root inhibition in some sampling stations and overgrowth in others. In Village Gato, in the third sampling, there was excess growth at a concentration

of 25%. Likewise, in Village Tigui, the greatest inhibitions registered were observed at a concentration of 25%. In general, among all the sampled stations where the greatest inhibition was observed the highest was in Village Tigui, followed by house, deep-well underground, Village Gato, and the smallest recorded in the water catchment of the Boque River.

Table 1. Bioassays results with *Lactuca sativa*.

Sampling Station (n = 15)	1S % (*v*/*v*) Effect	2S % (*v*/*v*) Effect	3S % (*v*/*v*) Effect
Village Gato	33% Inhibition to 75%	27% Inhibition to 100%	133% Growth to 25%
Village Tigui	44% Inhibition to 25%	24% Inhibition to 25%	4% Inhibition to 50%
Water catchment of the Boque River	0% Inhibition to 100%	27% Inhibition to 100%	110% Growth to 100%
House	34% Inhibition to 25%	19% Inhibition to 75%	6% Inhibition to 50%
Deep-well underground	35% Inhibition to 50%	36% Inhibition to 75%	6% Inhibition to 75%

S: sampling, the numbers 1S, 2S, and 3S correspond to the months of July, September, and December in which the sample was taken; n: is the number of samples.

In Table 2, it is observed that the *D. magna* indicator has different mortality percentages since the same four concentrations of the sample are evaluated as in the *L. sativa* bioassay. The highest was 23% mortality at a concentration of 50% at the water catchment of the Boque River station and 17% mortality at 75% at the Village Tigui sampling station, followed by the house and deep-well underground stations. Finally, the lowest concentration of mortality was obtained in the Village Gato station with 33% mortality at 100%. For *H. attenuata*, it was not possible to determine the EC_{50} and LC_{50} values because there were no morphological changes, indicating lethality or sublethality, in the three samplings carried out, reporting 0% sublethality at 100% (*v*/*v*) and 0% lethality at 100% (*v*/*v*).

Table 2. Results of bioassay with *Daphnia magna*.

Sampling Station (n = 15)	3S % (*v*/*v*) Effect
Village Tigui	17% mortality to 75%
Village Gato	33% mortality to 100%
Water catchment of the Boque River	23% mortality to 50%
House	47% mortality to 100%
Deep-well underground	43% mortality to 100%

S: sampling, the number 3S corresponds to the month of December in which the sample was taken; n: is the number of samples.

3.3. *Ames Test*

The results obtained with the Ames test using *S. typhimurium* TA98 and TA100 strains are presented in Table 3, where the mutagenic index (MI) is shown for each condition used in the assay. According to Table 3, for the second sampling of the house station, mutagenic values were observed for both strain TA98 and TA100 in each of the concentrations evaluated. While for Village Gato, with strain TA100, a value of 2.4 was observed in the 100% concentration (Table 3). For the other sampling sites, there was no mutagenic index.

Table 3. Mutagenic index, for each concentration analyzed in the five sampling stations with strain *Salmonella typhimurium* TA98 and *S. typhimurium* TA100.

Sampling Stations (n = 15)	Concentration *v/v* (%)	TA98 (MI)			TA100 (MI)		
		S1	S2	S3	S1	S2	S3
Village Gato	25	0.77	1.07	0.00	0.97	0.46	1.00
	50	0.86	0.87	0.20	1.09	0.68	1.20
	75	1.06	1.49	0.60	1.27	0.77	1.70
	100	1.12	1.93	1.00	1.51	1.14	2.40
Village Tigui	25	0.97	0.70	0.00	1.37	0.20	0.60
	50	0.95	0.74	0.00	1.39	0.34	0.90
	75	1.12	1.14	0.10	1.48	0.33	1.00
	100	1.21	1.82	0.40	1.81	0.56	1.20
Water catchment of the Boque River	25	1.17	0.39	0.30	0.94	0.27	0.60
	50	1.39	0.63	0.50	1.00	0.24	0.70
	75	1.41	0.47	0.60	1.21	0.35	1.10
	100	1.50	0.59	0.90	1.71	0.44	1.30
House	25	0.68	41.78	0.40	1.01	11.05	0.60
	50	1.00	48.49	0.60	1.17	12.39	1.00
	75	1.06	56.62	0.80	1.36	13.75	2.00
	100	1.21	58.31	1.10	1.70	15.09	2.50
Deep-well underground	25	88.0	0.39	0.20	1.02	0.37	0.80
	50	0.88	0.50	0.50	1.16	1.21	1.20
	75	1.00	0.50	0.80	1.23	0.42	1.70
	100	0.55	0.64	0.90	1.28	0.64	2.00

S: sampling, the numbers 1S, 2S, and 3S correspond to the month of July, September, and December in which the sample was taken; n: is the number of samples; MI: mutagenic index.

3.4. Statistical Analysis

The statistical analysis performed to determine a possible relationship between the results of the physicochemical parameters against the toxicity indicators showed that there is a relationship between the inhibition of *L. sativa* concerning to mercury with a significance of $p < 0.05$.

However, due to the low number of samples analyzed for *H. attenuata* (three samples) versus the number of samples for *D. magna* (15 samples), it was not possible to establish whether there was a correlation with the concentration of metals or with the results of *L. sativa*.

3.5. Microbiological Analysis

Table 4 shows the results of the concentration of fecal contamination indicators (total coliforms, *E. coli*, and somatic coliphages) for the different types of water of the five sampling stations. Table 4 shows that concentrations between 10^3 and 10^5 colony forming unit (CFU)/100 mL for total coliforms were obtained at the different stations. While in the case of *E. coli*, concentrations between 10^3 and 10^4 CFU/100 mL were obtained. Somatic coliphages were detected in samples taken at Village Gato and house stations. Colombia does not have regulations for the presence of this indicator, although this is necessary since the presence of somatic coliphages represents a risk to the health of the community.

While, for the water catchment of the Boque River, Village Tigui, and deep-well underground stations, the presence of phages in some samples was not detected ($<1.0 \times 10^3$). The results were compared with decree 1594/1984 [49], which establishes the concentration of total coliforms (2.0×10^4/100 mL) allowed in waters that will be treated by conventional systems: while normative 2115/2007 [38], establishes that the concentrations for total coliforms and *E. coli* for drinking water is 0 CFU/100 mL.

Table 4. Results of total coliforms, *Escherichia coli*, and somatic coliphages in waters of the Boque River and drinking waters.

Sampling Stations (n = 15)	Microbiological Indicators								
	Total Coliforms CFU/100 mL			*E. coli* CFU/100 mL			Somatic Coliphages PFU/100 mL		
	1S	2S	3S	1S	2S	3S	1S	2S	3S
Village Gato	7.0×10^3	1.1×10^5	4.1×10^5	1.0×10^3	4.0×10^3	8.0×10^4	1.4×10^3	1.0×10^2	4.5
Village Tigui	1.3×10^5	3.2×10^4	2.2×10^5	2.0×10^3	2.0×10^3	3.0×10^4	4.9×10^3	3.0×10^2	$<1.0 \times 10^3$
Water catchment of the Boque River	2.4×10^4	1.7×10^4	4.0×10^5	1.0×10^3	1.0×10^3	1.0×10^4	$<1.0 \times 10^2$	$<1.0 \times 10^3$	1.9
House	4.0×10^4	1.4×10^5	2.8×10^5	1.0×10^3	3.0×10^4	3.0×10^4	1.0×10^2	2.0×10^4	1.0×10^2
Deep-well underground	3.2×10^4	6.0×10^4	3.8×10^5	1.0×10^3	4.0×10^4	4.0×10^4	2.0×10^2	$<1.0 \times 10^3$	1.0

CFU/100 mL: colony forming units in 100 mL of analyzed water; PFU/100 mL: plaque forming units in 100 mL of analyzed water; n: number of samples analyzed. S: sampling, the numbers 1S, 2S, and 3S correspond to the month of July, September, and December in which the sample was taken; <: less than the limit of quantification; n: is the number of samples.

4. Discussion

4.1. Bioassays

4.1.1. *Hydra attenuata* and *Daphnia magna*

By applying the *H. attenuata* toxicity test, it was not possible to determine lethality or sub-lethality since there were no morphological changes in the three samples taken. An important factor that could influence why *H. attenuata* was not sensitive to contaminants present in this water, is that the toxicity of metals is modified by abiotic factors such as hardness, pH, and water temperature [50]. For example, if water hardness is high, the formation of metal complexes tends to increase, which in turn lowers the effect of toxic divalent metals [50,51].

H. attenuata has a higher sensitivity to toxic substances at acidic pH, compared to that at alkaline or neutral pH [52]. The pH value of the water sample from the Boque River is about 7 (Appendix A—Tables A1 and A2), which could influence *H. attenuata* not presenting sensitivity when heavy metals, cyanides, or other toxic substances are in the water.

Due to the results obtained with *H. attenuata* in the first two samples, *D. magna* was used in the last sampling, to find an animal indicator that presented a greater sensitivity to these types of contaminants. Table 2 shows different mortality percentages that were found, demonstrating the sensitivity of this organism to the contaminants present in the water of the Boque River that is consumed by the Monterrey population. Studies conducted by Forget et al. [53] with *D. magna*, show percentages of toxicity up to 70% against heavy metals. Castro-Català et al. [54] evaluated the toxicity of sediments and water in rivers with the presence of pesticides and heavy metals using *D. magna* as an animal indicator, showing that it can be sensitive to these types of samples, due to its high metabolic rate [55]. Likewise, Lattuada et al. [56], in southern Brazil, used *D. magna* as an indicator of toxicity in waters affected by coal mining, in which heavy metals such as Fe, Mn, Zn, Ni, Cd, and Pb were found. The results showed sensitivity by this indicator in this type of water and suggest the evaluation of toxicity in waters from gold mining. Moreover, studies conducted in China by Wu et al. [57] demonstrated that the most frequently encountered heavy metals in a region affected by gold mining were mercury and cadmium, as observed in the results found in the drinking water of the population of Monterrey (Appendix A—Tables A1 and A2).

4.1.2. *Lactuca Sativa*

The differences observed between chemical parameters and toxicity may be related to the fact that the samples were not collected simultaneously and that it is not the same water because along the river route and on the different sampling days, diverse factors can alter its quality. Likewise, dilution effects due to rain, sedimentation, the introduction of new pollutants, among others, can have an influence.

Additionally, the water entering the treatment plant can be more contaminated, taking into account that it travels through tanks that are not in operation or comes into contact with sludge that might have a higher concentration of contaminants, which may return to the column of water.

The increase in germination, compared to the positive control (overgrowth), is related to the presence of organic matter because they are essential nutrients for *L. sativa* seed germination, and if they are available in high concentrations, they will stimulate growth. On the other hand, mercury and cyanide at the Village Tigui station (Appendix A—Tables A1 and A2) had higher concentrations. The inhibition rates of 24% and 44% for samples 1 and 2 at the concentration of 25%, affect the growth of the seed as the higher concentration of pollutants results in greater inhibition. Castillo et al. [24] found inhibition in the germination of seeds in waters contaminated with mercury and argue that it can occur due to the harmful effects caused by mercury at the cellular level in the seed. These results coincide with other studies where *L. sativa* has been proposed as a useful tool to evaluate and compare the toxicity of industrial effluents that present heavy metal contamination [58].

Likewise, the level of cadmium (Appendix A—Tables A1 and A2), also exceeded the minimum values established by the regulations for water for human consumption; studies have been reported where the exposure of *L. sativa* to this metal causes toxic and harmful effects that decrease its growth as the concentration of Cd, and thereby its adsorption, increases [59–61]. Just as the presence of heavy metals and cyanide has toxic implications in the plant and animal model, in the same way, it will affect the health of the human being [62,63].

Cd is one of the most toxic elements to which man is exposed since the accumulation of this metal in the body is gradual and increases with age due to its long half-life, greater than 20 years [64]. This is why eating food or drinking water with very high levels of cadmium causes severe stomach irritation, which causes vomiting, diarrhea, and sometimes death [64]. Moreover, cyanide exceeded the allowed limits (0.05 mg/L) in one of the samples analyzed in one of the houses (1.11 mg/L). The guide values of the World Health Organization [65] establish that the concentration of cyanide toxic to humans is 0.07 mg/L. Exposure to this concentration or higher may cause inhibition of cell growth, thereby affecting the breathing process and the metabolism of nitrogen and phosphate. It also inhibits the activity of some metalloproteins, joining cofactors such as the heme group of hemoglobin [66].

Finally, cyanide has acute effects on human health such as irritation of the eyes, nose, and throat. High exposure causes intoxication with headache, weakness, nausea, strong heartbeat, coma, and even death. As for chronic effects, it causes nosebleeds and nose lesions and can cause enlargement of the thyroid gland, which can interfere with its regular function [67].

4.2. Ames Test

In some cases, there was a decrease in reverts with increasing doses, which may be due to the presence of toxic substances that prevent the growth of bacteria [68]. However, in most of the sampling stations, a direct relationship was observed between the number of revertants and the increase in the concentration of heavy metals. This demonstrates the high probability of the presence of substances such as heavy metals and organic compounds in the Boque River that cause base-pair mutations and changes in the DNA reading frame of bacteria.

When observing the reversion of the strains, it was evidenced that they exceed 2–40 times the value of the negative control for the TA98 strain in the second sample in one of the houses, and from 2.0 to 2.5 for the TA100 strain in the third sample for the house and underground well. According to Orozco and Zuleta [69], some samples can exceed 100 times the negative control and these results are related to the quality of the water.

Likewise, Meléndez et al. [70] investigated the mutagenic activity of drinking water before and after chlorination at the Villa Hermosa plant, Medellín, Colombia, finding that contamination and chlorination influence mutagenicity. They used the Ames test with strains TA100 and TA98. Sierra et al. [71] evaluated the mutagenic activity of the Cauca River water with the same strains with and without the enzyme activator S9, finding that the highest rate of mutagenicity was observed with

strain TA98 without enzyme activator. However, the TA100 strain is characterized by presenting the *hisG46* mutation and has specific markers that give it greater sensitivity to the test; within these are the *uvr* mutation, the *uvrB* mutation, and the plasmid pKM101 [26,68].

Mesquidaz et al. [72] reported alarming figures in the mercury concentrations used in the gold extraction process in a mine in northern Colombia, which ranges from 50 to 100 tons in 2007. Furthermore, it is reported that, thanks to this pollutant present in water, the health of the population has been affected, since Hg was found in human hair at a concentration of 12.8 μg/g, a figure that is well above international standards. It has been shown that inhabitants of different municipalities in southern Bolívar where gold mining takes place have high levels of Hg contamination, and this situation requires special attention to reduce environmental and human health problems [4]. Mercury contamination has been linked to health problems, as direct absorption of mercury vapor released by incinerators in gold mining, or ingestion of mercury-containing wastes, causes hydrargyrism and poisoning. Mercury (Hg) is one of the heavy metals of greatest concern to populations that consume fish. This pollutant can be released from many sources and has various toxic effects in humans [73].

Some of the health problems caused are excessive salivation, shortness of breath and fatigue, bronchitis, tremors and irritability, personality changes (due to brain damage), a sensation of floating teeth and pain in them, kidney and respiratory damage that can lead to death from problems in the lungs and other organs of the body [74–76]. While breathing polluted air, elemental mercury can reach the brain, affecting nerve cells and the olfactory system. The main organs in which mercury accumulates are the brain and the kidney [77,78].

4.3. Statistical Analysis

The statistical analysis showed a relationship between the inhibition of *L. sativa* concerning mercury with a significance of $p < 0.05$; this inhibition in the germination of *L. sativa* with this metal was also reported in Chile, where the exposure of the seeds to Hg inhibited their growth [19]. The toxicity caused multiple harmful effects in the seed at the cellular level such as a change in permeability in the cell membrane and the affinity to react with phosphate groups and the sulfhydryl group (SH). When mercury interacts with the SH groups to form the S–Hg–S bonds, it disrupts the stability of the group can affect seed germination and seedling growth whose tissues are rich in SH groups [79].

On the other hand, it was not possible to establish a correlation between the vegetal and the animal model due to the number of samples collected. When comparing the results of the bioassays associating for *D. magna* and *L. sativa*, it was observed that the variability due to the sampling was not simultaneous for every sample and it could be possibly affected by a new spill in the river. Additionally, these are different organisms with different sensitivity to the contaminants present in the Boque River water and there exist other factors that can influence this response. For example, some bacteria can naturally modify mercury (Hg^{2+}) by ion methylation forming $CH_3–Hg^+$, which is more toxic and is incorporated into trophic chains, affecting the animal model more than the vegetable model [80].

4.4. Total Coliforms, Escherichia Coli, and Somatic Coliphages

The microbiological results confirm the high fecal contamination in all the sampling stations (Table 4). Total coliform concentrations exceeded the limits for Colombian regulations [49]. In the case of drinking water for human consumption (deep-well underground and house), total coliforms and *E. coli* were well above levels required by regulation for drinking water [38]. Likewise, in the case of drinking water for human consumption by the treatment system (Village Gato, Tigui, and water catchment of the Boque River), the concentrations allowed for total coliforms were exceeded [49].

Campos-Pinilla et al. [81] and Sánchez-Alfonso et al. [82] in studies carried out in the Bogotá River found a total coliform concentration between 10^3 and 10^6 CFU/100 mL and for *E. coli* between 10^3 and 10^5/100 mL. This coincides with the values found in this study, which range between 10^3 and 10^5 CFU/100 mL of total coliforms and for *E. coli* between 10^3 and 10^4 CFU/100 mL (Table 4). Likewise, studies conducted by Lucena et al. [83] and Sánchez-Alfonso et al. [82] in rivers show average

concentrations of somatic coliphages between 10^2 and 10^4 plaque forming unit (PFU)/100 mL, similar to those found in this study with ranges from 1 and 10^3 PFU/100 mL. The concentration of microorganisms in river water varies depending on climatic factors, geographical area, and the amount of organic matter present in water bodies [84,85]. The mine exploitation site is a settlement space for the population that works in this activity legally or illegally, which generates a high level of household waste in the river causing contamination by the discharge of fecal matter and organic matter, which explains the concentration of indicators of fecal contamination. It is related to the absence of treatment systems and improper installation of septic tanks.

The detected concentrations of total coliforms and *E. coli* in all the drinking water samples and the detection of somatic coliphages in some samples of water used for human consumption confirm the fecal contamination and the possible presence of pathogenic viruses in the drinking water (Table 4). These concentrations of indicators are similar to those detected in river samples as reported by Lucena et al. [83], Campos-Pinilla et al. [81], and Sánchez-Alfonso et al. [82], which could increase the risk for residents.

5. Conclusions

The results obtained with the three toxicity indicators reveal that *H. attenuata* does not present sensitivity to toxic substances present in this type of water, so its use for this purpose is not recommended. On the other hand, *D. magna* showed sensitivity even in diluted samples as well as *L. sativa*, which showed growth inhibition and excessive growth in different concentrations of the analyzed water, inclusive of waters with pollutant concentrations below the detection level. The Ames test shows an increase in the revertants indicating the possibility of mutations in the population that consumes this type of water, which is correlated with the results of the mutagenicity test that showed a mutagenic effect in the five stations evaluated with both strains used in the study. The highest mutagenic index was found in the water sample taken from the house sampling station. The concentration of bacteria in the water exceeded the limits allowed by Colombian regulations, creating a health risk, also with an alert call to the presence of possible pathogenic viruses, and the risk that they imply for the inhabitants of Monterrey due to somatic coliphage levels determined.

This research recognizes the potential use of bioassays to evaluate the toxic effects generated by chemical wastes produced by gold mining and discharged into surface waters. The use of animal and plant models is recommended to evaluate said effects on the environment and public health and infer the damages that until now have not been sufficiently evaluated having as correlation factors physicochemical and microbiological parameters.

Finally, this research generated data that contribute to the knowledge of the effects caused to the environmental and public health by illegal and legal mining carried out with bad practices in emerging countries with inefficient controls of this type of activity. These assays used can help sanitation organizations in different countries to take preventive actions on this issue

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Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. Results of physicochemical parameter analysis compared with the normative 0631/2015.

Physicochemical Parameters (n = 9)	Village Gato			Village Tigui			Water Catchment of the Boque River			Limit of the Regulations
Number of Sampling	**S1**	**S2**	**S3**	**S1**	**S2**	**S3**	**S1**	**S2**	**S3**	**Normative 0631/2015 [37]**
pH	7.36	7.49	7.33	7.55	6.05	6.57	7.61	7.56	7.63	6.0–9.0
COD (mg/L)	32.67	<0.001	5.52	22.46	<0.001	24.17	29.63	40.72	4.82	150
Total solids (g/10 mL)	0.0024	0.00165	0.0	0.0007	0.0058	0.0029	0.0001	0.00316	0.0005	50
Cyanide (mg/L)	<0.025	<0.025	0.025	1.02	1.32	<0.025	<0.025	1.57	<0.025	1.0
Cadmium (Cd) (mg/L)	0.05	0.03	0.02	$<1.0 \times 10^{-2}$	0.02	0.02	$<1.0 \times 10^{-2}$	0.02	0.01	0.05
Chrome (Cr) (mg/L)	$<1.0 \times 10^{-6}$	$<1.0 \times 10^{-6}$	$<1.0 \times 10^{-6}$	0.06	$<1.0 \times 10^{-6}$	0.04	$<1.0 \times 10^{-6}$	$<1.0 \times 10^{-6}$	$<1.0 \times 10^{-6}$	0.5
Mercury (Hg) (mg/L)	0.0008	0.0029	0.0003	0.001	0.0025	0.0008	0.0022	0.002	0.0008	0.002
Nickel (Ni) (mg/L)	$<1.0 \times 10^{-3}$	$<1.0 \times 10^{-3}$	$<1.0 \times 10^{-3}$	$<1.0 \times 10^{-3}$	$<1.0 \times 10^{-3}$	$<1.0 \times 10^{-3}$	$<1.0 \times 10^{-3}$	$<1.0 \times 10^{-3}$	$<1.0 \times 10^{-3}$	0.5
Zinc (Zn) (mg/L)	$<1.0 \times 10^{-3}$	$<1.0 \times 10^{-3}$	$<1.0 \times 10^{-3}$	$<1.0 \times 10^{-3}$	$<1.0 \times 10^{-3}$	$<1.0 \times 10^{-3}$	$<1.0 \times 10^{-3}$	$<1.0 \times 10^{-3}$	$<1.0 \times 10^{-3}$	3.0

mg/L: milligram per liter; S: sampling, the numbers 1S, 2S, and 3S correspond to the month of July, September, and December in which the sample was taken; <: less than the limit of quantification; n: is the number of samples; COD: chemical oxygen demand.

Table A2. Results of physicochemical parameters analysis compared with the normative 2115 of 2007.

Physicochemical Parameters (n = 6)	House			Deep-Well Underground			Limit of the Regulations
Number of sampling	**S1**	**S2**	**S3**	**S1**	**S2**	**S3**	**Normative 2115/2007 [38]**
pH	7.6	7.53	7.44	6.95	6.79	6.61	6.5–9.0
Cyanide (mg/L)	<0.025	1.11	<0.025	<0.025	<0.025	<0.025	0.05
Cadmium (Cd) (mg/L)	$<1.0 \times 10^{-2}$	0.03	0.03	$<1.0 \times 10^{-2}$	0.01	$<1.0 \times 10^{-2}$	0.003
Chrome (Cr) (mg/L)	0.02	$<1.0 \times 10^{-6}$	$<1 \times 10^{-6}$	$<1.0 \times 10^{-6}$	$<1.0 \times 10^{-6}$	$<1.0 \times 10^{-6}$	0.05
Mercury (Hg) (mg/L)	0.0004	0.0005	0.0003	0.0007	0.0003	0.0007	0.001
Nickel (Ni) (mg/L)	$<1.0 \times 10^{-3}$	$<1.0 \times 10^{-3}$	$<1.0 \times 10^{-3}$	$<1.0 \times 10^{-3}$	$<1.0 \times 10^{-3}$	$<1.0 \times 10^{-3}$	0.2
Zinc (Zn) (mg/L)	$<1.0 \times 10^{-3}$	$<1.0 \times 10^{-3}$	$<1.0 \times 10^{-3}$	$<1.0 \times 10^{-3}$	$<1.0 \times 10^{-3}$	$<1.0 \times 10^{-3}$	3.0

mg/L: milligram per liter; S: sampling, the numbers 1S, 2S, and 3S correspond to the month of July, September, and December in which the sample was taken; <: less than the limit of quantification; n: is the number of samples.

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How Gold Mining Can Affect Water Quality

There are several ways in which gold mining can affect water quality. Some of the following information is taken from the Safe Drinking Water Foundation online article, "Mining and Water Pollution." Local photos are displayed, pertaining to Buckhorn Mountain and the associated facilities.

Introduction

Water is essential to life on our planet. A prerequisite of sustainable development must be to ensure uncontaminated streams, rivers, lakes and oceans.

A stream feeding the Nine Acre Wetland, located near the Buckhorn mining operation

Mining affects fresh water through heavy use of water in processing ore, and through water pollution from discharged mine effluent and seepage from tailings and waste rock impoundments. Increasingly, human activities such as mining threaten the water sources on which we all depend. Water has been called "mining's most common casualty" (James Lyon, interview, Mineral Policy Center, Washington DC). There is growing awareness of the environmental legacy of mining activities that have been undertaken with little concern for the environment. The price we have paid for our everyday use of minerals has sometimes been very high. Mining by its nature consumes, diverts and can seriously pollute water resources.

Negative Impacts

While there have been improvements to mining practices in recent years, significant environmental risks remain. Negative impacts can vary from the sedimentation caused by poorly built roads during exploration through to the sediment, and disturbance of water during mine construction. Water pollution from mine waste rock and tailings may need to be managed for decades, if not centuries, after closure. These impacts depend on a variety of factors, such as the sensitivity of local terrain, the composition of minerals being mined, the type of technology employed, the skill, knowledge and environmental commitment of the company, and finally, our ability to monitor and enforce compliance with environmental regulations. One of the problems is that mining has become more mechanized and therefore able to handle more rock and ore material than ever before. Therefore, mine waste has multiplied enormously. As mine technologies are developed to make it more profitable to mine low grade ore, even more waste will be generated in the future.

Waste From The Mining Process

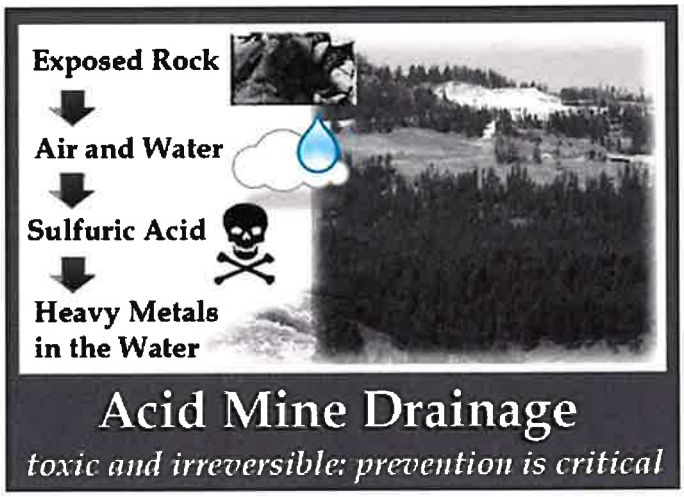
Ore is mineralized rock containing a valued metal such as gold...The ore is crushed into finely ground tailings for processing with various chemicals and separating processes to extract the final product.

Kettle River facilities

Types Of Water Pollution From Mining

- **Acid Mine Drainage**
  - Many of the metals being mined in North America, including the gold mined from Buckhorn, tend to be found in rock that contains sulfide minerals. When ore and surrounding rock are excavated during mining, the sulfides become exposed to water and air, and may form sulfuric acid. This acid in turn leaches metals and other substances from the rocks that can harm ecosystems. The acid will leach from the rock as long as its source rock is exposed to air and water and until the sulphides are leached out – a process that can last hundreds, even thousands of years. Acid is

carried off the minesite by rainwater or surface drainage and deposited into nearby streams, rivers, lakes and groundwater. Acid mine drainage is considered one of the most serious environmental threats posed by mining, and it can devastate aquatic resources for generations.



- **Heavy Metal Contamination & Leaching**
  - Heavy metal pollution is caused when such metals as arsenic, cobalt, copper, cadmium, lead, silver and zinc contained in excavated rock or exposed in an underground mine come in contact with water. Metals are leached out and carried downstream as water washes over the rock surface. Although metals can become mobile in neutral pH conditions, leaching is particularly accelerated in the low pH conditions such as are created by Acid Mine Drainage.
- **Processing Chemicals Pollution**
  - This kind of pollution occurs when chemical agents (such as cyanide or sulphuric acid used by mining companies to separate the target mineral from the ore) spill, leak, or leach from the mine site into nearby water bodies. These chemicals can be highly toxic to humans and wildlife.
- **Erosion and Sedimentation**
  - Mineral development disturbs soil and rock in the course of constructing and maintaining roads, open pits, and waste impoundments. In the absence of adequate prevention and control strategies, erosion of the exposed earth may carry substantial amounts of sediment into streams, rivers and lakes. Excessive sediment can clog riverbeds and smother watershed vegetation, wildlife habitat and aquatic organisms.

Drillpad exploration

Water Quantity

Mining can deplete surface and groundwater supplies. Groundwater withdrawals may damage or destroy streamside habitat many miles from the actual mine site. [end quote from the Mining and Water Pollution article]

buckhorn mine, mining, resources, water quality

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Contamination of Water
Health Risk Assessment and Treatment Strategies
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Chapter 1 - Contamination of water resources in the mining region

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Abstract

Mines disturb ecological systems and are major source of environmental contamination at local and regional levels. Mines generate a huge quantity of sulfide rich waste, such as tailings and waste rocks, during the ore extraction and mineral processing. Sulfides on exposure to oxygen and water generates acid mine drainage (AMD) which leads to a decrease in pH and leaching of heavy metals from the waste. The AMD generation capacity of mine waste depends on the chemical composition of waste, extraction, or beneficiation process and climatic factors. The runoff from waste piles enriched with AMD mixes with streams and increases the load of heavy metals. The percolation of heavy metals from waste piles contaminates the groundwater and the impact is more in shallow aquifers. The abandoned mines (surface and underground) left after the extraction of ore are also major source of water contamination. Additionally, the overexploitation of water resources during dewatering and changes in land use and land cover due to mines disturbs the recharge and discharge capacity of aquifers. It leads to the degradation of water quality and changes in hydrogeochemical processes. Thus the implementation of proper waste management and treatment policies are urgently needed to save the quality and quantity of water resources in the mining regions.

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Keywords

Heavy metals; mines; groundwater; surface water; source of contamination

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REVIEW ARTICLE

WILEY

Tropical surface gold mining: A review of ecological impacts and restoration strategies

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Abstract

Surface gold mining severely degrades landscapes, causing deforestation, soil erosion and displacement, and toxic contamination. The prevalence of both large-scale and artisanal, small-scale surface gold mining in the tropics has risen over recent decades. Restoration strategies developed for less-severe forms of degradation may not sufficiently address the unique ecological conditions of former gold mines. In this review, we summarize biophysical challenges to the restoration and reforestation of large- and small-scale gold mines in the tropics and synthesize the findings of studies that test restoration strategies at these sites. Certain practices, such as the backfilling of mined pits, topsoil conservation, and the preservation of local seed sources, emerge from the literature as crucial for the timely and effective restoration of gold mines. However, because the severity of ecological degradation varies greatly within and between individual mines, and given the relatively small number ($n = 42$) of published tropical field studies found in our literature review, we highlight a clear need for continued research and development of restoration strategies specific to ecological conditions of former gold mines in the tropics.

KEYWORDS
ASGM, gold, mine reclamation, reforestation, surface mining, tropical restoration

1 | INTRODUCTION

Restoration of degraded landscapes in the tropics has the potential to conserve biodiversity, sequester carbon, and promote sustainable livelihoods (Chazdon et al., 2009; Lamb et al., 2005; Poorter et al., 2016). However, land-use history and extent of degradation significantly influence restoration's pace and trajectory (Chazdon, 2008). The most severe forms of anthropogenic land degradation, such as those caused by surface mining, present significant restoration challenges for practitioners and affected communities (Ahirwal & Pandey, 2020). Surface mining causes 7% of deforestation in developing nations (Hosonuma et al., 2012), and leads to intense soil disturbance such as the displacement of topsoil, loss of edaphic biological activity, heavy-metal contamination, and nutrient-leaching (Ahirwal et al., 2016; Sheoran et al., 2010). Prevailing restoration methods are generally designed to recover landscapes after agriculture and logging and are often insufficient to address degradation due to surface mining (Ahirwal & Pandey, 2020; Woodbury et al., 2020).

Within the surface mining industry, the mining of gold through ecologically destructive techniques such as open-pit mining and dredging (Haldar, 2013), represents a growing environmental threat in the tropics. Regions such as the Guiana Shield, south-central

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Amazonia, West Africa, and Western Australia all have significant deposits of gold (Hammond et al., 2007), and data from 2018 indicated that tropical nations produced about 43% of the global gold supply (Alexander et al., 2019). Consequently, surface gold mining is a substantial driver of deforestation in heavily-mined areas such as French Guiana, the Madre de Dios region of Peru, the Antioquia region of Colombia (Dezécache et al., 2017; Espejo et al., 2018), and western Ghana (Schueler et al., 2011). In recent decades, successive surges in the international price of gold have driven an unprecedented expansion of both formal and clandestine gold mining, particularly operations in Amazonia (Asner et al., 2013; Hammond et al., 2007) and equatorial Africa (Armah et al., 2013; Schueler et al., 2011). It is becoming increasingly economically feasible to extract gold from low-grade deposits, threatening protected tropical biodiversity hotspots and major waterways with physical degradation and chemical contamination, and presenting grave health risks to affected rural communities (Alvarez-Berríos & Aide, 2015; Betancur-Corredor et al., 2018; Gibb & O'Leary, 2014).

Despite the severity and pervasiveness of the degradation caused by surface gold mining, this represents the first review analyzing the ecological fate of former tropical gold mines and the restoration techniques available to rehabilitate or reclaim these converted landscapes. We summarize the biophysical effects of surface gold mining, noting the differences between large-scale and artisanal, small-scale gold mining (ASGM) operations. We examine the response of the natural plant community after mine closure or abandonment and then assess potential active restoration techniques. Although we focus on gold mining here, many of the impacts and restoration options covered by our review apply to surface mines of other minerals in the tropics (e.g., bauxite, copper, and iron).

FIGURE 1 Left—A large gold mining pit in Guyana (image by Michelle Kalamandeen). Right—An aerial photo of a large-scale opencast gold mine in Namibia. In large-scale gold mining operations, vast areas of land are converted to construct access roads, mining pits, overburden heaps, and tailings storage facilities (image by Hanspeter Baumeler) [Colour figure can be viewed at wileyonlinelibrary.com]

FIGURE 2 Left—an isolated ASGM site in the Amazon (image by Sue Palminteri/Mongabay). Right—an aerial photo depicting the considerable extent of ASGM operations in the Peruvian Amazon (image by Rhett A. Butler/Mongabay) [Colour figure can be viewed at wileyonlinelibrary.com]

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2 | SCALES AND MODALITIES OF OPERATIONS

Throughout this review, we differentiate between the two spatial scales of surface gold mining operations prevalent in the tropics: large-scale surface mining, and ASGM (Figures 1 and 2). These two scales of operations employ very different actors and use different mining techniques (Hammond et al., 2007), meriting separate assessments of both ecological impacts and restoration potential.

2.1 | Large-scale gold mining

National and transnational corporations operate large surface gold mines and are part of the formal economy. These large mines produce about 85% of the world's gold supply (Metcalf & Veiga, 2012). Although the largest producers are in temperate zones, gold mining is on the rise in the tropics: between 2018 and 2019, large mines in Indonesia, Mali, the Democratic Republic of Congo, Burkina Faso, and Chile had the greatest increases in gold production (Alexander et al., 2019).

A single large-scale surface gold mine typically employs hundreds of workers, including skilled staff using advanced technologies (Bury, 2004), and processes over 500,000 Mg of ore annually (Hammond et al., 2007) using open-cast techniques, in which gold ore deposits are extracted from deep and expansive open pits. The primary method of refining, utilized by formal industrial operations since the 1880s, is 'cyanidation', in which the mined ore is soaked in a dilute solution of sodium cyanide (NaCN) to leach out gold (Hilson & Monhemius, 2006). Remnants of processed and leached deposits, called 'tailings', are transported to tailings storage facilities for long-term storage (Lottermoser, 2010). Tailings solids are often piled to construct 'tailings dams' which embank 'tailings ponds'—large lagoons of effluents and slurry waste from the mining process (Festin et al., 2019) (Figure 1). In most modern large-scale gold mining operations, over 99% of the originally mined ore eventually becomes tailings (Lottermoser, 2010).

2.2 | Artisanal and small-scale gold mining

As of 2009, an estimated 70 countries across the globe had a documented presence of ASGM, 65 of which were nations in the tropics and subtropics (Telmer & Veiga, 2009). Globally, ASGM operations produce around 350 Mg of gold per year, or about 15% of the global gold supply (Metcalf & Veiga, 2012). Up to 15 million people across the globe directly practice ASGM (Metcalf & Veiga, 2012), while 80 to 100 million people rely on ASGM for some portion of their livelihoods (Armah et al., 2013). Many artisanal gold miners come from socially and economically marginalized communities (Armah et al., 2013).

ASGM operations involve small groups of individuals, often from rural and immigrant communities, who process small volumes of ore over small areas (Hammond et al., 2007)—in some cases, illegally (Fisher et al., 2018; Naughton, 1993). While ASGM traditionally evokes images of low-impact methods like panning, it now commonly involves the removal of the soil using machinery such as excavators to dig open pits in floodplain deposits or suction pumps to dredge streambed deposits. Operations increasingly feature pressurized hydraulic jets to dislodge large volumes of deposits and wash them into sluices (flow-regulated channels where heavy metals are gravity-separated) (Byizigiro et al., 2015; Hammond et al., 2007).

If gravity separation methods cannot produce concentrates with over 20% gold—the level of purity required for the smelting process—then artisanal miners use a mercury amalgamation process. Mercury forms an alloy (amalgam) with gold, chemically separating it from other minerals (Hammond et al., 2007; Telmer & Veiga, 2009). ASGM operations generally use mercury amalgamation rather than cyanidation because it is more cost-efficient and accessible (Telmer & Veiga, 2009). Often, ASGM operations abandon open dumps of mercury-contaminated tailings, allowing effluent to discharge into the surrounding environment (Fashola et al., 2016).

3 | BIOPHYSICAL DEGRADATION FROM SURFACE GOLD MINING IN THE TROPICS

We categorize degradation caused by large-scale gold mining and ASGM into three main categories: deforestation, soil degradation, and toxic contamination (Table 1). We describe how these changes to the biotic and abiotic environment, and associated social conditions, pose unique challenges to restoration efforts at former tropical gold mine sites.

3.1 | Deforestation

The degree of forest loss depends on the type and scale of mining methods employed. Large-scale projects typically involve significant deforestation at the operation level, removing vegetation to construct vast pits, tailings storage facilities, access roads, and other infrastructure (Alvarez-Berríos & Aide, 2015). While global estimates of deforestation due to surface gold mining are not available, regional studies demonstrate the industry's impact. In Colombia, for example, large gold mining operations cleared 31,554 ha of forest between 2001 and 2018—a greater area than was deforested for any other mined mineral (González-González et al., 2021). Particularly, in Antioquia, the Country's main gold-mining region, legal mining caused 24% of local deforestation in 2018 (González-González et al., 2021).

ASGM's contribution to deforestation is not well documented in most regions, and is likely underestimated due to the small size and/or illegality of individual projects. Moreover, ASGM often occurs in ecologically sensitive old-growth forests, riparian zones, and wetlands (Alvarez-Berríos & Aide, 2015; Román-Dañobeytia et al., 2015). In well-documented ASGM hotspots in the Guiana Shield and the Madre de Dios region of Peru, small-scale gold mining is a primary driver of land-use conversion, outpacing logging, agriculture, and ranching (Peterson & Heemskerk, 2001; Román-Dañobeytia et al., 2015).

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TABLE 1 Summarizes the main environmental and social challenges associated with ASGM and large-scale surface gold mine restoration in the tropics

Challenges to restoration	Artisanal and small-scale	Large-scale
Deforestation	• Removal of smaller areas of riparian forest	• Removal of large patches of forest for mining pits, access roads, and housing for miners
Soil degradation	• Pits usually left unfilled; topsoil not retained	• Topsoil often lost or degraded during excavation, storage, and backfilling processes
	• Erosion of riverbank and riverbed, leading to sedimentation and pollution of aquatic ecosystems	• Erosion of tailings and overburden heaps; dam collapse can occur in the most severe cases
	• Remnant substrate has lowered amounts of available nutrients, reduced biological activity, and is often more acidic	• Remnant substrate has lowered amounts of available nutrients, reduced biological activity, and is often more acidic
Toxic byproducts	• Mercury	• Cyanide; Heavy metals; Acid Mine Drainage
Social challenges	• Often illegal and/or poorly regulated; little incentive for restoration	• Laws requiring rehabilitation vary by region; enforcement is often haphazard
	• Many miners live in poverty	

Between 2010 and 2017, an estimated 57,000 ha of forest in the Guiana Shield and 60,000 ha in Peru were lost due to gold mining, the majority to small-scale operations (Espejo et al., 2018; Kalamandeen et al., 2020).

Extensive deforestation creates additional challenges to restoration efforts beyond an immediate loss of vegetation. When limited remnant forest patches are left to supply seeds to denuded landscapes, natural regeneration is much slower to occur, hindering the process of ecological succession and forest recovery; see Section 4.2 on natural regeneration (Pollo et al., 2011; Valois-Cuesta et al., 2017). Additionally, deforestation has a compounding effect on erosion, accelerating soil loss and the spread of contaminants from the mining process throughout ecosystems (Diringer et al., 2020).

3.2 | Soil degradation

Both large-scale and ASGM operations involve significant mechanical and chemical manipulation of the earth during the extraction and processing of gold ore. These processes result in chronic and acute forms of soil degradation in both active and abandoned surface gold mines, including soil erosion, infertility, and toxicity. This soil degradation limits the rate and form of natural recolonization of abandoned sites by plants and soil biota.

3.2.1 | Soil dislodgement and erosion

Surface gold mining involves soil dislodgement during the mining process. In large-scale gold mining operations, immense quantities of overlying soil and waste rock (called 'overburden') are unearthed to extract gold deposits. At the Geita Gold Mine in Tanzania, for example, a single open-pit operation excavated over 81 million m^3 of overburden, altering local topography enough to divert streams nearly 3 km away from their original channels (Emel et al., 2014). ASGM operations using heavy machinery can also dislodge significant volumes of soil, often enough to destabilize riverbanks and hillsides, and wash high loads of suspended solids into streams (Byizigiro et al., 2015; Moreno-Brush et al., 2016).

Erosion continues to be a challenge for restoration efforts even after the mining process has ceased. Steeply-sloped stockpiles and tailings dams are prone to erosion by wind and overland flow, particularly when left unvegetated (Blight, 1991; Nsiah & Schaaf, 2019a; Windsor & Clements, 2001). Erosion depletes organic content and nutrient-holding clay-size particles in topsoil stockpiles, limiting the effectiveness of post-closure soil recapping and revegetation efforts, especially in tropical areas where mineral soils are naturally weathered and nutrient-poor (Ashton & Seidler, 2014; Jordan, 1985; Sousa et al., 2008). The erosion of tailings dams can cause contaminants to seep into the surrounding environment (Daniell et al., 2019; Festin et al., 2019) and in the most extreme cases, can lead to dam collapse, endangering miners and neighboring communities (Hilson & Monhemius, 2006; Nsiah & Schaaf, 2019a).

3.2.2 | Soil fertility

In addition to erosion, surface mining reduces soil fertility by intermixing the nutrient- and organic matter-rich topsoil with newly exposed rocky, nutrient-poor subsoils, and by producing infertile tailings (Festin et al., 2019). Physically, remnant subsoils at both active and abandoned sites are typically gravelly and sandy (Eludoyin et al., 2017; Guedron et al., 2009; Román-Dañobeytia et al., 2015), while tailings are composed of fine sand and silt-sized particles (Orlekowsky et al., 2013; Rossouw et al., 2009), and lacking clay. The lack of organic matter and clay in remnant subsoils and tailings results in poor cohesion and limited capacity to retain moisture and nutrients. Some remnant substrates may also become highly compacted by the use of heavy machinery (Peláez et al., 2013), limiting plant establishment.

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Chemically, remnant substrates and tailings typically have lower nutrient levels, including organic C (dos Santos et al., 2013; Eludoyin et al., 2017; Román-Dañobeytia et al., 2015), total N (Mulligan et al., 2006; Sheoran et al., 2010) and available P, Ca^{2+}, K^{+}, Mg^{2+}, and Na^{+} (Eludoyin et al., 2017). With lower cation exchange capacity than nearby forest and agricultural lands (Eludoyin et al., 2017; Orlekowsky et al., 2013), these substrates often do not hold onto essential nutrients in plant-available forms. These substrates are typically acidic (Eludoyin et al., 2017), leading to higher levels of bioavailable toxic metals and metalloids (Bruce et al., 2003). However, tailings dams can have a wide variation in pH and may even be alkaline depending on the chemical reagents involved in mining and the substrates' position on the dam slope (Mulligan et al., 2006; Rossouw et al., 2009).

Gold mining can also have negative impacts on soil biology. Former gold mine sites in Brazil had significantly lower soil microbial biomass than an unmined reference site (dos Santos et al., 2013). Microbial community composition also shifts, with more autotrophic and fewer heterotrophic organisms present at gold mines, slowing nutrient cycling (Prasetyo et al., 2010; Rosario et al., 2007). However, there is a need for more research on how these changes to the soil microbiome will impact restoration efforts.

3.3 | Toxicity and contamination

Contaminants from the gold mining process can enter surrounding ecosystems through purposeful dumping, gradual leaching, and tailings dam collapses, degrading adjacent soils, polluting waterways, and poisoning organisms (Hilson & Monhemius, 2006; Miserendino et al., 2013). During the ore excavation process, heavy metals previously bound in underlying rocks are released into surface soils and waterways. Elevated levels of heavy metals such as cadmium, lead, zinc, and copper have been documented in the remnant substrates of former ASGM sites (Eludoyin et al., 2017; Salami et al., 2003), while high concentrations of arsenic, nickel, and cobalt are often present in wastes from large-scale operations (Antwi et al., 2017; Bruce et al., 2003; Fashola et al., 2016; Orlekowsky et al., 2013). After excavation, ore purification processes introduce further contaminants: mercury is primarily used in ASGM, and cyanide in large-scale operations. Contamination from gold mines can be far-reaching; at a large-scale operation in Tanzania, for example, streams carrying contaminants have affected up to 37 km^2 of cultivated land throughout the surrounding watershed (Emel et al., 2014).

Rainfall patterns can influence the spread and severity of contamination from gold mines. For instance, intense rainfall increases the erosion of contaminant-bearing surfaces and the dispersion of toxins (Winde & Jacobus van der Walt, 2004; Zaidi et al., 2012). Gold mines in areas of the wet tropics that receive high levels of year-round rainfall, therefore, may be at higher risk of contaminant spread compared to drier tropical and temperate regions. However, hourly changes in precipitation can affect the delivery of contaminants into streams, with very heavy rainfall events temporarily diluting contaminant concentrations (Davies et al., 2011).

3.3.1 | Acid mine drainage

Gold-bearing ore and surrounding rock often contain high concentrations of heavy metal sulfides, particularly pyrite (FeS_2) (Lottermoser, 2010). When heavy metal sulfides previously bound in rock are brought to the surface during ore excavation, they react with oxygen in air and water to create sulfuric acid. This oxidation process leads to acid mine drainage (AMD), which exacerbates the leaching of heavy metals into surrounding ecosystems and acidifies streams (Fashola et al., 2016). AMD disrupts aquatic food webs from the bottom-up, destroying habitat and food access as streambeds become coated with solid precipitates (Kefeni et al., 2017; Naicker et al., 2003; Oberholster et al., 2013). AMD can affect expansive areas surrounding gold mines; in South Africa, for example, groundwater over 10 km from a gold mining area was found to be contaminated by AMD (Naicker et al., 2003).

3.3.2 | Mercury

Mercury used to refine gold in ASGM operations represents the largest global source of anthropogenic mercury emissions (US EPA, 2014), released into both the atmosphere and lithosphere (Telmer & Veiga, 2009). While miners are directly exposed to mercury vapor during amalgamation, neighboring communities that consume fish from contaminated rivers are also affected (Fréry et al., 2001; Gibb & O'Leary, 2014). In acidic, organic matter-rich river sediments, elemental mercury used in ASGM undergoes abiotic and biotic (bacteria-mediated) methylation reactions to form methylmercury, a toxic organic compound that is readily absorbed by aquatic organisms and biomagnifies at higher trophic levels (Veiga, 1997). Chronic and acute exposure to methylmercury harms the central nervous system, and can irreversibly damage neurodevelopment of fetuses in utero (Poulin et al., 2008). Despite the risks of mercury accumulation in humans and animals from ASGM, concentrations in river water and sediment at ASGM sites are often variable, and difficult to distinguish from background mercury levels from natural emission sources (Howard et al., 2011; Moreno-Brush et al., 2016; Pfeiffer et al., 1989), though recent advances in isotopic analyses promise more accurate tracking of ASGM-associated mercury movement through aquatic ecosystems (Schudel et al., 2019). Depending on local hydrology, downstream areas may experience higher levels of contamination than mined sites (Marrugo-Negrete et al., 2015; Miserendino et al., 2013).

3.3.3 | Cyanide

Cyanide is used to extract gold from ore in large-scale mining operations and is often present in tailings and leached ore (Lottermoser, 2010). Cyanide is toxic to all animal life and can be absorbed through the lungs, skin, and mucous membranes, preventing cellular oxygen utilization (Kulig & Ballantyne, 1991). While most contaminants present in gold mines are heavy metals or metalloids,

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cyanide is a notable exception. In contrast to these other contaminants, cyanide is capable of being degraded into non-toxic components by acclimatized microbiota (Akcil et al., 2003). While cyanide can be lethal to plants when present in high concentrations, at lower doses, some plants can metabolize cyanide into an amino acid, asparagine (Trapp & Christiansen, 2003). Despite its lesser persistence in the environment, the management of cyanide-laden waste is very important, because breaches and failures in tailings dams can release high concentrations of cyanide into adjacent soils and waterways, which can be lethal to wildlife and people (Hilson & Monhemius, 2006). Animals that come in contact with unnetted cyanide-containing tailings ponds are also at risk of poisoning and death (Donato et al., 2007; Eisler & Wiemeyer, 2004).

3.3.4 | Contamination and plant growth

The impact of contamination on plant growth is of particular concern for restoration projects. At low concentrations, common gold mine contaminants like mercury and cyanide appear to have a negligible effect on terrestrial plant growth (Ekyastuti et al., 2016; Kalamandeen et al., 2020; Trapp & Christiansen, 2003). However, higher concentrations of some forms of cyanide can be lethal to plants, while a build-up of mercury in soil and water can reduce germination rates, root development, and aboveground growth of plants (Patra & Sharma, 2000; Trapp & Christiansen, 2003). High concentrations of other heavy metals can also directly limit plant establishment and growth, or indirectly affect vegetation productivity by making soils inhospitable to the soil microbiota supplying nutrients to plants (dos Santos et al., 2013). Even when not at phytotoxic levels, the presence of contaminants can still limit the range of feasible restoration approaches. For example, establishing agroforestry projects on contaminated soils can endanger human and livestock health when there is significant biomagnification in harvested plant parts (Marrugo-Negrete et al., 2015; Terán-Mita et al., 2013). Management activities such as prescribed fires also have to be carefully planned, because they can re-release contaminants already absorbed by vegetation (Abraham et al., 2018).

3.4 | Social challenges

3.4.1 | Social challenges to ASGM restoration

In 2013, the Minamata Convention on Mercury was signed by more than 130 nations with the goal of limiting anthropogenic mercury emissions. The trade of mercury for gold processing was not banned by the Convention, but signing nations were required to develop action plans to reduce mercury use (Kessler, 2013). However, attempts to regulate the ASGM sector and educate communities on the dangers of mercury use have been largely ineffective (Hilson, 2006; Jønsson et al., 2013; Miserendino et al., 2013; Puluhulawa & Harun, 2019). The informal and remote nature of ASGM makes it difficult to regulate at the national level (Miserendino et al., 2013; Sousa, Veiga, Van Zyl, et al., 2011). Additionally, mining communities tend to experience high rates of extreme poverty, violent crime, and disease (Betancur-Corredor et al., 2018) and have few alternative sources of income (Schueler et al., 2011). Alternative gold refining methods often require knowledge, technology, and investment that is not accessible to miners (Hilson, 2006; Veiga, 1997).

3.4.2 | Social challenges to large-scale gold mine restoration

In many regions, laws require large mining companies to rehabilitate mine sites after closure. However, legal requirements vary greatly between nations, enforcement may be haphazard, and successional trajectories may not be headed towards the proposed reference ecosystems (Ahirwal & Pandey, 2020; Hayati et al., 2021; Woodbury et al., 2020). Many developing nations in the tropics have weaker environmental legislation and enforcement, and in some cases, corruption within governing bodies limits the effectiveness of mine reclamation policy (Hayati et al., 2021; Holden & Jacobson, 2008). In Brazil, for example, mining companies are required to restore ecosystems to as close to pre-mine conditions as possible, but the current legal structure provides limited guidance on appropriate restoration targets and techniques (Gastauer et al., 2019), and environmental fines for noncompliance are rarely enforced (Volckhausen, 2020). In Cameroon and Ghana, enforcement of mine rehabilitation policy is also inconsistent, and illegal ASGM often continues even after large mines are officially closed (Essapo & Ekedi, 2020; Owusu-Nimo et al., 2018). In Australia, most large-scale mines can be held indefinitely in a 'care and maintenance' phase, where active mining has ceased, but the land has not been fully rehabilitated (Vivoda et al., 2019). In Indonesia, despite legislation, restoration of mined lands is rarely enforced by government officials, and corruption in the mine licensing process has been documented (Hayati et al., 2021). Inconsistency in mine rehabilitation policy and enforcement further hinders attempts to restore these landscapes.

4 | RESTORATION AND REHABILITATION OF GOLD-MINING SITES IN THE TROPICS

Due to the extensive environmental impacts of large-scale and ASGM operations, standard forest restoration techniques, developed to recover the land after agriculture, ranching, or logging, may not be sufficient for mined areas. We identified 42 tropical, field-based studies that specifically examined gold mine restoration techniques (see Annex A: Literature Review Methods). These were primarily from South America ($n = 15$) and Africa ($n = 18$), with far fewer in Asia ($n = 4$) and Australasia ($n = 5$) (Figure 3). Overall, more field studies were conducted at large-scale gold mines ($n = 26$), than at ASGM ($n = 15$); one study examined mines of both scales. Most studies in South America and Asia were conducted at ASGM sites. In Africa and

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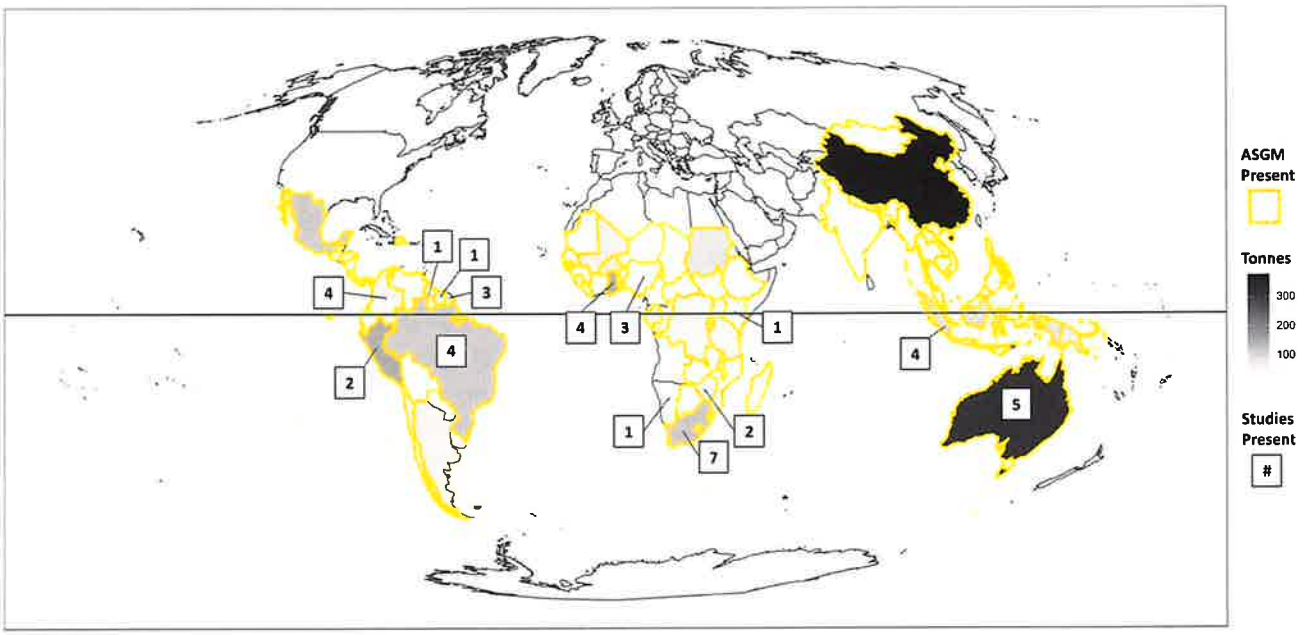

FIGURE 3 Map of gold-mining production and research around the world. The yellow highlights indicate tropical countries where ASGM has been documented (Telmer & Veiga, 2009). The gray shading indicates global gold production levels for all tropical countries producing more than 10 mg of gold (World Gold Council, 2021). The numbers in boxes show the number of field-based studies of gold mine restoration in each country out of the 42 studies that we assessed in this review [Colour figure can be viewed at wileyonlinelibrary.com]

Australasia, most studies focused on large-scale gold mines. All studies from Asia took place in Indonesia, and all Australasian studies took place in Australia (Figure 3). While most studies we found to occur in countries with both documented ASGM and large-scale mining, many gold-producing countries in the tropics lack any published field-based restoration research (Figure 3). Additionally, the restoration goals of these studies varied. In some cases, the goal was rapid revegetation for sediment and contaminant control rather than restoration to natural forest conditions (Weiersbye et al., 2006). Other projects had further objectives involving agriculture or agroforestry (Tetteh, Logah, et al., 2015), silviculture (Sousa et al., 2008; Tetteh, Ampofo, & Logah, 2015), or livestock production (Bruce et al., 2003). In this section, we summarize the findings to examine the effectiveness of various site preparation, natural regeneration, and tree-planting methods. We also briefly discuss phytoremediation, a strategy for restoring heavily contaminated landscapes.

4.1 | Basic site preparation: Backfilling and topsoil conservation

Surface mine restoration is significantly more feasible and effective when planning occurs well before mining even begins. Basic site preparation steps can greatly improve restoration trajectories, including (1) conserving topsoil removed during the mining processes, (2) backfilling mining pits and contouring steeply sloped areas, and (3) promptly re-spreading conserved topsoil at the site (Ahirwal et al., 2016; Parrotta & Knowles, 2001). Topsoil conservation is particularly crucial in the tropics, where soil already tends to be naturally weathered, with limited available nutrients (Ashton & Seidler, 2014; Jordan, 1985; Sousa et al., 2008). In addition to its nutrient content, conserved topsoil also contains mycorrhizae, soil microbes and fauna, and plant propagules (present in the buried seed bank) that help native plants to spontaneously establish under favorable moisture and light regimes (Sousa et al., 2008).

Stockpiling topsoil for re-application after mine closure is the most common and feasible conservation method. However, biological activity and restoration utility—including nutrient availability, the abundance of soil microbes, and the viability of buried seeds—wanes with long-term (over 1-year) stockpiling, due to erosion and anaerobic conditions at the center of the stockpile (Block et al., 2020; Ghose, 2001; Parrotta & Knowles, 2001; Valliere et al., 2022). These impacts can be mitigated by including biomass, such as tree roots and stumps, in the stockpiles to retain more organic content (Nsiah & Schaaf, 2019b), and by establishing vegetation on stockpile surfaces (Windsor & Clements, 2001) to help facilitative soil microbes persist until mine closure (Bell et al., 2003). Steeply-sloped stockpiles can also be protected from erosion by contouring and grading down their slopes (Windsor & Clements, 2001) and covering their surface with biogeotextiles (Nsiah & Schaaf, 2019a).

After mine closure, filling open pits with waste rock and subsoils excavated during mining is an essential step to promote the restoration of these sites. While backfilling is already a common practice at large mine sites, ASGM pits are often left unfilled, which slows and prevents the establishment of woody species (Ramkat, 2017). Unfilled pits typically have gravelly bottoms and often accumulate standing

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water, preventing seedlings from taking root (Peterson & Heemskerk, 2001). Refilling improves the likelihood of natural regeneration, particularly at small ASGM sites surrounded by a rich forest seed source (Salami et al., 2003).

Some areas may require additional site preparation steps. Very compacted surfaces may require plowing to allow plant establishment and root development (Peláez et al., 2013), while sites with poor soil aggregate stability may have to be treated with binding agents like oxides (Tetteh, Ampofo, & Logah, 2015). Highly contaminated areas, such as tailings storage facilities, will need additional site preparation steps, such as the installation of impermeable liners, to contain runoff and leachate (see Annex B: Treatments for Tailings Dams - Containment Strategies).

4.2 | Restoration using natural regeneration

4.2.1 | Natural regeneration without topsoil conservation

Studies indicate that without topsoil conservation, natural regeneration at former gold mines is significantly delayed (Ekyastuti et al., 2016; Román-Dañobeytia et al., 2015; Sousa et al., 2008) compared to sites abandoned after less severe land conversions, such as agriculture. Tailings, eroded waste rock, and pit bottoms can remain unvegetated or hold standing water for years, if not decades, in both large-scale (Mulligan et al., 2006; Okereafor et al., 2020; Rossouw et al., 2009) and ASGM sites (Peterson & Heemskerk, 2001; Schimann et al., 2012). The sparse recolonizing vegetation is often entirely herbaceous (Haagner et al., 2008; Salami et al., 2003; Weiersbye et al., 2006) and includes fewer woody species seedlings than nearby forest floors (Eludoyin et al., 2017; Peterson & Heemskerk, 2001). In some cases, trees may not regenerate even when surrounded by seed sources from adjacent forests due to stalled tree root establishment from poor drainage, subsurface compaction, and soil infertility (Peterson & Heemskerk, 2001). Natural regeneration is even less vigorous and more transient on rapidly eroding, steep slopes of heaped overburden and tailings (Weiersbye et al., 2006).

When operations dig small pits (e.g., around 1.5 m^2) and leave good seed sources, the natural regeneration of trees is more likely (Adesipo et al., 2020; Eludoyin et al., 2017; Salami et al., 2003). The unexcavated areas around pits may support the regeneration of some pioneer species, but often these are non-native species as natives are excluded by soil and water pollution (Adesipo et al., 2020; Eludoyin et al., 2017; Salami et al., 2003). Thus, even when natural regeneration occurs, the complete recovery of species diversity may take decades or longer (Baez et al., 2022; Valois-Cuesta et al., 2017). Furthermore, trees are still less speciose and abundant at such sites, with most of the vegetation dominated by herbs, climbers, creepers, and tuber plants, unlike adjacent reference forests that mostly feature trees, shrubs, and ferns (Haagner et al., 2008; Salami et al., 2003; Weiersbye et al., 2006).

4.2.2 | Natural regeneration with topsoil conservation

Few field studies examine the impact of backfilling and topsoil conservation practices on natural regeneration at former gold mines in the tropics. However, such landscaping efforts can restore drainage and fertility to conditions more favorable to tree regeneration, particularly when seed sources are also nearby. The studies we assessed found that backfilling and topsoil conservation at gold mine sites near forest fragments had faster and more diverse natural regeneration of trees (Rodrigues et al., 2004; Sousa et al., 2008) and higher soil microbial activity (Schimann et al., 2012) than in areas without these site preparation steps. While these preliminary findings suggest that backfilling and topsoil conservation can improve natural regeneration success, more field-based experimentation is needed.

4.3 | Restoration using planting approaches

Because of the slow and limited natural regeneration process at most abandoned tropical gold mines, it may take decades or longer to achieve desired ecosystem functions or species compositions without active planting (Baez et al., 2022; Couic et al., 2018; Rossouw et al., 2009). Restoration approaches involving tree planting vary widely in level of intensity, ranging from lower-input enrichment planting techniques (Haimbili et al., 2016; Pollo et al., 2011; Román-Dañobeytia et al., 2015) to the creation of exclusive plantations of desired species (Schimann et al., 2007; Tetteh, Ampofo, & Logah, 2015; Tetteh, Logah, et al., 2015). Overall, most tree planting studies on mine sites tended to focus on a mix of exotic and native legumes (in the Fabaceae family; see Section 4.3.2). Non-woody plants, such as grasses and herbaceous groundcovers can also be incorporated into planting strategies, but are not discussed in-depth in this section (see Annex D for a complete list of species planted in tropical field experiments).

As with natural regeneration approaches, soil management plays a crucial role in determining the success of tree-planting efforts (Nsiah & Schaaf, 2019b; Parrotta & Knowles, 2001; Sousa et al., 2008). Sites without conserved topsoil need to ameliorate poor nutrient content and coarse soil texture. The application of fertilizer or organic amendments is one approach to improve the growth and survival of tree plantings in some field studies (Ekyastuti et al., 2016; Román-Dañobeytia et al., 2015; Sousa et al., 2008), while plantings of leguminous, nitrogen-fixing tree species capable of growing in a poor substrate is another commonly-studied approach.

4.3.1 | Leguminous tree planting

Leguminous (Fabaceae) trees are commonly planted to counteract the deficiency of nutrients in mined substrates, particularly at sites without topsoil conservation practices (Sheoran et al., 2010; Woodbury et al., 2020). In general, leguminous trees have relatively high survival

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rates, even in the least fertile substrates of former gold mine sites, though there is variability based on site conditions and species (Baez et al., 2022; Haimbili et al., 2016; Mulligan et al., 2006; Tetteh, Ampofo, & Logah, 2015). For example, after one year, planted *Acacia* seedlings had a survival rate of about 45% in unamended tailings in one field experiment (Haimbili et al., 2016), whereas up to 100% of *Acacia* and *Mimosa* seedlings still survived five years after being planted on fertilized and limed overburden in another study (Assis et al., 2011) (see Annex D for summaries of field-based planting experiments). Plantings of legumes can improve mine substrates by fixing nitrogen into the soil, and may also serve as a sustained source of organic matter by providing leaf litter (Peláez et al., 2013; Schimann et al., 2012; Thomas, 2014). Established plants also improve soil quality by increasing soil pH, soil organic carbon, available phosphorus, exchangeable potassium (Peláez et al., 2013; Tetteh, Logah, et al., 2015), cation exchange capacity, microbial activity (Couic et al., 2018; Schimann et al., 2007; Velásquez Ramírez et al., 2021) and aggregate stability (Peláez et al., 2013). Plantings of leguminous trees can also increase soil biomass and microbial activity (dos Santos et al., 2013), although their impact may be higher in clay-based soils than in sandier ones (Schimann et al., 2007).

4.3.2 | Non-leguminous tree planting

While leguminous species dominate tree-planting studies, a few field studies also tested plantings of non-leguminous trees. At large-scale gold mines, backfilled and topsoil-capped pits can support the establishment and growth of non-leguminous native trees (Pollo et al., 2011). Similarly, ASGM sites restored with topsoil reapplication and organic amendments can support mixed-species plantations of native species and commercial timber species (Ekyastuti et al., 2016; Sousa et al., 2008). When topsoil is reapplied, rehabilitated surfaces may not even require organic amendments to achieve good survivorship of non-leguminous plantings (Nsiah & Schaaf, 2019b). However, without topsoil application, non-leguminous native trees may grow slowly, even with organic amendments (Román-Dañobeytia et al., 2015). Overall, more research is needed to identify native, non-leguminous tree species and effective soil amelioration techniques appropriate for tropical gold mine restoration.

4.3.3 | Tree planting on overburden and tailings

Woody species may not readily establish on the steeply sloped, particularly infertile growing substrate of tailings dams and overburden heaps. Initial fertilization (Mulligan et al., 2006; Nsiah & Schaaf, 2020; Weiersbye et al., 2006), irrigation, and transplantation of nursery-hardened containerized (rather than bare-root) seedlings (Mulligan et al., 2006; Weiersbye et al., 2006), liming (Assis et al., 2011), and the incorporation of B-horizon subsoils into the growing substrate (Assis et al., 2011; Nsiah & Schaaf, 2020) can all improve the survival of planted trees. However, many introduced woody species cannot survive long-term in these environments without continued amelioration, and in particularly unsteady surfaces, perennial herbs and shrubs may be more effective than trees at stabilizing these systems (Assis et al., 2011; Rossouw et al., 2009) (see Annex B: Treatments for Tailings Dams).

4.3.4 | Phytoremediation

Phytoremediation is a restoration approach that uses living plants to immobilize, metabolize, and extract contaminants from water and soil (Salt et al., 1998). It is rapidly emerging as a cost-effective method of ameliorating mine substrate, particularly tailings (Wang et al., 2017). In some phytoremediation approaches, plants that metabolize or immobilize toxins may be planted and indefinitely left on-site to help prevent the spread of contaminants throughout the site. In other cases, plants that hyperaccumulate contaminants, often heavy metals, are planted and then removed from the site to prevent the reentry of contaminants into the ecosystem through decomposition, or consumption by people and wildlife.

While phytoremediation species can sometimes naturally regenerate in contaminated sites, their growth may be too sparse for them to stabilize and effectively remediate the soil (Okereafor et al., 2020), and therefore usually need to be actively planted to achieve desired densities. However, we found very few field-based planting trials of potential phytoremediator species (see Annex C for species used in gold mine phytoremediation).

4.4 | Restoration pathways for former gold mines in the tropics

Field-based experimentation at former gold mines in the tropics is still limited, but studies conducted at these sites reveal important findings for restoration. In the diagram below (Figure 4), we highlight that restoring these landscapes depends greatly on the degree of degradation present at a particular site, particularly the quality of growing substrate and availability of local seed sources. If mining companies and small-scale miners plan ahead and complete integral site preparation steps before mine closure, including backfilling and topsoil conservation, lower-input revegetation strategies, such as natural regeneration and enrichment planting, become much more feasible. However, at sites where substrate is highly contaminated and few seed sources remain, more intensive, multi-step approaches will often be necessary to recuperate the fertility of the substrate and kickstart reforestation. These potential pathways are not intended to be prescriptive or all-encompassing; restoration options will depend on the goals, budget, and timeline of a given project. Ultimately, surface gold mining, even in its less-severe forms, degrades tropical ecosystems, and forest recovery in these landscapes will likely be slower and require much more active restoration intervention than in unmined areas.

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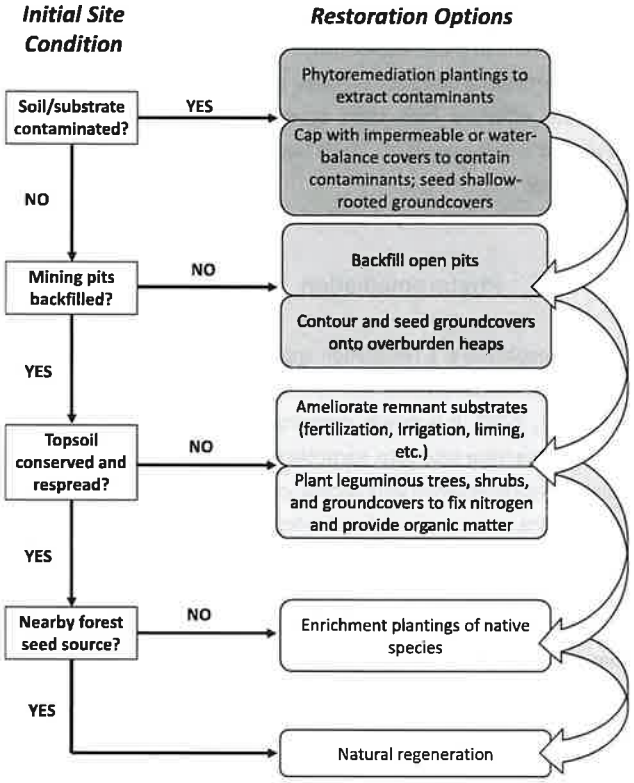

FIGURE 4 Restoration options at former mine sites are influenced by initial site conditions. Sites with plentiful local seed sources and well-conserved growing substrates are the best candidates for natural regeneration methods. Sites with more degraded substrate and few seed sources may require active restoration efforts, including basic site preparation, substrate amelioration, and plantings. The most degraded sites, such as tailings storage facilities, may also require additional steps to sequester or remove contaminants. However, it is important to note that more active restoration methods could still be applied to sites with less degraded conditions, depending on specific restoration objectives, budgets, and timelines. Options flow top to bottom from most to least degraded initial site condition, and most to least resources (e.g., money, labor, etc.) required

5 | CONCLUSIONS AND RECOMMENDATIONS

While the ecological impacts of tropical surface gold mining are well-documented, we see a clear need for more field-based experimentation to develop a methodology for restoring these degraded landscapes. The continued identification of suitable woody species (in particular, a greater diversity of non-leguminous native species) and effective substrate amelioration processes are essential. Many earlier rehabilitation efforts wasted substantial resources by temporarily altering mine land substrates for species of plants that failed to persist beyond the initial years of tending (Weiersbye et al., 2006). Long-term establishment of self-sustaining vegetation requires a careful and adaptive selection of species that can persist in the often harsh conditions of former mine sites (Ahirwal & Pandey, 2020). There is a strong need to develop sequential, longer-term restoration treatments to determine the best methods for transitioning these landscapes from mine closure to recovery. Field studies indicate that restoration to pre-mine species composition may not be possible at more degraded former gold mine sites, at least not without a lengthy and costly series of plantings, soil amendments, and monitoring.

Given the evident difficulties involved in reforesting former surface gold mines in the tropics—and the importance of proper planning and site preparation for effective restoration—governing agencies, land managers, miners, and local communities need to understand the challenge and monetary expense involved in such efforts. Tropical gold mine restoration is unlikely to succeed without more active involvement from mining communities (Antwi et al., 2017; Betancur-Corredor et al., 2018), the incentivization and enforcement of small-scale mine restoration (Ramkat, 2017; Sousa, Veiga, Meech, et al., 2011), and more in-depth and long-term monitoring of large-scale mine restoration projects (Betancur-Corredor et al., 2018). While this review focuses on strategies for restoring mined landscapes, slowing the spread of tropical gold mining, or modifying some of the more harmful practices involved in operations, is essential for limiting long-term forest loss and ecological degradation. Along with continued field-based research, a combination of increased outreach to mining communities, governmental regulation of rehabilitation projects, and consumer education on the ethical and environmental impact of gold can all play a role in improving restoration outcomes.

AUTHOR CONTRIBUTIONS

Conceptualization (Co-first authors), **Shrabya Timsina**, **Nora G. Hardy**; Methodology, **Shrabya Timsina**, **Nora G. Hardy**; Investigation, **Shrabya Timsina**, **Nora G. Hardy**, **Meredith P. Martin**, **David J. Woodbury**; Writing—Original Draft, **Shrabya Timsina**, **Nora G. Hardy**; Writing—Review & Edition, **Susan C. Cook-Patton**, **Mark S. Ashton**, **David J. Woodbury**, **Rachel Pasternack**, **Meredith P. Martin**; Visualization—**David J. Woodbury**, **Nora G. Hardy**; Supervision, **Mark S. Ashton**, **Meredith P. Martin**; Funding Acquisition, **Mark S. Ashton**, **Rachel Pasternack**.

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CONFLICT OF INTEREST

The authors declare no competing interests.

DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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DESERT TORTOISE (MOJAVE POPULATION) FIELD MANUAL (*Gopherus agassizii*)

[December 2009]

prepared by:

U.S. Fish and Wildlife Service

Warning: This Manual does not authorize individuals to handle desert tortoises. Such authorization comes from both Federal and State wildlife resource agencies, including, at least, those listed above. This document supersedes what was previously titled Guidelines for Handling Desert Tortoises during Construction Projects (Desert Tortoise Council 1994, revised 1999).

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The Desert Tortoise Council provided desert tortoise handling guidelines in 1994. Edward L. LaRue, Jr. assembled the information and drafted these guidelines on behalf of the Council with input from the U.S. Fish and Wildlife Service (USFWS) field offices in California, Arizona, Nevada, and Utah. Mr. LaRue initiated review of these guidelines in April 1996 and revised them in July 1999. Information was provided by the Desert Tortoise Council, the USFWS, California Department of Fish and Game (CDFG), Utah Division of Wildlife Resources (UDWR), Nevada Department of Wildlife (NDOW), Arizona Game and Fish Department (AGFD), U.S. Bureau of Land Management (BLM), U.S. Geological Survey (USGS), private consultants, universities, Tortoise Group, and other individuals and organizations. The latest document, the Desert Tortoise Field Manual, is a revision of the handling guidelines and assembly/revision of other documents that provide regulatory guidance and requirements for the desert tortoise. The Desert Tortoise Field Manual is a compilation of efforts by many offices of the USFWS with input and review by the CDFG, NDOW, AGFD, UDWR, and consultants. We appreciate the efforts of all involved in this evolving document from the first version in 1994 to the current version.

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CHAPTER 1. PURPOSE

The purpose of the Desert Tortoise Field Manual (Manual) is to update and consolidate existing survey and handling protocols, procedures, and applicable Federal regulations related to the federally-threatened desert tortoise – Mojave population (*Gopherus agassizii*) into one document. This Manual supersedes all previous handling guidelines and procedures documents for the Mojave population of the desert tortoise. This Manual was developed specifically for the Mojave population of the desert tortoise. Additional information on the desert tortoise, including its biology, ecology, and Federal status, can be downloaded at http://www.fws.gov/nevada/desert_tortoise/

This Manual is a consolidation and revision of the following documents:

- Procedures for Endangered Species Act Compliance for the Mojave Desert Tortoise (USFWS 1992a)
- Field Survey Protocol for Any Federal Action that May Occur Within the Range of the Desert Tortoise (USFWS 1992b)
- Field Survey Protocol for Any Non-Federal Action that May Occur Within the Range of the Desert Tortoise (USFWS 1992c)
- Guidelines for Handling Desert Tortoises during Construction Projects, previously prepared by the Desert Tortoise Council (July 1994, revised July 1999)
- Desert Tortoise Exclusion Fence Specifications, prepared by the USFWS (Chapter 8).

This Manual provides guidance for pre-project survey methods to determine the status of the desert tortoise for projects occurring within the species' range on Federal and non-Federal lands. The purpose of this guidance is to provide technical assistance to entities to determine whether a biological opinion or incidental take permit may be needed prior to project implementation. This Manual is also intended for use by Authorized Biologists and desert tortoise Monitors (section 3.1) conducting activities under an Endangered Species Act (ESA) section 7 biological opinion or section 10 incidental take permit and provides guidance on handling desert tortoises that need to be moved out of harm's way or prevented from re-entering a project site.

This Manual does not authorize desert tortoise handling/capturing or any other form of take (See Chapter 2 for definition of "take") without appropriate Federal and State authorizations. The responsible Federal and State agencies will review the qualifications statement for each potential desert tortoise biologist and authorize him/her to serve as an Authorized desert tortoise Biologist for a given project. The Manual includes methods that are effectively used by professional desert tortoise researchers; as field protocols evolve, they will be updated with new information as it becomes available and posted on-line.

We encourage comments on this Manual; please submit problems encountered and recommendations for improvement to the USFWS (see AGENCY/ORGANIZATION CONTACT INFORMATION section above). In subsequent years, the USFWS will use your input to revise and incorporate new information and methods.

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U.S. Fish and Wildlife Service. 1992c. Field survey protocol for any non-federal action that may occur within the range of the desert tortoise. January 1992. 22 pages.

CHAPTER 2. PROCEDURES FOR FEDERAL ENDANGERED SPECIES ACT COMPLIANCE FOR THE DESERT TORTOISE

On August 4, 1989, the USFWS published an emergency rule listing the Mojave population of the desert tortoise as endangered (54 FR 42270). On April 2, 1990, the USFWS determined the Mojave population of the desert tortoise to be threatened (55 FR 12178). Section 9 of the ESA prohibits the "take" of any federally listed threatened or endangered species without first obtaining the necessary take exemption from the USFWS and state permits where applicable. Take is defined as: "harming, harassing, pursuing, hunting, shooting, wounding, killing, capturing, collecting, or attempting to engage in any such conduct" (Section 3(18), ESA). Harm is defined as: "significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavior patterns, including breeding, feeding, or shelter" (50 CFR § 17.3(c)). Take also includes modification of habitat that would result in harm to the desert tortoise. There are two ways to legally take a threatened or endangered species; one is through an incidental take statement in a USFWS biological opinion under section 7 of the ESA and the other is through a permit issued by the USFWS under section 10 (refer to Section 2.1.1 for more information on biological opinions and section 2.2 and Chapter 3 for section 10 permits).

For purposes of the ESA, desert tortoise habitat is defined as 1) areas with presence of desert tortoises or desert tortoise sign (*e.g.,* shells, bones, scutes, scats, sheltersites, tracks, egg shell fragments, courtship rings, drinking sites, etc.) that are likely to be part or all of a lifetime home range, 2) dispersal areas (i.e., habitat corridors), or 3) areas suitable for desert tortoises as identified by the USFWS or in the most recent recovery plan for the Mojave population of the desert tortoise (http://www.fws.gov/nevada/desert_tortoise/).

Pre-project surveys for the desert tortoise following the USFWS guidance in Chapter 4 are not expected to result in take and therefore do not require surveyors to first obtain a recovery permit. However, to ensure quality control and reduce the likelihood of USFWS non-concurrence with survey results, we recommend that each potential surveyor complete and sign the Desert Tortoise Authorized Biologist Request Form (http://www.fws.gov/ventura/speciesinfo/protocols_guidelines/) and submit it to USFWS and the appropriate State agency for review prior to initiating any survey. Upon receiving the survey results, if the USFWS determines that the methods implemented or qualifications of the surveyors were inadequate, the USFWS may not accept the survey results. In such cases, surveys would need to be repeated using approved methods and qualified surveyors.

2.1. Federal Actions

2.1.1. Consultation under Section 7 of the ESA

Section 7(a)(1) of the ESA requires all Federal agencies, in consultation with the Secretary of the Interior (delegated to the USFWS), to utilize their authorities in furtherance of recovering federally listed species by carrying out programs for the conservation of endangered and threatened species.

Section 7(a)(2) of the ESA and implementing regulations (50 CFR § 402) require all Federal agencies to consult with the USFWS for certain actions. There are two types of consultations, informal and formal. Informal consultation with the USFWS occurs when the Federal agency determines that an action they propose to authorize, fund, or carry out "may affect" a federally endangered or threatened species or critical habitat. Through the informal consultation process, the Federal agency, in coordination with the USFWS, may develop changes to the proposed action that result in no effect to the listed species, only beneficial effects to the listed species, or may affect but is not likely to adversely affect the listed species. In the first two situations, the consultation process is documented and terminated. In the last situation, the informal consultation process is completed with the USFWS issuing a letter of concurrence.

Section 7(a) regulations of the ESA require each Federal agency to review its actions at the earliest possible time to determine whether any action they propose to authorize, fund, or carry out may adversely affect listed species or adversely modify designated critical habitat. If such a determination is made, formal consultation is required with the USFWS; please contact the USFWS to determine the type of consultation required.

Through completion of the formal section 7 process, the USFWS may issue a biological opinion to the Federal agency stating "no jeopardy/adverse modification" is expected as a result of the proposed action for listed plants and animals, and exempting incidental take of listed animals. A no jeopardy/adverse modification biological opinion concludes that the proposed action will not jeopardize the continued existence of the species or result in adverse modification of designated critical habitat. Without this exemption, the Federal agency would violate section 9 of the ESA if the proposed project were implemented and resulted in take of a listed species.

Federal actions that are nondiscretionary, entirely beneficial to the listed species, or have no adverse effects on listed species are not subject to formal consultation. All actions which require approval by the Federal action agency are considered discretionary. The "may affect" standard applies to those activities that occur in suitable habitat, or habitat considered necessary for the conservation of a listed species. It is the responsibility of the Federal action agency to determine which actions may affect threatened or endangered species or critical habitat, and to initiate consultation accordingly with the USFWS.

Once a Federal agency has determined that its action may adversely affect a listed species or critical habitat, the Federal agency should submit a written request to the USFWS for formal consultation. This request should be accompanied by a biological assessment/evaluation of the action and its impacts (Section 2.3).

The Federal agency requesting formal consultation is responsible for providing the USFWS with the best scientific and commercial data available and relevant to the consultation. The "best data" mean data that are available and/or can be obtained during consultation, and are needed for an adequate review of the effects that an action may have on listed species or critical habitat (50 CFR § 402.14(d)).

Should the Federal action agency determine that the effect to the desert tortoise is entirely beneficial, then formal consultation may not be required. In this case, the action agency may

request concurrence from the USFWS that the action is not likely to adversely affect the desert tortoise through informal consultation. Beneficial actions that are part of a larger action which has not undergone section 7 consultation cannot be considered under informal consultation if the larger action includes adverse effects to the desert tortoise (*e.g.,* construction of a pasture fence within an allotment in desert tortoise habitat which has not yet undergone section 7 consultation). In such instances, grazing within the allotment is considered to be an "interrelated" and "interdependent" action of the proposed fence. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Both interrelated and interdependent actions are considered "effects of the action" (50 CFR § 402.02).

Formal consultation results in a biological opinion issued by the USFWS to the action agency. The biological opinion makes a determination on whether or not the proposed action subject to consultation is likely to jeopardize the continued existence of the listed species or result in destruction or adverse modification of critical habitat. The finding takes into account the: 1) rangewide status of the species, 2) the environmental baseline condition of the listed species in the action area; 3) the direct, indirect, interrelated, and interdependent effects attributable to the Federal action at hand; and 4) the cumulative effects of State and private actions reasonably certain to occur in the area of the Federal action.

Biological opinions issued by the USFWS will contain the following information:

1. An assessment of the status of the species, both rangewide and within the action area.

2. An analysis of the direct and indirect effects, as well as the effects of interrelated and interdependent activities (50 CFR § 402) and cumulative effects of future non-Federal activities that are reasonably certain to occur in the action area.

3. A determination whether the action is likely or not likely to jeopardize the continued existence of the species, or will result in the destruction or adverse modification of critical habitat. Reasonable and prudent alternatives will be provided, if at all possible, if the biological opinion indicates that the proposed action is likely to jeopardize the continued existence of the species (jeopardy opinion) or result in the destruction or adverse modification of critical habitat (adverse modification opinion).

4. An incidental take statement that identifies the anticipated level of incidental take that is expected to occur and provides mandatory reasonable and prudent measures and mandatory terms and conditions for minimizing any incidental take exempted in the biological opinion. This includes monitoring and reporting requirements.

5. Conservation recommendations that, if implemented, would minimize impacts and promote the conservation of the species. Conservation recommendations are not mandatory but are intended to provide an opportunity for the agency to further

the conservation of the desert tortoise as mandated under section 7(a)(1) of the ESA.

Confusion often arises concerning the difference between reasonable and prudent alternatives and reasonable and prudent measures. "Reasonable and prudent alternatives," part of a jeopardy or adverse modification opinion, are modifications to the proposed action that will avoid jeopardizing the continued existence of a listed species and/or destroying or adversely modifying the listed species' critical habitat. The Federal agency decides whether or not to implement reasonable and prudent alternatives. Failure to implement these alternatives, however, can lead to a violation of section 7(a)(2), if the action at any point in time causes a listed species to become jeopardized or results in the destruction or adverse modification of critical habitat. A Federal agency must notify the USFWS of its final decision regarding implementation of reasonable and prudent alternatives. The Federal agency can apply for an ESA exemption if it determines that it cannot comply with the requirements of section 7(a)(2) after consultation with the USFWS.

"Reasonable and prudent measures," along with terms and conditions that implement them, are mandatory elements that minimize incidental take. Reasonable and prudent measures cannot alter the basic design, location, scope, duration, or timing of the action and may involve only minor changes (50 CFR § 402.14(i)(2)). They include monitoring and reporting requirements. The Federal action agency must comply with the terms and conditions that implement the reasonable and prudent measures, which the USFWS considers necessary to minimize incidental take, to be in compliance with the ESA.

It is not possible to determine an exact point at which the continued existence of a species would be jeopardized or adverse modification of critical habitat would occur without fully analyzing proposed actions in relation to the existing environmental baseline. Therefore, the USFWS will analyze each Federal action submitted for formal consultation on a case-by-case basis.

Formal consultation is initiated on the date the Federal agency's request is received by the USFWS if the Federal agency provides all relevant data required by 50 CFR § 402.14(c). Within 10 working days, the USFWS will acknowledge receipt of the consultation request in writing. Upon reviewing the biological assessment provided by the Federal action agency, the USFWS will advise the Federal agency if insufficient information has been provided, and request additional information needed to complete the formal consultation process.

Formal consultation concludes within 90 days after its initiation unless suspended because of insufficient information or extended in accordance with 50 CFR § 402.14(e). The USFWS may use an additional 45-day period (total of 135 days) to issue the biological opinion to the Federal agency. The USFWS is responsible for ensuring that biological opinions are prepared and delivered within 135 days of initiation of consultation. The USFWS may request an extension of the consultation period.

When the Federal agency asks to review the draft biological opinion, the above time frames continue to apply. However, no final opinion will be issued before 135 days while the agency is reviewing the draft. Once comments on the draft are received by the USFWS, the biological

opinion is finalized and delivered to the Federal agency. If comments on the draft opinion result in major changes or clarifications, a time extension can be sought by the USFWS from the Federal agency.

If relevant data are known to be available to the Federal agency or will be available as a result of ongoing or imminent studies, the USFWS may request the data and any other analyses in accordance with 50 CFR § 402.14(c) or suggest that consultation be postponed until those data or analyses are available. The USFWS has the responsibility to alert the Federal agency (and any applicant) of areas where additional data would provide a better information base from which to formulate a biological opinion. The advice from the USFWS is intended to help the Federal agency to better satisfy its duty to ensure that its proposed action is not likely to jeopardize listed species or adversely modify/destroy critical habitat.

If the Federal agency insists that consultation be completed without the requested data or analyses, the USFWS will document in the biological opinion that certain analyses or data were not provided and why the information would have been helpful in conducting the consultation. In cases where gaps occur in the data base, the USFWS will evaluate the wors-case scenario and provide the benefit of the doubt to the species concerned.

2.1.2. Incidental Take under Section 7 of the ESA

In cases where the USFWS concludes through consultation procedures that an action and the resultant take of listed species is not likely to jeopardize the continued existence of the listed species, the USFWS must provide an incidental take statement that specifies the anticipated level (amount or extent) of such taking and those reasonable and prudent measures considered necessary or appropriate to minimize such impact (50 CFR § 402.14(i)). There are two types of take under the ESA, incidental and intentional. An incidental take situation would exist if an otherwise lawful activity would result in the direct loss of a individual desert tortoise, or a sheltersite with a desert tortoise inside. An example would be the unintentional crushing of a desert tortoise by heavy equipment used for the otherwise lawful purpose of constructing a house. The take of the desert tortoise would be "incidental" to construction of the house. Conversely, intentional take is the purposeful take of a listed species, such as hunting,or capturing a listed species. Because the definition of "fish and wildlife" in the ESA includes eggs, the USFWS must also consider incidental take of desert tortoise eggs in a biological opinion, if such take may occur.

In a biological opinion, the USFWS estimates the amount of incidental take for individual desert tortoises and the amount of habitat that may be modified, and provides reasonable and prudent measures and terms and conditions that minimize adverse effects to the listed species. Under section 7(o)(2) of the ESA, a biological opinion with an incidental take statement operates as an exemption to the section 9 prohibitions against take.

Incidental take may also occur when federally listed wildlife are harmed or harassed by activities within their home range. For desert tortoises, harm may include destruction or degradation of habitat components (*e.g.*, soil, vegetation) necessary for the desert tortoise's existence.

However, habitat cannot be "taken" in the context of the ESA. Harassment may occur when a desert tortoise is moved out of the action area to avoid harm. In these situations, the USFWS recommends that the project proponent initiate a dialogue with the USFWS to discuss the likelihood of incidental take.

Any unauthorized take of desert tortoises that results from activities carried out in a manner not consistent with, or not authorized under, the provisions of section 7 of the ESA may be subject to investigation by the USFWS pursuant to section 9 of the ESA. Criminal penalties for illegal take of a threatened species include up to $25,000 in fines and 6 months in prison. Civil penalties may also be imposed as the ESA has a provision for citizen lawsuits.

2.2. Non-Federal Actions

2.2.1. Conservation Planning under Section 10 of the ESA

A permit from the USFWS pursuant to section 10(a)(1)(B) of the ESA authorizes incidental take for a non-Federal entity much as a section 7 consultation does through an incidental take statement in a biological opinion for a Federal action. Individuals, corporations, non-Federal government entities, State and local governments, Tribes, and other parties can apply for an incidental take permit by submitting an application and a habitat conservation plan (HCP) to the USFWS. "Habitat conservation planning" is the term often used to refer to this process.

Section 10(a)(1)(B) of the ESA requires that the Secretary of the Interior may not issue a permit for incidental take unless the applicant submits a conservation plan. Section 3 of the ESA defines conservation as using all methods and procedures necessary to bring an endangered or threatened species to the point at which measures provided in the ESA are no longer necessary (i.e., recovery). Congress intended that the conservation planning process be used to reduce conflicts between listed species and non-Federal development, and to provide a framework that would encourage creative partnerships between the private sector and local, State, Tribal, and Federal agencies in the interests of listed species and habitat conservation. The existing laws and regulations provide for, and encourage, flexibility and ingenuity in the development of an HCP that will reduce pertinent conflicts under the ESA. The USFWS recommends maximizing efficiency of effort by developing regional HCPs which include incidental take requests from a number of entities through the appropriate local regulatory agency.

The issuance of an incidental take permit by the USFWS is contingent upon the applicant's development of a USFWS-approved HCP for the listed species affected by the project or action. Unlisted species may be included in the process and become covered under the permit if they are listed during the term of the permit. A more detailed document, "Habitat Conservation Planning and Incidental Take Permit Processing Handbook" is available from the USFWS's Sacramento, Albuquerque, and Denver Regional Offices, or any field office, and on the internet at: http://www.fws.gov/endangered/hcp/hcpbktoc.pdf.

Upon receipt of the application and HCP, the USFWS may issue an incidental take permit if it determines that the following conditions have been met:

1. The taking will be incidental to an otherwise lawful action;

2. The applicant will, to the maximum extent practicable, minimize and mitigate the impacts of taking;
3. The applicant will ensure that adequate funding will be provided for the conservation plan and changed circumstances;
4. The applicant will provide procedures to deal with unforeseen circumstances;
5. The taking will not appreciably reduce the likelihood of the survival and recovery of the subject species in the wild;
6. The applicant will ensure that other measures required by the USFWS will be provided (e.g., Implementing Agreement); and
7. The plan will be implemented.

The third item above, regarding funding, generally requires development of an implementing agreement. This agreement is a legal document binding all implementing parties to the proposed HCP and their specific responsibilities.

Issuance of an incidental take permit by the USFWS is a Federal action requiring National Environmental Policy Act (NEPA) compliance through preparation of a categorical exclusion, an environmental assessment, or an environmental impact statement. To expedite this process, the USFWS will often delegate the development of information necessary for NEPA documentation to the applicant. Generally, if the incidental take permit will result in a significant net loss of individuals and/or habitat, an environmental impact statement likely will be required. This process often requires 2 years to complete. Conversely, if the permit will result in a net gain or insignificant net loss of individuals and/or habitat, an environmental assessment leading to a finding of no significant impact likely will be sufficient for NEPA compliance. In such a scenario, a permit could be considered for issuance within 1 year. Preparation times for HCP and NEPA documents vary according to the specific circumstances of each proposed action and are therefore difficult to predict.

When the HCP is approved by the USFWS, the section 7 consultation process is initiated on the proposed issuance of an incidental take permit to the applicant. The USFWS prepares and issues a biological opinion on the proposed Federal action to issue a Federal incidental take permit. When issued, the permit would authorize incidental take of listed, or future listed species covered under the permit, provided that the applicant institutes appropriate conservation measures for habitat maintenance, enhancement, and protection, coincident with development, which are detailed in the HCP.

The USFWS recognizes that completion of measures proposed in an HCP often takes a considerable amount of time. To provide incentives for all parties to participate in the conservation planning process, assurances exist that the terms and conditions of the incidental take permit will be available for the life of the HCP. Permits of 30 years or more duration may be appropriate to provide assurances to the private sector and non-Federal governments that long-term commitments to funding, land use restrictions, and habitat conservation will be maintained. Funding, land use restrictions, and habitat conservation are usually required to continue in perpetuity. Ensuring adequate funding for management of conserved habitat may require establishment of a trust fund.

The USFWS will evaluate all requests for incidental take permits under section 10(a)(1)(B) of the ESA. Permit applicants must submit an official application form (Form 3-200) to the appropriate Regional Director of the USFWS. ESA permits are issued in accordance with 50 CFR § 13.21.

2.3. Recommended Format for Biological Evaluations/Biological Assessment

The following is provided as a recommended guideline, although information should be presented in the order identified below. As projects vary in complexity, the biological evaluation/biological assessment (BE/BA) may also vary. Development of the BE/BA may not occur in the format order. Rather, as additional information becomes available during the crafting of the BE/BA, the appropriate sections will be modified. Federally funded or permitted exploratory activities that may affect listed species and occur prior to project implementation must also undergo section 7 consultation.

Cover Page: Name of project, location (city, county, etc.), and date.

Table of Contents (all pages must be numbered)

A. Executive Summary

1. Brief summary of project (2 or 3 sentences)

2. In tabular format, identify the species, critical habitat, status, and effects determinations. If "no effect", include a brief paragraph for each species (these will not be addressed again.) For example:

SPECIES	LISTING STATUS	DETERMINATION
Mojave desert tortoise	Threatened	Likely to adversely affect
Mojave desert tortoise, critical habitat	Designated	Likely to adversely affect
Southwestern willow flycatcher	Endangered	Not likely to adversely affect

B. Project Description

1. Location: Describe construction boundary: mileposts, State, county, and GPS coordinates). Include vicinity map (all maps and photographs must be first generation copies, legible and at a scale to be meaningful to the description of the activity).

2. Definition of Action Area: All areas affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. Include all off-site use areas (*e.g.*, access roads, new utility lines, materials sources, waste sites, mitigation sites,

stockpiling areas, staging) and locations. A map is helpful, overlaying the entire action area with species and habitat occurrences. Please see Chapter 4 of the USFWS's section 7 handbook for a complete description and examples of the Action Area (http://www.fws.gov/endangered/consultations/s7hndbk/s7hndbk.htm).

3. Proposed Action:

a. Describe the anticipated steps involved in the action in their expected or logical order of implementation and include diagrams that are useful. The intent of the proposed action section is to describe what will be built, how it will be built, and when. Include description of actions for the entire action area (including interrelated and interdependent actions (see section 2.1.1)). Describe how the project will be accessed and if ongoing operations and maintenance is anticipated to occur following completion of the construction phase of the project. If the contractor proposes an alternative construction method other than that described in the BE/BA, concurrence from the Services is required.

b. Identify Best Management Practices (BMPs), weed-control, habitat restoration, and other measures (i.e., work windows, construction techniques, avoidance) designed to minimize adverse effects in this section.

c. Describe monitoring and reporting plans, as well as conservation bank credits or mitigation sites if applicable.

C. Description of the species and their habitat

Identify each species and each critical habitat. Include the following (repeat for each listed species and listed habitat):

1. Consultation with State wildlife agency and/or Natural Heritage database;

2. Literature reviews;

3. Consultation with experts on species, as necessary;

4. Descriptions of the species and general habitat requirements;

5. Relationship of habitat in the project area to local populations;

6. Map of the project area at an appropriate scale to show vegetation types and important biological features, such as habitat for sensitive species, wetlands or unique plant assemblages;

7. Photographs keyed to locations labeled on the project map;

8. Species information in Action Area including survey protocol used, by whom, etc. Include names of surveyors and a statement of their qualifications or authorizations to conduct the survey; and

9. Identify designated or proposed critical habitat as separate listed entities. List the primary constituent elements and address the extent to which they are found in the

action area. These can be introduced in table format and elaborated in subsequent text.

D. Environmental Baseline

Describe the past and present effects of human actions on the species or critical habitat in the action area. Describe existing habitat conditions and species trends in detail. Use watershed analysis from the BLM or Forest Service where available, State wildlife agency, or any other available scientific or commercial databases or information. Include information on climate change (e.g., changes to the species' range, distribution, habitat, etc.).

E. Effects of the Action: Include a discussion of direct and indirect effects relative to the species:

1. Direct Effects - Those effects caused directly by the proposed action (include those based on sideboards). Provide the rationale for each determination;

2. Indirect Effects - Caused by or will result from the proposed action and are later in time, but are still reasonably certain to occur; and

3. Cumulative Effects - Those effects of future State or private activities, not Federal activities, that are reasonably certain to occur within the action area.

F. Determination of Effect

This section must include a clear statement of effect for each species. Example: "We conclude that the Fiber-Optic Line Project may affect, but will not likely adversely affect the Mojave desert tortoise because...."

G. References and Personal Communications Cited

Example of Literature Cited:

Smith, D. M. 2001. Genetic subdivision and speciation in the western North American spotted snake complex, *Thamnophis punctatus*. Evolution 4:29-35.

Example of Personal Communications (must be documented):

Leslie Brown, Research Biologist
Smith Nature Center
4125 Willowtree Drive
Greenville, Oregon 85194
January 8, 2009 telephone communication (or email, site visit, etc.)

CHAPTER 3. FEDERAL AND STATE AUTHORIZATIONS FOR IMPLEMENTING DESERT TORTOISE MEASURES REQUIRED UNDER SECTIONS 7 OR 10 OF THE ESA

When a project will be implemented under the purview of a section 7 biological opinion or a section 10 permit for the Mojave population of the desert tortoise, the USFWS requires each desert tortoise survey be conducted by a desert tortoise Authorized Biologist approved by the USFWS. In addition, the appropriate State wildlife agency should be contacted for their permitting requirements. Within the States of Nevada, California, Utah, and Arizona, individuals must obtain the appropriate permits or authorizations from the respective State wildlife agency to be authorized to handle desert tortoises. Authorized individuals must comply with any section 7 biological opinion and Federal and State permits for the project. In California, CDFG must approve the all individuals involved in handling desert tortoises including Monitors and Authorized Biologists. Contact the appropriate agencies for clarification if there are questions about or conflicting conditions between a section 7 biological opinion/section 10 incidental take permit and a State permit.

As a general rule, an Authorized Biologist has a bachelors or graduate degree in biology, ecology, wildlife biology, herpetology, or related discipline with prior field experience using accepted resource agency techniques to survey for desert tortoises. The proposed Authorized Biologist shall submit to the USFWS a completed and signed "Desert Tortoise - Authorized Biologist and Monitor Responsibilities and Qualifications Form" (Qualifications Form) provided below. USFWS is developing a training and certification program for persons who want to be Authorized Biologists. Until this program is in place, Authorized Biologists will be reviewed based on the information submitted on the Qualifications Form.

Submit the Qualifications Form to the appropriate USFWS field office (See AGENCY/ORGANIZATION CONTACT INFORMATION preceding Chapter 1) **at least 30 days prior to initiation of activities**. If required, submit the Qualifications Form to the Federal action agency with whom the USFWS has consulted under section 7 of the ESA. Submit an updated Qualifications Form for each project even if you have been approved previously, unless you have been instructed otherwise by the USFWS or State wildlife agency.
If you seek approval to attach/remove/insert any devices or equipment to/into desert tortoises, withdraw blood, or conduct other procedures on desert tortoises, a recovery permit (section 10(a)(1)(A) permit) or similar authorization may be required. The application for a recovery permit requires completion of Form 3-200-55, which can be downloaded at http://www.fws.gov/forms/3-200-55.pdf. Submit the completed form to the appropriate USFWS regional office (http://ww.fws.gov/endangered/permits/permitscontact.html).

3.1. Desert Tortoise - Authorized Biologist and Monitor Responsibilities and Qualifications Form

AUTHORIZED BIOLOGIST – Authorized Biologists must keep current with the latest USFWS protocols, guidelines, and regulations pertaining to the desert tortoise. Some of these are available at http://www.fws.gov/ventura/speciesinfo/protocols_guidelines/.

Authorized Biologists will serve as mentors to train Desert Tortoise Monitors and should approve Monitors to conduct specific activities based on the Monitor's demonstrated skills, knowledge and qualifications. Direct supervision is always required for field and clearance surveys; direct supervision means that the Authorized Biologist has direct voice and sight contact

with the desert Tortoise Monitor. An Authorized Biologist is responsible for the outcome of all desert tortoise related activities for which the project is approved, including errors committed by Desert Tortoise Monitors.

The Authorized Biologist must have thorough and current knowledge of desert tortoise identification, behavior, natural history, ecology, and physiology, and demonstrate substantial field experience and training to safely and successfully conduct their required duties. Authorized Biologists are approved to monitor project activities within desert tortoise habitat and are responsible for locating desert tortoises and their sign (*i.e.*, conduct field and clearance surveys). Authorized Biologists must ensure proper implementation of protective measures, and make certain that the effects of the project on the desert tortoise and its habitat are minimized in accordance with a biological opinion or incidental take permit. All incidents of noncompliance in accordance with the biological opinion or permit must be recorded and reported.

To be authorized, the applicant must have the knowledge and experience to conduct any or all of the following, as needed:

- Locate, identify, and report all forms of desert tortoise sign in accordance with approved protocols;
- Handle and temporarily hold desert tortoises;
- Relocate/translocate desert tortoises prior to implementation of projects;
- Excavate burrows to locate desert tortoises or eggs;
- Reconstruct desert tortoise burrows;
- Unearth and relocate desert tortoise eggs;
- Review and approve individual Desert Tortoise Monitors and their activities based on qualifications of the Monitors;
- Directly supervise Desert Tortoise Monitors during clearance surveys and train Monitors in all aspects of protecting desert tortoises during implementation of projects;
- Be familiar with the project biological assessment and biological opinion or incidental take permit (copy in hand);
- Ensure proper implementation of protective measures;
- Record and report incidents of noncompliance in accordance with a biological opinion or permit; and
- Halt project activities per provisions of the biological opinion or permit.

DESERT TORTOISE MONITOR – Desert Tortoise Monitors will be approved by the Authorized Biologist(s) or USFWS (if an Authorized Biologist is not required) for a project. Desert Tortoise Monitors will assist the Authorized Biologist on project activities within desert tortoise habitat, ensure proper implementation of protective measures, and record and report desert tortoise and sign observations in accordance with approved protocol. They will report incidents of noncompliance in accordance with a biological opinion or permit, move desert tortoises from harm's way when desert tortoises enter project sites and place these animals in designated safe areas or maintain the desert tortoises in their immediate possession until an Authorized Biologist assumes care of the animal. Monitors assist Authorized Biologists during surveys and serve as apprentices to acquire experience. Monitors may not conduct field or clearance surveys or other specialized duties of the Authorized Biologist unless directly supervised by an Authorized Biologist; "directly supervised" means the Authorized Biologist has direct voice and sight contact with the Monitor.

3.2. DESERT TORTOISE AUTHORIZED BIOLOGIST QUALIFICATIONS FORM

This form should be used to provide your qualifications to agency officials if you wish to undertake the duties of an authorized biologist with regard to desert tortoises during construction or other projects authorized under Sections 7 (Biological Opinions) or 10(a)(1)(B) (i.e. Habitat Conservation Plans) of the Endangered Species Act.

(If you seek approval to attach/remove/insert any devices or equipment to/into desert tortoises, withdraw blood, or conduct other procedures on desert tortoises, a recovery permit or similar authorization may be required. Application for a recovery permit requires completion of Form 3-200-55, which can be downloaded at http://www.fws.gov/forms/3-200-55.pdf.)

1. Contact Information:

Name	
Address	
City, State, Zip Code	
Phone Number(s)	
Email Address	

2. Date:

3. Areas in which authorization is requested (check all that apply):

□ San Bernardino, Kern, Inyo and Los Angeles Counties, California (Ventura office)

□ Riverside, San Diego, and Imperial Counties, California (Carlsbad office)

□ Nevada □ Utah □ Arizona

4. Please provide information on the project:

USFWS Biological Opinion or HCP No. **When Applicable**		**Date:**
Project Name		
Federal Agency **(If Applicable)**		
Proponent or Contractor		

5. If you hold, or have held, any relevant state or federal wildlife permits provide the following:

Species	**Dates**	**State (specify) or Federal Permit Number**	**Authorized Activities**

6. Education: Provide up to three schools, listing most recent first:

Institution	Dates attended	Major/Minor	Degree received

7. Desert Tortoise Training.

Name/Type of Training	Dates (From/To)	Location	Instructor/Sponsor
1. Classes			
2. Field Training			
3. Translocation			
4.			

8. Experience – Include only those positions relevant to the requested work with desert tortoises. Distinguish between wild Mojave desert tortoise and other experience. Include only your experience, not information for the project you worked on (e.g., if 100 tortoises were handled on a project and you handled 5 of those tortoises, include only those 5. List most recent experience first. Handling a Mojave desert tortoise must be authorized by a Biological Opinion or other permit and reported to the USFWS. Information provided in this section will be used by the USFWS to track the numbers of tortoises affected by previous projects (baseline). **Be sure to include a project supervisor or other contact that can verify your skills and experience in relation to your job performance.** Attach additional sheets as necessary. Please use numbers in each column; do not use "X's" to indicate participation in the activity. If your experience is limited to **less than three desert tortoise positions**, please include additional job experience and references in the section below.

Experience by project and activity:

Project Name: Job Title: Dates of Employment:	Supervisor / Project Contact Name: Phone: Email Address:	Conduct Clearance Surveys (Hrs/Days)	Excavate DT burrows (No.)	Locate DT No. < 100mm ≥ 100mm	Handled for Relocation DTs (No.)	Excavate, and relocate DT nests (No.)
1.						
2.						
3.						
4.						
5.						
6.						
7.						

Experience by project and activity (continued): Each project number should correspond with the project listed on the previous page

Project Name (Number should correspond to previous page)	Construct Artificial Burrows (No.)	Monitor project equipment and activities (Hrs/Days)	Oversee project compliance (Hrs/Days)	Supervise DT field staff (Hrs/Days) and No. staff supervised	DT fence Installation and inspection (Hrs/Days)	Present DT Awareness Training (No.)
1.						
2.						
3.						
4.						
5.						
6.						
7.						

Summary of experience:

Total time spent for all desert tortoise-related field activities (referenced above):

Specify total number of hours:
OR total number of 8-hour days: _____

Total number of miles/kilometers walked conducting survey transects:

Total number of wild, free-ranging desert tortoises you personally handled:

<100 mm: _____
≥100 mm: _____

Additional supervisory experience other than with desert tortoise work:

Project	Hours	Staff (No.)

Additional references for individuals who have held **less than three** positions working with desert tortoise

Project Name: **Job Title:** **Dates of employment:**	**Supervisor / Project Contact:** **Name:** **Phone:** **Email address:**
Project Name: **Job Title:** **Dates of employment:**	**Supervisor / Project Contact:** **Name:** **Phone:** **Email address:**

Project Name:	Supervisor / Project Contact:
	Name:
Job Title:	Phone:
Dates of employment:	Email address:

I certify that the information submitted in this form is complete and accurate to the best of my knowledge and belief.

I understand that any false statement herein may subject me to the criminal penalties of 18 U.S.C. Ch.47, Sec. 1001.

Signed: _____ **Date:** _____

Table 3. USFWS Desert Tortoise Pre-Project Survey Guidance

What is the estimated number of tortoises and associated 95% confidence interval for the action area?

INSTRUCTIONS ***Use this tab when your transects were of unequal length.***

Enter the appropriate values from the survey into the yellow cells below. The number of tortoises and assocated 95% confidence interval for the action area will be calculated.

N =	42.4
Lower 95%CI =	19.41
Upper 95%CI =	92.54

Total action area (acres)	**3000**
Prob that a tort is above ground given winter rainfall (Pa from Table 2) =	**0.800**
Total length of transects walked (km) =	**1080**
Number of transects walked =	**108**
Number of tortoises found during surveys (n) =	**19**

Transects of various lengths

Transect	Length (km)	Tortoises within 5m of centerline
1	10.0	0
2	10.0	0
3	10.0	0
4	10.0	0
5	10.0	2
6	10.0	0
7	10.0	0
8	10.0	0
9	10.0	0
10	10.0	2
11	10.0	0
12	10.0	0
13	10.0	2
14	10.0	1
15	10.0	1
16	10.0	1
17	10.0	1
18	10.0	0
19	10.0	0
20	10.0	0
21	10.0	2
22	10.0	0
23	10.0	0
24	10.0	0
25	10.0	0

26	10.0	0
27	10.0	0
28	10.0	0
29	10.0	0
30	10.0	0
31	10.0	0
32	10.0	0
33	10.0	0
34	10.0	0
35	10.0	0
36	10.0	1
37	10.0	0
38	10.0	0
39	10.0	0
40	10.0	1
41	10.0	0
42	10.0	0
43	10.0	0
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47	10.0	1
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85	10.0	0
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99	10.0	0
100	10.0	0
101	10.0	1
102	10.0	0
103	10.0	0
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106	10.0	0
107	10.0	0
108	10.0	0
109	5.0	0
110	5.0	0
111	5.0	0
112	5.0	0
113	5.0	0
114	5.0	0
115	5.0	0
116	5.0	0
117	5.0	0
118	5.0	0
119	5.0	0
120	5.0	0
121	5.0	0
122	5.0	0
123	5.0	1
124	5.0	0
125	5.0	0
126	5.0	0
127	5.0	0

128	5.0	0
129	3.0	0
130	3.0	0
131	3.0	0
132	3.0	0
133	3.0	0
134	3.0	0
135	3.0	0
136	3.0	0
137	3.0	0
138	3.0	0
139	3.0	0
140	3.0	0
141	3.0	0
142	3.0	0
143	3.0	1
144	3.0	0
145	3.0	0
146	3.0	0
147	3.0	0
148	3.0	0
149	3.0	0
150	3.0	0
151	3.0	0
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161	3.0	0
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165	3.0	0
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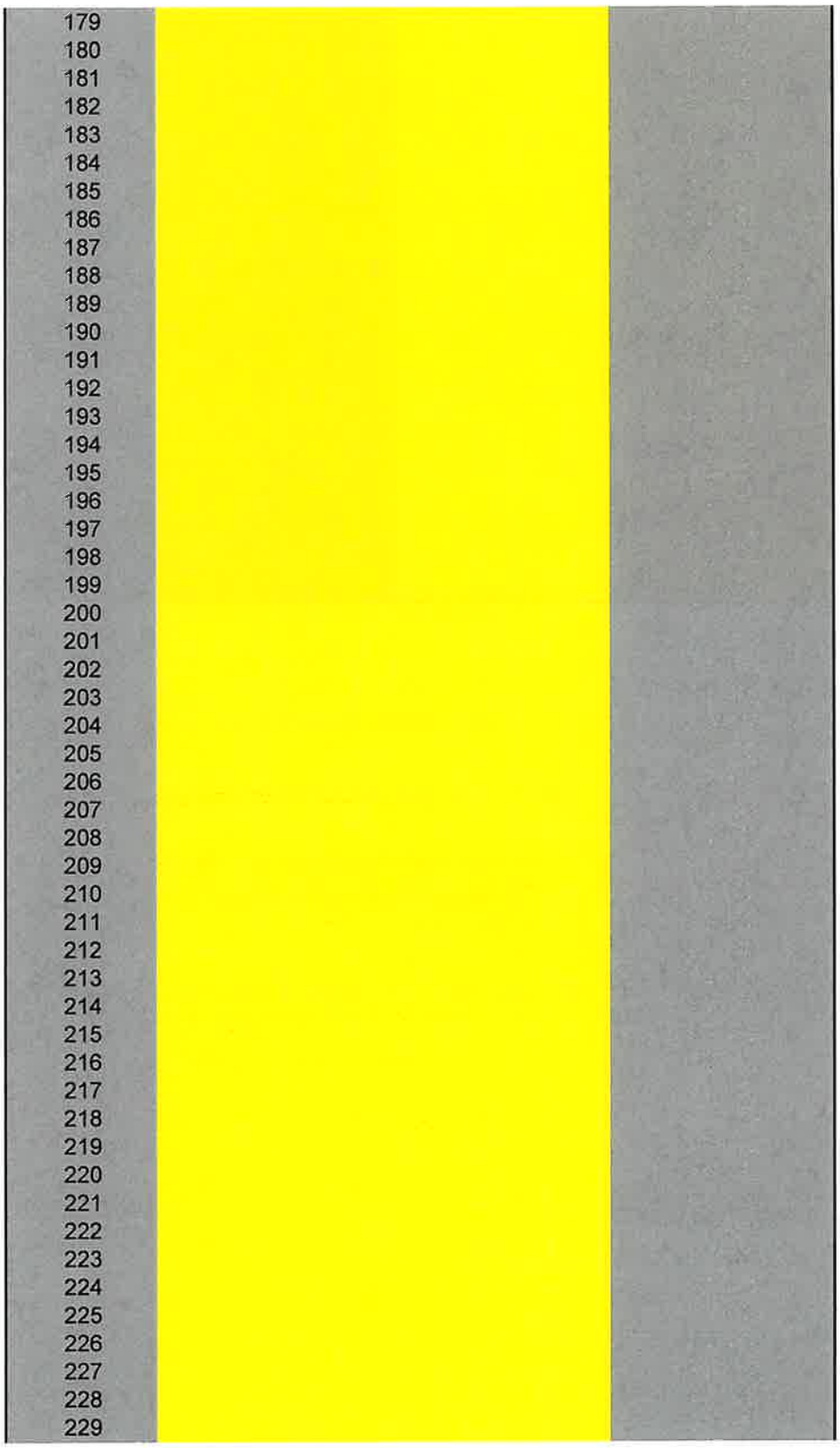

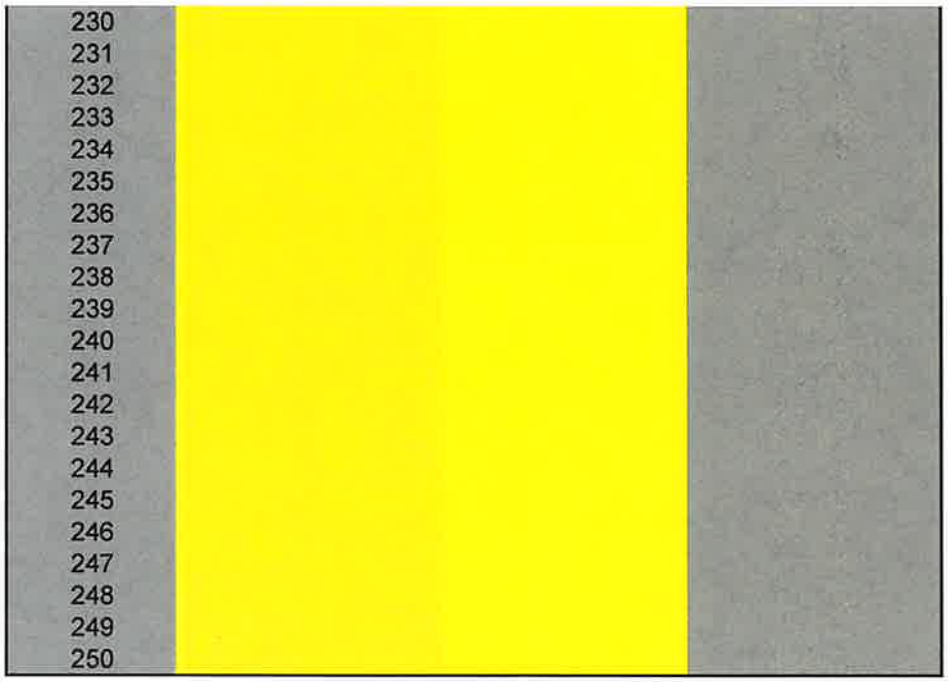
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Table 3. USFWS Desert Tortoise Pre-Project Survey Guidance

What is the estimated number of tortoises and associated 95% confidence interval for the action area?

INSTRUCTIONS ***Use this tab when all your transects were of equal length.***

Enter the appropriate values from the survey into the yellow cells below. The number of tortoises and assocated 95% confidence interval for the action area will be calculated.

N =	42.4
Lower 95%CI =	19.41
Upper 95%CI =	92.52

Total action area (acres)	3000
Prob that a tort is above ground given winter rainfall (Pa from Table 2) =	0.800
Total length of transects walked (L, km) =	1080
Transect length (km)	10
Number of transects walked (k) =	108
Number of tortoises found during surveys (n) =	19

Transects all the same length

Number of tortoises (n_i)	Number of transects on which (n_i) tortoises were
0	93
1	11
2	4
3	0
4	0
5	0
6	0
7	0
8	0
9	0

CHAPTER 4. PREPARING FOR ANY ACTION THAT MAY OCCUR WITHIN THE RANGE OF THE MOJAVE POPULATION OF THE DESERT TORTOISE

4.1. General Information on the Ecology of the Desert Tortoise

Most habitat for the Mojave population of the desert tortoise is below 4,500 feet (1372 meters) elevation in the creosote bush-bursage series of the Mojave desert scrub biome; dominant plants are creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*). Desert tortoise habitat may also include various cacti species (*Opuntia* spp.), saltbush (*Atriplex* spp.) scrub, and Joshua tree (*Yucca brevifolia*) woodlands at elevations up to approximately 5,000 feet (1524 meters). The desert tortoise is a large, herbivorous reptile. Mojave desert tortoises are typically active during the day and when annual plants are most abundant during spring and early summer. However, they can also be active following rain events and unseasonably warm periods during fall and winter. If rain events occur at night, tortoises may emerge from their burrows to drink. Female desert tortoises construct nests during the late afternoon and evening, and any desert tortoise may emerge from its burrows at night during extreme heat (see section 7.3). Desert tortoises usually spend the remainder of the year in sheltersites, escaping the extreme weather conditions of the Mojave Desert. Location and type of sheltersites vary greatly in different geographic locations (see section 4.2). For detailed information on the ecology of the Mojave desert tortoise, please see http://www.fws.gov/nevada/desert_tortoise.

4.2 Desert Tortoise Burrows

Desert tortoises use a variety of sheltersites including soil burrows, caliche caves, lava tubes, pallets, rock caves, rodent or other animal's burrows, and shrubs or man-made structures, such as vehicles and equipment. For this Manual, the term "burrow" means any structure that could be used by a desert tortoise for shelter.

4.2.1. Determining if a Desert Tortoise is Present in a Burrow

If sufficient sunlight is available, use a mirror to direct light into the opening of the burrow to locate desert tortoise sign including a desert tortoise. Alternatives to a mirror are the use of a LED flashlight, fiber-optic scope, or miniature camera. Please refer to section 7.6 for disinfecting procedures for equipment. If the terminus of the burrow or any side chambers cannot be observed, or if the light is insufficient, use a fiber-optic scope or miniature camera to inspect all areas of the burrow.

4.2.2. Describing Burrows

Desert tortoises typically excavate soil burrows that are flat on the bottom and domed on top to match the profile of the desert tortoise shell (half-moon shape). The condition class of a burrow (see below) does not necessarily exclude use or occupation by a desert tortoise. When aestivating in a burrow, desert tortoises may backfill the burrow giving the appearance of the terminus. Spider webs, litter, and other debris may accumulate in burrow openings overnight, and openings may collapse during winter rains. Do not assume that a burrow is inactive if it

looks unused or collapsed. Desert tortoises may use canid or mustelid excavations, and may be found in burrows of other animals, particularly kit foxes. Burrowing owls may use desert tortoise burrows, but do not assume that burrows occupied by owls are not also occupied by desert tortoises. Juvenile desert tortoises create their own burrows, which may resemble rodent burrows, or use rodent burrows. Therefore, consider all burrows to be occupied by desert tortoises until determined otherwise.

Record basic information on the data sheet for each burrow including its class, if occupied by a desert tortoise or other animals, other sign present, GPS location, and other distinguishing information (see below). We recommend photographing burrows and submitting the photographs to the USFWS with the data sheets. Record the information electronically or use permanent black ink and high rag content, acid-free paper when recording all data.

Condition Class:

1. currently active, with desert tortoise or recent desert tortoise sign
2. good condition, definitely desert tortoise; no evidence of recent use
3. deteriorated condition which includes collapsed burrows; definitely desert tortoise (please describe)
4. good condition; possibly desert tortoise (please describe)
5. deteriorated condition which includes collapsed burrows; possibly desert tortoise (please describe)

4.2.3. Mapping Burrows

Map desert tortoise burrows using a GPS unit with sufficient accuracy to easily navigate back to the location. Indicate the condition class of the burrow and whether it is occupied by a desert tortoise. There are several important reasons for mapping it: a) resource agencies can determine how many desert tortoises were encountered on the project compared with the number of burrows excavated, b) the information will be available for future projects in the same area, c) burrow locations may be important for organizing desert tortoise removals and determining desert tortoise hot spots versus areas where few, if any, desert tortoises are found, and d) the number and location of burrows found during initial desert tortoise surveys can be compared with the number and location of burrows found during monitoring or subsequent surveys; (i.e., the data may provide information to determine appropriate take limits based on the findings of initial surveys). Typically, the USFWS requires a report that includes the number of desert tortoises observed during the project. Some projects require that all desert tortoise sign be mapped. If an artificial burrow is used, map it accurately. If the burrow is blocked or temporarily penned (see section 7.10.3, Penning Desert Tortoises), map and mark it in the field to easily find it later.

4.2.4. Map Types

For reporting purposes, display burrow locations on maps of appropriate scale, preferably on aerial photography maps. If monitoring a linear right-of-way, number the burrows sequentially within a given portion (e.g., "B-23-2," for burrow #23 on reach 2). As an alternative, use United States Geological Survey (USGS) 7.5' topographical maps (scale 1" = 2,000'), paper or

electronic, or enlargements of them. Project maps at a scale of 1" = 100' or 1" = 200' are particularly useful when burrows are common and better resolution is necessary. The assigned numbers may be cross-referenced with data sheets, field notes, and photographs.

4.3. Presence/absence and abundance desert tortoise survey protocol

This protocol provides recommendations for survey methodology to determine presence/absence and abundance of desert tortoises for projects occurring within the species range on Federal and non-Federal lands, and to provide a standard method for reporting survey results. Information gathered from these procedures will: 1) help determine the appropriate level of consultation with USFWS and the appropriate State wildlife agency, 2) help determine the incidental take of desert tortoises resulting from proposed projects as defined by the ESA and California Endangered Species Act (CESA) and 3) help minimize and avoid take.

This guidance includes:

- Site Assessment
- Pre-project Field Survey Protocol for Potential Desert Tortoise Habitats
- USFWS Desert Tortoise Pre-project Survey Data Sheet

This guidance is subject to revision as new information becomes available. Before initiating the protocols described below, please check with your local USFWS and appropriate State wildlife agency to verify that you are implementing the most up-to-date methods. To ensure quality and reduce the likelihood of nonconcurrence with survey results, we recommend that the names and qualifications of the surveyors be provided to USFWS and appropriate State agency for review prior to initiating surveys.

In Nevada:

U.S. Fish and Wildlife Service
Nevada Fish and Wildlife Office
4701 North Torrey Pines Drive
Las Vegas, Nevada 89130
(702) 515-5230

In California:

Inyo, Kern, Los Angeles, and San Bernardino Counties:

U.S. Fish and Wildlife Service
Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003
(805) 644-1766

Imperial and Riverside Counties, and Joshua Tree National Park and the San Bernardino National Forest in San Bernardino Co:

U.S. Fish and Wildlife Service
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road
Carlsbad, California 92009
(760) 431-9440

In Utah:

U.S. Fish and Wildlife Service
Utah Ecological Services Field
Office
2369 West Orton Circle
West Valley City, Utah 84119
(801) 975-3330

In Arizona:

U.S. Fish and Wildlife Service
Arizona Fish and Wildlife
Conservation Office -Flagstaff
323 North Leroux Street, Suite 201
Flagstaff, Arizona 86001
(928) 226-0614

State Wildlife Agencies

Nevada: Department of Wildlife:

Southern Region
4747 Vegas Drive
Las Vegas, Nevada 89108
(702) 486-5127

California Department of Fish and Game (CDFG)

For Fresno, Kern, Kings, Madera, Mariposa, Merced, Monterey, San Benito, San Luis Obispo, Stanislaus, Tulare and Tuolumne Counties:

Central Region Headquarters Office
1234 E. Shaw Avenue
Fresno, California 93710
(559) 243-4005 ext. 151

For Imperial, Inyo, Mono, Riverside and San Bernardino Counties:

Inland Deserts Regional Office
3602 Inland Empire Boulevard, Suite C-220
Ontario, California 91764
(909) 484-0167

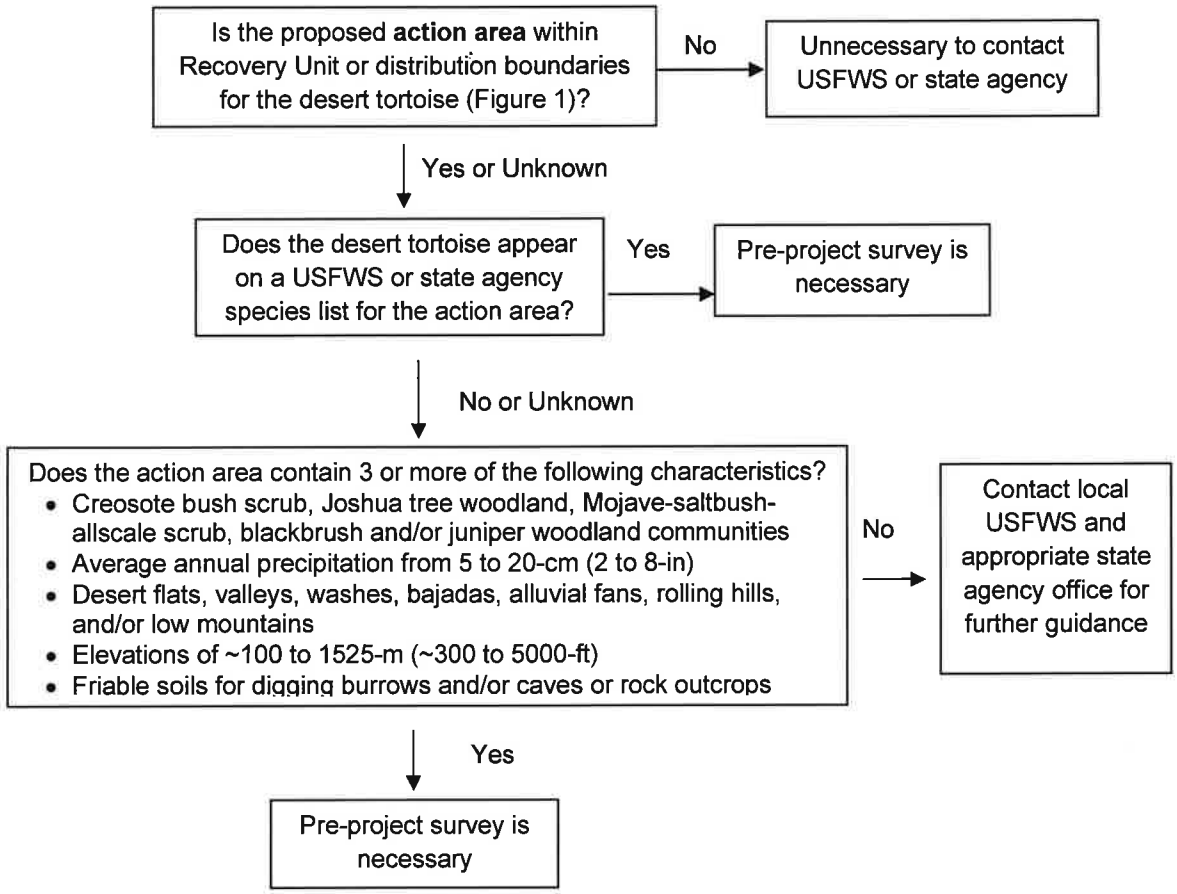
For Los Angeles, Orange, San Diego, Santa Barbara and Ventura Counties:

South Coast Regional Office
4949 Viewridge Avenue
San Diego, California 92123
(858) 467-4201

Utah Division of Wildlife Resources:	
Southern Region 1470 N Airport Road Cedar City, Utah 84720 (435) 865-6100	Washington County Field Office 344 East Sunland Drive, Suite #8 St. George, Utah 84790 (435) 688-1426
Arizona Game & Fish Department State Headquarters--Nongame Branch 5000 W. Carefree Highway Phoenix, Arizona 85086 (623) 236-7767	

Site Assessment

Use the below key to assess if desert tortoises may be present within or near the action area and determine survey and consultation requirements[1]. The **action area** is defined by regulation as all areas to be affected directly or indirectly and not merely the immediate area involved in the action (50 CFR §402.02). The extent of the action area is not limited to the footprint of the action nor is it limited by the authority of the Federal, State, or local agency or any other entity proposing the project. The environmental baseline, the analysis of the effects of the action, and the amount or extent of incidental take are based upon the action area. If you cannot access the entire action area during your surveys for some reason (e.g., access to private property is unavailable), please note that in your survey report.



[1]If determined that the proposed project is not likely to adversely affect the desert tortoise and a tortoise or tortoise sign (shells, bones, scutes, limbs, burrows, pallets, scats, egg shell fragments, tracks, courtship rings, drinking sites, mineral licks, etc.) is found in the action area during implementation of the proposed project, the proposed action should *immediately* stop and then it must be determined whether further or formal consultation is necessary to comply with the ESA or CESA in California. It is recommended that the USFWS and CDFG in California be notified in writing within three days of the discovery. This short notification period will help ensure a prompt response by USFWS and CDFG to facilitate ESA and CESA compliance.

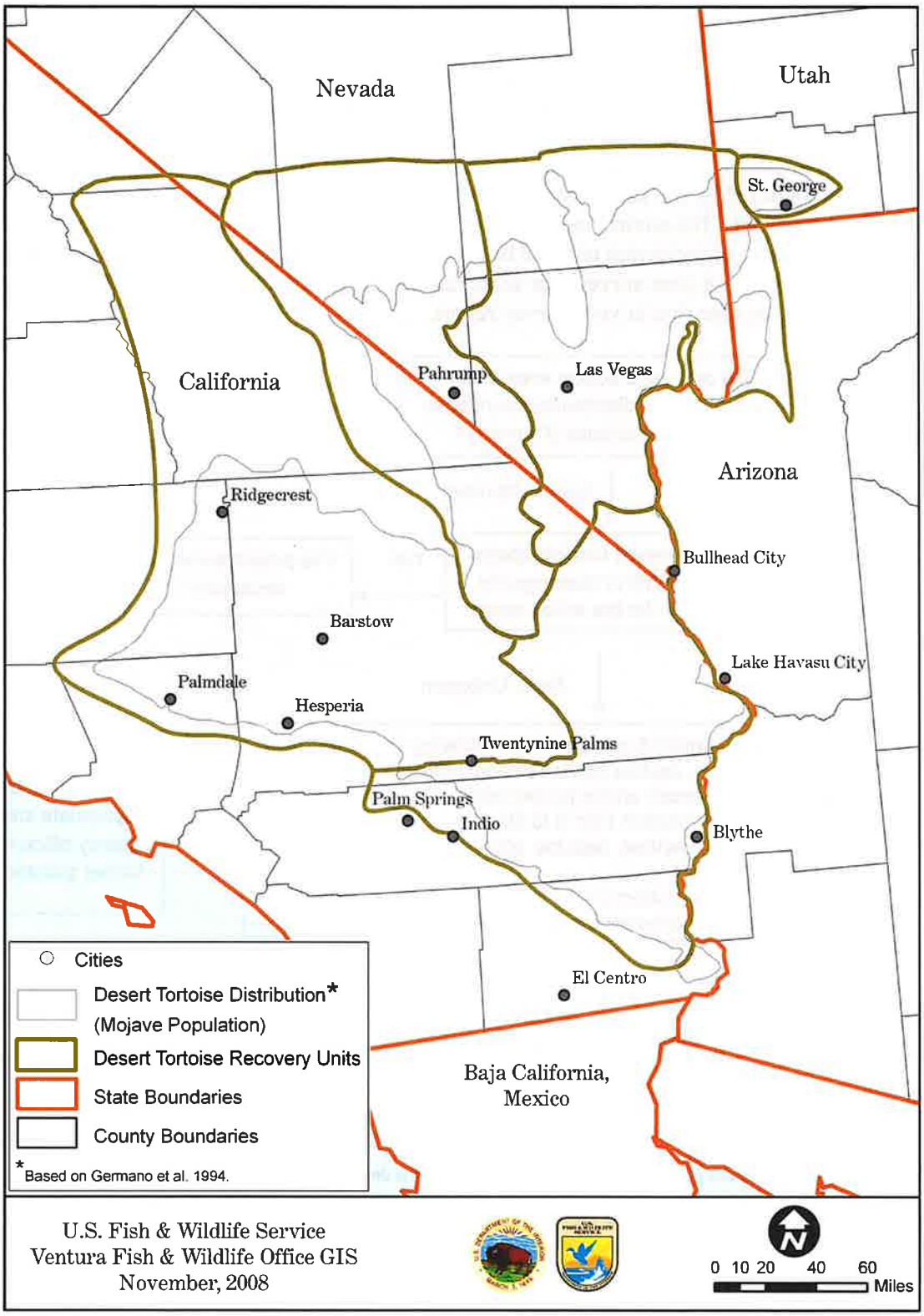


Figure 1: Known Range of the Desert Tortoise (Mojave Population)

Pre-project Field Survey Protocol for Potential Desert Tortoise Habitats

Objectives of survey

- Determine presence or absence of desert tortoises within the action area
- Estimate the number of desert tortoises (abundance) within the action area
- Assess the distribution of desert tortoises within the action area to inform take avoidance and minimization

The **action area** is defined by regulation as all areas to be affected directly or indirectly and not merely the immediate area involved in the action (50 CFR §402.02). The action area is not limited to the "footprint" of the action or jurisdiction. Rather, it is a biological determination of the reach of the proposed action on listed species.

Field Methods

This protocol takes into account the fact that not all desert tortoises within the action area are seen by the surveyor. Provided is an equation which accounts for tortoises that are below ground at the time of surveys and for above-ground desert tortoises that are cryptic and may be missed.

$$\left(\begin{array}{c}\text{Estimated number of tortoises}\\ \text{within action area}\end{array}\right) = \frac{\left(\begin{array}{c}\text{Number of tortoises}\\ \text{observed above ground}\end{array}\right)}{\left(\begin{array}{c}\text{Probability that}\\ \text{a tortoise is}\\ \text{above ground } (P_a)\end{array}\right)\left(\begin{array}{c}\text{Probability of}\\ \text{detecting a tortoise,}\\ \text{if above ground } (P_d)\end{array}\right)}\left(\frac{\text{Action area}}{\text{Area surveyed}}\right)$$

Surveys of 100% coverage, or probabilistic sampling where appropriate, should utilize this equation to estimate the number of desert tortoises within the action area (see below; Table 1, P_a and P_d).

- Information to determine presence/absence *and* estimate number of desert tortoises within the action area is collected during the same survey effort. Surveyed objects include all desert tortoises that are above ground (both out of burrows and within burrows but still visible), as well as all desert tortoise sign (burrows, scats, carcasses, etc.). Record all locations of desert tortoises and sign encountered during the survey effort using the USFWS 2009 Desert Tortoise Pre-Project Survey Data Sheet (attached). Please submit a copy of the original datasheets with results of the survey to your local USFWS office.
- Surveys should be conducted during the desert tortoise's most active periods (April through May or September through October) (Nussear and Tracy 2007; Inman 2008; USFWS 2009). Surveys outside these time periods may be approved by USFWS, and CDFG in California (e.g., warm weather in March or rainfall in August stimulating increased desert tortoise activity).
- Desert tortoises utilize burrows to avoid daily and annual thermal extremes (Woodbury and Hardy 1948). Therefore, surveys should take place when air temperatures are below 40 degrees C (104 degrees F) (Zimmerman et al. 1994; Walde et al. 2003; Inman 2008). Air

temperature is measured ~5-cm from the soil surface in an area of full sun, but in the shade of the observer.

- Ten-meter (~30-ft) wide belt transects should be used during surveys. For all projects, surveys which cover the entire project area with the 10-m belt transects (100 percent coverage) are always an acceptable option. For very large action areas, probabilistic sampling may also be an option, such that the appropriate proportion of the action area is surveyed (Table 2). If probabilistic sampling is an option for the project site, each transect should be chosen either systematically or randomly ensuring that the entire action area has an equal probability of being included in the sample. Transects should be completed in a random order, oriented in a logistically convenient pattern (e.g., lines, squares, or triangles). Any sampling design other than simple systematic or random sampling must be approved by USFWS (e.g. stratification). See *Frequently Asked Questions* section for a discussion of 100 percent coverage and probabilistic sampling.
- USFWS considers the results of a pre-project survey to be valid for no more than one year. If survey results are older than one year, please contact the local USFWS office.

Presence or absence of desert tortoises within the project vicinity

- Occurrence of either live desert tortoises or desert tortoise sign (burrows, scats, and carcasses) in the action area indicates desert tortoise presence and therefore requires formal consultation with USFWS.
- If neither desert tortoises nor sign are encountered during the action area surveys and the project, or any portion of project, is ≤ (less than or equal to) 0.8 km^2 (200 acres) or linear, three additional 10-m (~30-ft) belt transects at 200-m (~655-ft) intervals parallel to and/or encircling the project area perimeter (200-m, 400-m, and 600-m from the perimeter of the project site) should be surveyed. These transects are employed only as part of the presence/absence determination; they are not included in the estimation of desert tortoise abundance. See *Frequently Asked Questions* section below for an explanation of why additional surveys are needed.
- If neither desert tortoises nor sign are encountered during the action area surveys, as well as project perimeter surveys where appropriate, please contact your local USFWS office. Informal consultation with the USFWS may be required even though no desert tortoises or sign are found during surveys.

Number of desert tortoises within the action area

The attached Table 4.3 spreadsheet will estimate the number of adult desert tortoises (> (greater than) 160 mm MCL) within the action area using the "Number of desert tortoises within the action area" equation from above.

Enter the requested information into the Table 4.3 spreadsheet, as follows:

1. Enter the total project area.
2. Enter the appropriate value from Table 1 for the term "probability that a desert tortoise is above ground" (P_a).
3. Enter the number of adult desert tortoises (>160-mm midline carapace length) found during the survey of the action area for the term "number of desert tortoises observed above ground" (n).

Table 4.1. Probability that a desert tortoise is above ground (P_a) relative to the previous winter's rainfall (October through March)

Use amount of rainfall from the winter preceding the pre-project survey to determine which value of P_a *is appropriate for the project*

To find this amount of rainfall, go to the Western Regional Climate Center site: http://www.wrcc.dri.edu/summary/Climsmsca.html; click on your location and scroll down to "monthly totals"

Previous Winter Rain	Probability (P_a)	Variance(P_a)
<40 mm (~1.5 inches)	0.64	0.08
≥40 mm (~1.5 inches)	0.80	0.05

The estimate for the term "probability of detecting a desert tortoise if above ground (P_d)" is already included in spreadsheet Table 3 ($P_d = 0.63$; variance = 0.011). See *Frequently Asked Questions* section below for how P_a and P_d and their associated variances were estimated.

See *Appendix 1* for a detailed description of the method used to estimate desert tortoise abundance.

100 percent Coverage or Probabilistic Sampling?

100% coverage surveys are always an acceptable option, regardless of the size of the action area. For very large action areas, probabilistic sampling may be an additional option, such that the appropriate proportion of the action area is surveyed as detailed below.

For the 2009 field season, probabilistic sampling is not an option for desert tortoise pre-project surveys in California due to the requirement of CESA to avoid, minimize, and fully mitigate (CDFG code section 2081). In addition, probabilistic sampling is not an option for desert tortoise pre-project surveys in the Upper Virgin River Recovery Unit due to its small size and its need to be intensively managed (USFWS 1994).

Table 4.2. Is probabilistic sampling an appropriate option for the proposed action area?

Is your action area smaller than the area given below for the recovery unit in which the project occurs?

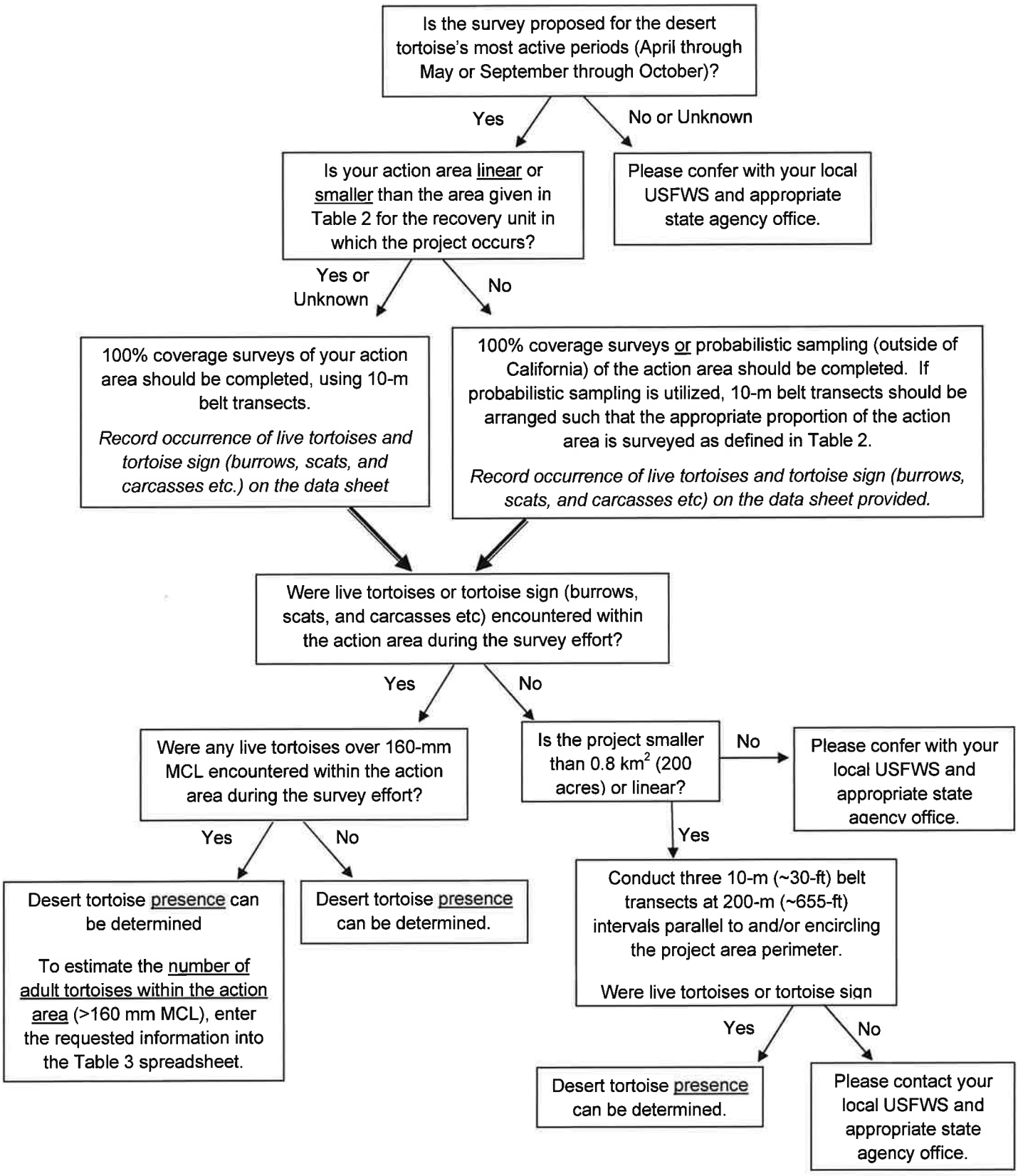
Recovery Unit	Threshold Action Area to Allow Sampling
Western Mojave	7.2 km^2 (1777 acres)
Eastern Mojave	10.8 km^2 (2676 acres)
Colorado Desert	6.4 km^2 (1573 acres)
Northeastern Mojave	23.3 km^2 (5764 acres)

If yes: 100% coverage surveys of your action area must be completed.

If no, total transect lengths that must be surveyed are given below. 100% coverage surveys are also an option, regardless of the size of the project.

Recovery Unit	Total Transect Length (km) to Sample
Western Mojave	719
Eastern Mojave	1083
Colorado Desert	637
Northeastern Mojave	2333

Decision Tree for Pre-project Field Survey Protocol for Potential Desert Tortoise



Frequently Asked Questions: Desert Tortoise Pre-project Field Survey Protocol

Why did USFWS revise the 1992 USFWS Desert Tortoise Pre-project Survey Protocol?

Desert tortoises occur at low densities across most of the Mojave Desert (USFWS 2006). They are cryptic and spend much of their time underground in burrows (Burge 1977; Nagy and Medica 1986; Bulova 1994) and therefore not all animals within an area will be seen by even the best trained surveyors. Tortoises underground in burrows, as well as individuals hidden above ground, need to be included in estimates.

The 1992 USFWS Desert Tortoise Pre-project Survey protocol was based on a BLM protocol from the mid-1970s, which utilized the best available information at the time, but did not take into account that some tortoises will be underground and missed during the survey effort. The data collected during the extensive USFWS range-wide monitoring program (currently <7,000-km of transects each year; USFWS 2006) have allowed us to improve pre-project survey methods. Data about the proportion of tortoises underground in burrows, as well as the probability that an above-ground tortoise will be observed by the surveyor are included in the estimate of the number of tortoises within the action area (P_a and P_d).

This protocol also addresses the potential for using probabilistic sampling when the action area is above the size limits given in Table 2. One hundred percent coverage surveys are *always* an acceptable option, regardless of the size of the action area. For very large action areas, sampling may be an additional option, such that the abundance estimates can be calculated when an appropriate proportion of the action area is surveyed. Estimates of tortoise densities within recovery units from the range-wide monitoring program have been used to calculate how many km^2 of a project site must be surveyed to produce a statistically robust abundance estimate (Table 4.2).

What happened to the zone of influence transects recommended in the 1992 protocol?

This revised protocol requires that the entire action area, rather than just the project footprint, be included in the survey effort. The **action area** is defined by regulation as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50 CFR §402.02). The action area is therefore not limited to the footprint of the project nor is it limited by the Federal agency's authority. Rather, the action area is a biological determination of the reach of the proposed action on listed species, which must, by definition, encompass the zone of influence of the project.

How did USFWS determine the values for the "probability that a tortoise is above ground"?

The USFWS range-wide monitoring program estimated the proportion of the desert tortoise population that is visible using telemetered animals from focal areas in spring 2001-2005 (USFWS 2006). This probability is related to the previous winter's rainfall, as illustrated in

Table 4.1. The range of fall above-ground activity is similar to spring numbers, but the variability is much higher (Nussear and Tracy 2007; Inman 2008). Until more robust estimates of fall above-ground activity are available, spring estimates based on the previous winter's rainfall (October through March) are used for surveys conducted in either active period.

How did USFWS establish the value for the "probability of detecting a tortoise, if above ground"?

For the past 5 years, surveyors in the USFWS range-wide monitoring program have undergone training on established transects with artificial tortoises. Trained surveyors detected an average of ~63% of model tortoises that were within 5-m of either side of the transect center-line (USFWS unpublished).

Why are only tortoises over 160-mm MCL used to estimate the number of tortoises within the action area?

The values of P_a and P_d used in the equation to estimate the number of tortoises within the action area are based on USFWS range-wide monitoring data collected for tortoises ≥160-mm MCL.

What is the purpose of 100% coverage surveys versus probabilistic sampling?

The purpose of surveying is to determine presence/absence and estimate the abundance of desert tortoises within the action area. For 100% coverage surveys, transects are placed across the entire action area; thus, the entire area for which abundance is estimated is surveyed. A probabilistic sampling approach, on the other hand, uses data from randomly or systematically placed transects to draw inferences about locations where surveys are not conducted. All locations for which abundance will be estimated *must* have an equal probability of being included in the sample.

How were the threshold project sizes calculated for determining whether 100% coverage or probabilistic sampling is appropriate?

The validity of probabilistic sampling requires that all locations for which abundance will be estimated have an equal probability of being included in the sample, as well as the expected sample size. Estimating the number of tortoises within the project area using probabilistic sampling is limited by the number of tortoises encountered during the survey effort. Therefore, whether or not the project area must be surveyed using 100% coverage or can be probabilistically sampled is based on the area expected to yield a survey count of 20 tortoises (Krzysik 2002). Table 4.2 uses tortoise densities and detection probabilities estimated from 2001-2005 range-wide line-distance sampling efforts for each tortoise Recovery Unit (USFWS 2006) to calculate that area of a project site that must be surveyed to produce a statistically robust estimate. If the project area is large enough to allow the option of probabilistic sampling, Table 4.2 provides the minimum transect kilometers (10-m wide) that must be surveyed.

What if the minimum length of 10-m wide transect kilometers are completed but 20 tortoises were not found in the action area?

If probabilistic sampling is used and < 20 tortoises are found after surveying the total transect length prescribed by Table 4.2, number of tortoises within the action area may be estimated using number found.

Do I keep surveying if 20 tortoises are found before the minimum transect kilometers that must be surveyed are completed?

If probabilistic sampling was used and the transects have been completed in a random order, project area surveys may be considered complete when 20 tortoises have been found or the specified number of kilometers have been sampled, whichever happens first. It is okay if more that 20 tortoises are found, this will decrease the width of the 95% confidence interval for the abundance estimate.

Why do small and linear projects where no tortoises were found have to do additional surveys at 150-m (~500-ft) intervals parallel to the project area perimeter?

Even though neither tortoises nor tortoise sign were found within the action area at the time of the survey, the area may be part of an animal's home range. The home range of a female desert tortoise averages around 0.15 to 0.16 km^2 (35 to 40 acres), about one third the size of male home ranges, which are variable and can be > 2 km^2 (O'Conner et al. 1994; Duda et al. 1999; Harless et al. in press). Therefore, projects that are ≤ 0.8 km^2 (200 acres) or linear may overlap only part of a tortoise's home range and the possibility that a resident tortoise was outside the project area at the time surveys were conducted must be addressed. In these cases, USFWS recommends three additional 10-m (~30-ft) belt transects at 200-m (~655-ft) intervals parallel to and/or encircling the project area perimeter (200-m, 400-m (~1312 ft), and 600-m (~1968 ft) from the perimeter of the project site). Record any tortoises or sign encountered during these surveys. These transects are employed only as part of the presence/absence determination; they are not included in the estimation of tortoise abundance within the project area.

What does the 95 percent confidence interval for the number of tortoises within the action area mean?

Confidence intervals are used to indicate the reliability of an estimate. The interval gives an estimated range of values, calculated from a set of sample data, which is likely to include an unknown population parameter (in this case, the true number of tortoises within the action area). A wider confidence interval indicates that less certainty is associated with the estimate (see Appendix 2). The Table 4.3 spreadsheet calculates the abundance and associated 95 percent confidence interval for the estimated number of tortoises within the project area (Buckland et al. 2001).

Acknowledgments

The USFWS Desert Tortoise Recovery Office is grateful to the many individuals and agencies that were instrumental in development and review of this revised protocol. Specifically, we thank Jim Nichols (USGS) and Tony Krzysik (Prescott Audubon Society) for assistance with concept design; Alice Karl (independent tortoise biologist) and Andrew Thompson (USFWS) for development discussion, and Kirk Waln (USFWS) for GIS support.

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Appendix 1. Detailed description of desert tortoise abundance and CI estimation

The estimated abundance of adult desert tortoises within the action area is given by:

$$\begin{pmatrix}\text{Estimated number of tortoises}\\ \text{within action area}\end{pmatrix} = \frac{\begin{pmatrix}\text{Number of tortoises}\\ \text{observed above ground}\end{pmatrix}}{\begin{pmatrix}\text{Probability that}\\ \text{a tortoise is}\\ \text{above ground}\end{pmatrix}\begin{pmatrix}\text{Probability of}\\ \text{detecting a tortoise,}\\ \text{if above ground}\end{pmatrix}}\begin{pmatrix}\frac{\text{Action area}}{\text{Area surveyed}}\end{pmatrix},$$

which is equivalent to:

$$\hat{N} = \left[\frac{(n)}{(Table2)(0.63)}\right]\left[\frac{(A)}{(a)}\right],$$

where $\hat{N}$ = estimated abundance within entire action area, n = number of tortoises observed above ground, A = total action area, and a = actual area surveyed (= total # km surveyed * 0.01). For 100% coverage surveys, $A/a = 1$.

Table 3 uses the following equations to calculate the 95% confidence interval for the estimate of tortoise abundance within the action area (Buckland et al. 2001), assuming all replicate transect lines are the same length, 10-km.

$$\hat{\text{var}}(n) = L\sum_{i=1}^{k} l_i\left(\frac{n_i}{l_i} - \frac{n}{L}\right)^2 /(k-1)$$

where $\hat{\text{var}}(n)$ = the spatial variation in the number of tortoises detected through the total transect length L, n_i = the number of tortoises seen on transect i, l_i = the length of individual transect i, and k = total number of transects walked.

Putting the sources of variability together, the variance of density is:

$$\text{var}\,\hat{D} = \hat{D}^2\left[\frac{\text{var}(n)}{n^2} + \frac{\text{var}(\hat{P}_a)}{(\hat{P}_a)^2} + \frac{\text{var}(\hat{P}_d)}{(\hat{P}_d)^2}\right]$$

Because the tortoise density sampling distribution is positively skewed, the confidence interval is calculated using a log-distribution for density and built with division and multiplication, rather than addition and subtraction from the mean as with a symmetrical interval (Buckland et al. 2001).

Thus, the 95% confidence interval for $\hat{N}$ is:

$$\left(\hat{N}/C_N, \hat{N}\cdot C_N\right),$$

where $C_N = \exp\left[z_\alpha \sqrt{\text{var}(\log_e \hat{D})}\right]$ and $\text{var}(\log_e \hat{D}) = \log_e\left[1 + \frac{\text{var}(\hat{D})}{\hat{D}^2}\right]$.

Given the simplifying assumptions in this protocol, the 95% confidence interval around the estimated number of tortoises within the action area will be wide (e.g., the estimate of the number of tortoises will be imprecise). While this level of imprecision would not be appropriate for recovery planning and decision making at large scales, this protocol provides estimates at local scales that most efficiently utilize the best information that is available to provide statistically defensible results.

Appendix 2. Example

Project location = near Beatty, NV (within the Eastern Mojave RU)

Action area = 12 km^2 (3,000 acres)

According to this protocol's Site Assessment key, the proposed action is within the known range of the desert tortoise. The local USFWS and appropriate State wildlife agency offices were contacted and a species list, which includes the desert tortoise, was obtained for the action area. Therefore, pre-project survey and consultation are necessary.

The project footprint is only 10 km^2, but since the project will include blasting, the reach of the proposed action on listed species extends to 12 km^2. Thus, the action area (and therefore the area which needs to be surveyed for desert tortoises) is 12 km^2 (which is more inclusive than the 10 km^2 project footprint).

According to Table 2 of the pre-project survey protocol, the project size of 12 km^2 is above the threshold project area to allow probabilistic sampling in the Western Mojave RU (10.8 km^2 threshold). Therefore, at a minimum, 1,083 km of transects must be walked. For this example, 108 10-km transects (10-m wide) were placed systematically across the project site and were completed in a random order. Surveys of 100% coverage in which 10-m wide transects were placed across the entire 12 km^2 action area would also have been acceptable.

Transects totaling 1,083 km were conducted and 19 adult tortoises (> 160 mm carapace length) were found (as well as tortoise sign, both of which were catalogued using the USFWS 2009 DT pre-project survey protocol data sheet). If 20 adult tortoises had been encountered before the 1,083 km of transects were completed, and transects were conducted in a random order, then surveys could have been considered complete after the 20th tortoise was catalogued.

Data collected from the108 transects (live animals encountered <160-mm MCL)

Number of tortoises (n_i)	Number of transects on which n_i tortoises were seen
0	93
1	11
2	4

Using the Western Regional Climate Center website, it was determined that the Beatty area had received 97-mm (3.8 inches) of rain in the October through March preceding the survey effort, which is above the 40-mm (1.5 inches) in Table 1. Therefore, P_a of 0.80 will be used in this estimation.

Thus, from

$$\hat{N} = \left[\frac{(n)}{(Table2)(0.63)}\right]\left[\frac{(A)}{(a)}\right], \text{ we get } \hat{N} = \left[\frac{(19)}{(0.80)(0.63)}\right]\left[\frac{(12\,\text{km}^2)}{(10.8\,\text{km}^2)}\right], \text{ or } \hat{N} = \sim 42 \text{ tortoises}$$

$$\text{Density} = \frac{(\hat{N})}{(A)}, \text{ we get } \hat{D} = \frac{(42)}{(12\,\text{km}^2)}, \text{ or } \hat{D} = \sim 3.5 \text{ tortoises/km}^2$$

To calculate the 95% confidence interval for our abundance estimate, we use:

$$\hat{\text{var}}(n) = L\sum_{i=1}^{k} l_i\left(\frac{n_i}{l_i} - \frac{n}{L}\right)^2 /(k-1),$$

$$\text{we get } \hat{\text{var}}(19) = 1080\left[(93)(10)\left(\frac{0}{10} - \frac{19}{1080}\right)^2 + (11)(10)\left(\frac{1}{10} - \frac{19}{1080}\right)^2 + (4)(10)\left(\frac{2}{10} - \frac{19}{1080}\right)^2\right]/(108-1), \text{ or}$$

$$\hat{\text{var}}(19) = 23.88$$

And for,

$$\text{var}\,\hat{D} = \hat{D}^2\left[\frac{\text{var}(n)}{n^2} + \frac{\text{var}(\hat{P}_a)}{(\hat{P}_a)^2} + \frac{\text{var}(\hat{P}_d)}{(\hat{P}_d)^2}\right], \text{ we get } \text{var}\,\hat{D} = 3.5^2\left[\frac{23.88}{19^2} + \frac{0.05}{0.80^2} + \frac{0.011}{0.63^2}\right], \text{ or } \text{var}\,\hat{D} = 2.107$$

Using our log-transformation because the tortoise density sampling distribution is positively skewed,

$$\text{var}(\log_e \hat{D}) = \log_e\left[1 + \frac{\text{var}(\hat{D})}{\hat{D}^2}\right], \text{ we get } \text{var}(\log_e \hat{D}) = \log_e\left[1 + \frac{2.107}{3.5^2}\right], \text{ or } \text{var}(\log_e \hat{D}) = 0.15$$

Then,

$$C_N = \exp\left[z_\alpha\sqrt{\text{var}(\log_e \hat{D})}\right], \text{ we get } C_N = \exp\left[(1.96)\sqrt{0.15}\right], \text{ or } C_N = 2.18$$

And,

$$\left(\hat{N}/C_N, \hat{N}\cdot C_N\right), \text{ we get } ((42/2.18),(42\cdot 2.18)), \text{ or } \sim(19, 92).$$

Summary

Using the Site Assessment key, it was determined that survey and consultation were necessary for the proposed action. Thus, the pre-project field survey protocol was implemented. In this case, probabilistic sampling with equal length transects (10-km long) was used and 19 adult tortoises and tortoise sign were found during the sampling of the action area, indicating presence. Using the equations and data presented in Appendix 1 of this protocol, Table 3 estimated the actual number of tortoises within the project was estimated to be ~42, with a 95% confidence interval of ~(19, 92).

USFWS DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Date of survey: _____ Survey biologist(s):_____
(month, day, year)

Site description: _____
(project name and size; general location)

County: _____ Quad:_____ Location:_____
(UTM coordinates, lat-long, and/or TRS; map datum)

Transect #: ____ Transect length: _____ Type of survey: _____
(acres to be surveyed; 100% coverage/probabilistic sampling)

GPS Start-point: _____ _____ Start time: _____am/pm
(easting, northing, elevation in meters)

GPS End-point: _____ _____ End time: _____am/pm
(easting, northing, elevation in meters)

Start Temp: _____°C Weather: _____ End Temp: _____°C

Live Tortoises

Detection number	GPS location Easting	GPS location Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows[1], scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1				
2				
3				
4				
5				
6				
7				
8				

[1] **See section 4.1.2 for information on burrow condition class and photographing burrows**

CHAPTER 5. AFTER A BIOLOGICAL OPINION OR TAKE PERMIT HAS BEEN ISSUED FOR THE DESERT TORTOISE - MOJAVE POPULATION: PRELIMINARY CONSIDERATIONS BEFORE GOING TO THE FIELD

5.1. Marking and Numbering

Typically, desert tortoises are not marked or numbered in association with most projects. If you intend to permanently mark or number desert tortoises (e.g., by notching the shell or attaching a tag), you must be authorized to do so and coordinate with the USFWS Desert Tortoise Recovery Office (DTRO) for instruction. The DTRO in coordination with other agencies assigns tortoise numbers that are used by scientists to mark desert tortoises throughout its range. You must contact the DTRO and appropriate State wildlife agency before marking desert tortoises.

5.2. Field Supplies and Equipment

Prepare in advance for a variety of field situations. A list of materials needed for handling desert tortoises is provided below. Many researchers have a kit for each type of activity (e.g., tortoise handling kit, burrow excavation kit, etc.). Organize all the materials and equipment that you need to expeditiously handle desert tortoises to ensure their safety and minimize stress.

All authorized personnel (Authorized Biologists and 10(a)(1)(A) permitted biologists) must be knowledgeable on diseases, parasites, and precautions to avoid the spread of pathogens when handling desert tortoises. Upper Respiratory Tract Disease, (URTD) caused by *Mycoplasma* spp. was identified as one of the threats that contributed to the population decline and subsequent listing of the desert tortoise as threatened by the USFWS and CDFG. This and other diseases (e.g., cutaneous dyskeratosis) are present in many populations of the desert tortoise. Also present are parasitic ticks, which are potential vectors of disease to humans (Berry and Christopher 2001).

5.2.1. Documents

Agency document(s) regulating the specific project may include:

- USFWS biological opinion or incidental take permit
- BLM stipulations
- USFWS Authorized Biologist or desert tortoise Monitor approval and/or
- Copy of 10(a)(1)(A) permit or other permits
- State wildlife agency permit
- State memorandum of understanding

5.2.2. Basic supplies and equipment

- Hand-held GPS unit with extra batteries
- Desert Tortoise Field Manual
- Thermometer (to measure air and ground temperatures)

- Watch or clock (to record start and finish processing times)
- Hand held mirror (for viewing inside burrow)
- LED flashlight
- Water
- Project maps
- Clipboard
- Data sheets (in this Manual)
- Tortoise tapping rod (collapsible fishing pole, etc.)
- Surveyor's tape

5.2.3. Desert tortoise handling and marking

- Disposable latex gloves (for handling tortoise)
- Different sizes of coffee cans (or similar cylinders) and waterproof disposable plastic (for immobilizing tortoise and preventing disease transmission)
- Toothbrush, disinfected (for cleaning dirt from scute to be numbered)
- Acrylic paint or typewriter correction fluid (for making dot to number tortoise)
- Waterproof, capillary pen (for numbering the tortoise and keeping notes)
- ½-inch masking tape (to cover growth areas prior to applying epoxy)
- Epoxy, toothpicks, wooden coffee stirrer, tongue depressors (to cover the number on the scute and to apply the epoxy)
- Hand lens (for observing parasites)
- 0.175 percent sodium hypochlorite (bleach) solution (1 part household bleach to 10 parts water) in a spray bottle (for disinfecting equipment) or Nolvasan (chlorhexidine diacetate)
- Rubber/plastic container and lid (for soaking instruments in Nolvasan)
- Container for rehydrating tortoises
- New, disposable cardboard boxes or disinfected plastic containers (for holding and/or transporting tortoises)
- Plastic, ziplock bags (for holding unused latex gloves and weighing juvenile tortoises)
- Garbage bags (for disposing of used gloves, grocery bags, etc.)
- Disposable baby changing sheets
- DTRO/State wildlife agency-approved, sequential numbering scheme for marking tortoises and three-cornered files

5.2.4. Desert tortoise weighing and measuring

- Cloth bags to transport desert tortoises (allows air flow; should be wetted to cool desert tortoises; and must be washed and bleached before reuse)
- Cord with appropriate tensile strength (to harness and weigh the desert tortoise)
- Calipers (for measuring mid-line carapace length)
- Metal or plastic rule
- 100 gram, 1.0 kilogram, and 5.0 kilogram tubular spring scale (to weigh desert tortoises)

5.2.5. Desert tortoise burrow excavation and construction

- Measuring tape (for burrow dimensions)
- Compass (for burrow orientation)
- Leather or cloth gloves (to avoid animal stings and/or bites)
- Shovels (2) (for excavating burrow)
- Garden trowel (for excavating small burrows and nests)
- 4 foot x 8 foot x ¼ inch thick plywood (for artificial burrow construction)
- Hand saw (to cut plywood into appropriate size and shape)
- Surveyor's tape (for marking a burrow)

5.2.6. Desert tortoise egg handling

- Felt-tipped pen (for marking eggs)
- Plastic bucket (for transporting eggs)
- Garden trowel (for excavating nest)

5.2.7. Other

- Fiber-optic scope or miniature camera and clear protective covering (to avoid disease transmission)
- Pads or blanket for truck bed to cushion transported tortoise and reduce heat
- Phone number and contact person of local USFWS field office, State wildlife agency, BLM field office, etc.
- Phone number of nearest qualified veterinarian to treat injured tortoise
- Extra change of clothing, including extra shoes

LITERATURE CITED

Berry, K. H. and M. M. Christopher 2001. Guidelines for the field evaluation of desert tortoise health and disease. Journal of Wildlife Diseases, 37(3) 427-450.

McCullough, D.L., K.D. Jones, and T.E. Olson. 1993. List of materials to be carried in the truck; list of materials to be included in the tortoise kit; tortoise excavation/removal data sheets; tortoise shell data sheet; and rough draft of a handling protocol. Materials received from McCullough Ecological Systems and Dames & Moore in response to a request for materials to be included in these Guidelines. Las Vegas, Nevada and Santa Barbara, California.

CHAPTER 6. CLEARANCE SURVEY PROTOCOL FOR THE DESERT TORTOISE - MOJAVE POPULATION

6.1. Objectives

- Locate as many desert tortoises as possible within the project site.
- Remove all desert tortoises encountered from the project site.
- Safely excavate, collect, and rebury desert tortoise eggs.

6.2. Applicability of Clearance Surveys

For projects located in occupied desert tortoise habitat, especially those projects with a permanent or linear disturbance (e.g., pipelines, roads, transmission lines), a clearance survey may be required as part of the Terms and Conditions of a biological opinion or incidental take permit. This survey is intended to reduce the likelihood that desert tortoises are killed or injured as a result of the proposed action. Clearance survey methods may include temporarily penning desert tortoises within the area surrounding its burrow, relocating desert tortoises from the impact area, or translocating desert tortoises to a designated area outside its home range in accordance with a USFWS-approved translocation plan (Section 7.10).

6.3. Methodology

- Clearance surveys require 100 percent coverage of the project area, with a focus on locating all desert tortoises above and below ground within the project area. This survey would be conducted immediately prior to surface disturbance at each site within the project area or following construction of a desert tortoise-proof fence or similar barrier encompassing the project area to ensure that tortoises cannot enter the project area.
- Clearance surveys at the project site must consist of at least 2 consecutive surveys of the site. Surveys shall involve walking transects less than or equal to 15-feet (5-meter) wide under typical conditions. In areas of dense vegetation or when conditions limit the ability of the surveyor's to locate desert tortoises, transects should be reduced in width accordingly. Clearance surveys should be conducted when desert tortoises are most active (April through May or September through October). If desert tortoises are found during the second pass, the USFWS and appropriate State wildlife agency may require a third survey. If any desert tortoises need to be translocated follow the USFWS-approved translocation plan for that project.
- After the desert tortoise exclusion fence has been installed, the fencing should be checked several times a day to ensure a tortoise has not been trapped within the fence and may be exposed to lethal temperatures. Desert tortoises often pace along new fences attempting to gain access to the other side or return to areas from which they were removed.
- All methods used for handling desert tortoises during the clearance surveys must be in accordance with this Manual. Anyone that handles desert tortoises during clearance activities must have the appropriate authorizations from USFWS and the State.
- During the clearance surveys, desert tortoises in burrows may be removed through tapping (Section 6.4) or careful excavation. Multiple visits may be necessary if desert tortoises are inaccessible in deep caves or burrows.

- During all handling procedures, desert tortoises shall be treated in a manner to ensure that they do not overheat or exhibit signs of overheating (e.g., gaping, foaming at the mouth, etc.), or are placed in a situation where they cannot maintain surface and core temperatures necessary to their well-being. Desert tortoises shall be kept shaded at all times until it is safe to release them. Ambient air temperature shall be measured in the shade, protected from wind, at a height of 2 inches (5 centimeters) above the ground surface. All clearance activities (capture, transport, release, etc.) shall occur when ambient temperatures are below 95 degrees F (35 degrees C) and not anticipated to rise above 95 degrees F (35 degrees C) before handling and processing desert tortoises are completed. Refer to section 7.4 for handling desert tortoises during hot temperatures.
- If a desert tortoise is encountered aboveground and outside the temperature limits refer to Section 7.4 or 7.5.
- The area cleared and number of desert tortoises found within that area must be reported to the local USFWS and the appropriate State wildlife agency. The report should be made in writing, either by mail or email. Notification should be received within one week.
- If a desert tortoise is encountered after clearance surveys have been completed, process the tortoise according to the methods described above.

6.4. Extracting Desert Tortoises from Burrows

Before touching a desert tortoise or using any instrument that comes into contact with a desert tortoise, implement procedures described in Section 7.6. Examine the burrow for other occupants (e.g., snakes, spiders, scorpions, wasps, Gila monsters, etc.). Firmly pound the soil at the side of the "apron" or soil mound at the entrance of the burrow 5 to 6 times with an open hand then listen for desert tortoise movement; wait 30 seconds and repeat several times if needed. Avoid disturbing or pounding the center of the apron or entrance of the burrow where desert tortoises typically dig nests and lay their eggs. If the desert tortoise is visible deep in its burrow, the observer can gently tap the carapace 3 to 4 times with a stick (Medica et al. 1986). The observer should then remove the stick and move away from the burrow entrance. If tapping is successful, the desert tortoise will emerge, usually to the burrow entrance. If desert tortoise movements are not heard within a few minutes, discontinue tapping.

If the desert tortoise is within arm's reach, firmly grasp the gular, plastron, or posterior edge of the carapace and gently pull the tortoise towards the burrow entrance. If the desert tortoise resists to the point where moderate pulling effort is unsuccessful, stop pulling while maintaining a grip on the tortoise; resume when the tortoise relaxes. **Never use a hook or other instrument to remove a desert tortoise from a burrow or otherwise compromise the integrity of a burrow if the desert tortoise will remain in the project area.**

If the area is to be cleared of all desert tortoises, excavate the burrow as described in Section 6.5. If the tortoise is in a deep caliche cave which cannot be excavated without potentially harming the desert tortoise, record the location and contact the USFWS for instruction.

6.5. Excavating Burrows

According to most agency documents, desert tortoise burrows are excavated only if they occur within a proposed disturbance area. If excavating a burrow to relocate a desert tortoise, and an artificial burrow is required, it should be constructed before beginning the excavation (Section 6.7.). Biological opinions and permits typically require that such areas be flagged and that project activities be confined to those areas. As an alternative to excavation in certain circumstances, the immediate area surrounding a burrow occupied by a desert tortoise may be temporarily penned, if authorized by the USFWS and the appropriate State wildlife agency (Section 6.9.).

When required, take measurements of the burrow before excavating it. Before excavation, feel for desert tortoise eggs by gently probing the soil in front of the burrow opening (i.e., the mound) with a blunt instrument (e.g., knitting needle) or similar instrument, and along the floor of the burrow as you excavate the burrow. The purpose of probing is to locate areas of excavated soil which are less compacted and may indicate a nest. Eggs have been found up to 6 feet (1.9 meters) in front of burrow openings and up to 6 feet (1.9 meters) within the entrance of a burrow; they may also occur in the mound at the burrow opening. To avoid crushing eggs, do not scrape the shovel across the bottom of the burrow, but continue to probe the area with your fingers as you proceed. Removal of the top 10 inches (25 centimeters) of soil (or until a hard layer of soil is encountered) will typically ensure that you find any desert tortoise eggs. Be particularly careful from late April to mid-October when eggs are most likely present. If found, follow the USFWS's egg handling protocol (Section 6.6.).

Excavators should wear leather or cloth gloves during burrow excavation to avoid being bitten or stung by venomous animals. Use blunt-nosed shovels or garden trowels. The preferred method involves two individuals, each with a shovel, to excavate a burrow. Place a shovel in the burrow entrance, or garden trowel for small burrows, and slice away the ceiling with the second shovel or trowel. Remove the soil with the first shovel or trowel as excavation proceeds and repeat. Excavate the burrow slowly and carefully and stop often to see if a desert tortoise is within reach. Do not collapse the burrow ahead of the shovel or trowel inside the burrow. You should feel the shovel contact the other shovel with each stroke to avoid striking a desert tortoise. It may take several minutes or several hours to excavate a desert tortoise burrow, depending on its length and other characteristics.

Always excavate the burrow to its absolute end(s), and then excavate an additional foot-or-so (0.3 meter) of harder soil beyond the suspected end to ensure that a desert tortoise is not behind a dirt plug or mound. Search all side tunnels within the burrow for desert tortoises, especially in kit fox dens. If a desert tortoise is found, do not assume that it is alone. After removing the first desert tortoise encountered, return to the burrow and continue to excavate it looking for additional desert tortoises. After excavating the burrow, leave it collapsed so that no desert tortoise may reuse it easily.

When excavating a burrow, stop digging when a desert tortoise is encountered. If during the desert tortoise less-active period (i.e., during July - August, and November - February; in Arizona the less-active period may begin in late May or June), relocate the desert tortoise to an artificial burrow. If it is during the most-active period (i.e., when desert tortoises are most likely

above ground; March - June, and September - October), place the desert tortoise in the shade of a shrub, or depending on conditions, in an artificial burrow (Section 6.7.).

6.6. Nest and Egg Handling Protocol

Desert tortoises may lay eggs during the months of May through July and usually hatch July through October. Some eggs may not hatch, or hatchlings may not emerge until the following spring. Because desert tortoise eggs are also protected by the ESA, the Authorized Biologist shall search for nests and encouraged to search prior to clearance surveys. Desert tortoise eggs shall be moved to artificial nests either in the wild or at a USFWS-approved facility. If you encounter unemerged hatchlings, contact the USFWS and appropriate State wildlife agency for instructions. Authorized Biologists must receive special training in the procedures outlined below. If you discover a nest and have not been trained, the nest shall be carefully covered with soil so as not to move the eggs then contact the USFWS and appropriate State wildlife agency for instructions.

Any nest that is found shall be carefully excavated by hand at a time of day when the air temperature 6 inches (15 centimeters) above the ground is approximately equal to the soil temperature at egg level. Immediately upon finding a nest, discontinue using large tools. The Authorized Biologist shall excavate the nest using his or her hands. Disposable rubber or latex gloves must be worn when marking and handling eggs. Before disturbance of nest contents, each egg shall be gently marked with a small dot on the top using a felt-tipped pen to establish the egg's orientation in the nest. In handling nest contents, eggs must be maintained in this orientation at all times. Because egg shells become extremely fragile in the last few weeks before hatching, special care shall be taken with eggs found from August to mid-October. Because the egg is very fragile, it may break during handling; this will be lethal to the developing tortoise inside. Broken eggs shall be buried nearby and left in the field, or the contents preserved and made available for research projects. Report broken eggs to the USFWS and appropriate State wildlife agency as required for tortoise mortalities.

The Authorized Biologist shall measure and record the depth of the nest below the soil surface, the cardinal location of the nest in relation to any adjacent shrub (i.e., north, south, east, or west side of the shrub), the species of shrub and its approximate foliage volume, and the soil type. Place approximately 1 inch (2.5 centimeters) of soil from the nest area in a bucket and carefully transfer the eggs to the bucket, maintaining egg orientation. Gently cover the eggs with soil that is free of cobbles and pebbles, to a depth equivalent to that of the original nest.

If good desert tortoise habitat is available in the general area, the eggs shall be relocated between 150 to 1,000 feet (45.7 to 305 meters) from outer boundary of the project site, unless directed differently by USFWS. Eggs and tortoises shall only be placed on lands administered by a Federal agency or on lands when a written authorization to bury the eggs or relocate the tortoises has been obtained. A nest shall be prepared with the same depth, orientation, location in relation to a specific shrub species, and in the same soil type as the original nest. The eggs shall be transferred to the new nest, maintaining their original orientation. The eggs shall be replaced so that they touch one another. Gently cover with soil from which cobbles and pebbles have been removed so that all the air spaces around the eggs are filled. Relocated nests in the wild shall be monitored by an Authorized Biologist. The monitoring program shall be developed in

consultation with the USFWS and appropriate State wildlife agency. Care must be taken to remove any scent of tortoise eggs or human activity at the nest site to minimize nest predation.

If a suitable site for a nest is not available in the wild, the eggs shall be prepared for incubation in a suitable holding facility. A small amount of soil shall be placed in a bucket and the eggs transferred to the bucket using the technique specified above, making sure that the eggs are touching one another. The bucket shall be carefully filled to the depth of the original nest, but leave the top of the soil layer 3 inches (7.6 centimeters) below the rim of the bucket so that future hatchlings cannot escape. The bucket shall be buried in soil in a safe location at a holding facility approved by the USFWS and appropriate State wildlife agency.

The Authorized Biologist shall record in detail all the procedures used in moving eggs. Personnel caring for incubating eggs at a facility shall maintain a record of where the eggs were found, method of incubation, length of time and conditions under which the eggs were incubated, observations of eggs during the incubation period, information about hatchling health and behavior, and disposition of the hatchlings.

6.7. Constructing Artificial Burrows

Constructing an artificial burrow will take from 30 minutes to several hours, depending on the substrate. An artificial burrow is intended to provide replacement shelter and protection to a desert tortoise when removed from its natural burrow. The USFWS requires experience and training in burrow construction prior to being authorized to construct an artificial burrow. The information provided below including Figures 6.1 and 6.2 is a general description of the methods for constructing artificial burrows taken from Tortoise Group's adoption and care pamphlet (www.tortoisegroup.org).

Create an artificial burrow that is the same orientation and size as the burrow from which the desert tortoise was taken. The burrow for a juvenile desert tortoise should be 3 to 4 feet (0.9 to 1.2 meters) long and an adult tortoise burrow should be 5 to 6 feet (1.5 to 1.8 meters) long. Burrow construction involves digging a three-sided shelf upon which plywood will be placed to serve as the roof of the burrow. A channel is dug below the level of the shelf which approximates the width of the tortoise and functions as the actual burrow (Figure 6.1).

Determine the width and length to dig the shelf, place the plywood on the ground. Use corner stakes and twine to delineate the perimeter. Dig the burrow in a downward slant of 15 to 20 degrees below the horizontal line of the ground (Figure 6.2). Place the plywood onto the shelf. Fit the plywood snugly and then remove it. Next, dig the channel and loosen the soil along the floor of the channel to a depth of 6 inches (15.2 centimeters) to allow a tortoise to dig its way out should the plywood sag and possibly trap or pin it in the burrow. Replace the plywood and shovel dirt on top. Place rocks along the eave of the burrow roof, above the opening (Figure 6.2). Mound the dirt so that rain water will not puddle on top of the finished burrow.

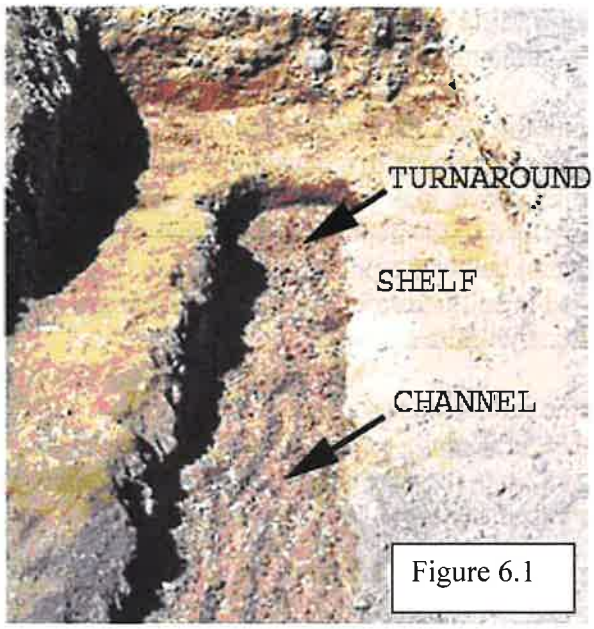

Figure 6.1

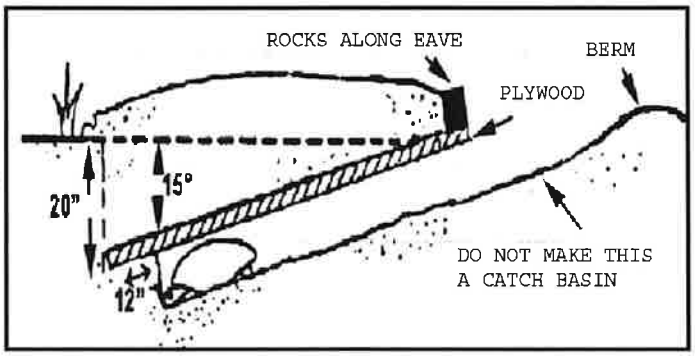

Figure 6.2

We recommend that you cover the opening of the artificial burrow with rocks or wood for 2 or 3 days to ensure that the tortoise remains within the burrow and out of harm's way, or that it resumes hibernation or aestivation. Alternatively, the tortoise and its burrow may be temporarily penned (Section 6.9). Providing an artificial burrow is particularly important if most of the burrows have been lost to disturbance and a desert tortoise would be unable to find an existing burrow in a reasonable amount of time. After several days, when project activities have ceased in the area (i.e., as on a pipeline or transmission line), or when you are reasonably sure that the tortoise is safely hibernating or aestivating, **it is absolutely essential that you remove the rocks from the opening of the blocked burrow or remove the pens around the tortoise and its burrow.**

6.8. Mapping and Finding Blocked Burrows

If you block a desert tortoise inside a burrow or temporarily pen the tortoise and its burrow according to instructions from the USFWS, you must return to that burrow and unblock it or remove the enclosure as soon as possible. Tortoises shall not be blocked in burrows during extreme high temperatures and construction activity shall be carefully monitored in the area around the blocked or penned tortoise. Accurately map the burrow with GPS so that you can find it again. Additionally, we recommend that you mark the area as a backup in case of GPS failure. For example, mark burrows with lath or ribbon placed a minimum of 100 feet (30.5 meters) from burrow. The marker should provide a cryptic message sufficient to locate the burrow (e.g., B23-2100FTS, to indicate that Burrow #23 on Reach 2 is 100 feet (30.5 meters) south of the lath (LaRue 1993)). The area must be discretely marked to avoid attracting people or ravens to the burrow.

6.9. Temporarily Confining Desert Tortoises

Desert tortoises found in the project area sheltering in a burrow during a period of reduced activity (e.g., winter), may be temporarily penned according to instructions from the USFWS. Tortoises shall not be penned in burrows during extreme high temperatures and construction activity shall be carefully monitored in the area around the penned tortoise. The methodology for penning desert tortoises (U.S. Department of Defense 2005) is adapted from a methodology developed by Gilbert Goodlett (EnviroPlus Consulting, Ridgecrest, California). Generally,

desert tortoises should not be penned in areas of moderate or heavy public use. Penning shall be accomplished by installing a circular fence, approximately 20 feet (6 meters) in diameter to enclose the tortoise/burrow. The pen should be constructed with durable materials (i.e., 16 gauge or heavier) suitable to resist desert environments. Fence material should consist of ½-inch hardware cloth or 1-inch horizontal by 2-inch (2.5 by 5.0 centimeters) vertical, galvanized welded wire. Pen material should be 24 inches (50 centimeters) in width. Steel T-posts or rebar (2 to 3 feet or 0.6 to 0.9 meter) should be placed every 5 to 6 feet (1.5 to 1.8 meters) to support the pen material. The pen material should extend 18 inches (45.7 centimeters) aboveground. The bottom of the enclosure shall be buried 6 to 12 inches (15 to 30 centimeters) or bent inward (towards the burrow), soil mounded along the base, and implement other measures to ensure zero ground clearance. Care shall be taken to minimize visibility of the pen by the public. An Authorized Biologist or Desert Tortoise Monitor shall check the pen at least daily and ensure that the desert tortoise is in the burrow or pen, the desert tortoise is okay, and the pen is intact. All instances of penning or issues associated with penning shall be reported to the USFWS within 3 days.

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CHAPTER 7. GUIDELINES FOR HANDLING DESERT TORTOISES-MOJAVE POPULATION AND THEIR EGGS

7.1. Objectives

- Provide the reader with the most current methods for handling desert tortoises based on research and experience implementing previous handling protocols.
- Provide guidance to ensure the health and well-being of desert tortoises while allowing collection of data and necessary handling of desert tortoises.
- Ensure that diseases and parasites are not transmitted among desert tortoises.

7.2. Specific Considerations before Handling Desert Tortoises

Depending on the circumstances, desert tortoises that are beneath machinery, in trenches or pipes, under pallets, or anywhere on the project site may be in danger and may need to be moved. Desert tortoises may be handled only by authorized personnel, but other project personnel may move a desert tortoise the shortest distance necessary to remove the desert tortoise from imminent danger if an Authorized Biologist is not present. The desert tortoise shall be monitored until an Authorized Biologist or USFWS is contacted for further instruction. If desert tortoises must be moved, a secure location must be available and the appropriate procedures in this Manual must be followed to ensure safe handling. If a secure location is not available, the tortoise must be held pending instruction from USFWS and the appropriate State wildlife agency. Before touching a desert tortoise, implement procedures described in Section 7.6.

7.3. Temperature Considerations

Desert tortoises, particularly small ones, have been observed to be active aboveground every month of the year. However, the preferred daytime body temperature of desert tortoises is 69 degrees F to 101 degrees F (20.5 degrees C to 38 degrees C) (McGinnis and Voigt 1971). The critical maximum body temperature is between 103 degrees F and 112 degrees F (39 degrees C to 44 degrees C) (Brattstrom 1965, Naegle 1976). Berry and Turner (1984) found that juvenile desert tortoises preferred air temperatures of 63 degrees F to 66 degrees F (17 degrees C to 19 degrees C) during March, and 77 degrees F to 83 degrees F (25 degrees C to 28 degrees C) during June. Consequently, more juvenile desert tortoises were located in the morning (76.1 percent) than in the afternoon (23.9 percent). Zimmerman et al. (1994) found that air temperatures were comparable between 2 and 10 inches (5 centimeters to 25.4 centimeters) aboveground, with maximum variance of less than 3.5 degrees F (1.2 degrees C). Current information on lower temperature limits for desert tortoise activity is not well known.

Walde et al. (2003) observed that desert tortoises retreated into burrows when the air temperature reached 91.0 degrees F ± 3.5 degrees F (32.7 degrees C ± 1.2 degrees) and ground temperatures reached 95 degrees F ± 6 degrees F (35 degrees C ± 2.4 degrees); 95 percent of the desert tortoise observations aboveground occurred at air temperatures less than 91.4 degrees F (33 degrees C). Ground temperatures shall be measured on the ground surface in an area near the desert tortoise in full sun, with the thermometer in the shadow of the observer. Ambient air temperature shall

be measured in the shade, protected from wind, at a height of 2 inches (5 centimeters) above the ground surface.

During extreme heat, desert tortoises that shelter in relatively shallow burrows will remain in the burrow as long as the burrow temperature is lower than the temperature outside of the burrow. At night the air and surface temperatures drop faster than the temperature in the burrow. When the air and surface temperature drop below the burrow temperature, the desert tortoise may exit the burrow in an effort to lower its body temperature. Desert tortoises have been observed moving from a few feet out of the burrow to 50 feet (15 meters) or more during the night (Steve Ferrand, 2009, Nevada Biological Consulting, *in litt.*). Tortoises shall not be blocked in burrows during extreme temperatures and construction sites shall be carefully inspected during these periods for tortoises aboveground.

7.4. Hot Temperatures

Desert tortoises shall be treated in a manner to ensure that they do not overheat or exhibit signs of overheating, which include aggressive struggling by the desert tortoise, hot to the touch, frothing at the mouth, excessive salivation, or voiding its bladder. Desert tortoises shall not be placed in a situation where they cannot maintain surface and core temperatures necessary to their well-being. Desert tortoises shall be kept shaded at all times until it is safe to release them. Ground temperatures are much hotter than air temperatures thus never place a desert tortoise on unshaded ground. Removal of the upper layer of hot substrate would expose a cooler layer below.

No desert tortoise shall be captured, moved, transported, released, or purposefully caused to leave its burrow for whatever reason when the ground temperature is above 95 degrees F (35 degrees C). Temperature must be measured in the shade and protected from the wind at a height of 2 inches (5 centimeters) above the ground. No desert tortoise shall be captured if ground temperature is anticipated to exceed 95 degrees F (35 degrees C) before handling and relocation can be completed. If the ground temperature exceeds 95 degrees F (35 degrees C) during handling or processing, desert tortoises shall be kept shaded in an environment where the ambient air temperatures do not exceed 91 degrees F (32.7 degrees C) and ground temperature does not exceed 95 degrees F (35 degrees C). The desert tortoise shall not be released until ground temperature at the release site declines to below 95 degrees F (35 degrees C).

If a desert tortoise is found aboveground when these upper temperatures are exceeded and the desert tortoise must be moved from harm's way, place the desert tortoise in a clean, unused cardboard box or disinfected open plastic container, and keep it in a climate-controlled environment (e.g., air conditioned vehicle or building) until the ambient air and ground temperatures are below upper limits.

Hyperthermic Desert Tortoises

Before touching a desert tortoise, implement procedures described in Section 7.6. If an animal begins frothing at the mouth, it is probably nearing an upper lethal body temperature and immediate action is required: a) capture, transport, and hold the desert tortoise in a climate-controlled environment, or b) if a nearby climate-controlled environment is unavailable, place the desert tortoise in an unused or open disinfected plastic container in the shade and pour cool water over the shell to a depth that ensures the nares remain above the water level. If no container is available, excavate a depression in a shaded area; place the desert tortoise in the depression and pour water over the shell. Heat-stressed desert tortoises shall not be released until they resume normal behavior. Monitor the desert tortoise after release until normal behavior resumes including sheltering.

7.5. Cold Temperatures

If a desert tortoise is found aboveground during cold temperatures (i.e., ambient temperature less than 55 degrees F or 12.8 degrees C) and its burrow cannot be located nearby or will be destroyed, then capture the animal and implement the appropriate actions in Table 7.1. Before touching a desert tortoise, implement procedures described in Section 7.6. If relocating the desert tortoise to a natural burrow, ensure that the burrow is unoccupied; both a natural or artificial burrow must be of appropriate size within the average home range for that size and sex animal. If the end of the burrow cannot be seen, the burrow must be examined with a fiber-optic scope to ensure that the burrow and all side channels are unoccupied by other desert tortoises. Placing a desert tortoise in a burrow occupied by another desert tortoise may promote disease transmission and aggressive behavior between the desert tortoises.

Table 7.1. Actions to implement for desert tortoises in harm's way or adjacent to project areas during cold temperatures.

CIRCUMSTANCE	ACTIONS		
Desert tortoise above ground:	Find natural, unoccupied burrow; block tortoise inside	Construct artificial burrow; block tortoise inside	Construct pen around tortoise and burrow (Section 6.9)
Desert tortoise in harm's way, not in burrow	X	X	
Desert tortoise and burrow in harm's way	X	X	
Desert tortoise in harm's way, nearby burrow not in harm's way			X
Desert tortoise adjacent to project, burrow in harm's way	X	X	
Desert tortoise adjacent to project, no burrow	X	X	
Desert tortoise and burrow adjacent to project, not in harm's way			X
Desert tortoise in burrow:			
Desert tortoise in harm's way	X	X	
Desert tortoise adjacent to project			X

7.6. Procedures to Avoid Transmission of Diseases or Parasites

At all times, handle a desert tortoise as if it has a contagious disease or parasites, and in such a way to avoid transmitting disease or parasites from one desert tortoise to another. Much of the following information was developed by Berry and Christopher 2001.

During handling each desert tortoise, wear a new pair of disposable latex or rubber gloves (i.e., one pair of gloves, per desert tortoise, per encounter). If a glove is torn while handling a desert tortoise, which is likely when its toenail scrapes the glove, put on a new glove over the old one. Used gloves and disposable supplies (e.g., surveyors tape or flagging, etc.) must be placed in a plastic trash bag and disposed of offsite.

All tools that contact desert tortoises shall be disinfected in accordance with procedures described in Section 7.6.2.

7.6.1. Disinfecting Clothing

Do not allow a desert tortoise to contact clothing. If it does, change clothes before handling another desert tortoise. Contaminated clothes must be washed before worn again while handling desert tortoises. Keep a change of clothes on-hand and change clothes, including shoes, before leaving the site for another geographical location (e.g., another valley or mountain range would

be considered a separate location). As an alternative, wear disposable jumpsuits or gowns and disposable paper or plastic shoe covers. Use disposable paper or plastic sheeting to place under the desert tortoise or on the lap of field workers; disposable baby changing sheets may prove useful.

7.6.2. Disinfecting Tools and Equipment

All equipment and work surfaces after contact with each desert tortoise, any equipment (e.g., scales, calipers, ruler, etc.) that comes in contact with a desert tortoise, including poles used to probe burrows or tap desert tortoises from burrows (Medica et al. 1986), must be disinfected. Disinfecting solutions shall be either 0.175 percent sodium hypochlorite (bleach) (Wendland et al. 2009) or *Nolvasan* (prepared according to the manufacturer's instructions). A 0.175 percent sodium hypochlorite bleach is a 1:10 dilution of 5 percent household bleach to water. Before disinfecting, first remove any organic debris (e.g., dirt, feces, etc.) by rinsing the area with water or brushing off the area with paper towels or a scrub brush. If using a bleach solution, the equipment and work surface shall be saturated with the solution and allowed to air dry. If using a *Nolvasan* solution, the equipment and work surface shall be submersed in the solution (bath) for a minimum of 10 minutes before being used on another animal. Equipment baths shall be changed regularly according to the label instructions. Measures should be taken to avoid transmission of pathogens between burrows when using a fiber-optic scope which may include covering the scope with a disposable plastic cover.

Between study sites, equipment, particularly buckets will be scrubbed using a dish soap and bleach solution. After rinsing, the bleach solution will be sprayed on the equipment and allowed to air dry. This will minimize the chance of cross-contamination between study sites.

Only metal or plastic rulers may be used; never use a wooden ruler, which is too porous and cannot be properly disinfected. If permitted to notch desert tortoises, files must be disinfected after each use.

Thoroughly clean field vehicles inside and out at a car wash before moving to another geographical location.

7.7. Capturing Desert Tortoises

When encountering a desert tortoise outside its burrow, approach the animal slowly (e.g., if the desert tortoise is 15 feet (4.5 meters) away, pace your approach with pauses to contact the desert tortoise in 30 seconds). Put on a clean, unused pair of latex or rubber gloves and grasp the desert tortoise at its bridge (connection between the carapace and plastron) with both hands, holding it firmly with its plastron parallel to, and facing the ground. Slowly lift the desert tortoise to your waist height and slowly and smoothly walk to where the desert tortoise will be placed (e.g., remove from harm's way).

If a desert tortoise is collected at or near sunset and intended to be released the same day, hold the desert tortoise overnight in a clean, unused cardboard box or open disinfected plastic container, and release it the next morning at or near the capture site. Monitor the desert tortoise until it resumes normal behavior.

7.8. Processing Desert Tortoises

Before touching a desert tortoise, implement procedures described in Section 7.6. A desert tortoise shall only be processed (i.e., weighed, measured, or sexed) if authorized in a biological opinion or permit. An experienced biologist should be able to process a desert tortoise in 5 to 10 minutes. **Do not process a desert tortoise if the ambient temperature exceeds 95 degrees F (35 degrees C)** (Section 6.3 or 7.4.) or if there is a chance that a second desert tortoise could be in harm's way and requires timely action while processing the first one.

Inspect a desert tortoise and record data on size, sex, distinctive features, indications of health and disease (e.g., ectoparasites, shell lesions, signs of osteoporosis or osteomalacia, injuries, evidence of URTD, etc.). Ensure that the desert tortoise is maintained in a horizontal position at all times.

7.8.1. Measuring and Sexing

If authorized and required, measure the midline carapace length (MCL) of the desert tortoise from the nuchal to pygal scutes using calipers, which provide the most accurate measurement. Measurements should be taken in millimeters (mm). Before touching a desert tortoise, implement procedures described in Section 7.6.

The sex of desert tortoises less than 180 mm MCL cannot be accurately determined based on external characteristics. Generally, the following male characteristics differentiate them from females: a) concave plastron; b) longer, more curved gulars; c) larger, well-developed chin glands; d) longer, broader, more conical tail; and e) shorter, thicker toenails. Pay particular attention to the gular projection and the shape of the plastron, which are the two best features for differentiating the sexes. For very large desert tortoises, feel the concave (male) or flattened (female) plastron or see it by holding the desert tortoise at eye level without turning the desert tortoise on its back. When in doubt, record all other information and mark "sex unknown" on the data sheet.

7.8.2. Weighing

Handle desert tortoises carefully. Mishandling may result in injury or cause the tortoise to void its bladder. Before touching a desert tortoise, implement procedures described in Section 7.6. If using a digital scale, immobilize the desert tortoise as described in Section 7.8.3. If using a spring scale, place the desert tortoise inside a harness made of clean, unused cord that will avoid the spread of pathogens. It will also minimize gross contamination to the desert tortoise and to field equipment from urination or defecation. The harness shall consist of a double loop with one loop crossing the plastron posterior to the forelimbs and the other anterior to the hind limbs. As the Authorized Biologist slowly begins to raise the tortoise, the tortoise shall remain positioned horizontally and care shall be taken to ensure that the tortoise does slip out of the harness or fall. Using the harness allows the Authorized Biologist to observe any stressful behavior exhibited by the desert tortoise (e.g., flailing of legs) and act quickly to correct this situation. Suspend the harness from the scale, ensuring the desert tortoise is securely and safely positioned, a few inches above sand or soil substrate. Keep weighing time to a minimum; and

take every precaution to prevent the desert tortoise from falling or voiding. Once the desert tortoise has been weighed, dispose of the harness.

The following spring scale sizes are recommended: a) 0 to 100 gram scale with a 1.0 gram precision for small desert tortoises; b) 1 kilogram scale with a 10 gram precision for moderate-sized desert tortoises; and c) 5 kilogram scale with a 50 gram precision for large desert tortoises. It is best to use the smallest scale that will accommodate the weight of a desert tortoise. Occasionally a desert tortoise will weigh more than 5 kilograms; in this case you may use two 5-kilogram scales simultaneously on the harness and add the weights. Keep scales clean and calibrated.

Experts recommend weighing a desert tortoise immediately after capture. This provides a true weight. Should the desert tortoise void its bladder, weigh it afterwards to determine how much fluid has been lost. Another reason for weighing a desert tortoise is to determine if it is underweight for its size. Low weight may be the result of disease, drought conditions, recent egg-laying, or other factors.

7.8.3. Restricting Mobility

Using cylinders - Before touching a desert tortoise, implement procedures described in Section 7.6. A desert tortoise may be placed on the top of a cylindrical holding stand such as a coffee can or other large can to facilitate processing. The stand should be large enough to support the desert tortoise and small enough to prevent any waving appendages from touching the stand, and tall enough to prevent desert tortoise from touching a solid surface below. Given that desert tortoises come in all sizes, a range of stand sizes will be needed. Note that coffee cans and other types of stands come in several sizes and can be "nested" in one another for ease of transport thereby accommodating different-sized desert tortoises. Freedom to move its appendages may encourage a desert tortoise to extend its head, which allows observation of the eyes, nares, chin glands, and beak where most signs of URTD are observed. The stand must be disinfected before using it with another desert tortoise, or place waterproof plastic on top of the stand prior to each use, then position the desert tortoise on top of the plastic, and discard the plastic afterwards.

7.8.4. Assessing Desert Tortoise Health

A section 7 biological opinion or section 10 permit may require a health assessment for encountered desert tortoises. Before initiating this assessment, contact the appropriate USFWS office to determine the information to be included in the health assessment. This will determine the qualifications needed by the person conducting the health assessment. You will need the approval of the person conducting the health assessment from the USFWS.

7.8.5. Marking Desert Tortoises

You must contact the DTRO and appropriate State wildlife agency before marking desert tortoises. Before touching a desert tortoise, implement procedures described in Section 7.6. If authorized, first restrict movement of the desert tortoise (Section 7.8.3.). Next, use a clean, disinfected toothbrush to remove dirt from the left fourth costal scute, where the desert tortoise will be marked. If this scute is damaged, use the right fourth costal scute. Next, place a small

dot (i.e., no larger than 1/4 inch (0.64 centimeter) in diameter) of correction fluid (i.e., white out) or acrylic paint on the scute. The number is likely to last longer if placed on a rough, off-centered surface where shell-wear is less common, which is one reason only the fourth costal scutes are used for marking. Once the spot is dry, write the identifying mark on the spot using a waterproof, permanent black ink pen. Some biologists recommend using a capillary type technical pen (e.g., fine-tip Sharpie).

Allow the number to dry before applying 5-minute epoxy. Mix the epoxy on a file card or piece of paper, then transfer the mixed epoxy to the dot on the shell using a toothpick, wooden coffee stirrer, or tongue depressor. Wait several seconds until the epoxy starts to thicken but is still liquid enough to spread over the numbered spot with ease. Cover the paint spot overlapping its edges just enough to seal the paint. **Never allow the epoxy to spill over onto the growth area, which occurs at the border between two scutes.** Anticipate this when applying the paint so there will be space for the epoxy to overlap the paint without entering the seams. It may be helpful to cover the margins of the scute with ½-inch wide masking tape before applying the epoxy, to ensure that the epoxy does not touch the growth area, especially on smaller desert tortoises. Record the identifying mark on the data sheet. Dispose of used materials appropriately after use on each desert tortoise.

7.8.6. Photographing Desert Tortoises

Before touching a desert tortoise for photographing, implement procedures described in Section 7.6. If permitted, photograph processed desert tortoises as follows: a) dorsal view of the carapace; b) the numbered scute; and c) frontal view of the desert tortoise's face and forelegs. Photograph any recent or previously healed injuries or unusual anomalies. Unless specifically required, do not photograph the plastron which would require unnecessary handling and risk to the tortoise. It is important that each object fills 80 to 90 percent of the frame and that the object be clearly focused. Digital photographs are preferred. Two types of labels are recommended: a) hold a small card adjacent to the desert tortoise so that the above information is clearly visible on the photograph without blocking the part of the desert tortoise being photographed; or, b) attach a 1/2 inch x 1/2 inch, adhesive label to the desert tortoise to allow for closer, more detailed photographs of the subject. Dispose of label appropriately following use on each desert tortoise.

Keep a log of the photographs in your field notes (e.g., "photo number 453, carapace of desert tortoise 4"). You must be familiar with the features of the camera. Label photographs with the following information: date, biologist's name, project name, desert tortoise number, UTM or lat/long, county, and state.

Supplies and equipment:

3 inch x 5 inch file cards (for identifying photographs)
½ inch x ½ inch labels or other stickers (to attach to desert tortoise to identify photograph)
Camera

7.9. Desert Tortoise Urination and Hydration

Desert tortoises may void their bladder: 1) when first encountered, picked up, or carried; 2) the longer you handle them; and (3) during drought conditions, which is also when water availability is at its lowest. Since desert tortoises store water in their bladders, any loss of this fluid may result in death (Averill-Murray 2002). Discourage bladder voiding by gently and slowly moving the desert tortoise. If the tortoise does void, record on the data sheet the quantity, color, and viscosity of the urine. If the desert tortoise has already been weighed, weigh it again to estimate the amount of lost fluid. Avoid all unnecessary actions that may result in stress to the animal.

If the desert tortoise urinates, it should be rehydrated. To rehydrate, soak the desert tortoise at the release location in a tub with a clean unused plastic disposable liner for a minimum of 10 to 20 minutes in a quiet protected area. Water level shall not be higher than the lower jaw of the animal; the water temperature should be tepid. Desert tortoises must be soaked individually. Weigh the desert tortoise before and after placing in water. Even if desert tortoises do not drink, they can absorb water through their cloaca. Weighing the desert tortoise before and after placing it in water will determine if the tortoise took in water (James Jarchow, veterinarian, pers. comm.).

On warm days, transport the desert tortoise in the shade. Remember to roll up your sleeves and wear protective clothing to avoid transmitting disease or parasites to other desert tortoises that may come in contact with your clothing. When handling is complete, remove and properly dispose of your gloves and protective clothing.

7.10. Moving and Releasing Desert Tortoises

In this Manual, relocating desert tortoises is defined as moving them from harm's way but allowing them to remain within their home ranges. To relocate, move the desert tortoise the distance directed in the permit or biological opinion once the desert tortoise has been processed. The minimum distance from the edge of the project footprint that a desert tortoise can be relocated will be determined by its age and sex (different home range sizes), the presence or absence of desert tortoise-proof fencing around the perimeter of the project footprint, and the duration of the project activity. Desert tortoises may attempt to return to their point of capture. A desert tortoise should not be placed on private land without the written permission of the landowner.

In this Manual, translocating desert tortoises is defined as moving them from harm's way to a location outside their home range (e.g., more than 1,000 feet (305 meters)). Translocating tortoises should only occur when authorized by the permitting agencies and in accordance with an approved, project-specific translocation plan. Translocation not only affects the desert tortoise being moved but also may impact resident desert tortoises in the translocation area. The effectiveness of translocation of desert tortoises as a conservation or recovery tool has not been proven. Until its effectiveness is determined, it should be implemented only on an experimental basis and in close coordination with the USFWS and State wildlife agency.

For temperature considerations, refer to Section 7.3. To discourage urination or if the tortoise voided during handling, refer to Section 7.9.

After processing is completed, release the desert tortoise as soon as possible while considering its well-being. Desert tortoises shall be released individually and not in groups. The biological opinion or permit may require that desert tortoises be removed from the project site and placed in the shade of a shrub, in a natural unoccupied burrow, or in an artificial burrow. Desert tortoises shall be released at a safe location as near to the point of capture as possible. If a desert tortoise is found aboveground, release it aboveground if environmental conditions are suitable (Sections 7.4 and 7.5), or hold it until conditions are suitable, then release it. When releasing the desert tortoise, slowly lower the animal to the ground, release it, and slowly walk away. Following release, monitor the desert tortoise until it exhibits and maintains normal behavior. Further, we recommend that desert tortoises **not** be put into existing burrows to avoid exposing the desert tortoise to diseases.

If a desert tortoise and its burrow are not in harm's way but adjacent to project activities, as an alternative to moving, construct a temporary restraining pen around the desert tortoise and its burrow to protect it during project activities (See Section 6.9.).

7.10.1. Temporarily Holding Desert Tortoises

There may be a situation where a desert tortoise needs to be removed from the field, held overnight or longer, and then released at its point of capture. While held, each desert tortoise shall remain in a clean, unused or disinfected container that is covered or closed. Newspaper placed in the bottom will absorb any urine that is voided. The box shall be ventilated in such a way that a desert tortoise's leg or head cannot be caught in the ventilation hole. Never put more than one desert tortoise in a container, and avoid placing anything in a container occupied by a tortoise that previously came in contact with another tortoise without following disinfection procedures (Section 7.6.).

7.10.2. Transporting by Vehicle

Do not allow desert tortoises to roam freely in the vehicle. Do not transport desert tortoises in shopping or grocery bags or other containers less sturdy than a new cardboard box. Discard the box immediately after use to ensure that it is not used for another desert tortoise.

Never place desert tortoises over the catalytic converter or other area in a vehicle that becomes hot. Pad truck beds or floorboards and travel at speeds that minimize vibrations or shifting of the box. Never leave a desert tortoise unattended in a vehicle. During summer months, transport desert tortoises in an air-conditioned vehicle, placing them in a covered, unused cardboard box while maintaining the vehicle interior temperature between 75 degrees F and 80 degrees F (23.9 degrees C and 26.7 degrees C). If a desert tortoise is captured during the winter, maintain the desert tortoise at its current body temperature, which will be less stressful to it than much warmer temperatures, and may allow it to remain in a physiological state of brumation. When transporting an adult female desert tortoise, assume it may be gravid (i.e., April through July) and take special care to avoid jolting and jostling to ensure that the eggs are not ruptured which may result in her death from egg yolk peritonitis.

7.11. Injured or Dead Desert Tortoises

If an injured desert tortoise is encountered that may have been the result of project activities, follow the instructions of the biological opinion/permit, which typically requires immediate transport to a qualified veterinarian. Contact the USFWS and appropriate State wildlife agency. Document the injury with photographs and a written description of the injury; circumstances and probable cause; and recommendations to avoid future injuries. Submit this information to the USFWS and other appropriate agencies.

If a dying or dead desert tortoise is encountered, you may not salvage or collect it unless authorized to so under a biological opinion, section 10 permit, or under 50 *Code of Federal Regulations* 17.31.

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CHAPTER 8. DESERT TORTOISE EXCLUSION FENCE

RECOMMENDED SPECIFICATIONS FOR DESERT TORTOISE EXCLUSION FENCING

These specifications were developed to standardize fence materials and construction procedures to confine tortoises or exclude them from harmful situations, primarily roads and highways. Prior to commencing any field work, all field workers should comply with all stipulations and measures developed by the jurisdictional land manager and the U.S. Fish and Wildlife Service for conducting such activities in desert tortoise habitat, which will include, at a minimum, completing a desert tortoise education program.

Fence Construction

Materials

Fences should be constructed with durable materials (*i.e.,* 16 gauge or heavier) suitable to resist desert environments, alkaline and acidic soils, wind, and erosion. Fence material should consist of 1-inch horizontal by 2-inch vertical, galvanized welded wire, 36 inches in width. Other materials include: Hog rings, steel T-posts, and smooth or barbed livestock wire. Hog rings should be used to attach the fence material to existing strand fence. Steel T-posts (5 to 6-foot) are used for new fence construction. If fence is constructed within the range of bighorn sheep,

6-foot T-posts should be used (see New Fence Construction below). Standard smooth livestock wire fencing should be used for new fence construction, on which tortoise-proof fencing would be attached.

Retrofitting Existing Livestock Fence

Option 1 (see enclosed drawing). Fence material should be buried a minimum of 12 inches below the ground surface, leaving 22-24 inches above ground. A trench should be dug or a cut made with a blade on heavy equipment to allow 12 inches of fence to be buried below the natural level of the ground. The top end of the tortoise fence should be secured to the livestock wire with hog rings at 12 to 18-inch intervals. Distances between T-posts should not exceed 10 feet, unless the tortoise fence is being attached to an existing right-of-way fence that has larger interspaces between posts. The fence must be perpendicular to the ground surface, or slightly angled away from the road, towards the side encountered by tortoises. After the fence has been installed and secured to the top wire and T-posts, excavated soil will be replaced and compacted to minimize soil erosion.

Option 2 (see enclosed drawing). In situations where burying the fence is not practical because of rocky or undigable substrate, the fence material should be bent at a 90E angle to produce a lower section approximately 14 inches wide which will be placed parallel to, and in direct

contact with, the ground surface; the remaining 22-inch wide upper section should be placed vertically against the existing fence, perpendicular to the ground and attached to the existing fence with hog rings at 12 to18-inch intervals. The lower section in contact with the ground should be placed within the enclosure in the direction of potential tortoise encounters and level with the ground surface. Soil and cobble (approximately 2 to 4 inches in diameter; can use larger rocks where soil is shallow) should be placed on top of the lower section of fence material on the ground covering it with up to 4 inches of material, leaving a minimum of 18 inches of open space between the cobble surface and the top of the tortoise-proof fence. Care should be taken to ensure that the fence material parallel to the ground surface is adequately covered and is flush with the ground surface.

New Fence Construction

Options 1 or 2 should be followed except in areas that require special construction and engineering such as wash-out sections (see below). T-posts should be driven approximately

24 inches below the ground surface spaced approximately 10 feet apart. Livestock wire should be stretched between the T-posts, 18 to 24 inches above the ground to match the top edge of the fence material; desert tortoise-proof fencing should be attached to this wire with hog rings placed at 12 to 18-inch intervals. Smooth (barb-less) livestock wire should be used except where grazing occurs.

If fence is constructed within the range of bighorn sheep, two smooth-strand wires are required at the top of the T-post, approximately 4 inches apart, to make the wire(s) more visible to sheep. A 20 to 24-inch gap must exist between the top of the fence material and the lowest smooth-strand wire at the top of the T-post. The lower of the top two smooth-strand wires must be at least 43 inches above the ground surface.

(72-inch T-posts: 24 inches below ground + 18 inches of tortoise fence above ground + 20 to 24-inch gap to lower top wire + 4 inches to upper top wire = 66 to 70 inches).

Inspection of Desert Tortoise Barriers

The risk level for a desert tortoise encountering a breach in the fence is greatest in the spring and fall, particularly around the time of precipitation including the period during which precipitation occurs and at least several days afterward. All desert tortoise fences and cattleguards should be inspected on a regular basis sufficient to maintain an effective barrier to tortoise movement. Inspections should be documented in writing and include any observations of entrapped animals; repairs needed including bent T-posts, leaning or non-perpendicular fencing, cuts, breaks, and gaps; cattleguards without escape paths for tortoises or needed maintenance; tortoises and tortoise burrows including carcasses; and recommendations for supplies and equipment needed to complete repairs and maintenance.

All fence and cattleguard inventories should be inspected at least twice per year. However, during the first 2 to 3 years all inspections will be conducted quarterly at a minimum, to identify and document breaches, and problem areas such as wash-outs, vandalism, and cattleguards that fill-in with soil or gravel. GPS coordinates and mileages from existing highway markers should be recorded in order to pinpoint problem locations and build a database of problem locations that may require more frequent checking. Following 2 to 3 years of initial inspection, subsequent inspections should focus on known problem areas which will be inspected more frequently than twice per year. In addition to semi-annual inspections, problem areas prone to wash-outs should be inspected following precipitation that produces potentially fence-damaging water flow. A database of problem areas will be established whereby checking fences in such areas can be done efficiently.

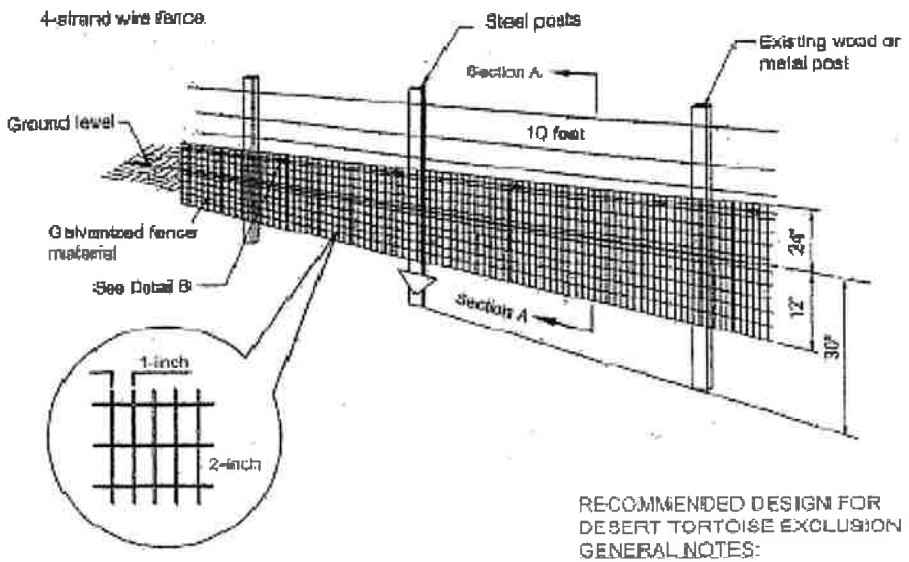
Repair and Maintenance of Desert Tortoise Barriers

Repairs of fence wash-outs: (1) realign the fence out of the wash if possible to avoid the problem area, or (2) re-construct tortoise-proof fencing using techniques that will ensure that an effective desert tortoise barrier is established that will not require frequent repairs and maintenance.

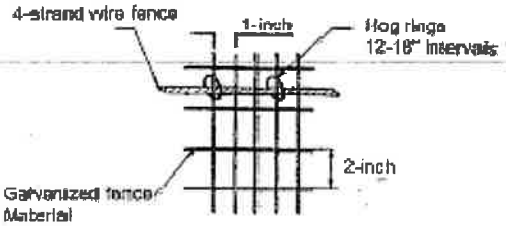
Gaps and breaks will require either: (a) repairs to the existing fence in place, with similar diameter and composition of original material, (b) replacement of the damaged section to the nearest T-post, with new fence material that original fence standards, (c) burying fence, and/or (d) restoring zero ground clearance by filling in gaps or holes under the fence and replacing cobble over fence constructed under Option 2. Tortoise-proof fencing should be constructed and maintained at cattleguards to ensure that a desert tortoise barrier exists at all times.

All fence damage should be repaired in a timely manner to ensure that tortoises do not travel through damaged sections. Similarly, cattleguards will be cleaned out of deposited material underneath them in a timely manner. In addition to periodic inspections, debris should be removed that accumulates along the fence. All cattleguards that serve as tortoise barriers should be installed and maintained to ensure that any tortoise that falls underneath has a path of escape without crossing the intended barrier.

DESERT TORTOISE EXCLUSION FENCE (2005)



DETAIL A



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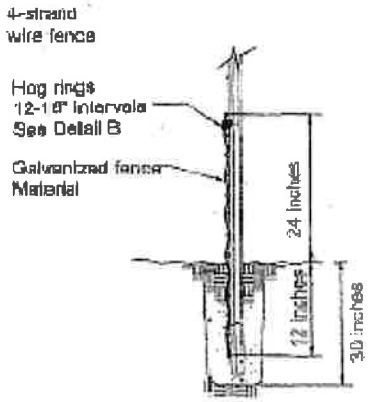


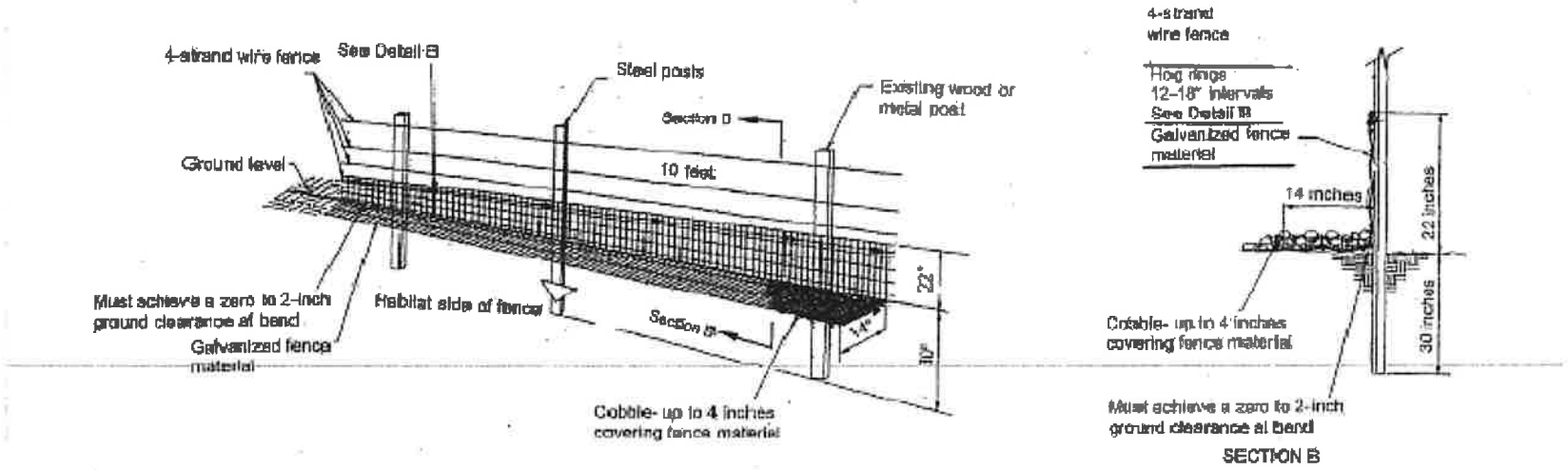
SECTION A

RECOMMENDED DESIGN FOR
DESERT TORTOISE EXCLUSION FENCE
GENERAL NOTES:

1. Ensure that fence posts and materials conform to the standards approved by the U.S. Fish and Wildlife Service.
2. Ensure that the height above ground level is no less than 18 inches and no higher than 24 inches.
3. Ensure that the depth of fence material below ground level is about 12 inches but no less than 6 inches. (See SECTION A above)
4. Install additional steel posts when span between existing fence posts exceed 10 feet.
5. Attach fence material to existing fence or wire using hog rings at 12-inch intervals.
6. Fasten fence material to posts with 3 tie wires with a wire near the top, bottom, and center of the fence material.
7. Backfill trenches with excavated material and compact the material.
8. Attach fence material to all gates. Ensure that clearance at base of gate achieves zero ground clearance.
9. Substitute smooth wire for barbed wire if additional support wires are necessary.
10. The number and placement of support wires may be modified to allow sheep and deer to pass safely.
11. Erosion at the edge of the fence material where the fence crosses washes may occur and requires appropriate and timely monitoring and repair.
12. Tie the fence into existing culverts and cattleguards when determined necessary to allow desert tortoise passage underneath roadways.

FOR BEDROCK OR CALICHE SUBSTRATE

1. Use this fence design (see below) only for that portion of the fence where fence material cannot be placed 6 inches below existing ground level due to presence of bedrock, large rocks or caliche substrate.
2. Ensure that the fence height above ground level is no less than 22 inches.
3. Ensure that there is a zero to 2-inch ground clearance at the bend.
4. Ensure that the bent portion of the fence is lying on the ground and pointed in the direction of desert tortoise habitat.
5. Cover the portion of the fence that is flush with the ground with cobble (rocks placed on top of the fence material to a vertical thickness up to 4 inches).
6. When substrate no longer is composed of bedrock or caliche, install fence using design shown above.



Mojave Desert Tortoise
(Gopherus agassizii)

5-Year Review:
Summary and Evaluation

U.S. Fish and Wildlife Service
Desert Tortoise Recovery Office
Southern Nevada Fish and Wildlife Service
Las Vegas, Nevada

May, 2022

5-YEAR REVIEW

Mojave Desert Tortoise (*Gopherus agassizii*)

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5-YEAR REVIEW
Mojave Desert Tortoise/*Gopherus agassizii*

GENERAL INFORMATION

Species: Mojave desert tortoise

Original Listing
Federal Register (FR) Notice: 45 FR 55654
Date of Final Listing Rule: August 20, 1980
Entity Listed: Beaver Dam Slope population of the desert tortoise in Utah
Classification: Threatened with Critical Habitat

Revised Listing
FR Notice: 54 FR 32326
Date Listed: August 4, 1989
Entity Listed: Mojave population of desert tortoise
Classification: Emergency listing as endangered

No emergency action was taken under this rule to reclassify the Beaver Dam Slope subpopulation in Utah as endangered because it was already protected under the Act (Service 1980: 45 FR 55654).

Revised Listing
FR Notice: 55 FR 12178
Date Listed: April 2, 1990
Entity Listed: Mojave population of desert tortoise
Classification: Threatened

Associated Rulemakings:
Similarity of appearance
FR Notice: 55 FR 12178
Date Listed: April 2, 1990
Entity Listed: Sonoran population of desert tortoise found outside its natural range in Arizona (south and east of the Colorado River) and Mexico
Classification: Threatened

Proposed determination of Critical Habitat
FR Notice: 58 FR 45748
Date: August 30, 1993

Determination of Critical Habitat
FR Notice: 59 FR 5820
Date: August 8, 1994

Critical Habitat was designated on over 6,000,000 acres in portions of the Mojave and Colorado deserts. The Colorado Desert is a subdivision of the Sonoran Desert and is located in California west of the Colorado River. This designation includes primarily Federal lands in southwestern Utah, northwestern Arizona, southern Nevada, and southern California.

Methodology used to complete the review
This review was prepared by the Desert Tortoise Recovery Office and coordinated with field offices within Regions 8, 2, and 6. We used information from the 2010 5-year review (Service 2010a), 2011 Recovery Plan (Service 2011a), and survey information and research results from published literature by experts who have been monitoring and studying various aspects of this species. We received three letters in response to our FR notice initiating this 5-year review (from one individual and three non-governmental organizations). These sources together with personal communications with experts were our primary sources of information used to update the species' status and threats. This 5-year review contains updated information on the species' biology and threats and an assessment of that information compared to that known at the time of publication of the revised recovery plan in 2011.

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FR Notice citation announcing the species is under active review
FR Notice: 86 FR 27462

REVIEW ANALYSIS

Application of the 1996 Distinct Population Segment (DPS) policy

We concluded in the 2010 5-year review that the currently listed Mojave population of the desert tortoise was a valid distinct population segment under the 1996 DPS policy, but individual subunits of the Mojave DPS do not qualify as distinct population segments (Service 2010a). In summary, habitat occupied by the Mojave DPS is relatively continuously distributed, and genetic differentiation within the DPS is consistent with isolation-by-distance in a continuous-distribution model of gene flow. In addition, observed variation in behavioral and physiological characteristics across the DPS was likely related to environmental gradations between the described subdivisions of the Mojave and Colorado deserts. In 2010 we concluded that these factors disqualified subunits of the Mojave DPS under the discreteness criterion of the policy.

Since the revised recovery plan was published, the Mojave DPS was taxonomically elevated to species status as *Gopherus agassizii*, and most tortoises east of the Colorado River are now recognized by the scientific community as *G. morafkai* (Murphy *et al.* 2011). However, the Colorado River has been a porous genetic barrier through time for multiple species, including desert tortoises (Dolby *et al.* 2019). To date, nine local populations that include *G. agassizii* or hybrids with *G. morafkai* have been genetically identified east of the Colorado River in Arizona (Fig. 1; McLuckie *et al.* 1999; Edwards *et al.* 2015; Dolby 2020). Herein, we keep with historical common usage by referring to *G. agassizii* as the Mojave Desert Tortoise and *G. morafkai* as the Sonoran Desert Tortoise. We formally recognized *G. morafkai* taxonomically in 2012 (77 FR 69997), and we recommend that the listing status of *G. agassizii* under the Act also be evaluated relative to its current taxonomy and distribution. Further consideration of DPSs within a taxonomically revised listed entity could be made at that time.

Recovery Criteria

Recovery Objective 1 (Demography)

Maintain self-sustaining populations of desert tortoises within each recovery unit into the future.

> **Recovery Criterion 1.** Rates of population change (λ) for desert tortoises are increasing (*i.e.*, $\lambda > 1$) over at least 25 years (a single tortoise generation), as measured a) by extensive, range-wide monitoring across tortoise conservation areas within each recovery unit, and b) by direct monitoring and estimation of vital rates (recruitment, survival) from demographic study areas within each recovery unit.

Recovery Objective 2 (Distribution)

Maintain well-distributed populations of desert tortoises throughout each recovery unit.

> **Recovery Criterion 2.** Distribution of desert tortoises throughout each tortoise conservation area is increasing over at least 25 years (*i.e.*, ψ [occupancy] > 0).

Recovery Objective 3 (Habitat)

Ensure that habitat within each recovery unit is protected and managed to support long-term viability of desert tortoise populations.

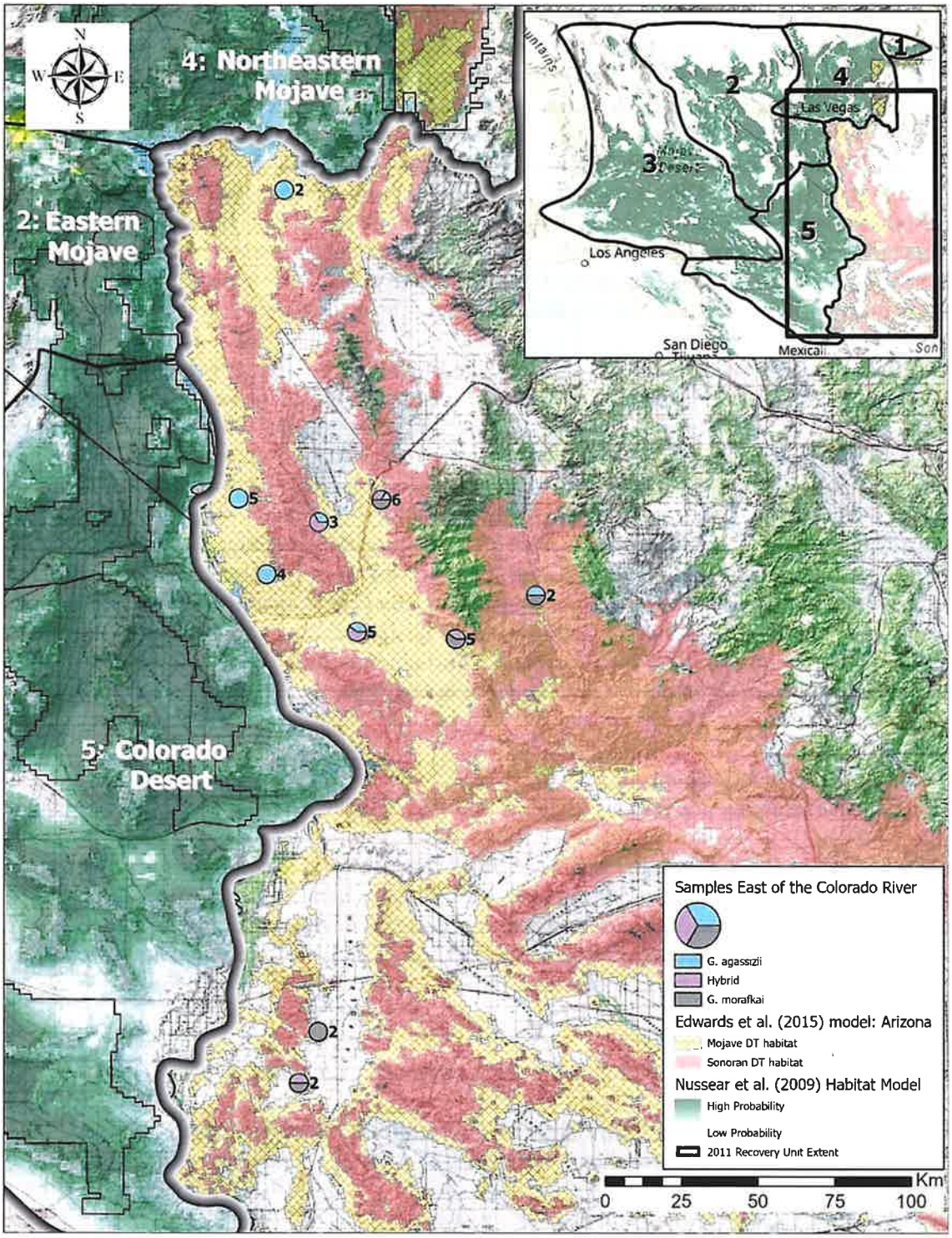

Figure 1. Genetic samples collected from desert tortoises east of the Colorado River (Edwards *et al.* 2015; Dolby 2020). Bold numbers indicate sample sizes at each site. EB = East Bajada monitoring plot; HF = Hualapai Foothills plot; BUCK = Buck Mountains plot. Recovery units in inset not labeled in main map: 1 = Upper Virgin River; 3 = Western Mojave.

> **Recovery Criterion 3.** The quantity of desert tortoise habitat within each desert tortoise conservation area is maintained with no net loss until tortoise population viability is ensured. When parameters relating habitat quality to tortoise populations are defined and a mechanism to track these parameters established, the condition of desert tortoise habitat should also be demonstrably improving.

Recovery Plan: U.S. Fish and Wildlife Service. 2011. Revised recovery plan for the Mojave population of the desert tortoise (*Gopherus agassizii*). U.S. Fish and Wildlife Service, Pacific Southwest Region, Sacramento, California. 222 pp.

Desert tortoise populations and habitat have not been monitored long enough for recovery criteria to have been met. However, declining trends in tortoise density (Recovery Criterion 1) need to be reversed in most areas (see below).

Updated Information and Current Species Status

This section summarizes new information since the last status review and the revised recovery plan (Service 2010a; Service 2011a). This does not constitute a comprehensive literature review of the great deal of research that has been published on desert tortoises since 2011, but provides on overview of substantial new information that pertains directly to the species' status. A bibliography of literature published since 2011, organized by research recommendations in the revised recovery plan, is provided in Appendix A.

Biology and Habitat

Genetics

Genomic analysis indicates that *G. agassizii* populations east of the Colorado River are not genetically diverged from populations west of the Colorado, but the known eastern populations are relatively small and isolated (Dolby 2020). Two additional studies published more detailed genetic analyses of Mojave Desert Tortoises since 2011. Shaffer *et al.* (2017) found evidence of genetic differentiation between tortoise populations in a northern group that corresponds with the Eastern Mojave Recovery Unit and recovery units to the north and a southern group that corresponds with the Western Mojave and Colorado Desert recovery units. This division is consistent with previous mitochondrial and nuclear genetic analyses (Lamb *et al.* 1989; Murphy *et al.* 2007; Hagerty and Tracy 2010). Also consistent with past studies, relatedness between tortoises was predicted by geographic distance both within and between the major north/south groups, but the divergence of populations between the two major groups was greater than the divergence at comparable distances within each group (Shaffer *et al.* 2017). Shaffer *et al.* also found secondary differentiation that separates populations between the Western Mojave and Colorado Desert recovery units. Sánchez-Ramírez *et al.* (2018) found the same differentiation as above, additional minor differentiation within the Western Mojave Recovery Unit, and levels of admixture between populations consistent with isolation by distance.

Spatial Distribution

Our knowledge of the precise distribution of tortoises in the Upper Virgin River Recovery Unit outside the Red Cliffs Desert Reserve is limited, but we continue to work with our partners to acquire distribution information throughout Washington County, Utah. For example, a population assessment of the desert tortoise in the recovery unit applied analytical units that

recognized the extent of contiguous potential habitat beyond the recovery units drawn in 2011 and which extends from Utah into Arizona (Fig. 2; Service 2021a).

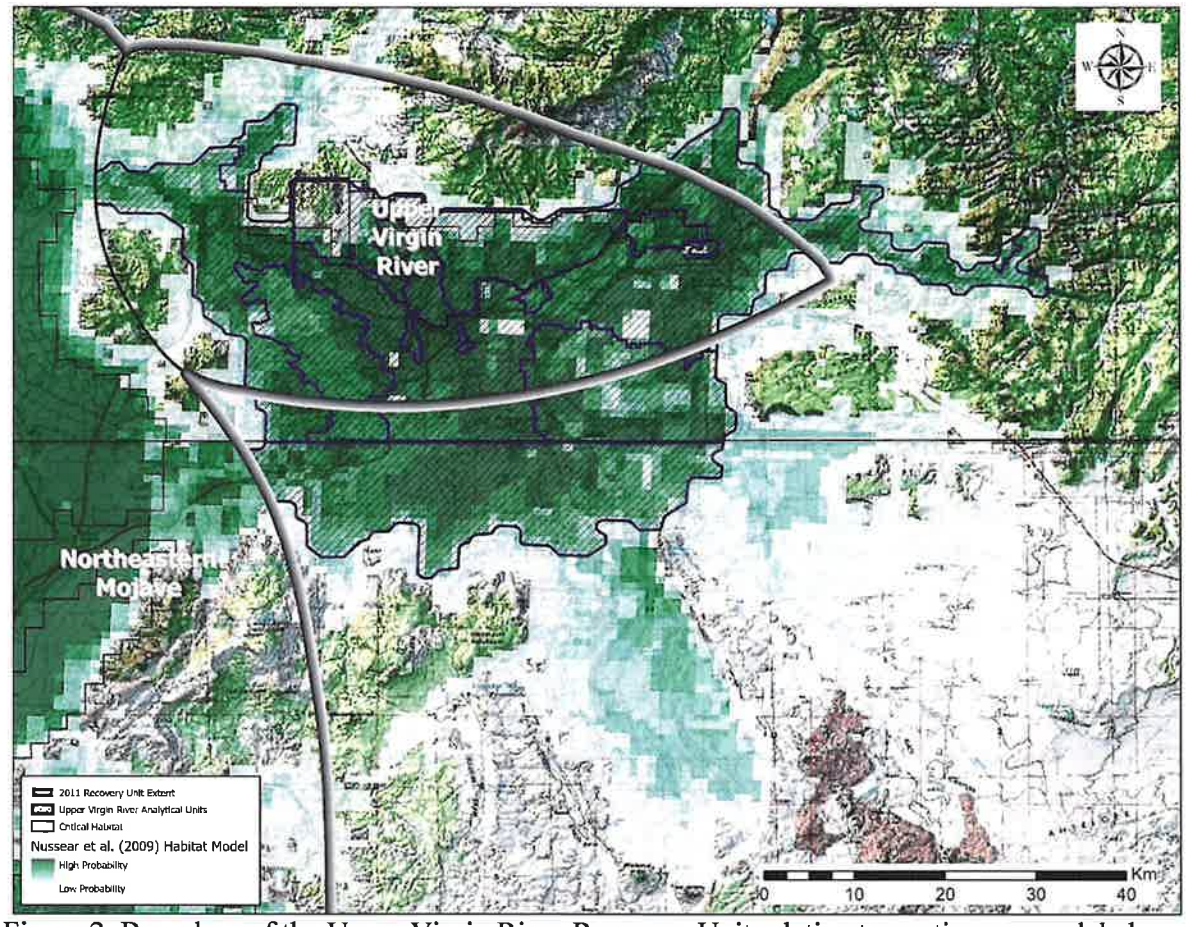

Figure 2. Boundary of the Upper Virgin River Recovery Unit relative to contiguous modeled habitat across the Utah-Arizona state line and population analytical units (Service 2021a). The black-and-white gradient lines around the periphery of the range indicate the potential for tortoises to be found outside mapped recovery unit boundaries, in which case those tortoises naturally would be assigned to the adjacent recovery unit.

Desert tortoise observations south of Palm Springs, California, and into Anza Borrego Desert State Park (ABDSP) have long been considered to be from captive releases (Luckenbach 1976, 1982). Recent records include at least five localities from the vicinity of the Philip L. Boyd Deep Canyon Desert Research Center on the northeastern flank of the Santa Rosa Mountains to central ABDSP, and observations of juvenile tortoises indicate that these populations are naturally reproducing (Fig. 3; Manning 2018; Puffer *et al.* 2018). Genetic analysis of samples collected in 2018 found that all sampled tortoises are *G. agassizii*, but resolution of source populations to determine whether the tortoises originate from near to or distant from ABDSP is ongoing (Manning 2018). Nevertheless, this information extends the distribution of reproducing Mojave Desert Tortoises greater than 60 km south of Palm Springs and beyond the southern edge of the Colorado Desert Recovery Unit boundary depicted in the recovery plan (Service 2011a).

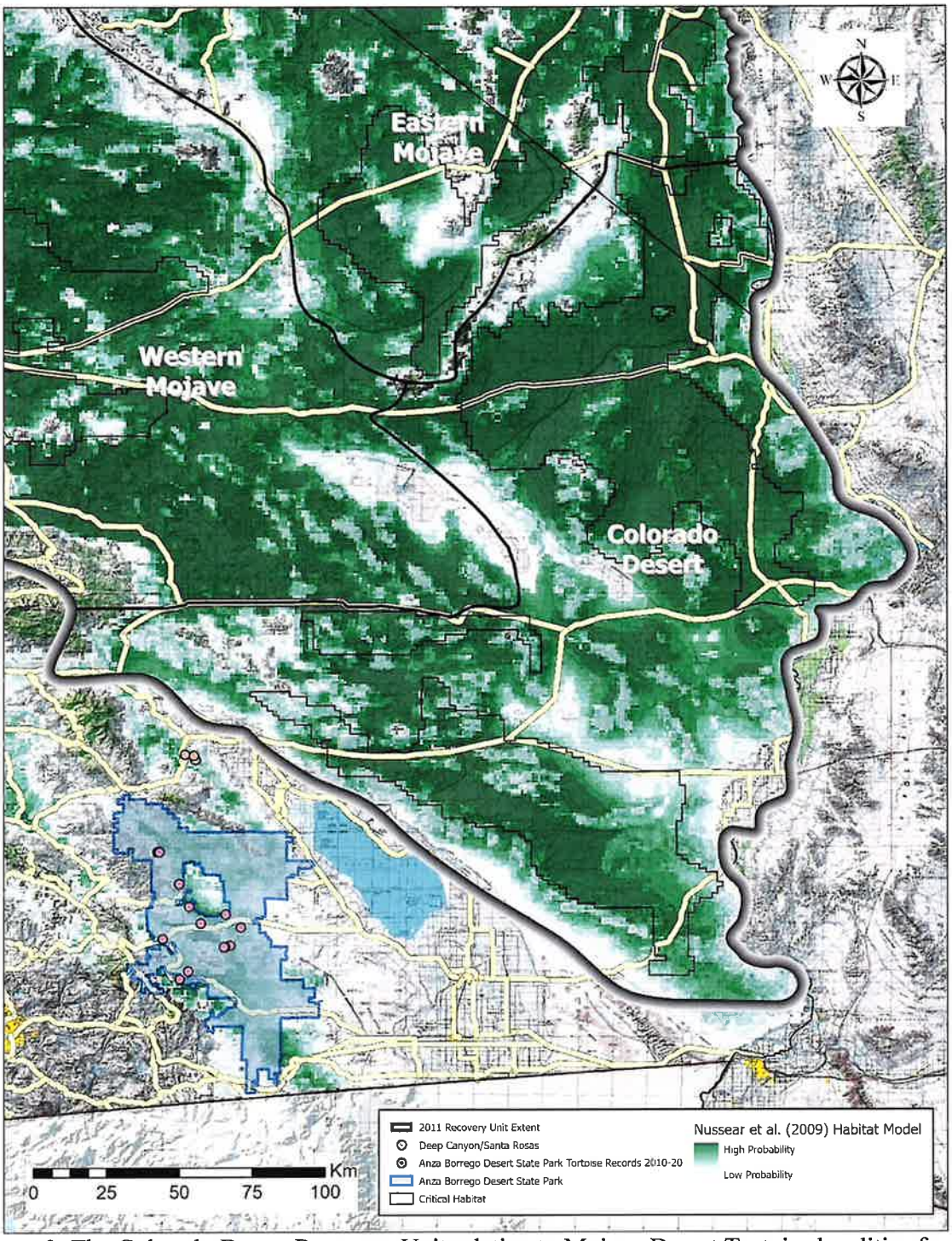

Figure 3. The Colorado Desert Recovery Unit relative to Mojave Desert Tortoise localities from the northern flank of the Santa Rosa Mountains through Anza Borrego Desert State Park. The black-and-white gradient lines around the periphery of the range indicate the potential for tortoises to be found outside mapped recovery unit boundaries, in which case those tortoises naturally would be assigned to the adjacent recovery unit.

Documented populations of Mojave Desert Tortoises east of the Colorado River in Arizona occur as far north as the vicinity of Temple Bar on Lake Mead National Recreation Area (Fig. 1). Additional populations, some including hybrids with Sonoran Desert Tortoises, encircle the western, southern, and eastern flanks of the Black Mountains west of Kingman; south at least to the Buck Mountains; and east to the western foothills of the Hualapai Mountains (Fig. 1). A single individual genetically diagnosed as a hybrid was found among four sampled individuals (the other three were *G. morafkai*) on the U.S. Army Yuma Proving Ground (Fig. 1). A single Mojave Desert Tortoise also was documented near a Sonoran Desert Tortoise near Wickieup, Arizona (the farthest east point in Fig. 1); the genotype of this tortoise suggests it is closely related to those tortoises found in the Black Mountains, particularly on their eastern bajada (Dolby 2020). We suspect that this tortoise was illegally translocated by people given its proximity to both Interstate 40 and Highway 93.

Abundance, Density, and Population Viability

With several exceptions, populations monitored within Tortoise Conservation Areas (TCAs; Service 2011a) continued to decline between 2004 and 2014 (Allison and McLuckie 2018). Populations declined on average in every TCA except those in the Northeastern Mojave Recovery Unit and in Joshua Tree and Piute Valley in the Colorado Desert Recovery Unit (Table 1). Extrapolating densities across modeled habitat in all the recovery units, the total number of adult tortoises declined by an estimated 124,050 (37%) during that time period (Table 1). Mean density of adult tortoises in 11 of the 17 TCAs was below 3.9/km^2, which is thought to be this species' minimum viable density (Table 1; Service 1994a). Updated trend analysis scheduled following the 2020 field season was postponed due to cancellation of field work and collection of necessary data in much of the range as a result of the COVID-19 pandemic. In the meantime and as expected, some annual density estimates in TCAs since 2014 have been higher and some lower than projected from past trends (McLuckie *et al.* 2018; Service 2016, 2018a, 2019, 2020a). An upcoming analysis of trends (with at least three more years of annual data in each TCA) is expected to refine our current working understanding of trends in each TCA and recovery unit but not to substantively change patterns described in the previous analysis because population growth in this long-lived species will be slow (Service 1994a).

Spatial population viability analysis using data from 12 capture-recapture plots in Nevada, Arizona, and Utah found negative population growth and higher probabilities of local extinction in the vicinity and north of Eldorado Valley between 1977 and 2003 (Harju 2019). This regional negative trend has continued since 2004 (Table 1). Unfortunately, data that would allow a more comprehensive spatial analysis including California have not been made available, but recent analyses of local or regional populations in California show that population levels and trends can vary markedly within TCAs and over time. For example, following declines in the 1990s, tortoise density within the Desert Tortoise Research Natural Area (DTRNA) on the northwestern edge of Fremont-Kramer had increased to roughly 2.5 times densities outside the DTRNA by 2012 (Berry *et al.* 2020). This difference was associated with a greater degree of protection inside the DTRNA than in adjacent critical habitat and private lands (Berry *et al.* 2014). Meanwhile, estimated tortoise numbers declined by over 75% on a 2.59-km^2 plot within Joshua Tree National Park between 1996 and 2012, largely as a result of reduced survival from 1997 to 2002 that was concurrent with persistent drought (Lovich *et al.* 2014). Increases in annual

survival of tortoises on the plot following 2002 coincide with increasing trends in average density across the park between 2004 and 2014 (Table 1).

Table 1. Annual trends in adult (≥180 mm midline carapace length) tortoise density (km^{-2}) within each recovery unit and monitored Tortoise Conservation Area (TCA) and estimated changes in total adult tortoise abundance within each recovery unit between 2004 and 2014 (Allison and McLuckie 2018). Superscripts in TCA names represent label codes used in Figure 8.

Recovery Unit / TCA	Annual Trend	Modeled Habitat (km^2)	2004 Abundance	2014 Abundance	Change in Abundance, 2004–2014	Mean Density in 2014 from Trend
Western Mojave RU	–7.1%	23,139	131,540	64,871	–66,668	
Fremont-Kramer^{FK}	–6.8%			6,196		2.6
Ord-Rodman^{OR}	–8.2%			3,064		3.6
Superior-Cronese^{SC}	–9.3%			7,398		2.4
Colorado Desert RU	–4.5%	18,024	103,675	66,097	–37,578	
Chocolate Mountain^{AG}	–3.3%			5,146		2.8
Chuckwalla^{CK}	–4.1%			9,304		3.3
Chemehuevi^{CM}	–10.8%			10,469		2.8
Fenner^{FE}	–7.3%			8,517		4.8
Joshua Tree^{JT}	6.2%			4,319		3.7
Pinto Mountains^{PT}	–8.3%			1,241		2.4
Piute Valley^{PV}	4.4%			4,874		5.3
Eastern Mojave RU	–11.2%	16,061	75,342	24,664	–50,679	
Eldorado Valley^{EV}	–9.2%			1,543		1.5
Ivanpah^{IV}	–7.4%			5,578		2.3
Northeastern Mojave RU	13.1%	10,664	12,610	46,701	34,091	
Beaver Dam Slope^{BD}	22.2%			18,220		6.2
Coyote Springs Valley^{CS}	10.2%			3,801		4.0
Gold Butte-Pakoon^{GB}	14.4%			4,278		2.7
Mormon Mesa^{MM}	8.2%			5,432		6.4
Upper Virgin River RU	–3.2%	613	13,226	10,010	–3,216	
Red Cliffs Desert Reserve^{RC}	–3.2%			1,760		15.3
Total		68,501	336,393	212,343	–124,050	

Most Mojave Desert Tortoise populations east of the Colorado River have not been monitored extensively. However, a 1-mi^2 mark-recapture plot on the eastern bajada of the Black Mountains (EB) was surveyed six times between 1990 and 2017, and a similar plot in the foothills of the Hualapai Mountains (HF) was surveyed five times between 1991 and 2016. Most genotyped tortoises at EB were identified as *G. agassizii* with some hybrids, while genotyped tortoises at HF were a mix of hybrids and *G. morafkai* (Fig. 1; Edwards *et al.* 2015; Dolby 2020).

The average adult survival rate through 2007 at EB and HF were among the lowest (0.87 and 0.89, respectively) across 15 plots in Arizona, the rest of which are populated by Sonoran Desert Tortoises (Zylstra *et al.* 2013). The period of lowest survival coincided with extreme drought, and cumulative survival of adult tortoises during the drought period (0.30 and 0.34 at EB and HF, respectively) indicated that abundance of adults was reduced by over 50% during that time (Zylstra *et al.* 2013). Estimated abundance at EB dropped from about 60–70 adult tortoises during the 1990s to 9 adults in 2002 (Woodman *et al.* 2008); since then, abundance has increased

to ~35 adults (Rubke and O'Donnell 2019). Abundance at HF in 2005 (estimated 12 adults) had dropped from estimates of greater than 30 adult tortoises in the 1990s (Woodman *et al.* 2006) before increasing back to ~25 adults in 2016 (Rubke *et al.* 2017). The most recent density estimates were 10.3 adults/km^2 and 7.3 adults/km^2 at EB and HF, respectively (Rubke *et al.* 2017; Rubke and O'Donnell 2019). These densities are substantially greater than mean 2014 densities in the adjacent TCAs to the west (Eldorado, Fenner, Chemehuevi; Table 1), although densities on the plots are not necessarily representative of broader, regional densities because the plots were selected largely due to the relative ease of finding tortoises (Averill-Murray 2000).

Another 1-mi^2 mark-recapture plot in the Buck Mountains was surveyed in 2002, 2005, and 2010 (EcoPlan Associates 2011). Most genotyped tortoises on this plot were identified as hybrids with some *G. agassizii* (Fig. 1; Edwards *et al.* 2015; Dolby 2020). Fewer tortoises occupy this plot than EB or HF, and abundance appears to have declined between each survey, from 21 to 17 to 13 adult tortoises, respectively; the estimates are imprecise, so interpretations of a trend from these three data points should be made with caution (EcoPlan Associates 2011).

Threats Analysis

The 2010 status review noted that the approach of focusing on individual threats may not have produced expected gains toward desert tortoise recovery because multiple threats act simultaneously to suppress tortoise populations at any given location within the species' range. The 2011 revised recovery plan emphasized expanding the understanding of multiple and combined effects of threats on tortoise populations. A model of these inter-relationships was developed as the basis of a spatial decision support system to help prioritize implementation of management actions that would provide the greatest benefit to recovery (Darst *et al.* 2013).

The decision support system produced rankings of threats that affect—and recovery actions that would benefit—each TCA across the range (Service 2014a, b, c). Individual threats vary widely among each of the TCAs, which is apparent in the number of threats that rank within the top five within one or more TCAs despite having an average rank in the bottom half of threats across all TCAs (Fig. 4). However, the types of recovery actions that would have the greatest effect in reducing or eliminating the cumulative risk from threats across the desert tortoise's range fall within a relatively narrow set (Fig. 5). As a result, the Desert Tortoise Management Oversight Group (MOG) endorsed the top five range-wide recovery actions (i.e., restore habitat, education, decrease human subsidies, targeted predator control, and installing barrier fencing along highways) as the highest priorities for implementation (Lohoefener 2015). The MOG subsequently added fire management planning and implementation to their list of priorities given its preventative relationship with the need for habitat restoration (Souza 2017).

The condition of most threats is similar to that described in the previous status review, but the spatial decision support system provided a better understanding of the relative importance of threats and recovery actions to desert tortoise populations. The following review describes substantive new information since 2011 relative to changes in threats, conservation measures, and regulatory mechanisms that pertain to the five listing factors outlined in section 4(a)(1) of the Act. Each section begins with the extracted summary of threats from the previous status review for reference.

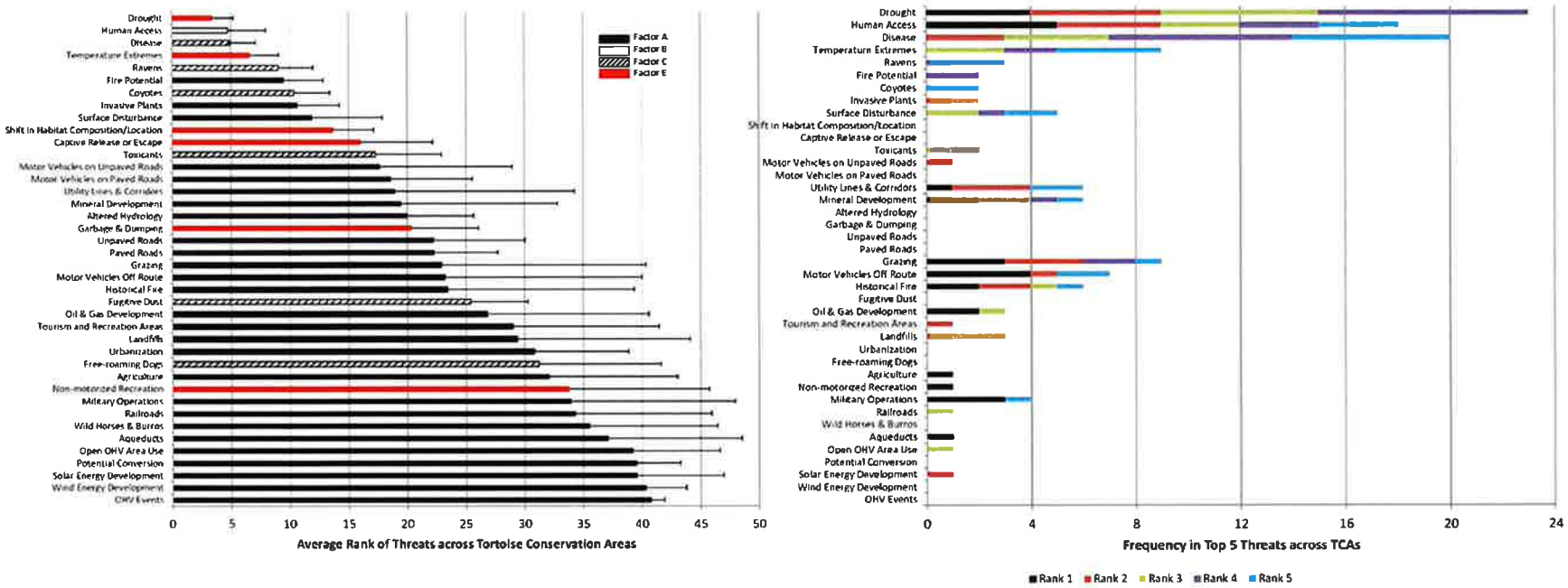

Figure 4. Mean rank plus one standard deviation of threats to desert tortoise populations (left) and the frequency that each threat appears in the top-five ranking (right) across 28 Tortoise Conservation Areas (TCAs), as modeled in the desert tortoise spatial decision support system (from Service 2014a, b, c).

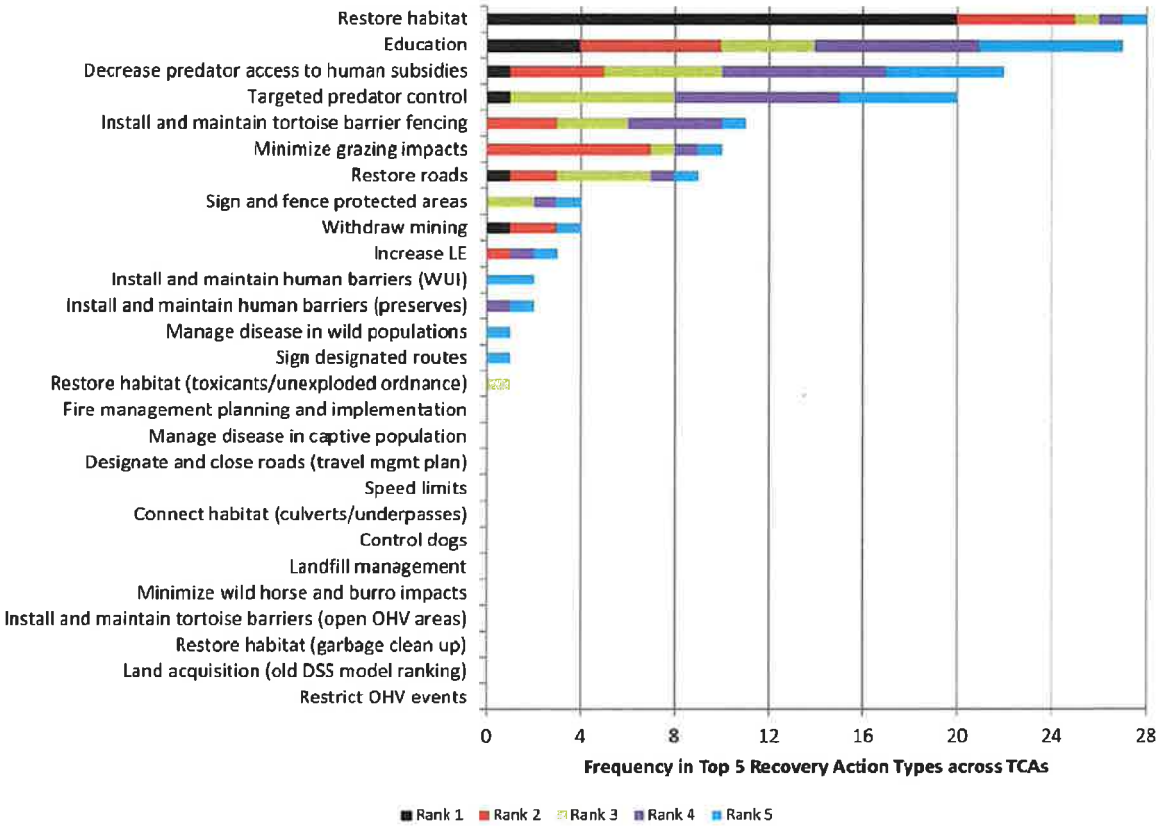

Figure 5. Frequency that each recovery action type appears in the top-five ranking across 28 Tortoise Conservation Areas (TCAs), as modeled in the desert tortoise spatial decision support system (from Service 2014a, b, c).

Factor A: Present or Threatened Destruction, Modification, or Curtailment of Habitat or Range

Summary from Service (2010a)*: Since the time of listing, many threats associated with Factor A continue to impact the desert tortoise. In particular, human populations, paved and unpaved roads, non-native invasive plants and the associated threat of wildfire, and prospective energy development (especially renewable energy development and associated utility corridors) have increased. These threats result in continued habitat loss, population fragmentation, nutritional compromise, soil erosion, and indirect impacts associated with increased human presence, including illegal dumping, human-subsidies for predators, and introduction of toxins. Since the time of listing, off-highway vehicle areas and trails have been formally designated, but unauthorized use continues to be a significant source of habitat degradation. Many grazing allotments within Critical Habitat have been retired; however large areas are also still grazed.*

Range-wide, the absolute amount of desert tortoise habitat lost (north and west of the Colorado River) decreased from 93,071 acres lost in the six years prior to publication of the revised recovery plan (2005–2010) to 70,671 acres lost in the six years following publication of the revised recovery plan (2012–2017; calculated from data from Eichenwald *et al.* [2020] who estimated habitat loss from LandSat imagery by sudden changes in the trend of the normalized difference vegetation index [NDVI] at image pixels over time). Only three of the top 12 ranked threats within TCAs are directly related to Factor A (Fig. 4; Service 2014a, b, c). However, the cumulative importance of habitat-related threats is demonstrated by the fact that most recovery action types that are ranked in the top five in any TCA directly address habitat (Fig. 5). In addition, threats under this factor remain important because large expanses of high-quality habitat are necessary to provide resilience to populations as they fluctuate due to threats under the other listing factors, such as variability in precipitation patterns; localized declines attributed to drought, disease, or predation events; or stochastic population dynamics (Averill-Murray *et al.* 2021). As habitat is lost and fragmented, habitat patches become smaller, patch populations (e.g., clusters of tortoises) have fewer tortoises and become more disjunct, extinction probabilities within patches increase, and the number of occupied patches decreases (Fahrig 2002; Ovaskainen *et al.* 2002).

Of particular note since the completion of the previous 5-year review, large areas of desert tortoise habitat have been developed or approved for development for utility-scale solar energy. These developments are located outside of TCAs, but in aggregate they would result in development of approximately 74,000 acres of desert tortoise habitat (Table 2; Fig. 6). In fact, solar energy development is the second-ranked threat in the Boulder City Conservation Easement, and it is the top threat outside of TCAs within the Northeast Mojave Recovery Implementation Team's Southeastern Nevada Workgroup area (Service 2014b). Solar development has increased dramatically within the Northeastern Mojave Recovery Unit in the last three years (Fig. 6). To minimize the impacts of such developments, construction of projects in Nevada increasingly have allowed native vegetation to regrow and desert tortoises to reoccupy the sites (approximately 13,000 acres), although the success of this approach in maintaining functional habitat remains to be determined.

Table 2. List of solar projects and impacted acreage that have received biological opinions or incidental take permits, 2010–2021. Asterisks indicate projects allowing vegetation to regrow and desert tortoises to reoccupy the sites.

Recovery Unit	Project	Habitat (acres)	Citation
Eastern Mojave			
	Ivanpah Solar Electric Generating System	3,582	Service 2011b
	Stateline	1,685	Service 2013a
	Silver State North	685	Service 2010b
	Silver State South	2,427	Service 2013a
	Nevada Solar One	400	Burroughs 2012
	Copper Mountain North	1,400	Burroughs 2012
	Copper Mountain	380	Burroughs 2012
	Townsite	885	Service 2014d
	Techren Boulder City	2,200	Service 2012b
	Valley Electric Association*	80	Service 2015a
	Canyon Mesa*	123	Service 2019b
	Yellow Pine	4,285	Service 2020b
Subtotal		**18,132**	
Western Mojave			
	Mojave	0[a]	Service 2011c
	Cinco	500	Service 2015b
	Soda Mountain	1,726	Service 2015c
	High Desert	547	Service 2019c
Subtotal		**2,773**	
Northeastern Mojave			
	Res Americas Moapa Solar Energy Center	951	Service 2014e
	Moapa K Road	2,141	Service 2012c
	Playa	1,538	Service 2015d
	Invenergy Harry Allen	594	Service 2015d
	NV Energy Dry Lake Solar Energy Center	751	Service 2015d
	NV Energy Dry Lake Solar Energy Center at Harry Allen	55	Service 2015d
	Aiya	672	Service 2015e
	Mountainview	146	Wise 2018
	Gemini*[65%]	7,113	Service 2019d
	Eagle Shadow Mountain*	2,285	Service 2019e
	Arrow Canyon Solar Project*	2,124	Service 2020c
	Southern Bighorn Solar 1 Project*	2,642	Service 2021b
	Southern Bighorn Solar 2 Project*	1,025	Service 2021c
Subtotal		**22,037**	
Colorado Desert			
	Genesis	1,774	Service 2010c
	Blythe	6,958	Service 2010d
	Desert Sunlight	4,004	Service 2011d
	McCoy	4,533	Service 2013b
	Desert Harvest	1,300	Service 2013c
	Rice	1,368	Service 2011e
	Palen	3,140	Service 2018b
	Desert Quartzite	2,831	Service 2019f
	IP Athos	3,440	Service 2019g
	Crimson	2,201	Service 2020d
Subtotal		**31,549**	
Grand Total		**74,491**	

[a]Primarily in abandoned agricultural fields

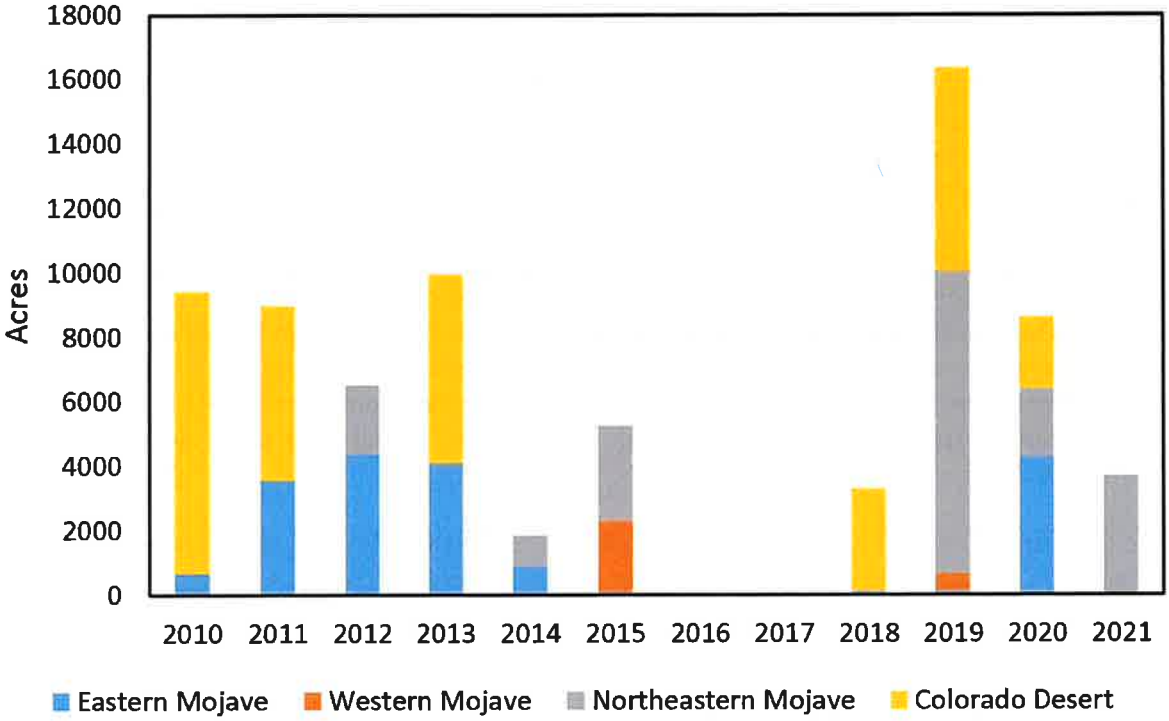

Figure 6. Acreage for solar projects within each recovery unit that have received biological opinions or incidental take permits, 2010–2021.

The Desert Renewable Energy and Conversation Plan (DRECP) Land Use Plan Amendment to the California Desert Conservation Act Plan of 1980 resulted in the designation of approximately 388,000 acres of development focus areas where the Bureau of Land Management would apply a streamlined review process to applications for projects that generate renewable energy; the Bureau estimated that approximately 11,290 acres of modeled desert tortoise habitat within the development focus areas would eventually be developed for renewable energy (U.S. Bureau of Land Management 2016). The Bureau also adopted numerous conservation and management actions as part of the plan amendment. Chief among these was the establishment of new limits on ground-disturbance activities (past, present, and future) of 0.1–1.0% relative to total Bureau of Land Management lands within TCAs and mapped linkages between TCAs. In addition, all activities, except transmission, that will result in the long-term removal of habitat supporting more than five tortoises at least 160 mm carapace length per square mile, or more than 35 individuals in total, are prohibited; the upper limit is five total individuals for projects within TCAs or mapped population linkages. The number of desert tortoises on a site will be based on estimates derived from the protocol surveys described previously using the USFWS's pre-activity survey protocol. The land-use plan amendment also increased the amount of land that the Bureau manages for conservation in California (e.g., areas of critical environmental concern, California Desert National Conservation Lands, etc.) from 6,118,135 to 8,689,669 acres, although not all of the areas subject to increased protection are within desert tortoise habitat (U.S. Bureau of Land Management 2016a). The Bureau will also manage lands outside of

development focus areas according to numerous conservation and management actions that are more protective of desert tortoises than direction contained in the previous land use plan.

Additional military training-land expansions have also occurred or have been approved. The Department of the Army (Army) expanded training onto 18,197 acres of designated critical habitat on the southern area of Fort Irwin that had previously been off-limits to training, thus requiring the translocation of approximately 650 adult desert tortoises (Service 2012a). To help offset the effects of this habitat loss, the Army acquired approximately 100,000 acres of non-federal land within the Superior-Cronese Critical Habitat Unit for conservation management of desert tortoises. It also purchased the base property of three cattle allotments on which the Bureau subsequently re-allotted the forage to wildlife. The Army also funded several other activities aimed at conserving desert tortoises in the Western Mojave Recovery Unit. In addition, the Army plans to expand activities onto and displace tortoises from up to 62,045 acres of its western training area in the near future, which is designated critical habitat and currently off-limits to training.

The Department of the Navy (Navy) expanded training for the Marine Corps Air Ground Combat Center (MCAGCC) at Twentynine Palms into approximately 167,982 acres of public and private land, which required translocating approximately 1,000 adult tortoises (Service 2017). Most of the expansion area lies within the Johnson Valley Off-highway Vehicle Recreation Area. To help offset the effects of habitat loss, the Navy committed to funding several activities aimed at conserving desert tortoises, particularly within the Ord-Rodman Critical Habitat Unit into which many tortoises from the expansion area were translocated. These measures include establishment of special use areas on MCAGCC with limited surface-disturbing military activities, increased law enforcement in the Ord-Rodman Critical Habitat Unit, predator monitoring and targeted control within translocation sites, rehabilitation of closed routes, and installation of off-highway-vehicle barriers and desert tortoise exclusion fencing, among other activities.

The 26,509-acre Cuddeback Range expansion area on the Naval Air Weapons Station at China Lake includes approximately 2,777 acres of tortoise habitat. The Cuddeback Range lies within the Superior-Cronese Critical Habitat Unit, but all of the disturbance would occur in a previously disturbed area that the U.S. Air Force historically used as a target zone. The Navy will include the entire Cuddeback Range in its Integrated Natural Resource Management Plan and construct a perimeter fence around the range to prevent trespass by the public. These actions will provide conservation benefits for plants, fish, and wildlife within the area, including the desert tortoise. Because the Navy will not disturb most of the area, it did not translocate any desert tortoises as part of this action (Service 2019h).

Invasive grass-fueled wildfires remain a concern across much of the tortoise's range. For example, the Meadow Valley Fire burned approximately 23,500 acres of desert tortoise habitat (none in designated critical habitat) in the Bureau of Land Management's Caliente Field Office jurisdiction in July 2020. Most of this overlapped habitat that burned in 2005, further complicating recovery of that area, and about 800 acres of previously unburned habitat were affected by the new fire (A. Delcalzo, personal communication, 2021). In addition, multiple fires burned over 11,000 acres and killed at least 25 tortoises in the Red Cliffs Desert Reserve (Upper Virgin River Recovery Unit) in July 2020 (McLuckie *et al.* 2021). These fires represent

approximately 20% of the Upper Virgin River Critical Habitat Unit. About 1/3 of the area had been previously unburned (McLuckie *et al.* 2021 [from oral presentation]). In California, the August 2020 Dome Fire in Mojave National Preserve burned 43,273 acres of peripheral (higher elevation) tortoise habitat (National Park Service 2020). All of these fires were fueled at least in part by invasive annual *Bromus* grasses. While the distribution of *Bromus rubens* is expected to increase under a warming climate, drier winters may weaken the *Bromus*-fire cycle (Bradley *et al.* 2016).

In addition to the well-publicized trespass grazing that continues in the Gold Butte-Pakoon TCA, livestock grazing continues to be authorized in the Grand Canyon-Parashant National Monument, Arizona; Beaver Dam Wash National Conservation Area, Utah; Mojave National Preserve, California; and other TCAs across the range, including Bureau of Land Management-managed lands outside of the national monuments in Arizona, California, and Utah (e.g., U.S. Bureau of Land Management 2008, 2016b, 2019a; U.S. Bureau of Land Management and National Park Service 2008). East of the Colorado River, livestock grazing occurs in tortoise habitat managed by both the Bureau of Land Management and the Arizona State Land Department. Additionally, invasive grass-fueled wildfires are a concern in this area, similar to the rest of the tortoise's range. Threat simulations for tortoises in the Gold Butte-Pakoon area indicated that the combined effect of legal and illegal livestock grazing and feral burro disturbances caused the more severe declines in tortoise abundance relative to human presence, subsidized predators, and wildfire (Tuma *et al.* 2016).

A new threat is the recent and rapid increase in illegal cannabis farms in the Mojave Desert, primarily since 2016 in southern California (Cosgrove and Sahagún 2021). For example, San Bernardino sheriff's deputies recently documented 860 illegal farms in that county alone. Many of these occur within or adjacent to designated critical habitat. Bulldozers typically scrape the vegetation and topsoil into berms to prepare the sites for greenhouses, and water is often stolen from agricultural wells, aqueducts, or hydrants for irrigation. The problem has become so severe that the California Department of Fish and Wildlife recently solicited grant proposals for cleanup and remediation of environmental damage in watersheds affected by illicit cannabis cultivation on government lands (California Department of Fish and Wildlife 2021).

Overall, desert tortoises do not coexist well with human development and disturbances; tortoises are essentially absent from habitat within 1 km of areas with greater than 10% development (including urban development, cultivated agriculture, energy development, surface mines and quarries, pipelines and transmission lines, and roads and railroads; Carter *et al.* 2020). Across both sides of the Colorado River, only 5% of modeled Mojave Desert Tortoise habitat had levels of development exceeding this threshold (Carter *et al.* 2020), so space does not appear to be a limiting factor to tortoise recovery. Parsing these data by recovery unit shows that at least 39% of tortoise habitat in each recovery unit has almost no development within 1 km (Table 3; Fig. 7). The Upper Virgin River Recovery Unit has the highest proportion of developed tortoise habitat with 14% of habitat occurring within 1 km of lands that have been developed more than 10% (Table 3; Fig. 7), and habitat affected by development is only likely to increase further with ongoing urban growth in Washington County.

Specific to roads, all tortoise populations declined in TCAs with route densities (paved and unpaved) above 0.75 km/km^2, although there was much variation in tortoise population trends at

lower route densities (Fig. 8). Potential construction of approximately 6.9 km of multi-lane highway near the southern boundary of the Red Cliffs Desert Reserve (U.S. Bureau of Land Management 2021) is an example of development that would encroach on quality tortoise habitat if constructed. Managing development and habitat disturbances is primarily important relative to maintaining connectivity of inter-connected blocks of tortoise habitat (Averill-Murray *et al.* 2021), while improving tortoise survival and recruitment requires managing the threats that affect tortoise mortality and the quality of habitat within those blocks. We note that the national roads database used in the analyses mentioned here lacks the accuracy of smaller-scaled local datasets, especially under-representing unauthorized, unpaved routes (Carr *et al.* 2017). However, unpaved routes typically pose problems of mitigating habitat degradation rather than absolute habitat loss, although some degree of absolute habitat loss ultimately will be associated with the expansion of the Spangler, El Mirage, and Johnson Valley off-highway vehicle (OHV) recreation areas under the 2019 John D. Dingell, Jr. Conservation, Management, and Recreation Act as OHV use and trails increase in those areas.

Table 3. Proportion of Mojave Desert Tortoise habitat with ≤1% or >10% human development within 1 km. Proportions are given for each recovery unit overall, within protected areas[1], and within habitat outside the protected areas (Unprotected) as calculated from the development index of Carter *et al.* (2020).

Recovery Unit	<1% (within overall unit)	>10% (within overall unit)	<1% (within protected areas1)	>10% (within protected areas1)	<1% (within unprotected areas)	>10% (within unprotected areas)
Upper Virgin River	0.39	0.14	0.45	0.07	0.38	0.15
Northeastern Mojave	0.66	0.05	0.79	0.00	0.57	0.09
Eastern Mojave	0.58	0.05	0.74	0.00	0.45	0.09
Western Mojave	0.47	0.05	0.81	0.01	0.39	0.07
Colorado Desert	0.65	0.04	0.74	0.01	0.54	0.09
Mohave County, AZ[2]	0.58	0.04	0.84	0.01	0.51	0.05

[1]Includes wilderness areas, national parks, national monuments, and national conservation areas designated as GAP Analysis Project status 1 and 2 protected areas (U.S. Geological Survey 2020).

[2]Includes habitat for both Mojave Desert Tortoises and Sonoran Desert Tortoises south and east of the Colorado River (i.e., outside the current range listed under the Act).

Counter to the threats documented above, President Obama designated the 1.6 million-acre Mojave Trails National Monument in 2016 (Obama 2016). Much of the monument includes designated wilderness or other lands managed for conservation (e.g., parts of the Fenner and Chemehuevi critical habitat units), but it also includes almost 267,000 acres of lands that had previously been acquired by The Wildlands Conservancy and donated to the Bureau of Land Management (The Wildlands Conservancy 2021). The monument also adds a layer of protection to much of the modeled tortoise habitat linkage between the Superior-Cronese and Ord-Rodman critical habitat units in the Western Mojave Recovery Unit and the Mojave National Preserve in the Eastern Mojave Recovery Unit (*cf.* Averill-Murray *et al.* 2013).

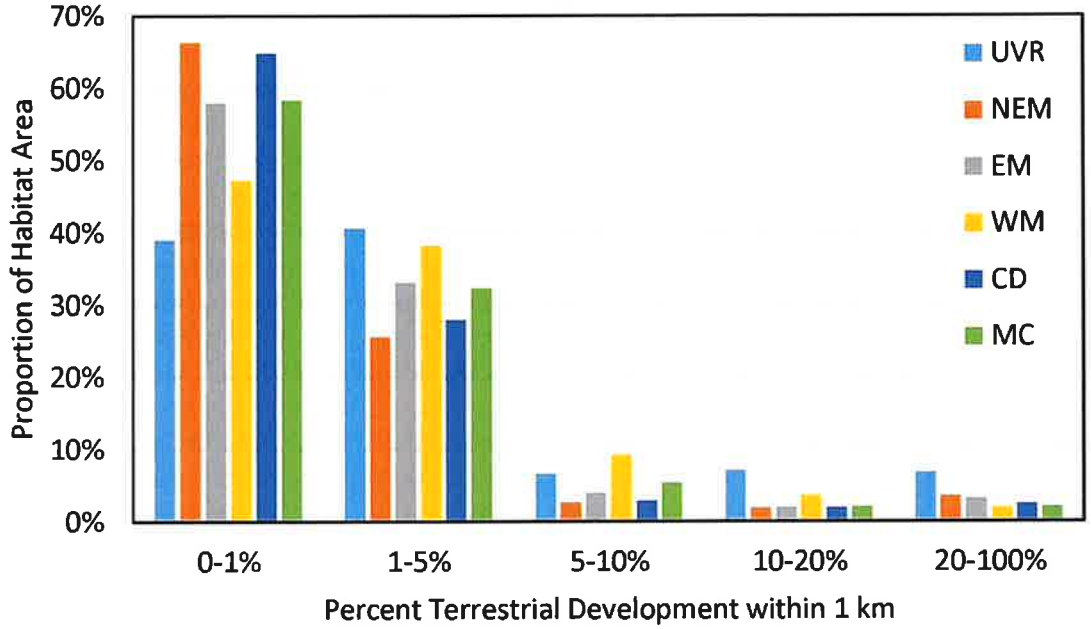

Figure 7. Frequency distribution of development levels for Mojave Desert Tortoise habitat within each recovery unit and Mohave County as calculated from the development index of Carter *et al.* (2020). UVR = Upper Virgin River, NEM = Northeastern Mojave Desert, EM = Eastern Mojave Desert, WM = Western Mojave Desert, CD = Colorado Desert, MC = Mohave County, Arizona (including habitat modeled for both Mojave Desert Tortoises and Sonoran Desert Tortoises south and east of the Colorado River).

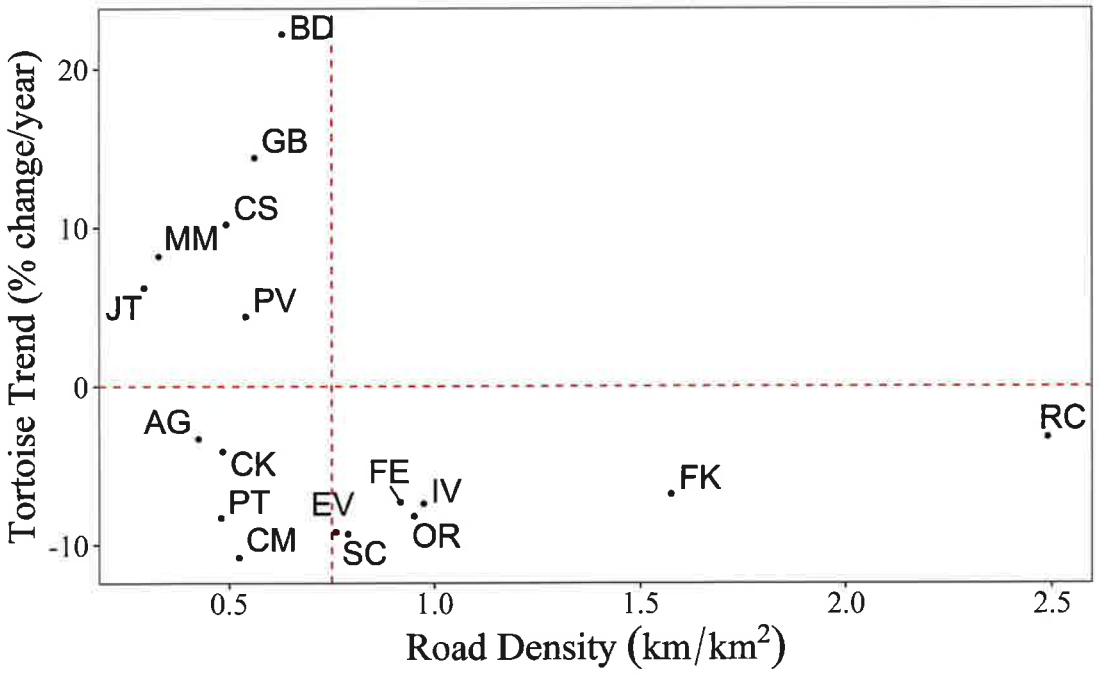

Figure 8. Population trends of Mojave Desert Tortoises plotted against density of paved and unpaved roads within Tortoise Conservation Areas. Codes are given in Table 1.

Much work also is ongoing to address the MOG's priorities related to habitat restoration and reduction of roadkill via installation of tortoise barrier fencing along highways. Numerous habitat restoration projects by State and federal agencies, local governments, and non-governmental organizations are in progress or planned in every recovery unit. These projects address threats including invasive plants, fire potential, unpaved roads, and surface disturbance, although the range-wide scale of the threats still outweighs the cumulative scope of the current projects. Through 2011 approximately 1,660 km of highway roadside (including both sides of roads for those fenced on each side) had tortoise exclusion fencing installed to prevent road mortalities. Unfortunately, only approximately 43 km of roadside have been fenced in the decade since 2011. Almost 500 km of roadside have been identified as priorities for fencing based on our current understanding of road-effect zone area, relative habitat potential, and locations of extant populations (Holcomb 2019). Finally, the Department of Defense and Department of the Interior recently initiated a Recovery and Sustainment Partnership (DOD and DOI 2018). In this partnership, DOD and DOI developed an action plan for the Mojave Desert Tortoise with the goal to implement actions that would accelerate recovery of the tortoise while reducing the regulatory burden on DOD installations (DOD and DOI 2019). An implementation plan is in development which focuses on identifying ways to accelerate habitat restoration, fencing conservation areas and roadways, and addressing unauthorized routes in the Western Mojave Desert Recovery Unit.

Factor B: Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

Summary from Service (2010a): *Little quantitative evidence regarding collection and deliberate maiming and killing of desert tortoise by humans has been obtained since time of listing, and the relative significance of this threat remains unknown.*

Little new information on threats under Factor B has become available since the most recent status review. However, the potential for negative impacts to desert tortoise populations on either side of the Colorado River exists from collection and deliberate maiming/killing as a result of human access, vehicles on paved/unpaved roads, and non-motorized recreation (Fig. 4; Grandmaison and Frary 2012). Various research activities are permitted for purposes of enhancing the recovery and conservation of the desert tortoise. These activities provide valuable information that can be used to recover and improve management of the desert tortoise, resulting in few cases of unintentional injury or mortality based on past experience and the protective measures imposed upon all permittees (Service 2013d).

Factor C: Disease or Predation

Summary from Service (2010a): *The available evidence indicates that upper respiratory tract disease is probably the most important infectious disease for desert tortoises, and external factors, such as environmental contaminants and drought, may increase susceptibility. However, additional research is needed to clarify the role of disease in desert tortoise population dynamics relative to other threats. Ravens and coyotes have dramatically increased in the desert southwest over the past 25 years due to anthropogenic subsidization and have been commonly implicated in tortoise predation. Instances of isolated, very intense predation suggest predation comes to the forefront as a management concern, especially where landscapes have been altered and intensive human use occurs or in times of extreme drought. The population-level effects of these or other predators, however, are unknown.*

Disease was the third-ranked threat across TCAs (Fig. 4), and much has been published since 2011 (Appendix). The most common pathogen (*Mycoplasma agassizii*) and cause of upper respiratory tract disease (URTD) has been found in populations across the desert tortoise's range north and west of the Colorado River (Sandmeier *et al.* 2013; Weitzman *et al.* 2017). Less sampling of Mojave Desert Tortoises east of the Colorado River has been done, but visual signs of URTD have been rare on the EB, HF, and Buck Mountains plots, although one tortoise at HF had antibodies to *M. agassizii* in 2005 (EcoPlan Associates 2011; Rubke *et al.* 2017; Rubke and O'Donnell 2019). The host-disease relationship is complex: high transmission rates usually require extensive contact between tortoises over multiple days (Aiello *et al.* 2016); responses to infection and infection patterns over time can be highly variable, including recurrence of disease from subclinical infections (Sandmeier *et al.* 2017; Aiello *et al.* 2018); and multiple factors may contribute to outbreaks of URTD include environmental stress, human impacts, exposure to heavy metals and other toxicants, and the escape or release of captive tortoises (Jacobson *et al.* 2014). Collectively, current research suggests that direct disease management of wild tortoise populations is less important (other than in translocations of tortoises between populations) than managing factors that affect their habitat and its capacity to support healthy tortoises (i.e., under Factor A). For example, *Bromus rubens* negatively affects health and survival of juvenile desert tortoises (Drake *et al.* 2016).

Since 2011, badgers have emerged as a predator that can exert severe effects at the local level (Embledge *et al.* 2015). Also, a study of coyote diets suggested that tortoises are opportunistically consumed consistently at low levels over time and under variable environmental conditions (Cypher *et al.* 2018). Population impacts may be higher near human settlements where coyotes are subsidized by human food items, however (Esque *et al.* 2010; Cypher *et al.* 2018). The proportion of predator (coyote, kit fox, raven, dog, red-tailed hawk) scats containing tortoise DNA suggests that tortoises could be consumed at higher rates than previously estimated through morphological analysis of scat (Boarman and Kristan 2018). As mentioned under Factor A, habitat fragmentation can exacerbate local declines caused by elevated predation because as tortoise populations become more disjunct, extinction probabilities within patches increase due to the lack of immigration from adjacent populations (Averill-Murray *et al.* 2021). Meanwhile, scientists continue to attribute predation by tremendously inflated raven populations, subsidized by human food and water sources, to unsustainable pressure on tortoise recruitment (Holcomb *et al. accepted*), and raven control recently has been expanded within designated critical habitat in California to focus on broad-scale removal of ravens. New tools also are now being applied to address this threat, including oiling raven eggs to prevent hatching and applying demographic models to guide efforts in reducing raven numbers (Shields *et al.* 2019; Hanley *et al. accepted;* Holcomb *et al. accepted*). Predation has not been a substantial mortality factor for tortoises at the HF or Buck Mountains plots (EcoPlan Associates 2011; Rubke *et al.* 2017). Evidence of attacks by free-roaming dogs or other canids at EB were common during the 1990s, but such predation has been less apparent since at least 2007 (Woodman *et al.* 2008; Rubke and O'Donnell 2019).

Factor D: Inadequacy of Existing Regulatory Mechanisms

Summary from Service (2010a): *There are Federal and State regulatory mechanisms which provide discretionary protections for the desert tortoise based on current management direction,*

but with the exception of the California Fish and Game Code, none guarantee protection absent the Endangered Species Act. While many land use plans completed since time of listing include language specific to protection of the tortoise, land management agencies frequently do not have sufficient funding to enforce their land use regulations, and personnel are often spread across vast landscapes with multiple resource responsibilities.

In October 2020, the California Fish and Game Commission designated the Mojave Desert Tortoise a candidate species for Endangered status under the California Endangered Species Act in response to a petition to uplist the species from Threatened status. A final decision on the listing status was expected by 21 October 2021 (California Fish and Game Commission 2020). However, an uplisted status designation will not carry any additional regulatory protections under the California Endangered Species Act (L. Patterson, personal communication, 2021).

As noted under Factor A, the DRECP in California established more restrictive caps and other limitations on new surface disturbance on public lands within TCAs and desert tortoise linkages. However, the summary from the previous status review remains generally applicable today, including for populations east of the Colorado River. Law enforcement has an average ranking of 7.1 among 27 recovery action types across TCAs (calculated from Service 2014a, b, c). The shortage in law enforcement is exemplified by a number of examples:

- Difficulties in improving compliance with off-highway-vehicle travel have led to 24,518 km of ground transportation linear features in the western Mojave planning area, which is greater than 2.5 times the 9,651 km currently designated as open/limited (U.S. Bureau of Land Management 2019a, b).
- Unauthorized and unregulated development is occurring in occupied tortoise habitat on private lands in northwest Mohave County, Arizona (Service 2019i).
- The Bureau of Land Management has been unable to remove trespass cattle from the Gold Butte National Monument and adjacent areas for over two decades, leading to the well-publicized armed stand-off during an attempted roundup in April 2014.
- Authorities have warned the public to avoid all the illegal cannabis farms across the Mojave Desert because resources are insufficient to deal with them (Cosgrove and Sahagún 2021). Illegal cannabis farms have already led to the cessation of raven monitoring and management efforts in the Fremont-Kramer Critical Habitat Unit in 2021, with the likelihood that tortoise monitoring in the same unit scheduled for 2022 will be cancelled due to safety concerns for field workers.

Factor E: Other Natural or Manmade Factors Affecting its Continued Existence

Summary from Service (2010a): *Captive releases continue to have the potential to introduce disease and genetic contamination into wild populations of desert tortoises, although the magnitude of such releases and their effects on tortoise populations remains unknown. Since the time of listing, it has become apparent that the combined effects of global climate change (i.e., increased ambient temperatures and altered precipitation patterns) and drought may become significant factors in the long-term persistence of the species. Little is known regarding direct effects of climate change on the desert tortoise and its habitat, although increased drought will likely affect desert tortoises, directly through habitat loss and indirectly through decreased availability/quality of food and increased predation and possibly disease. Little information is available on the actual or relative impacts of other potential threats documented under Factor E.*

Three of the top 10-ranked threats are associated with Factor E, specifically climate change (Fig. 4). The climate in the southwestern U.S. from 2000 through 2021 was the driest 22-year period in over 1200 years and is predicted to continue through 2022 and likely beyond (Williams *et al.* 2022). Questions remain about the effect of increased temperatures on hatchling sex ratios and about the effect of decreased precipitation or increased drought frequency on tortoise egg production and survival of all age classes (Service 2010a, 2011). Research suggests that desert tortoises will produce and lay eggs earlier in a warming climate (Lovich *et al.* 2012), which could lead to increased annual egg production by providing more time for females to lay additional clutches in a year (Wallis *et al.* 1999). Shifts in egg production and nesting still might not compensate for changes in the environment depending on factors such as the time nests spend above the critical thermal maximum temperature for eggs and whether the availability of forage necessary to provide the nutrients for egg production synchronizes with shifts in tortoise activity (Lovich *et al.* 2017). In addition, declining reproductive output across much of the Mojave desert tortoise's range, as estimated between 1990 and 2018, could have a negative population-level effect, especially if precipitation is significantly reduced across the species' range as predicted under some climate models (Mitchell *et al.* 2021). Effects of any reduction in reproductive output will be compounded by the failure to reduce human-subsidized predation pressure on juvenile tortoises, especially by ravens.

Several local-level models projected substantial reductions in and movement upslope of suitable desert tortoise habitat under the anticipated effects of climate change. For example, at moderate predictions of climate change (+2°C maximum July temperature, –50 mm annual precipitation), modeled desert tortoise habitat at Joshua Tree National Park shrank by nearly 66% in the Mojave Desert portion and nearly 88% in the Sonoran Desert portion of the park (Barrows 2011). Similarly, projections of 1°C to 3°C warmer maximum July temperatures resulted in modeled habitat reductions of 24% and 55%, respectively, in the vicinity of MCAGCC (Barrows *et al.* 2016). Likewise, models of the region surrounding Lake Mead National Recreation Area using a similar range of climate projections as those above predicted habitat reductions of up to 77% (Barrows and Murphy 2011). Much of the predicted habitat east of the Colorado River shifted upslope away from LMNRA onto adjacent BLM lands under the warmer and drier scenarios (Barrows and Murphy 2011).

Currently, two projects are investigating implications of climate change across the Mojave desert tortoise's range. One is investigating how both land use and climate change will impact tortoise gene flow and corridor functionality using present and future habitat models (Heaton 2020). The second began with the premise that reliance on standard habitat models for performing climate vulnerability assessments may overestimate the risk from climate change because such assessments place more focus on the nature and magnitude of exposure to change than species' adaptive capacity to change; this project is using data collected across the broadest possible range of environmental conditions to estimate tortoise population growth rates as a function of inter-correlated vital rates, body condition, and spatiotemporally varying environmental conditions and then to assess metapopulation viability under multiple plausible future scenarios (Shoemaker 2020). Both projects are scheduled to be completed in mid-2022.

Synthesis

Allison and McLuckie (2018): *The negative population trends in most of the TCAs for Mojave Desert Tortoises indicate that this species is on the path to extinction under current conditions. This may reflect inadequate recovery action implementation, slow response by tortoises and their habitat to implemented actions, or new and ongoing human activities in the desert that have not been mitigated appropriately. It may also be a result of stochastic or directional climatic events that impact large expanses of tortoise habitat (e.g., drought, fire, climate change) and are largely beyond the realm of local land management activities. Our results are a call to action to remove ongoing threats to tortoises from TCAs, and possibly to contemplate the role of human activities outside TCAs and their impact on tortoise populations inside them.*

As documented by Allison and McLuckie (2018), the status of the Mojave Desert Tortoise had not improved by 2014 and most threats to the species persist at or above 2010–2011 levels. These conditions portend further status deterioration in the absence of concerted efforts by land managers to meaningfully reduce predator subsidies, vehicle-caused tortoise mortalities, and invasive annual plants in important tortoise habitats. The magnitude of population trends and status of current threats led the International Union for the Conservation of Nature and Natural Resources to reclassify the species as Critically Endangered under their unique Red List criteria (Berry *et al.* 2021).

Despite being in a more precarious overall situation than at the time of publication of the revised recovery plan, recognition of *G. agassizii* populations east of the Colorado River makes the range of the species slightly larger than the currently listed entity, and the total range-wide population consisted of hundreds of thousands of individuals (all size classes) at last estimation. In addition, the MOG has taken steps to prioritize and implement actions that would be most effective at facilitating recovery across the range. Although sufficient time has not yet passed to see substantial population improvements of a species with such a slow life history, we expect those efforts to result in positive impacts over time. Those efforts, combined with the total estimated population size, and increasing population trends in parts of the range, suggest that the species is not in imminent danger of extinction in the foreseeable future, so we do not recommend a change in status under the Endangered Species Act at this time. An updated analysis of population trends is in preparation, and new models of the effects of land use and climate change on the Mojave Desert Tortoise will also soon be available for a more informed status recommendation in the next five-year review. Basing an updated status recommendation on upcoming models of future scenarios and trends will also allow an assessment of progress of large-scale conservation initiatives such as more concerted raven monitoring and management and the Recovery and Sustainment Partnership between the Department of Defense and Department of Interior.

RESULTS

Recommended Classification: No change is needed

Recovery Priority Number: 11C (no change)

Brief Rationale: The RPN is based on a) ongoing population declines and threats; b) a low potential for recovery, based on current uncertainties about various threats and our ability to manage them; c) listed at species level; and d) potential conflict with development or other forms of economic activity.

RECOMMENDATIONS FOR FUTURE ACTIONS

In light of declining trends across much of the Mojave Desert Tortoise's range and the status of threats across the range, the highest-priority actions over the next five years are listed below. Recommended actions in the 2011 recovery plan are identified by recovery action number.

1. Most importantly, the top recovery actions endorsed by the Desert Tortoise MOG require more aggressive implementation (Fig. 5).
   a. Habitat restoration (Recovery Action 2.6): Define habitat status and desired conditions relative to desert tortoise fitness (5.1 and 5.2, in part) and target restoration or protection efforts to meet those conditions. Habitat restoration should address invasive weeds, native forage plants, and recovery of unpaved roads and routes.
   b. Minimize excessive predation on tortoises by decreasing predator access to human subsidies and with targeted predator control (2.14). Demographic models should guide efforts to reduce raven abundance and predation rates on tortoises via tools such as oiling raven eggs to prevent hatching as well as efforts to remove targeted numbers of breeding and non-breeding adults in areas that exceed 0.89 ravens/km^2 or other thresholds derived from updated modeling. All active raven nests within approximately 1–2 km, depending on local raven density, of TCAs should be oiled or removed.
   c. Install and maintain tortoise barrier fencing (2.5, in part) along priority stretches of highways (see Holcomb 2019).
   d. Fire management planning and implementation (2.1, in part): Fire prevention and management should be pursued throughout the Mojave and Colorado deserts to contain the grass-fire cycle. Minimizing the size and intensity of fires will ease subsequent restoration efforts, even in previously burned areas. Identifying and mapping priority areas and developing a fire plan for habitat protection, fire-crew access, and the use of natural or created fuel breaks could help limit response time and fire spread.
   e. Environmental education (2.3): Coordinated, consistent messaging should increase awareness on how targeted user groups, such as off-highway-vehicle enthusiasts, and the general public can recreate responsibly to minimize their impacts on desert tortoise populations and should include subjects such as adoption programs for captive tortoises, the importance of discouraging unauthorized breeding of desert tortoises in captivity, and the illegality of releasing captive tortoises into wildlands.

2. Maintain landscape connectivity and the resilience of TCAs (2.11) via actions described by Averill-Murray *et al.* (2021).
   a. Manage all desert tortoise habitat for persistence and connectivity. For example, managing the entire remaining matrix of desert tortoise habitat outside TCAs for permeability may be better than delineating fixed corridors between TCAs.
   b. Limit landscape-level disturbance across habitat managed for the desert tortoise (2.1) by extending surface-disturbance caps similar to those enacted by the DRECP in California to the rest of the Mojave Desert Tortoise's range.
   c. In addition to minimizing mortality from roads as per 1.c, above, maximize passage under roads, e.g., by filling eroded drop-offs or by modifying erosion-control features such as rip-rap at culvert entrances to make them safer and more passable for tortoises.
   d. Adapt management based on information from research (5.5) on i) the effects of climate change on desert tortoise habitat, distribution, and population connectivity; ii) the effects of large-scale fires, especially within repeatedly burned habitat, on desert tortoise distribution and population connectivity; iii) the ability of solar energy facilities or similar developments to support tortoise movement and presence by leaving washes and native vegetation intact; and iv) the design and frequency of underpasses necessary to maintain functional demographic and genetic connectivity across roads and highways.

3. Increase law enforcement efforts across the range of the desert tortoise (2.4), especially within TCAs, to minimize impacts of habitat destruction and degradation as a result of unauthorized OHV use, unpermitted cannabis farms, and trespass grazing.

4. Use population augmentation to help achieve recovery criteria in each of the five recovery units according to the Fish and Wildlife Service's population augmentation strategy (3.2–3.4). Individual augmentation plans should include design, feasibility and risk assessment, implementation, monitoring, and evaluation and adjustment elements (Service 2021d).

5. Update the taxonomy, distribution, and listed status of *Gopherus agassizii* under the Endangered Species Act to include populations east of the Colorado River (Fig. 1). A "similarity of appearance" rule may be necessary for *G. morafkai* populations or individuals that occur within the range of the Mojave Desert Tortoise.

6. Incorporate updated population trend analysis (Service, in progress) and climate change/land-use modeling (5.5: Heaton 2020; Shoemaker 2020) into the next 5-year review. These climate-change models should be used to inform management strategies under the Resist-Accept-Direct framework for ecological adaptation (Schuurman *et al.* 2021; Williams 2021).

7. Range-wide monitoring efforts continue to fluctuate at suboptimal levels due to inconsistent funding (Allison and McLuckie 2018). Therefore, we reiterate the 2002 recommendation "that the Secretary of the Interior work with the Secretary of Defense and other agencies and organizations involved in tortoise recovery to identify and assess options for securing continued funding for rangewide population monitoring" to ensure that long-term monitoring of the desert tortoise is sustained (General Accounting Office [GAO] 2002). Estimation of trends within TCAs also would be improved by streamlining individual-agency access

processes. For example, access has been difficult to obtain for certain parcels of critical habitat during the primary tortoise active season.

8. Develop a revised spatial decision support system to improve models of threats, recovery actions, and tortoise demographics (5.3, 6.1). Development should include up-to-date underlying geospatial data, evaluation of prior conceptual models, and improved operationalization of recovery action terminology.

U.S. FISH AND WILDLIFE SERVICE
5-YEAR REVIEW of the Mojave Desert Tortoise (*Gopherus agassizii*)

Current Classification: Threatened

Recommendation resulting from the 5-Year Review:

____ Downlist to Threatened
____ Uplist to Endangered
____ Delist (Indicate reasons for delisting per 50 CFR 424.11):
    ____ Extinction
    ____ Recovery
    ____ Original data for classification in error
_X__ No change needed

Appropriate Listing/Reclassification Priority Number, if applicable: 11C

APPROVAL:

Assistant Regional Director, Pacific Southwest Region, Fish and Wildlife Service

Approve MICHAEL SENN Digitally signed by MICHAEL SENN Date: 2022.05.20 14:40:37 -07'00' Date May 20, 2022

The lead Field Office must ensure that other offices within the range of the species have been provided adequate opportunity to review and comment prior to the review's completion. The lead field office should document this coordination in the agency record.

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[Service] U.S. Fish and Wildlife Service. 1994b. Endangered and threatened wildlife and plants; determination of critical habitat for the Mojave population of the Desert Tortoise. FR 59:5820–5866.

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[Service] U.S. Fish and Wildlife Service. 2014c. Recovery action plan for the Mojave Desert Tortoise in the Upper Virgin River Recovery Unit. U.S. Fish and Wildlife Service, Pacific Southwest Region, Sacramento, California. Developed in coordination with the Upper Virgin River Recovery Implementation Team.

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[Service] U.S. Fish and Wildlife Service. 2019d. Formal and Informal Consultation under Section 7 of the Endangered Species Act for the Gemini Solar Project, Clark County, Nevada. Southern Nevada Fish and Wildlife Office, Las Vegas.

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U.S. Bureau of Land Management. 2016b. Beaver Dam Wash National Conservation Area Record of Decision and Approved Resource Management Plan. St. George Field Office. DOI-BLM-UT-C030-2015-1-EIS.

U.S. Bureau of Land Management. 2019a. West Mojave Route Network Project Final California Desert Conservation Plan Amendment and Supplemental Environmental Impact Statement for the California Desert District. BLM/CA/DOI-BLM-CA-D080-2018-0008-EIS.

U.S. Bureau of Land Management. 2019b. Record of Decision: West Mojave Route Network Project Decision to Amend California Desert Conservation Area Plan and Implement Nine Travel Management Plans. Bureau of Land Management, California Desert District.

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PERSONAL COMMUNICATIONS

Delcalzo, A. 10 March 2021 email re: Meadow Valley Fire.

Patterson, L. 26 July 2021 email re: California Endangered Species Act.

APPENDIX: Published Research Since 2011

This appendix lists research on Mojave Desert Tortoises that has been published since the 2011 recovery plan. Sections are organized by numbered recommendations in the recovery plan.

3.4 Implement translocations in target areas to augment populations using a scientifically rigorous, research-based approach

Translocation

Aiello *et al.* 2014. Disease dynamics during wildlife translocations: disruptions to the host population and potential consequences for transmission in desert tortoise contact networks. Animal Conservation 17(Suppl. 1):27–39.

Averill-Murray and Hagerty. 2014. Translocation relative to spatial genetic structure of the Mojave Desert Tortoise, *Gopherus agassizii*. Chelonian Conservation and Biology 13:35–41.

Brand *et al.* 2016. Mitigation-driven translocation effects on temperature, condition, growth, and mortality of Mojave desert tortoise (*Gopherus agassizii*) in the face of solar energy development. Biological Conservation 200:104–111.

Dickson *et al.* 2019. Multiyear monitoring of survival following mitigation-driven translocation of a long-lived threatened reptile. Conservation Biology 5:1094–1105.

Drake *et al.* 2012. Does translocation influence physiological stress in the desert tortoise? Animal Conservation 15:560–570.

Edwards and Berry. 2013. Are captive tortoises a reservoir for conservation? An assessment of genealogical affiliation of captive *Gopherus agassizii* to local, wild populations. Conservation Genetics doi:10.1007/s10592–013–0458–y.

Farnsworth *et al.* 2015. Short-term space-use patterns of translocated Mojave Desert Tortoise in southern California. PLoS One 10(9):e0134250.doi:10.1371/journal.pone.0134250.

Germano *et al.* 2015. Mitigation-driven translocations: are we moving wildlife in the right directions? Frontiers in Ecology and the Environment 13:100–105. doi:10.1890/140137.

Germano *et al.* 2017. Predicting translocation outcomes with personality for desert tortoises. Behavioral Ecology doi:10.1093/beheco/arx064.

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Hansson *et al.* 2021. Comment on "Individual heterozygosity predicts translocation success in threatened desert tortoises." Science 10.1126/science.abh1105.

Hinderle *et al.* 2015. The effects of homing and movement behaviors on translocation: desert tortoises in the western Mojave Desert. Journal of Wildlife Management 79:137–147.

Mulder *et al.* 2017. No paternal genetic integration in desert tortoises (*Gopherus agassizii*) following translocation into an existing population. Biological Conservation 210:318–324.

Nafus *et al.* 2017. Habitat drives dispersal and survival of translocated juvenile desert tortoises. Journal of Applied Ecology 54:430–438.

Nussear *et al.* 2012. Translocation as a conservation tool for Agassiz's desert tortoise: survivorship, reproduction, and movements. Journal of Wildlife Management 76:1341–1353.

Sadoti *et al.* 2017. Discriminating patterns and drivers of multiscale movement in herpetofauna: the dynamic and changing environment of the Mojave desert tortoise. Ecology and Evolution doi:10.1002/ece3.3235.
Sah *et al.* 2016. Inferring social structure and its drivers from refuge use in the desert tortoise, a relatively solitary species. Behavioral Ecology and Sociobiology doi:10.1007/s00265–016–2316–9.
Scott *et al.* 2020. Individual heterozygosity predicts translocation success in threatened desert tortoises. Science 370:1086–1089.
Scott *et al.* 2021. Response to comment on "Individual heterozygosity predicts translocation success in threatened desert tortoises." Science 10.1126/science.abg3199.
Scott *et al.* 2021. Response to comment on "Individual heterozygosity predicts translocation success in threatened desert tortoises." Science 10.1126/science.abh2633.

Head-starting

Daly *et al.* 2018. Comparing growth and body condition of indoor-reared, outdoor-reared, and direct-released juvenile Mojave Desert Tortoises. Herpetological Conservation and Biology 13:622–633.
Daly *et al.* 2019. Survival and movements of head-started Mojave Desert Tortoises. Journal of Wildlife Management 83:1700–1710.
Hazard *et al.* 2015. Post-release dispersal and predation of head-started juvenile desert tortoises (*Gopherus agassizii*): effect of release site distance on homing behavior. Herpetological Conservation and Biology 10:504–515.
Mack *et al.* 2018. Crowding affects health, growth, and behavior in headstart pens for Agassiz's Desert Tortoise. Chelonian Conservation and Biology 17:14–26.
McGovern *et al.* 2020. Comparing husbandry techniques for optimal head-starting of the Mojave Desert Tortoise (*Gopherus agassizii*). Herpetological Conservation and Biology 15:626–641.
McGovern *et al.* 2020. The effect of size on postrelease survival of head-started Mojave Desert Tortoises. Journal of Fish and Wildlife Management 11:494–506.
McGovern *et al.* 2021. Comparing post-release cover and burrow use by differentially head-started Mojave Desert Tortoises in southern California. Conservation Evidence Journal 18:37–43.
Nagy *et al.* 2015. Head-started desert tortoises (*Gopherus agassizii*): movements, survivorship and mortality causes following their release. Herpetological Conservation and Biology 10:203–215.
Nagy *et al.* 2015. Effects of artificial rain on survivorship, body condition, and growth of head-started desert tortoises (*Gopherus agassizii*) released to the open desert. Herpetological Conservation and Biology 10:535–549.
Nagy *et al.* 2016. Weather and sex ratios of head-started Agassiz's desert tortoise *Gopherus agassizii* juveniles hatched in natural habitat enclosures. Endangered Species Research 30:145–155.
Nagy *et al.* 2020. Head-started Agassiz's Desert Tortoises *Gopherus agassizii* achieve high survival, growth, and body condition in natural field enclosures. Endangered Species Research 43:305–321.
Tuberville *et al.* 2019. Effects of short-term, outdoor head-starting on growth and survival in the Mojave Desert Tortoise (*Gopherus agassizii*). Herpetological Conservation and Biology 14:171–184.

5.1 Determine factors that influence the distribution of desert tortoises.

- Validate and refine the desert tortoise habitat model. Expand to model potential effects of global climate change on existing desert tortoise habitat.
- Determine characteristics that contribute to the relative condition (*e.g.*, high or low quality) of desert tortoise habitat.

Harju and Cambrin. 2019. Identifying habitat correlates of latent occupancy when apparent annual occupancy is confounded with availability for detection. Biological Conservation DOI: 10.1016/j.biocon.2019.108246.

Inman *et al.* 2019. Local niche differences predict genotype associations in sister taxa of desert tortoise. Diversity and Distributions. DOI: 10.1111/ddi.12927

Todd *et al.* 2016. Habitat selection by juvenile Mojave Desert Tortoises. Journal of Wildlife Management. DOI:10.1002/jwmg.1054.

5.2 Conduct research on the restoration of desert tortoise habitat. Papers loosely categorized according to topics identified in the recovery plan:

a) Evaluate the effectiveness of different restoration methods.
b) Identify methods to eradicate non-native, invasive plants within desert tortoise habitat.
c) Assess the ecological consequences of climate change on future vegetation communities within the range of the desert tortoise.
d) Correlate habitat restoration with desert tortoise population status.
e) Other restoration-related papers since 2011.

[b]Abella. 2014. Effectiveness of exotic plant treatments on National Park Service lands in the United States. Invasive Plant Science and Management 7:147–163.

[a]Abella. 2017. Persistent establishment of outplanted seedlings in the Mojave Desert. Ecological Restoration 35(1):16–19.

[a]Abella and Berry. 2016. Enhancing and restoring habitat for the desert tortoise *Gopherus agassizii*. Journal of Fish and Wildlife Management doi:10.3996/052015–JFWM–046.

[e]Abella, S.R., and L.P. Chiquoine. 2019. The good with the bad: when ecological restoration facilitates native and non-native species. Restoration Ecology 27:343–351.

[a]Abella and Smith. 2013. Annual-perennial plant relationships and species selection for desert restoration. Journal of Arid Land 5:298–309.

[b]Abella *et al.* 2011. Relationships of native desert plants with red brome (*Bromus rubens*): toward identifying invasion-reducing species. Invasive Plant Science and Management 4:115–124.

[a]Abella *et al.* 2012. Outplanting but not seeding establishes native desert perennials. Native Plants 13:81–89.

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[a]Abella *et al.* 2015. Restoring a desert ecosystem using soil salvage, revegetation, and irrigation. Journal of Arid Environments 115:44–52.

[a]Abella *et al.* 2015. Enhancing quality of desert tortoise habitat: augmenting native forage and cover plants. Journal of Fish and Wildlife Management 6:278–289.

[c]Bachelet *et al.* 2016. Climate change effects on southern California deserts. Journal of Arid Environments 127:17–29.

[a]Berry *et al.* 2015. Bidirectional recovery patterns of Mojave Desert vegetation in an aqueduct pipeline corridor after 36 years: I. Perennial shrubs and grasses. Journal of Arid Environments http://dx.doi.org/10.1016/j.jaridenv.2015.03.004.

[a]Berry *et al.* 2015. Bidirectional recovery patterns of Mojave Desert vegetation in an aqueduct pipeline corridor after 36 years: II. Annual plants. Journal of Arid Environments 122: 141–153. https://doi.org/10.1016/j.jaridenv.2015.06.016.

[a]Chiquoine *et al.* 2016. Rapidly restoring biological soil crusts and ecosystem functions in a severely disturbed desert ecosystem. Ecological Applications 26:1260–1272.

[a]DeFalco and Esque. 2014. Soil seed banks: preserving native biodiversity and repairing damaged desert shrublands. California's Deserts, Part 2: threats and conservation strategies. Fremontia 42:20–23.

[a]DeFalco *et al.* 2012. Supplementing seed banks to rehabilitate disturbed Mojave Desert shrublands: Where do all the seeds go? Restoration Ecology 20:85–94.

[a]Devitt *et al.* 2020. Post burn restoration response of *Encelia virginensis* within a small wash system in the Mojave Desert. Ecological Restoration 38:169–179.

[e]Esque *et al.* 2021. Priority species lists to restore desert tortoise and pollinator habitats in Mojave Desert shrublands. Natural Areas Journal 41:145–158.

[a]Jones *et al.* 2014. Seedling ecology and restoration of blackbrush (*Coleogyne ramosissima*) in the Mojave Desert, United States. Restoration Ecology doi: 10.1111/rec.12128.

[c]Munson *et al.* 2015. Long-term plant responses to climate are moderated by biophysical attributes in a North American desert. Journal of Ecology 103:657–668.

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[a]Scoles-Sciulla *et al.* 2015. Contrasting long-term survival of two outplanted Mojave Desert perennials for post-fire revegetation. Arid Land Research and Management 29:110–124.

[e]Shryock *et al.* 2015. Landscape genomics of *Sphaeralcea ambigua* in the Mojave Desert: a multivariate, spatially-explicit approach to guide ecological restoration. Conservation Genetics 16:1303–1317.

[e]Shryock *et al.* 2017. Landscape genetic approaches to guide native plant restoration in the Mojave Desert. Ecological Applications 27:429–445.

[e]Shryock *et al.* 2020. Harnessing landscape genomics to identify future climate resilient genotypes in a desert annual. Molecular Ecology 2020:00:1-20.

5.3 Improve models of threats, threat mitigation, and desert tortoise demographics.

Papers loosely categorized according to topics identified in the recovery plan:

a) Develop conceptual and quantitative models of threats to clarify interactive relationships between threats and to identify critical synergies that contribute to population declines. Demographic effects of individual threats and suites of threats on tortoise populations should be determined experimentally.
b) Develop and test models of the effectiveness of management actions.
c) Model desert tortoise demography relative to habitat condition to determine the proportion of habitat that needs to be occupied (or is available to be occupied) for

recovery. Models should incorporate predicted effects of climate change on desert tortoise demography as well as on the current composition of tortoise habitat.

d) Update population viability analyses.

e) Other publications since 2011 directly related to particular threats and demographics
    i. Invasive plants
    ii. Fire and burned habitat
    iii. Wind energy development
    iv. Predation
    v. Climate
    vi. Other

[e.ii]Abella and Engel. 2013. Influences of wildfires on organic carbon, total nitrogen, and other properties of desert soils. Soil Science Society of America Journal 77:1806–1817.

[e.i]Abella *et al.* 2012. Biophysical correlates with the distribution of the invasive annual red brome (*Bromus rubens*) on a Mojave Desert landscape. Invasive Plant Science and Management 5:47–56.

[e.iii]Agha *et al.* 2015. Turbines and terrestrial vertebrates: variation in tortoise survivorship between a wind energy facility and an adjacent undisturbed wildland area in the desert Southwest (USA). Environmental Management doi:10.1007/s00267–015–0498–9.

[e.vi]Agha *et al.* 2015. The effect of research activities and winter precipitation on voiding behaviour of Agassiz's desert tortoises (*Gopherus agassizii*). Wildlife Research 41:641–649.

[e.vi]Agha *et al.* 2015. Nelson's Big Horn Sheep (*Ovis canadensis nelson*) trample Agassiz's Desert Tortoise (*Gopherus agassizii*) burrow at a California wind energy facility. Bulletin of the Southern California Academy of Sciences 114:58–62.

[e.vi]Agha *et al.* 2017. Mammalian mesocarnivore visitation at tortoise burrows in a wind farm. Journal of Wildlife Management 81:1117–1124.

[e.iv]Anderson and Berry. 2019. *Gopherus agassizii* (Agassiz's Desert Tortoise). Predation. Herpetological Review 50:351.

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5.4 Conduct research on desert tortoise diseases and their effects on tortoise populations. *Papers loosely categorized according to topics identified in the recovery plan:*

a) Determine whether population declines through environmental stress are less severe when *Mycoplasma* is absent.
b) Determine if desert tortoises exposed to simulated drought conditions become more susceptible to infection and more infectious.
c) Determine whether diets high in plants of low nutritional value increase susceptibility to disease, as well as infectiousness.
d) Identify virulent and less virulent strains of *Mycoplasma* in wild and captive populations and monitor temporal and spatial change in prevalence in relation to host genetic status and environmental stressors.
e) Identify genes expressing toxin production and the circumstances when these genes are expressed.
f) Examine the level of cross immunity between strains and variation in resistance in relation to the plane of nutrition and availability of water.
g) Identify which individual tortoises are shedding, how they shed, when they shed, and for how long they shed infectious *Mycoplasma* particles.
h) Identify whether individuals removed from drought-stressed areas or areas with severely deteriorated habitats continue to shed *Mycoplasma* and for how long. This research will identify in more detail seasonal forces of infection, the period of infectiousness, and how infectiousness varies under different circumstances.
i) Undertake trials to determine if it is possible to cure individuals with *Mycoplasma* infections, even if only feasible in captive individuals.
j) Examine the behavior of infectious tortoises in comparison to uninfected tortoises in the wild. Obtain estimates of contact rate according to sex, age, and season. This research will help us understand the most critical epidemiological parameters associated with transmission and, with other data, allow us to produce a predictive model of outbreak.
k) Examine the implications of releasing sick tortoises into uninfected populations.
l) Further explore natural antibodies in desert tortoises.
m) Create a comprehensive disease-tortoise population model that incorporates the above information.
n) Evaluate other known or emerging diseases for effects on desert tortoise populations.
o) Other health- or disease-related publications since 2011

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5.5 Determine the importance of corridors and physical barriers to desert tortoise distribution and gene flow.

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Image Details

FWS Focus

Overview

The Mojave population of desert tortoise (*Gopherus agassizii*) includes all tortoises north and west of the Colorado River in Arizona, Utah, Nevada and California. Listed as threatened in 1990, these tortoises are impacted by ongoing threats, including loss, degradation and fragmentation of habitat due to development. They are also impacted by increased wildfire due to non-native invasive vegetation, disease, road mortality and predation of their eggs and hatchlings.

Scientific Name

Gopherus agassizii

Common Name

Desert Tortoise, Mohave Desert Tortoise, Agassiz's Desert Tortoise, Mojave Desert Tortoise

FWS Category

Reptiles

Kingdom

Animalia

Location in Taxonomic Tree ()

Genus
↳ *Gopherus*

Species
↳ *Gopherus agassizii*

Identification Numbers

TSN: ()

173856

Characteristics

HABITAT

Habitat

Mojave population of desert tortoise lives in a variety of habitats from sandy flats to rocky foothills, including alluvial fans, washes and canyons.

Desert
Arid land with usually sparse vegetation.

BEHAVIOR

Behavior

The desert tortoise hibernates in burrows for up to nine months each year, and is most active from March to June and September to October.

PHYSICAL CHARACTERISTICS

Color & Pattern

The desert tortoise has a top shell is brown, gray or black, and the shell underneath is lighter.

Sound

The desert tortoise produces a variety of sounds - *hisses, grunts, pops, whoops, huhs, echs, bips,* etc.

Size & Shape

The desert tortoise has a short tail, flattened front legs that are adapted for digging, elephant-like hind legs and a high-domed shell.

MeasurementsShell height: 4 to 6 inchesShell length: 8 to 15 inches

Weight

Adult tortoises weigh eight to 15 pounds.

LIFE CYCLE

Life Span

Desert tortoises can live roughly 50 to 80 years, but take 13 to 20 years to reach sexual maturity.

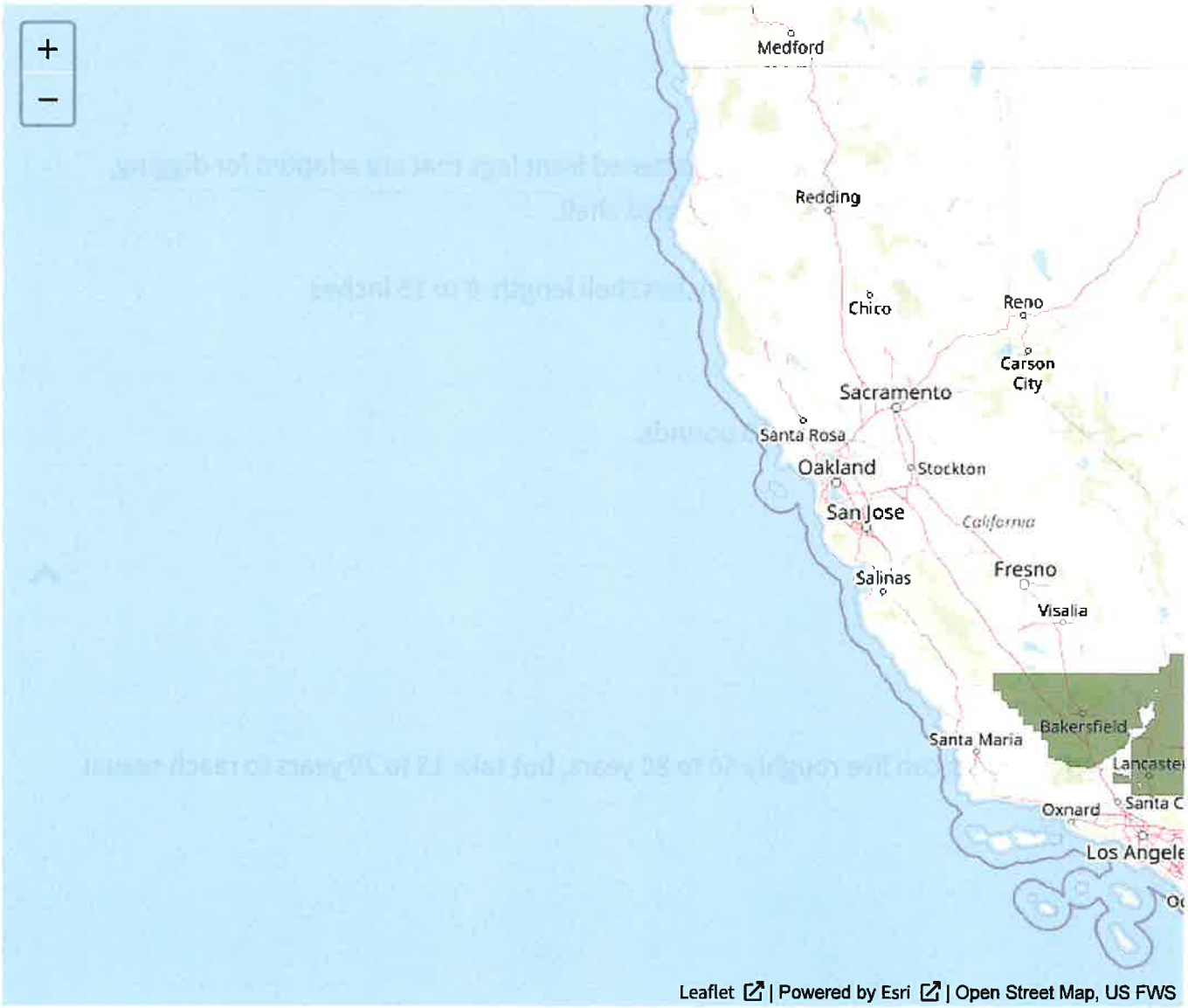
FOOD

Food

The desert tortoise eat various herbs, grasses, cacti and wildflowers.

Geography

LAUNCH INTERACTIVE MAP



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42 ITEMS

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Five Year Review (Information Solicitation)

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Publication type: Notice

Population:

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ITEM 42

Key:

Event Regulatory Status Change

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Decision for Northern Corridor to Help Support Local Communities While also Protecting Habitat and Species Released

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Press Release

Jan 14, 2021

Final Environmental Impact Statement Considering highway right-of-way, amended HCP, and Incidental Take Permit for Mojave Desert Tortoise

St. George, UT - The Bureau of Land Management (BLM) and U.S. Fish and Wildlife Service (Service) have issued the final environmental impact statement (Final EIS) that considers a highway right-of-way application, amended habitat conservation plan and incidental take permit for the Mojave desert...

Press Release

Nov 12, 2020

HCP, NEPA - EIS

Conservation Plan

HCP, NEPA - ROD

Conservation Plan

HCP, The HCP

Conservation Plan

Mojave Desert Tortoise population augmentation strategy

PDF

Feb 1, 2021

Revised USFWS DT Translocation Guidance

PDF

Jun 3, 2020

Translocation Guidance Attachment 1: Clearance survey protocol

Word Document

Jun 2, 2020

Translocation Guidance Attachment 2: Temporary Captive Care of Wild Mojave Desert Tortoises

PDF

Jun 2, 2020

Translocation Guidance Attachment 1: Clearance survey protocol

PDF

Jun 2, 2020

< 1 2 3 4 5 >

ScienceDirect

Journal of Hydrology
Volume 589, October 2020, 125170

Research papers

Impacts of gold mine effluent on water quality in a pristine sub-Arctic river

Navid Yaraghi [a], Anna-Kaisa Ronkanen [a], Ali Torabi Haghighi [a], Mahdi Aminikhah [b], Katharina Kujala [a], Bjørn Kløve [a]

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Abstract

Impacts of mining on water quality are a great concern in the Arctic region. This study evaluated the impact of pre-treated mine effluent on river water quality. The study was conducted along the Seurujoki River in sub-Arctic Finland, which is impacted by Kittilä gold mine. The study analyzed water quality and hydrological data upstream and downstream of the mining area over an eight-year period, including a tailing dam leakage event in 2015. The analysis focused on water quality determinants such as electrical conductivity (EC), sulfate, antimony, manganese, and total nitrogen (N_{total}). Descriptive statistics on river water at four stations along the river corridor showed negative impacts of mining activities on the recipient water body. In order to find an indicator for water quality, correlation analysis between the water quality determinants was carried out. It identified EC as a good indicator for continuous water quality monitoring, especially to detect mining accidents such as partial failure of a tailings dam. The results showed increasing contaminant concentrations due to mining as more mine effluent was generated over time. A linear mixed model was developed to predict the coefficient of different elements affecting EC at river water monitoring stations impacted by mining effluents. The results provide new information on how to assess mining water impacts and plan future water quality monitoring.

Introduction

Active and closed mines are recognized as serious and long-lasting threats for river systems all over the world (e.g., Beane et al., 2016, Garbarino et al., 2018, Hudson-Edwards et al., 1999, Monna et al., 2000).

Effluent from mining enrichment processes is often treated with advanced purification methods, but 'secondary' effluent with lower contaminant concentrations, from mine drainage water, runoff from waste rock piles, and leaching from tailing dams, is often discharged directly into river systems or only partly treated in sedimentation ponds or different type of wetlands (Monna et al., 2000). In addition to mine-influenced waters during the normal operation phase, tailings dam and operational failures and accidents are a serious threat to river systems (World Information Service on Energy, 2019).

Mining effluents are typically acidic and saline, with high concentrations of sulfate (SO_4^{2-}), iron (Fe), and other metals/metalloids (e.g., Olías et al., 2004). These waters pose a risk to terrestrial and aquatic ecosystems (e.g., Graupner et al., 2014) by reducing both the species and functional richness of communities (Berger et al., 2018). Recent developments in mining technology (Luoto et al., 2019, Watling, 2014) and the growing need for raw materials have increased the pressure to open new mines in sensitive Arctic regions (such as Finland), where some of Europe's largest metal mines already exist (Boyd et al., 2016). In northern Finland, mining is in conflict with other ecosystem services such as tourism, fisheries, and traditional reindeer herding. All these have raised great concerns about the safety and sustainability of the mining industry in general (Ranängen and Lindman, 2018). The best available techniques for lowering environmental impacts of the extractive industry have recently been updated by the European Commission (Garbarino et al., 2018). Despite the fact that mine effluent waters are typically treated and purified using different active (da Silveira et al., 2009, Mackie and Walsh, 2012) and passive (Palmer et al., 2015, Sheoran and Sheoran, 2006) treatment methods, the environmental impact of these pre-treated mine waters can be considerable, especially in pristine Arctic and sub-Arctic waters (Khan et al., 2020, Larkins et al., 2018, Lemly, 1994).

Past studies on the impact of mining on river water quality have focused on monitoring tailings dam failure effects (Yu et al., 2011), remediation of contaminated river systems (Byrne et al., 2018, Carmo et al., 2017, Klebercz et al., 2012, Mayes et al., 2011, Olías et al., 2012), assessment of the economic impacts of mining accidents (Kossoff et al., 2014, Rico et al., 2008), and pollution risk analysis and risk management (Burritt and Christ, 2018, Komnitsas et al., 1998, Xenidis et al., 2003). A major risk linked to mining activities is re-mobilization of pollutants from contaminated riverine sediments (Galán et al., 2003, Meck et al., 2006), which is intensified by high salinity (Olías et al., 2004, Riba et al., 2003). In particular, the 'first flush' after a relatively dry summer, or initial surface runoff of a rainstorm, can deteriorate river water quality, an impact associated with re-dissolution of sulfate precipitated during the summer following intense natural weathering of sulfate minerals (Olías et al., 2004). During winters, a slight increase in pH and decrease in pollutants have been observed, effects which have been associated with dilution (Olías et al., 2004).

The aim of this study was to gain a better understanding of the impacts of pre-treated mining effluent waters on a sub-Arctic river system that has not been well studied (Tolvanen et al., 2019). In sub-Arctic climate conditions, rivers have their unique characteristics and flow regime varies both between and within years. The most important cause of this variation in snow cover properties such as maximum snow water equivalent and time of melting in May-June. There is a need for more research on the true impacts of mining in this type of sensitive system. Using an intensive monitoring set-up with continuous logger sensors, specific objectives of the study were to (i) assess the temporal and seasonal variation in water quality due to mine water discharge in a sub-Arctic climate and ii) assess impacts of pre-treated mining water on river water quality determinants in different stations along the river corridor. In contrast to previous studies on

mining water impacts on Finnish lakes (e.g., Leppänen et al., 2019, Leppänen et al., 2017, Niinioja et al., 2003) and rivers (e.g., Salmelin et al., 2017), this study examined riverine impacts using data of high temporal resolution, which added knowledge on seasonal variation. Another unique feature of the study is that it provides data on river responses during a mining accident. The novel information obtained on the mining site water environment, and how it should be monitored and conceptualized, can be useful for future studies and numerical modeling.

Section snippets

Study area

The river Seurujoki, with a total length of 37 km, is located in the north part of boreal zone in the municipality of Kittilä (67°55′N, 25°20′E) in northern (sub-Arctic) Finland (Fig. 1a). Its catchment (307 km^2) is sparsely populated and is part of the Kemijoki catchment (51,127 km^2). More than 83% of the Seurujoki catchment area is classified as forest and peatlands, while agricultural land accounts only for 0.12% of the catchment area (Fig. 1b). The river has been classified as a...

Comparison of water quality in upstream and downstream river reaches

There was an obvious impact of mining on river water quality, as seen from water samples taken downstream of the mining area (Fig. 3 and Fig. 5a). EC and concentrations of N_{total}, SO_4^{2-}, and Sb were clearly elevated after the points of TP-A and TP-B discharge to the river. For instance, EC was 9.3±0.2 mS m^{-1} at Station #1 (reflecting the baseline values without mining influence), but downstream from the mining site it increased to 23.4±1.5, 27.7±1.0, and 26.4±1.4 mS m^{-1} at Station #2,...

Conclusions

Long-term water quality data from monitoring stations upstream and downstream of a gold mine were analyzed and compared with available data for the pre-mining period, in order to determine the impact of mining activities on the river in a sensitive sub-Arctic region where mining, tourism, and natural values are in conflict. The pre-treated mine water changed the seasonal patterns of water quality determinants along the river. In the river section before mining effluent entered, EC measurements...

CRediT authorship contribution statement

Navid Yaraghi: Conceptualization, Methodology, Formal analysis, Investigation, Data curation, Writing - original draft, Writing - review & editing, Visualization. **Anna-Kaisa Ronkanen:** Conceptualization, Methodology, Data curation, Writing - review & editing, Supervision, Funding acquisition. **Ali Torabi Haghighi:** Methodology, Supervision. **Mahdi Aminikhah:** Formal analysis. **Katharina Kujala:** Formal analysis, Data curation, Visualization. **Bjørn Kløve:** Methodology, Writing - review & editing,...

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper....

Acknowledgments

We would like to thank the technical staff, especially Tuomo Reinikka, at Water, Energy and Environmental Engineering Research Unit, University of Oulu for the help to install loggers to the river. Contribution of the mining company is also acknowledged for providing the water quality and flow-rate data regarding mine influenced waters. This research was partly supported by Maa- ja Vesitekniikan tuki r.y. and OLVI-säätiö (201920141). We would also like to thank the editors and anonymous...

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2022, PLoS ONE

Identifying water factors that are related to ammonia nitrogen concentrations in Columbia River using a reversed hazard exponential model

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ATTACHMENT I- RESPONSE TO COMMENT LETTERS RECEIVED DURING PUBLIC NOTICING

SESPE
CONSULTING, INC.
A Trinity Consultants Company
374 Poli Street, Suite 200 • Ventura, CA 93001 • (805) 275-1515

October 13, 2023

Imperial County, Planning and Development Services Department
Attn: Michael Abraham
801 Main Street
El Centro, California 92234

Re: Response to Comment Letter Received from the Center for Biological Diversity dated September 12, 2023

Dear Mr. Abraham,

The following has been prepared in response to the letter received from the Center for Biological Diversity ("CBD") dated September 12, 2023, which provided additional comments regarding the Oro Cruz Exploration Project (the "Project") in advance of the initial Imperial County Planning Commission ("ICPC") hearing held on September 13, 2023. Note that the majority of the additional comments provided by the CBD in the September 12th letter mirror those previously provided during the public comment period for the Environmental Assessment/Mitigated Negative Declaration (EA/MND) conducted between November 2022 and January 2023, pursuant to the National Environmental Quality Act (NEPA)/California Environmental Quality Act (CEQA). Nonetheless, we have responded to each comment and highlighted information within the existing Project record that addresses each of the concerns raised. Please see Attachment 1 which contains a copy of the CBD's September 12th letter, and Attachment 2 which contains a comment response matrix, identifying each individual comment/issue raised by the CBD, along with detailed responses corresponding to each comment.

Thank you for your time and consideration in this matter. We respectfully request that this letter and the comment response matrix be disseminated to the Commissioners prior to the second ICPC hearing currently scheduled for October 25th, 2023. Please feel free to contact me, or Ben Veach, P.E., with Stantec if you have any questions or if you need additional information.

Respectfully submitted,

Graham Stephens
Sespe Consulting, Inc.

ATTACHMENTS

1. CBD – Comment Letter on IS21-0029 SMP Gold Corp (Oro Cruz) Reclamation Plan #21-0001 (2023)
2. Summary of CBD Comments & Response Matrix

ATTACHMENT 1

Center for Biological Diversity

Comments on IS21-0029 SMP Gold Corp (Oro Cruz) Reclamation Plan #21-0001, a Mineral Exploration Project (SCH No. 2022120331) Environmental Assessment and Mitigated Negative Declaration

September 12, 2023

September 12, 2023

Sent via email (with attachments by electronic file transfer)

Imperial County Planning Commission

Michael Abraham
Assistant Director
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ICPDSCommentLetters@co.imperial.ca.us
442-265-1736

Re: Comments on IS21-0029 SMP Gold Corp (Oro Cruz) Reclamation Plan #21-0001, a Mineral Exploration Project (SCH No. 2022120331) Environmental Assessment and Mitigated Negative Declaration

Dear Mr. Abraham:

We respectfully submit this letter and the accompanying references on behalf of the Center for Biological Diversity, Western Watersheds Project, Earthworks, the Sierra Club California/Nevada Desert Committee, the Native American Lands Conservancy, Conservation Lands Foundation, Greenaction for Health and Environmental Justice, California Native Plant Society, and the Ahmut Pipa Foundation (collectively "Conservation Organizations") with respect to the above referenced matter, in advance of the September 13, 2023 Planning Commission meeting where this item is on the agenda (#3). These comments supplement and incorporate by reference our previous comments (dated December 16, 2022, December 23, 2022, and January 20, 2023 and attached hereto as Exhibits A through E) on the County's Mitigated Negative Declaration (MND) and BLM's Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) and proposal to approve the Plan of Operations for the SMP Gold Corp.

I. The County Failed To Provide Notice to the Conservation Organizations, As Required By Law.

On December 16, 2022, the Conservation Organizations emailed the County, submitting comments on the EA/MND and requesting to be placed on the notice list. Again on January 20, 2023, the Conservation Organizations emailed the County to submit additional comments and asked once more to be placed on the notice list. The County has confirmed in writing that the Conservation Organizations are in fact on the interested parties list. (EA/MND at I-75.) Inexplicably, the Conservation Organizations received no update on the Project's environmental review.

CEQA requires that lead agencies provide notice to the name and last known address of all individuals and organizations that have previously made a written request for such notice. (Pub. Resources Code, § 21092, subd. (b)(3); CEQA Guidelines § 15087, subd. (a).) The Conservation Organizations have made multiple written requests. This letter was submitted on September 12, the day before the public hearing scheduled for September 13, 2023, and the County has not provided the Conservation Organizations with notice of any Project documents, deadlines, hearing dates, or developments. This violates CEQA's clear mandates to provide notice to interested parties.

What's more, the Final EA/MND and response to comments and associated documents made available for public review in connection with the hearing contain over one thousand pages of revised analysis and technical reports, which were made public without notice to interested parties, depriving the public and decision-makers the time necessary to review, understand, and comment on the new materials. As a result, the County's failure to comply with the notice requirement has deprived the Conservation Organizations of the opportunity to fully comment upon the Project and associated environmental review documents, or prepare to appear at the hearing,

Should the County approve and certify the Project without first providing adequate notice, it will do so in violation of CEQA. The Conservation Organizations request that the County continue the hearing to a later date in order to give the Conservation Organizations —and any other potentially interested parties who were not notified of the document's availability—time to review and comment. At a minimum, the County should continue the Commission's hearing on this highly controversial project until such time as the public is able to process this voluminous information.

Given the voluminous nature of the new material, which includes significant new information, and the extremely limited time the County has provided for the public to review it, the Conservation Organizations have been unable to fully review and respond. Despite the lack of adequate time to review and comment on the documentation, it is clear that approval of the Project would violate the California Environmental Quality Act ("CEQA") and the Surface Mining and Reclamation Act ("SMARA"), among others. These comments provide responses to some points raised but are not exhaustive.

I. The EA/MND's Analysis of Biological Resources Remains Deficient.

A. The EA/MND Fails to Properly Assess and Mitigate Impacts to the Desert Tortoise.

Numerous commenters, including the California Department of Fish and Wildlife (CDFW), observed that the EA/MND failed to analyze the Project's foreseeable impacts to the endangered Mojave Desert Tortoise. According to the EA/MND (Section 3.23.2), "evidence of tortoise use of the area was detected in some of the proposed Drill Areas" during the focused desert tortoise surveys, making direct impacts to this threatened species a certainty if the Project is approved. Rather than remedy its deficient analysis of the Project's foreseeable direct impacts, the EA/MND attempts to excuse its lack of analysis by relying exclusively on post-approval preconstruction surveys and avoidance measures. The inadequacy of these measures aside, the County's EA/MND is legally inadequate because it fails to disclose in the first instance the Project's significant impacts to the Desert Tortoise.

i. The EA/MND Presents a Fundamentally Flawed Description of the Project's Environmental Setting.

An accurate depiction of existing environmental conditions is critical to a complete assessment of project impacts. "[T]o inform decision makers and the public of any significant adverse effects a project is likely to have on the physical environment . . ., an EIR must delineate environmental conditions prevailing absent the project, defining a baseline against which predicted effects can be described and quantified." (*Neighbors for Smart Rail v. Exposition Metro Line Construction Authority* (2013) 57 Cal.4th 439, 447.) Investigating and reporting existing conditions are "crucial function[s] of the EIR." (*Save Our Peninsula Comm. v. Monterey County* (2001) 87 Cal.App.4th 99, 122 ("*SOPC*").) "[W]ithout such a description, analysis of impacts, mitigation measures and project alternatives becomes impossible." (*County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 953.) Decisionmakers must be able to weigh the project's effects against "real conditions on the ground." (*City of Carmel-by-the-Sea v. Bd. of Supervisors* (1986) 183 Cal.App.3d 229, 246.)

Here, the EA/MND fails to accurately survey for and identify the desert tortoise that may be affected by the Project and therefore undercuts the legitimacy of the environmental impact analysis from the outset. Indeed, as many agency and expert commenters, the desert tortoise surveys for the Project were conducted over one week in January 2021, outside of the tortoise's active period. "(See USFWS 2009, p. 4–8 ["surveys should be conducted during the desert tortoise's most active periods (April through May or September through October."]) Because desert tortoises hibernate in underground burrows during winter months, adults are essentially unobservable during

January, and therefore the timing and scope of the surveys were insufficient to determine the full extent of desert tortoise on the Project site. (See CDFW comment, EA/MND, I-108.)

CEQA requires the County to describe the environmental setting in a manner "that will give the public and decision makers the most accurate picture practically possible of the project's likely impacts." (*Neighbors for Smart Rail*, 57 Cal.4th at 449.) By failing to conduct proper surveys for the desert tortoise, the EA/MND falls far short of this requirement.

ii. The EA/MND Fails to Analyze the Impacts to Desert Tortoise Habitat.

The Project will require the removal of vegetation from the site prior to the start of construction for up to 20.54 acres, which will necessarily include any desert tortoise habitat located in the Project footprint. Yet the EA/MND fails to acknowledge any potentially significant direct or indirect impacts associated with the destruction or adverse modification of the desert tortoise's *habitat*.

Habitat destruction due to urban development, mining activities, and off-road vehicle use has significantly reduced the tortoise's available living space. Moreover, factors like climate change, prolonged droughts, and invasive plant species have disrupted the fragile desert ecosystems on which these tortoises depend for food and shelter. (USFWS 2022). Range-wide, the desert tortoise continues to lose over ten thousand acres each year. (*Ibid.*) According to the USFWS:

> Overall, desert tortoises do not coexist well with human development and disturbances; tortoises are essentially absent from habitat within 1 km of areas with greater than 10% development (including … surface mines and quarries; Carter et al. 2020).

(USFWS 2022.)

Operations on the Project site will result not just in the loss of desert tortoises from the site itself, but will eliminate this habitat from use, potentially resulting in significant adverse impacts. Large expanses of high-quality habitat are necessary to provide resilience to populations as they fluctuate due to threats under the other listing factors, such as variability in precipitation patterns; localized declines attributed to drought, disease, or predation events; or stochastic population dynamics (USFWS 2022, Averill-Murray et al. 2021). As habitat is lost and fragmented, habitat patches become smaller, patch populations (e.g., clusters of tortoises) have fewer tortoises and become more disjunct, extinction probabilities within patches increase, and the number of occupied patches decreases (USFWS 2022).

None of these impacts are analyzed in the EA/MND. The EA/MND does not acknowledge significant individual or cumulative impacts to desert tortoises associated with the reduction in habitat or habitat connectivity.

B. The EA/MND Fails to Properly Describe the Environmental Setting and Assess and Mitigate Impacts to Special Status Plants and Wildlife.

The EA/MND fails to provide adequate baseline information and description of the environmental setting for species other than the desert tortoise. This deficiency extends to the EA/MND's treatment of rare plants, animals, and other imperiled desert species, as well as more common species likely present on the Project site. For some species or habitats baseline conditions are lacking or totally absent and as a result no impact assessment is provided for these biological resources. (*Nelson v. Cnty. of Kern* (2010) 190 Cal. App. 4th 252, 284 [information before County showing that mining exploration project could significantly impact plant and animal life in the area meets the fair argument test to require preparation of an EIR.].)

The failure to address numerous species is the inevitable result of inadequate surveys. The EA/MND conducted one plant and wildlife survey in March 2021. It conducted no other focused or protocol level surveys for any special-status plant or animal species aside from the focused survey for desert tortoise. (EA/MND at I-97.)

The MND/EA (Section 3.20.2) concluded that the following special-status plants have historically occurred near the Project site or have the potential to occur: Wiggin's croton (*Croton wigginsii*), sand foot (*Pholisma sonorae*), Munz cholla (*Cylindropuntia munzii*), flat-seeded spurge (*Euphorbia platysperma*), pink fairy-duster (*Calliandra erophylla*), and glandular ditaxis (*Ditaxis claryana*). While no BLM special status species were documented during the survey, section 3.20.2 of the EA/MND was amended to clarify that pink fairyduster (Calliandra eriophylla) was found on the project site and that this 2B.3 listed species does require CEQA review, despite not being a BLM listed species.

Many sensitive plant species are either annuals or herbaceous perennials. The EA/MND presumed any remaining special-status plant species were absent, even though the EA/MND's single survey was outside their blooming period, and thus the presumption is unsupported. For example, a March survey would not detect Pholisma sonorae, despite the plant's likelihood of being present. This perennial species is only visible aboveground for a portion of the year, typically in April and May. The California Consortium of Herbaria records show that, of the 29 collections of this species, 55% occurred in April, 38% occurred in May, and only 7% occurred in March (The Jepson Herbarium, 2023a), demonstrating statistically how uncommon it would be for this species to be present in March.

A 9 quad CNDDB rare plant search of the project area showed additional species with the potential to occur that, while not BLM special status species, should have been included for CEQA review. California snake bush (Colubrina californica), and crown of thorns (Koeberlinia spinosa var. tenuispina) are shrub species that may have been detectable during the March 2021 surveys. Roughstalk witch grass (Panicum hirticaule ssp. hirticaule), however, would not have been detectable at this time. The species blooms from August through December, and the California Consortium of Herbaria records show that the majority of collections were made between September and November (87.5%), with one collection in December, one in January, and one in May. The Jepson Herbarium, 2023b). There are no collections from February through April (The Jepson Herbarium, 2023b).

Seasonally appropriate surveys (e.g., spring surveys after adequate precipitation) are necessary to accurately evaluate whether these sensitive annual and herbaceous perennial species are present on site. CDFW highlighted this requirement in its comments on the EA/MND for the project.

> CDFW is concerned that the habitat assessments were not conducted at the appropriate time(s) of year to detect all special status plants on the Project site and did not follow the standard protocol to detect special status plants… . CDFW recommends that a revised MND/EA or other CEQA document include a thorough, recent, floristic-based assessment of special-status plants completed at the appropriate time(s) of year before Imperial County adopts the MND/EA.

(EA/MND at I-100.)

California has experienced a significant shift in ecological conditions after the wet winter of 2022-2023. This is true of the Project Area as well. The EA/MND's biological surveys were conducted in the March 2021, in the midst of a multi-year drought. Due to the extremely high precipitation of the past winter, current ecological conditions are likely significantly different. It is extremely likely that this wet winter and recent summer rains have impacted special-status species in the Project Area and that several species not detected during the 2021 surveys would have been present during the spring of this year. The Applicant must conduct additional follow-up surveys to reassess the baseline conditions and potential impacts to sensitive species and habitats after the significant increase in precipitation over the past year.

Critically, even the *County* acknowledges that its surveys were inadequate. It agreed that "the March 2021 biological baseline surveys do not represent a complete floristic inventory as it is representative of the species that were identified during the surveys and may not be representative of species that are present year-round." (EA/MND at I-101.) Because of the deficiencies of the baseline data for the proposed project area,

the EA/MND fails to adequately describe the environmental baseline for biological conditions on the Project site. And without the proper baseline data, the EA/MND also lacks evidence to presume that temporary barrier fencing around the few individual plants found in earlier surveys will minimize impacts to any special status plant species throughout the Project. (EA/MND, PDF-34.) In sum, the EA/MND lacks evidence to conclude that the project will not have a significant impact with mitigation incorporated, and a fair argument still exists that the Project may have such impacts.

C. The EA/MND Fails To Assess and Mitigate Impacts to Bat Species.

Numerous commenters, including CDFW, observed that the EA/MND failed to assess or mitigate impacts to bats roosting in underground mines. (See, e.g., EA/MND at I-75). Specifically, the MND/EA (Appendix E, Biological Assessment Section 5.1.2) acknowledged that "previous survey efforts detected 20 high value bat roosts in underground mines within the Analysis Area." Additionally, the MND/EA states "these mine features were occupied by a suite of species including California leaf-nosed bat (*Macrotus californicus*), Townsend's big-eared bat (*Corynorhinus townsendii*), pallid bat (*Antrozous pallidus*) and an unknown myotis species, likely cave myotis (*Myotis velifer*)." While the EA/MND failed to conduct any underground survey or monitoring effort, commenters presented evidence from prior surveys showing that these bats are present year-round.

The EA/MND does not dispute that a fair argument exists that these species may be impacted. Rather than remedy its deficient survey efforts or undertake a sufficient analysis of the Project's foreseeable direct impacts, the EA/MND attempts to excuse its lack of analysis and mitigation by claiming that the EA/MND need "analyze[] effects resulting from surface disturbance only" and explains that underground exploration is "not subject to permitting under the 43 CFR 3809 Surface Management regulations." Such an assertion is irrelevant and failure to address these issues violates CEQA and renders the EA/MND legally inadequate.

Under CEQA, the County is required to consider the whole of the action in its environmental review. (CEQA Guidelines, Section 15378.) The definition of "project" is "given a broad interpretation in order to maximize protection of the environment." (*Nelson, supra,* 190 Cal.App.4th at p. 278 [BLM's review of proposed surface mining operations under NEPA does not preclude county from undertaking environmental review of entire mining proposal under CEQA]; *Lighthouse Field Beach Rescue v. City of Santa Cruz* (2005) 131 Cal.App.4th 1170, 1180 (internal quotation omitted); see also, *Muzzy Ranch Co. v. Solano County Airport Land Use Com.* (2007) 41 Cal.4th 372, 381-83; *Fullerton Joint Union High Sch. Dist. v. State Bd. of Educ.* (1982) 32 Cal.3d 779, 796-97; *Bozung v. Local Agency Formation Com.* (1975) 13 Cal.3d 263, 277-81.) A "project" is "the whole of an action" directly undertaken, supported, or authorized by a

public agency "which may cause either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment." (Pub. Resources Code, § 21065; CEQA Guidelines, § 15378(a).) Critically, under CEQA, "the term 'project' refers to the underlying activity and not the governmental approval process." (*California Unions for Reliable Energy v. Mojave Desert Air Quality Mgmt. Dist.* (2009) 178 Cal.App.4th 1225, 1241, (quoting *Orinda Assn v. Bd. of Supervisors* (1986) 182 Cal.App.3d 1145, 1171-72 [emphasis added]; CEQA Guidelines, § 15378(c).) This means that the project encompasses all foreseeable direct and indirect environmental impacts associated with the project, not just those activities subject to a governmental permit**.** (*Id.* ["The term 'project' refers to the activity which is being approved and which may be subject to several discretionary approvals by governmental agencies. The term 'project' does not mean each separate governmental approval."])

Bats have been frequently observed in and around the Project site and are known to roost in the existing underground mines in the Cargos Muchachos Mountains. The purpose of the Project is "to access the underground Oro Cruz Mine portal for underground exploration" via drilling, making direct impacts to these species a certainty if the Project is approved. (EA/MND, sec. 2.1.1.) The County cannot hide behind the scope of BLM's permitting authority when defining the environmental impacts of the Project. (*Nelson, supra,* 190 Cal.App.4th at p. 278.) By failing to disclose or analyze the potentially significant impacts to bat species, the EA/MND is left legally inadequate.

II. The EA/MND's Cultural Resources Analysis Is Inadequate, and There Is a Fair Argument that the Project May Have Significant Impacts to Cultural Resources.

A. The County Has Not Properly Analyzed or Mitigated Impacts to Tribal Cultural Resources.

The site is an important cultural resource for the Fort Yuma Quechan Indian Tribe, which has been affiliated with the location for thousands of years. In the tribe's own words:

> "The location holds its significance to the Quechan People as a part of a greater cultural, religious and spiritual landscape that is entwined with origin stories, traditions and ceremonies, and the cultural patrimony of the Quechan People. The Quechan Tribe considers this landscape a Traditional Cultural Place (Traditional Cultural Property). This location has a specific name within the Quechan language. As stated previously, this landscape is associated with the cultural practices, religious beliefs and history that are important to the Tribe to continue and maintain the Tribe's cultural identity. The large number of trails, geoglyphs, ceramics, etc. in this location is proof of the longterm history, continued use and

> significance of this area to the Quechan people and the connection of this location to the broader cultural landscape in this region. The Quechan people still utilize this area today in various cultural capacities. The preservation of this area is essential to continue the cultural, religious and traditional practices and teaching of future generations of Quechan youth.
>
> This location is tied to the origins of song cycles which live within this landscape. These songs specifically reference and speak of the landscape contained within the proposed project area. These songs are still sung today by the Quechan people. Therefore, they are still a part of everyday life and tie the Quechan people to these places. Use of this landscape for the proposed project would be a direct assault on the preservation of the history, culture and religion of the Quechan people, and for that reason this landscape must be preserved for the Quechan culture to continue.

(EA/MND, Appendix I p. I-82)[1]

B. The Tribe Requested Consultation Under AB 52 and the County Did Not Consult.

Recognizing the irreplaceable nature of tribal cultural resources, California passed AB 52 to require lead agencies to consult with tribes during the CEQA process. (OPR 2023.) The consultation process is necessary for the protection of the resources that are "centrally important to tribal culture and tradition," which include sites, features, places, or cultural landscapes. (*Id*, Pub. Res. Code § 21074.) The consultation process requires the lead agency to "seek, discuss, and consider carefully" the views of the tribe, and to "seek agreement." (OPR 2017.) This is necessary to respect and honor tribal sovereignty. (*Id*.) Effective consultation is an ongoing conversation, not a single event. (*Id*.)

The law also imposes substantive requirements, namely, that "[a] project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment." (Pub. Res. Code, § 21084.2.) Evidence that could support the finding of a significant effect on a tribal resource includes formal statements from a Tribal Historic Preservation Officer. (OPR 2017) If, through consultation with a tribe, the lead agency determines that the project may hurt a tribal cultural resource, the agency must consider mitigation measures. (*Id*.)

The Fort Yuma Quechan Indian Tribe asserts that it notified Imperial County of its desire to engage in consultation regarding this Project. (EA/MND, Appendix I p. I-82.)

[1] See also Creative FRONTLINE airs on KPFK, from Producers Robert Lundahl and Tracker Quinone (July 19, 2023). Interview available at: https://www.youtube.com/watch?v=GoCe_lIGTZ4&t=1s&ab_channel=ROBERTLUNDAHLFILMMAKING. The Conservation Organizations request that this interview be placed in the administrative record.

The County claims that the tribe did not respond to the letter it sent initiating consultation, and therefore no consultation was required. (*Id*.) This factual dispute shows that Imperial County has not successfully communicated with the tribe as intended by AB 52.

Further, the evidence in the record shows that the Fort Yuma Quechan Indian Tribe was very engaged in advocating to protect their cultural resources on the site. The tribe was in frequent contact with BLM to "identify[] potential areas of concern that may be associated with the Project." (EA/MND, p. 123.) The tribe first met with BLM regarding the Project on July 12, 2021, and the EA/MND details how tribal representatives attended at least eight site visits and meetings with BLM over the next two years. (*Id*.)

The tribe demonstrated its profound concern about the Project's impacts and its willingness to participate extensively in the review process. The County has violated AB 52 by ignoring this request for consultation.

C. The County's Determination of No Significant Impact to Cultural Resources Is Not Supported by Evidence.

It is a violation of CEQA to approve a project using an MND without first resolving uncertainties regarding the project's potential to cause significant impacts. (*Sunstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296.) This is because a lead agency must prepare an EIR whenever a fair argument supports the project could have a significant impact. (*Id.*)

Despite the lack of adequate consultation, the County has concluded through an EA/MND that the Project would not have significant impacts on tribal cultural resources. (EA/MND, p. 53.) The MND cannot support this claim. The EA/MND did not find that the site is not historically or culturally significant. (Pub. Res. Code, § 21084.1.) Instead, the EA/MND merely notes that "not enough information has been provided to understand the nature, extent, and use of the resource, and therefore to fully assess impacts." (EA/MND, p. 56.) The EA/MND stops short of explaining how, if the County cannot "fully assess impacts," it can still conclude that there is no substantial evidence supporting a fair argument that the impacts may be significant.

The EA/MND itself includes a letter from H. Jill McCormick, the tribe's Historic Preservation Officer, explaining that BLM's analysis of impacts did not incorporate input from the tribe regarding what sites were sacred or traditionally important. As Ms. McCormick said in the comment letter, it is not possible for BLM to make any conclusions about the impact of the Project when "there was no input on the cultural, religious, or spiritual effects of this project on the Quechan people." (EA/MND, Appendix I p. I-82)

The Governor's Office of Planning and Research advises lead agencies to "invest time and effort into" gathering information and "seeking a mutually agreeable resolution," and the EA/MND does not show that the County followed this guidance. (OPR 2017.) A Tribal Historic Preservation Officer's statement that the tribe has not been adequately consulted and that the project would cause "great harm" to their cultural practices establishes a "fair argument" that the project might have a significant effect on tribal cultural resources. (CEQA Guidelines § 15064(f)(1), Pub. Res. Code, § 21084.2.) The County admits that it does not have enough information to assess impacts and to establish that there will not be such an impact. Therefore, the EA/MND is inadequate and an EIS/EIR is required to gather the necessary information before the Project may proceed.

III. The EA/MND's Analysis of Hydrological and Water Quality Impacts Remains Deficient.

The EA/MND's evaluation of the Project's hydrological and water quality impacts is flawed because it lacks the necessary facts and analysis to support its conclusions that the Project would not create significant impacts.

The EA/MND recognizes that substantially degrading surface water quality, or altering the existing draining pattern of an area, including through the alteration of the course of streams, could negatively affect the hydrology of the Project site and surrounding areas. As a result, the EA/MND's thresholds of significance recognize that the Project would have a significant hydrology impact if it would 1) "substantially degrade surface or ground water quality," or 2) "substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces," such as in a manner that could result in siltation on- or off-site. (EA/MND, Table 3-31.)

The EA/MND's mapping identifies natural ephemeral drainages throughout the site, which convey water during storm events. (EA/MND, Sec. 3.22.3.) Elsewhere, the mapping shows that the Project plans to drill immediately adjacent to or on top of these ephemeral streams. (EA/MND, Figure 2-1, 3-11.)

A thorough analysis of these issues is critical. Yet the EA/MND summarily concluded there would be a less than significant impact, without disclosing or analyzing how drilling may affect these streams, what mitigation might be required, or what actions the Project would take to prevent drilling from affecting the streams. (EA/MND, Sec. 3.22.3.) The EA/MND does not describe the type of drilling that would occur, what chemicals may be involved, the slope of the surrounding areas (which would inform the measures needed to prevent run off), or the steps it will take to ensure that drilling will

not result in chemical or sediment runoff.[2] And while the EA/MND makes a vague reference to best management practices ("BMPs"), it fails to commit to any such practices, which also constitutes an unlawful deferral of mitigation (see, *infra*, section V.)

It is beyond dispute that surface mining for gold may have significant environmental impacts on perennial or intermittent streams. (Martin 2020, Okanogan 2023, Punia 2021, Timsina 2022, Yaraghi 2020.) The Department of Interior's surface mining regulations specifically prohibit surface mining activities within 100 feet of an ephemeral stream. (30 C.F.R. 816.57 ["No land within 100 feet of a perennial stream or an intermittent stream shall be disturbed by surface mining activities, unless the regulatory authority **specifically authorizes** surface mining activities closer to, or through, such a stream.].) Not only does the EA/MND appear to be in violation of these regulations, but it fails to provide the necessary disclosures so that the public may assess the Project's compliance with these regulations, as well as the potential environmental effects on hydrology. And without any of these necessary facts, such as the planned areas for drilling or the planned distance between drilling and streams, the EA/MND cannot specifically authorize these activities. In sum, the EA/MND simply lacks information to conclude that the Project would not result in a significant environmental impact.

V. The EA/MND's Mitigation Is Improperly Deferred

A lead agency cannot base a negative declaration on the presumed success of mitigation measures that have not been formulated at the time of project approval. (*Sunstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296.) To address fugitive dust, the County claims any impacts will be mitigated to less than significant levels because SMP "would develop a site-specific Operation Dust Control Plan, which would be submitted to the ICAPCD." (EA/MND at I-72.) Similarly, to address any hydrological impacts, the EA/MND

The California Court of Appeal had held that such improper deferral of mitigation renders an MND inadequate as a matter of law. In *Schaeffer Land Trust v. San Jose City Council*, a proposed mitigation measure required a project applicant "to obtain a biological report regarding the Stephens' kangaroo rat" and to "comply with any recommendations in the report." ((1995) 36 Cal.App.4th 1359.) Since the measure "required the applicant to comply with any recommendations of a report that had yet to be performed," the court found that the measure "was on all fours" and could not serve as the basis for a legal adequate MND. (*Ibid*.)

[2] Roads and other project features could disrupt surface hydrology, including washes and ephemeral streams that are protected under California law as "waters of the state." Alteration of those features requires an agreement with the California Department of Fish and Wildlife (see Fish and Game Code section 1602) and dredge or fill activities in those areas are regulated by the California State Water Resources Control Board and/or the local Regional Board (see State Water Resources Control Board Resolution No. 2019-0015 and Resolution No. 2021-0012).

Since the EA/MND only requires SMP to comply with recommendations that have yet to be developed or performed, the measure cannot serve as the basis for this MND. This is because the circumstances under which a lead agency may rely on a mitigated negative declaration are limited: only when "there is no substantial evidence in light of the whole record before the public agency that the project . . . may have a significant effect on the environment" may an agency prepare a negative declaration or mitigated negative declaration instead of an EIR. (Pub. Res. Code § 21064.5; *see also id.* §§ 21064, 21080(c).) If there is substantial evidence supporting a fair argument (a low threshold) that a project may have a significant effect on the environment, an agency must prepare an EIR. (*Id.* § 21080(d).) Without such disclosure or analysis *before* Project approval, the EA/MND simply lacks a basis or any information to conclude that there is no fair argument that there may be significant fugitive dust impacts, including the potential dust impacts to wildlife. Proper analysis of the air quality impacts is especially important due to the significant cumulative air quality issues in the Imperial County basin.

VI. The Project's Potentially Significant Impacts Require Preparation of an EIR.

An agency must prepare an EIR whenever it is presented with a "fair argument" that a project may have a significant effect on the environment, even if there is also substantial evidence to indicate that the impact is not significant. (*See No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal.3d 68; see also *Friends of B Street v. City of Hayward* (1980) 106 Cal.App.3d 988; Guidelines § 15064(f)(1).) **Where there are conflicting opinions regarding the significance of an impact, the agency must treat the impact as significant and prepare an EIR**. (*Stanislaus Audubon Society v. County of Stanislaus* (1995) 33 Cal.App.4th 144, 150-51; Guidelines § 15064(f)(1).)

An initial study also must provide the factual basis, with analysis included, for making the determination that no significant impact will result from the project. (Guidelines, § 15063(d)(3).) In making this determination, the agency must consider the direct and indirect impacts of the project as a whole (Guidelines § 15064(d)), as well as the project's cumulative impacts (see *City of Antioch v. City Council of Pittsburg* (1986) 187 Cal.App.3d 1325, 1332-33).

Here, the County must prepare an EIR because, as set forth above, there is a fair argument that the Project will cause significant impacts related to cultural resources and biological resources, among other impacts. There is substantial evidence in light of the whole record that the project may have a significant effect on the environment which cannot be mitigated or avoided, requiring recirculation and preparation of an EIR. (CEQA Guidelines, § 15073.5.) For such a controversial project with significant, irreversible environmental impacts, the environmental document must include a detailed and thorough analysis of the Project's likely impacts to permit informed decisions about

the Project and identify effective mitigation measures and alternatives that could reduce these impacts.

VII. Conclusion

As set forth above, the EA/MND does not come close to satisfying CEQA's requirements. It fails to describe the Project setting based on adequate survey data and consultation with the affected tribe and fails to provide a complete analysis of Project impacts and feasible mitigation measures. At the same time, ample evidence demonstrates that a fair argument exists that the Project may result in significant environmental impacts. In light of this evidence, CEQA requires that an EIR be prepared.

For this reason, and because the Project will have irreparable impacts, we respectfully request that the Project be denied at this time. The Project should not be reconsidered until a legally adequate EIR is prepared and certified.

Please include this letter and all references in your project file for the Project. Please also include all of the signatories below on your notice list for all future updates, notices, and documents related to the Project and do not hesitate to contact us with any questions at the email listed below.

Sincerely,

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Attachments:

Exhibit A: December 23, 2022 Conservation Organizations Letter re Oro Cruz EA/MND
Exhibit B: January 20, 2023 Conservation Organizations Letter re Oro Cruz EA/MND
Exhibit C: January 20, 2023 Site Photographs of Oro Cruz Project Site
Exhibit D: December 16, 2022 CNPS Letter re Oro Cruz Project
Exhibit E: December 16, 2022 NALC Letter re Oro Cruz Project

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ATTACHMENT 2

Summary of Center for Biological Diversity Comments & Response Matrix

Oro Cruz Exploration Project – Response to CBD Comment Letter (9/12/2023)

Comment No.	Comment	Response
#1	**Re: Comments on IS21-0029 SMP Gold Corp (Oro Cruz) Reclamation Plan #21-0001, a Mineral Exploration Project (SCH No. 2022120331) Environmental Assessment and Mitigated Negative Declaration** Dear Mr. Abraham: These comments are submitted on the IS21-0029 SMP Gold Corp (Oro Cruz) Reclamation Plan #21-0001 Mineral Exploration Project (SCH No. 2022120331) ("Project") from Center for Biological Diversity, Western Watersheds Project, Earthworks, the Sierra Club California/Nevada Desert Committee, Conservation Lands Foundation, Greenaction for Health and Environmental Justice, Mojave Desert Land Trust, California Native Plant Society, and the Ahmut Pipa Foundation (collectively "Conservation Organizations"). These comments supplement and incorporate by reference our previous comments (dated December 16, 2022) on BLM's Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) and proposal to approve the Plan of Operations for the SMP Gold Corp. These comments were sent to the County and are also attached as Exhibit 1. The Conservation Organizations have reviewed the Environmental Assessment and Mitigated Negative Declaration ("EA/MND") and associated environmental review documents closely and are concerned that Imperial County ("County") has failed to adequately disclose, analyze, and mitigate the Project's significant environmental impacts as required under the California Environmental Quality Act, Public Resources Code section 21000 et seq. ("CEQA") and 14 California Code of Regulations section 15000 et seq. ("CEQA Guidelines"). The Conservation Organizations urge the County to prepare and circulate an Environmental Impact Report ("EIR") for the Project prior to taking any further action on the Project application.	Thank you for your comment. Both the Bureau of Land Management (BLM) and the County responded to the Center for Biological Diversity (CBD) letter dated December 16, 2022 in detail within the revised EA/MND, specifically in the response to comment matrix included as Appendix I of the revised environmental document, which was also included within the Planning Commission packet prior to the September 13, 2023 ICPC Hearing. The comment response matrix also provided responses to the CBD's subsequent letter dated January 20, 2023. Regarding the request to prepare an EIR in lieu of the EA/MND, consistent with the CEQA statutes, if a project is found to have no adverse effects, or if the potential effect can be reduced to a level that is less than significant through project revisions/mitigations, a Negative Declaration or MND can be adopted (§21080). Specifically, the statute provides that MNDs may be used, "when the initial study has identified potentially significant effects on the environment, but (1) revisions in the project plans or proposals made by, or agreed to by, the applicant before the proposed negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur, and (2) there is no substantial evidence in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment" (§21064.5). In summary, if all potential significant impacts can be eliminated or reduced to less than significant, a MND can be prepared in lieu of an EIR. Through preparation of a detailed initial study, as well as a detailed suite of technical studies, Imperial County determined that an MND was the appropriate project document under CEQA. The County held an Environmental Evaluation Committee (EEC) meeting on November 17th, 2022, where a draft version of the initial study/MND was presented to the public, and to a seven-member panel representing various County agencies/organizations. Through this public process, the EEC determined that the mitigations measures as proposed would reduce the significant effects to a less than significant level, or project design features as included would avoid them all together. For these reasons, the County found that an MND was the appropriate CEQA level of review/documentation for the project. Further, public controversy over the possible environmental effects of a project is not sufficient reason to require an EIR "if there is no substantial evidence in light of the whole record before the Lead Agency that the project may have a significant effect on the environment" (§ 21082.2).
#2	**I. The County Failed To Provide Notice to the Conservation Organizations, As Required By Law.** On December 16, 2022, the Conservation Organizations emailed the County, submitting comments on the EA/MND and requesting to be placed on the notice list. Again on January 20, 2023, the Conservation Organizations emailed the County to submit additional comments and asked once more to be placed on the notice list. The County has confirmed in writing that the Conservation Organizations are in fact on the interested parties list. (EA/MND at I-75.) Inexplicably, the Conservation Organizations received no update on the Project's environmental review. CEQA requires that lead agencies provide notice to the name and last known address of all individuals and organizations that have previously made a written request for such notice. (Pub. Resources Code, § 21092, subd. (b)(3); CEQA Guidelines § 15087, subd. (a).) The Conservation Organizations have made multiple written requests. This letter was submitted on September 12, the day before the public hearing scheduled	Both the BLM and the County have provided numerous public notices, including to the CDB, during both the environmental public review process which occurred between November 2022 and January 2023, as well as leading up the BLM's Decision Record and the County's ICPC approval hearings. This is evidenced by the fact that the CBD provided two detail comment letters during the NEPA/CEQA public review process, as well as the letter dated September 12, 2023 in which the County is responding to here, in advance of the initial ICPC hearing held on September 13, 2023. Pursuant to Section 15088 of the CEQA Guidelines, a Lead Agency is not required to prepare written responses to comments received when an MND is prepared. Nonetheless, the County opted to provide detailed responses to each of the comment letters received during the 45-day public review period, including both letters received from the CBD. The public comments and responses to comments were included in the public record and were available to the Lead Agency decision-makers (i.e., ICPC Commissioners) for their review and consideration prior to making their decision whether to approve the

	for September 13, 2023, and the County has not provided the Conservation Organizations with notice of any Project documents, deadlines, hearing dates, or developments. This violates CEQA's clear mandates to provide notice to interested parties. What's more, the Final EA/MND and response to comments and associated documents made available for public review in connection with the hearing contain over one thousand pages of revised analysis and technical reports, which were made public without notice to interested parties, depriving the public and decision-makers the time necessary to review, understand, and comment on the new materials. As a result, the County's failure to comply with the notice requirement has deprived the Conservation Organizations of the opportunity to fully comment upon the Project and associated environmental review documents, or prepare to appear at the hearing, **Should the County approve and certify the Project without first providing adequate notice, it will do so in violation of CEQA.** The Conservation Organizations request that the County continue the hearing to a later date in order to give the Conservation Organizations —and any other potentially interested parties who were not notified of the document's availability—time to review and comment. At a minimum, the County should continue the Commission's hearing on this highly controversial project until such time as the public is able to process this voluminous information. Given the voluminous nature of the new material, which includes significant new information, and the extremely limited time the County has provided for the public to review it, the Conservation Organizations have been unable to fully review and respond. Despite the lack of adequate time to review and comment on the documentation, it is clear that approval of the Project would violate the California Environmental Quality Act ("CEQA") and the Surface Mining and Reclamation Act ("SMARA"), among others. These comments provide responses to some points raised but are not exhaustive.	proposed Project. Pursuant to State CEQA Guidelines Section 15074(b) (*Consideration and Adoption of a Negative Declaration or Mitigated Negative Declaration*), none of the comments provide substantial evidence that the Project will have significant environmental effects which would require preparation of an EIR. Further, none of the information in the letters or responses constitute the type of significant new information that requires recirculation of the EA/MND for further public review under State CEQA Guidelines Section 15073.5 (*Recirculation of a Negative Declaration Prior to Adoption*). None of the new material presented in the responses to comments (see Appendix I within the revised EA/MND) indicated that the Project will result in a significant new environmental impact not previously disclosed in the EA/MND published during the public review period. Additionally, none of this information indicated that there would be a substantial increase in the severity of a previously identified environmental impacts that would not be mitigated, or that there would be any of the other circumstances requiring recirculation described in State CEQA Guidelines Section 15073.5.
#3	**I. The EA/MND's Analysis of Biological Resources Remains Deficient.** **A. The EA/MND Fails to Properly Assess and Mitigate Impacts to the Desert Tortoise.** Numerous commenters, including the California Department of Fish and Wildlife (CDFW), observed that the EA/MND failed to analyze the Project's foreseeable impacts to the endangered Mojave Desert Tortoise. According to the EA/MND (Section 3.23.2), "evidence of tortoise use of the area was detected in some of the proposed Drill Areas" during the focused desert tortoise surveys, making direct impacts to this threatened species a certainty if the Project is approved. Rather than remedy its deficient analysis of the Project's foreseeable direct impacts, the EA/MND attempts to excuse its lack of analysis by relying exclusively on post-approval preconstruction surveys and avoidance measures. The inadequacy of these measures aside, the County's EA/MND is legally inadequate because it fails to disclose in the first instance the Project's significant impacts to the Desert Tortoise.	Extensive Mojave Desert tortoise surveys were conducted in support of the CEQA/NEPA process, and extensive Mojave Desert tortoise avoidance and mitigation/minimization measures will be implemented throughout the life of the Project. Per the analysis in Section 3.23.3 of the EA/MND, impacts to threatened and endangered species (including Mojave Desert tortoise), special status species, and general wildlife species are anticipated to be negligible to minor, short-term, and localized, and sufficiently mitigated to less than significant levels through the implementation of the avoidance and minimization measures summarized below. Several Project Design Features (PDFs) have been developed by the proponent for implementation during the Project to avoid or sufficiently mitigate potential impacts. Additional wildlife-specific mitigation measures would be required for implementation by the BLM, as outlined in Appendix F of the EA/MND. Specifically, detailed desert tortoise avoidance measures (17 total), summarized within the Plan of Operations (Appendix A of the EA/MND), would be implemented onsite. These include but are not limited to pre-construction tortoise surveys, onsite monitoring during tortoise active season, and employee training. Additionally, as discussed in Section 3.23.3 of the EA/MND, SMP has committed to conducting pre-construction surveys within 48 hours of surface disturbance within the species-specific buffers outlined in Appendix F of the EA/MND from the area to be disturbed in order to avoid impacts to Mojave Desert tortoise. Surveys for Mojave Desert tortoise may be combined with pre-construction migratory bird surveys if taking place during the nesting season. In addition to the PDFs/CMAs cited by the CDFW, PDF-21 included in Table F-1 of Appendix F of the EA/MND would also be implemented, which notes that if a tortoise is encountered during construction activities, work would be halted immediately per the authority of a designated Field Contact

		Representative (who would be a BLM-approved Authorized or Qualified Biologist), who would be on-site year round during all Project activities, in proximity to the tortoise until an on-call BLM-approved Authorized Biologist arrives to move the tortoise from harm's way, or until the tortoise leaves of its own accord. Specifically, the following PDFs and CMAs, which are similar in nature to CDFW's suggested MM BIO-[F], will be implemented to ensure potential impacts to desert tortoises are properly avoided and/or mitigated:
		• PDF-13: Within 24 hours of the commencement of Project activities, a BLM-approved Authorized or Qualified Biologist would inspect the area to be disturbed plus a 500-foot buffer, focusing on areas that could provide suitable desert tortoise burrow or cover sites, such as dry washes with caliche. This may be combined with the above pre-construction migratory bird survey if taking place during the nesting season. Burrows would be flagged such that they would be avoided by Project activities. When requesting authorization of biologists to handle desert tortoises, the Permittee/BLM will submit credentials to the USFWS for review and approval at least 30 days prior to the need for the biologist to perform those activities in the field.
		• PDF-21: SMP would designate a field contact representative (FCR) who would be responsible for overseeing compliance with protective stipulations for the desert tortoise and for coordination on compliance with the BLM. The FCR must be on-site during all Project activities. The FCR would have the authority to halt Project activities that are in violation of the stipulations. The FCR would have a copy of all stipulations when work is being conducted on the site. The FCR may be a crew chief or field supervisor, a project manager, any other employee of the Project Proponent, or a BLM-approved Authorized Biologist. Any incident occurring during Project activities that is considered by the FCR to be in non-compliance with the mitigation plan would be documented immediately by the FCR. The FCR would ensure that appropriate corrective action is taken. Corrective actions would be documented by the FCR. The following incidents would require immediate cessation of the construction activities causing the incident, including:
		  ○ Imminent threat of injury or death to a desert tortoise;
		  ○ Unauthorized handling of a desert tortoise, except on designated roads;
		  ○ Conducting any construction activity without a biological monitor where one is required. If a tortoise is encountered during construction activities, work would be halted in proximity to the tortoise until an on-call BLM-approved Authorized Biologist can move the animal from harm's way or until the desert tortoise leaves of its own accord.
		• PDF-34: Injury: Should any desert tortoise be injured or killed, all activities would be halted and the Authorized Biologist immediately contacted. The biologist would have the responsibility for determining whether the animal should be transported to a veterinarian for care, which is paid for by the Project Proponent, if involved. If the animal recovers, the USFWS is to be contacted to determine the final disposition of the animal; few injured desert tortoises are returned to the wild
		
		Through the required pre-construction surveys, including onsite surveys anytime construction equipment is moved to a new location, as well as the implementation of PDFs and CMAs (Appendix F) summarized above, impacts to desert tortoise are expected to be fully avoided, or mitigated to less than significant levels.
		
		Additionally, pre-construction surveys would be conducted year-round prior to surface disturbance occurring per the PDFs and BLM-required additional mitigation measures included in Appendix F of the EA/MND.

		Furthermore, the BLM has engaged in consultation with the USFWS pursuant to Section 7 of the Endangered Species Act for approval of an Activity Request Form under the Programmatic Biological Opinion for Mojave Desert tortoise. Lastly, the Project is an exploratory drilling project, and therefore no mining or significant ground disturbance will occur. For this reason, and through ongoing pre-construction surveys for desert tortoise, there would be no Project impacts to desert tortoise related to toxicant-based disease due to mining. For these reasons, the proposed mitigation measures required by the BLM for implementation, in addition to the proponent-committed PDFs in Appendix F of the EA/MND, have been deemed sufficient to avoid or mitigate environmental impacts to threatened and endangered species, including desert tortoise, to less than significant levels under the Proposed Action.
#4	**i. The EA/MND Presents a Fundamentally Flawed Description of the Project's Environmental Setting.** An accurate depiction of existing environmental conditions is critical to a complete assessment of project impacts. "[T]o inform decision makers and the public of any significant adverse effects a project is likely to have on the physical environment . . ., an EIR must delineate environmental conditions prevailing absent the project, defining a baseline against which predicted effects can be described and quantified." (*Neighbors for Smart Rail v. Exposition Metro Line Construction Authority* (2013) 57 Cal.4th 439, 447.) Investigating and reporting existing conditions are "crucial function[s] of the EIR." (*Save Our Peninsula Comm. v. Monterey County* (2001) 87 Cal.App.4th 99, 122 ("SOPC").) "[W]ithout such a description, analysis of impacts, mitigation measures and project alternatives becomes impossible." (*County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 953.) Decisionmakers must be able to weigh the project's effects against "real conditions on the ground." (*City of Carmel-by-the-Sea v. Bd. of Supervisors* (1986) 183 Cal.App.3d 229, 246.) Here, the EA/MND fails to accurately survey for and identify the desert tortoise that may be affected by the Project and therefore undercuts the legitimacy of the environmental impact analysis from the outset. Indeed, as many agency and expert commenters, the desert tortoise surveys for the Project were conducted over one week in January 2021, outside of the tortoise's active period. "(See USFWS 2009, p. 4–8 ["surveys should be conducted during the desert tortoise's most active periods (April through May or September through October."]) Because desert tortoises hibernate in underground burrows during winter months, adults are essentially unobservable during January, and therefore the timing and scope of the surveys were insufficient to determine the full extent of desert tortoise on the Project site. (See CDFW comment, EA/MND, I-108.) CEQA requires the County to describe the environmental setting in a manner "that will give the public and decision makers the most accurate picture practically possible of the project's likely impacts." (*Neighbors for Smart Rail*, 57 Cal.4th at 449.) By failing to conduct proper surveys for the desert tortoise, the EA/MND falls far short of this requirement.	Extensive biological baseline surveys, including Mojave Desert tortoise surveys, were conducted in March 2021, as described in Section 3.20.2 of the EA/MND. The timing of baseline surveys was coordinated with the BLM and the baseline report was deemed complete and approved in June 2021. Based upon the baseline surveys, for those special-status species, including Mojave Desert tortoise, that were determined to be potentially impacted by the proposed Project, appropriate avoidance and mitigation measures were proposed, and described in the EA/MND, to ensure potential impacts would be less than significant. In addition to the existing baseline surveys, per the PDFs, CMAs, and BLM required mitigation measures outlined in Appendix F of the EA/MND, pre-construction surveys would be conducted prior to surface disturbing activities under the Project and would ensure that any further potential impacts to Mojave Desert tortoise remain less than significant, and that additional minimization or avoidance measures would be coordinated with the BLM as necessary and appropriate based on the findings of the surveys. Furthermore, should Mojave Desert tortoise be identified during pre-construction surveys, barrier fencing would be required to be implemented around individual plants to minimize impacts to special status species. Per the analysis in Section 3.23.3 of the EA/MND, potential Project effects to threatened and endangered species (including Mojave Desert tortoise), special status species, and general wildlife species are anticipated to be negligible to minor, short-term, and localized, and the avoidance and mitigation measures outlined within the EA/MND would ensure potential impacts to Mojave Desert tortoise would be mitigated to less than significant levels. Several PDFs have been developed by the proponent for implementation during the Project to minimize impacts. Additional wildlife-specific mitigation measures would be required for implementation by the BLM, as outlined in Appendix F of the EA/MND. Specifically, detailed desert tortoise avoidance measures (17 total), summarized within the Plan of Operations (Appendix A of the EA/MND), would be implemented onsite. These include but are not limited to pre-construction tortoise surveys, onsite monitoring during tortoise active season, and employee training. Additionally, as discussed in Section 3.23.3 of the EA/MND, SMP has committed to conducting pre-construction surveys within 48 hours of surface disturbance within the species-specific buffers outlined in Appendix F of the EA/MND from the area to be disturbed in order to avoid impacts to special-status species. In addition to the PDFs/CMAs cited by the CDFW, PDF-21 included in Table F-1 of Appendix F of the EA/MND would also be implemented, which notes that if a tortoise is encountered during construction activities, work would be halted immediately per the authority of a designated Field Contact Representative (who would be a BLM-approved Authorized or Qualified Biologist), who would be on-site year round within 24 hours of Project activities commencing. Only a BLM-approved Authorized Biologist

		would move the tortoise from harm's way, or until the tortoise leaves of its own accord. If a desert tortoise is discovered in harm's way, an Authorized Biologist would move the tortoise into adjacent habitat following the latest USFWS clearance and handling procedures. The tortoise would not be moved more than 300 meters from their capture location. If the Authorized Biologist observes significant clinical signs of ill health, the tortoise should be removed from the wild in coordination with the USFWS. If suitable habitat is not available within 300 meters of the tortoises' capture locations or other land ownership restrictions prevent the release of individuals within 300 meters (e.g., privately owned land lacking permission), the tortoise should be translocated to the Recipient Site identified in the revised Figure 3-14 of the EA/MND. Additionally, pre-construction surveys would be conducted year-round prior to surface disturbance occurring per the PDFs and BLM-required additional mitigation measures included in Appendix F of the EA/MND. Furthermore, the BLM has engaged in consultation with the USFWS pursuant to Section 7 of the Endangered Species Act for approval of an Activity Request Form under the Programmatic Biological Opinion for Mojave Desert tortoise. For these reasons, the proposed mitigation measures required by the BLM for implementation, in addition to the proponent-committed PDFs in Appendix F of the EA/MND, have been deemed sufficient to minimize environmental impacts to threatened and endangered species, including Mojave Desert tortoise, to less than significant levels under the proposed Project.
#5	**ii. The EA/MND Fails to Analyze the Impacts to Desert Tortoise Habitat.** The Project will require the removal of vegetation from the site prior to the start of construction for up to 20.54 acres, which will necessarily include any desert tortoise habitat located in the Project footprint. Yet the EA/MND fails to acknowledge any potentially significant direct or indirect impacts associated with the destruction or adverse modification of the desert tortoise's *habitat*. Habitat destruction due to urban development, mining activities, and off-road vehicle use has significantly reduced the tortoise's available living space. Moreover, factors like climate change, prolonged droughts, and invasive plant species have disrupted the fragile desert ecosystems on which these tortoises depend for food and shelter. (USFWS 2022). Range-wide, the desert tortoise continues to lose over ten thousand acres each year. (*Ibid.*) According to the USFWS: > Overall, desert tortoises do not coexist well with human development and disturbances; tortoises are essentially absent from habitat within 1 km of areas with greater than 10% development (including … surface mines and quarries; Carter et al. 2020). (USFWS 2022.) Operations on the Project site will result not just in the loss of desert tortoises from the site itself, but will eliminate this habitat from use, potentially resulting in significant adverse impacts. Large expanses of high-quality habitat are necessary to provide resilience to populations as they fluctuate due to threats under the other listing factors, such as variability in precipitation patterns; localized declines attributed to drought, disease, or predation events; or stochastic population dynamics (USFWS 2022, Averill-Murray et al. 2021). As habitat is lost and fragmented, habitat patches become smaller, patch populations (e.g., clusters of	See response to Comment #3 above. Extensive Mojave Desert tortoise surveys were conducted in support of the CEQA/NEPA process, and extensive Mojave Desert tortoise avoidance and mitigation/minimization measures will be implemented throughout the life of the project. To re-summarize, per the analysis in Section 3.23.3 of the EA/MND, impacts to threatened and endangered species (including Mojave Desert tortoise), special status species, and general wildlife species are anticipated to be negligible to minor, short-term, and localized, and all surface disturbance would be reclaimed and revegetated to pre-Project conditions in accordance with the Surface Mining and Reclamation Act (SMARA). Revegetation of the disturbed areas would be completed in accordance with applicable BLM standards, as well as Section 3705 (Performance Standards for Revegetation) of the Surface Mining and Reclamation Act (SMARA). The goal of the revegetation efforts will be to ensure the reclaimed lands have a "vegetative cover or density, and species-richness…sufficient to stabilize the surface against effects of long-term erosion and…be similar to naturally occurring habitats in the surrounding area". Project reclamation would be completed concurrently with exploratory drilling activities, and monitoring for the success of reclamation of those areas would be completed within five years of Project implementation. In addition to post-exploration reclamation of the site, as noted above numerous Project Design Features (PDFs) have been developed by the proponent for implementation during the Project to minimize potential impacts to Mojave Desert tortoises. Additional wildlife-specific mitigation measures would be required for implementation by the BLM, as outlined in Appendix F of the EA/MND. Mitigation measures include monitoring of project activities by a BLM-approved Authorized or Qualified Biologist to ensure no desert tortoises are killed or burrows crushed, and project staff are compliant with tortoise best practices. Project activities would be monitored throughout the life of the Project to avoid potential impacts to Mojave Desert tortoise habitat. SMP would designate a Field Contact Representative (FCR) who would be responsible for overseeing compliance with protective stipulations for desert tortoise habitat, and for compliance coordination with the BLM. The FCR would be a BLM-approved Authorized or Qualified

	tortoises) have fewer tortoises and become more disjunct, extinction probabilities within patches increase, and the number of occupied patches decreases (USFWS 2022). None of these impacts are analyzed in the EA/MND. The EA/MND does not acknowledge significant individual or cumulative impacts to desert tortoises associated with the reduction in habitat or habitat connectivity.	Biologist on-site year-round throughout the life of the Project in order to implement all tortoise-related PDFs to minimize impacts. The FCR would be an on-site compliance monitor for all aspects of the Project, and should desert tortoise be detected, the FCR would contact the BLM.
#6	**B. The EA/MND Fails to Properly Describe the Environmental Setting and Assess and Mitigate Impacts to Special Status Plants and Wildlife.** The EA/MND fails to provide adequate baseline information and description of the environmental setting for species other than the desert tortoise. This deficiency extends to the EA/MND's treatment of rare plants, animals, and other imperiled desert species, as well as more common species likely present on the Project site. For some species or habitats baseline conditions are lacking or totally absent and as a result no impact assessment is provided for these biological resources. (*Nelson v. Cnty. of Kern* (2010) 190 Cal. App. 4th 252, 284 [information before County showing that mining exploration project could significantly impact plant and animal life in the area meets the fair argument test to require preparation of an EIR.].) The failure to address numerous species is the inevitable result of inadequate surveys. The EA/MND conducted one plant and wildlife survey in March 2021. It conducted no other focused or protocol level surveys for any special-status plant or animal species aside from the focused survey for desert tortoise. (EA/MND at I-97.) The MND/EA (Section 3.20.2) concluded that the following special-status plants have historically occurred near the Project site or have the potential to occur: Wiggin's croton (*Croton wigginsii*), sand foot (*Pholisma sonorae*), Munz cholla (*Cylindropuntia munzii*), flat-seeded spurge (*Euphorbia platysperma*), pink fairy-duster (*Calliandra erophylla*), and glandular ditaxis (*Ditaxis claryana*). While no BLM special status species were documented during the survey, section 3.20.2 of the EA/MND was amended to clarify that pink fairyduster (Calliandra eriophylla) was found on the project site and that this 2B.3 listed species does require CEQA review, despite not being a BLM listed species. Many sensitive plant species are either annuals or herbaceous perennials. The EA/MND presumed any remaining special-status plant species were absent, even though the EA/MND's single survey was outside their blooming period, and thus the presumption is unsupported. For example, a March survey would not detect Pholisma sonorae, despite the plant's likelihood of being present. This perennial species is only visible aboveground for a portion of the year, typically in April and May. The California Consortium of Herbaria records show that, of the 29 collections of this species, 55% occurred in April, 38% occurred in May, and only 7% occurred in March (The Jepson Herbarium, 2023a), demonstrating statistically how uncommon it would be for this species to be present in March. A 9 quad CNDDB rare plant search of the project area showed additional species with the potential to occur that, while not BLM special status species, should have been included for CEQA review. California snake bush (Colubrina californica), and crown of thorns (Koeberlinia spinosa var. tenuispina) are shrub species that may have been detectable during the March 2021 surveys. Roughstalk witch grass (Panicum hirticaule ssp. hirticaule), however, would not have been detectable at this time. The species blooms from August through December, and the California Consortium of Herbaria records show that the majority of collections were made between September and November (87.5%), with one collection in December, one in January,	Baseline conditions (i.e., affected environment) were presented within Chapter 3 of the EA/MND for all resources that were identified as Present and Potentially Affected and were thus analyzed for potential impacts under the Proposed Action/Project. Baseline conditions for assessing the affected environment were gathered from literature reviews, recently collected and publicly available data, and baseline surveys, where required by the BLM. Baseline conditions for Vegetation, including Noxious and Non-Native Invasive Species and Special Status Plant Species is described per baseline studies conducted in March 2021 within Section 3.20.2 of the EA/MND. Baseline conditions for Wildlife, including Migratory Birds, Special Status Species, and Threatened and Endangered Species is described per the baseline studies conducted in 2021 within Section 3.23.2 of the EA/MND. Baseline conditions for Water Resources, including surface water resources and general groundwater (the Project does not propose use of groundwater) is described per the aquatic resources inventory conducted in 2021 within Section 3.22.2 of the EA/MND. The affected environment for air quality per county and state current conditions and regulations is described within Section 3.3.3 of the EA/MND. The affected environment for recreation based on a desktop review of existing dispersed recreation activities is described within Section 3.17.2 of the EA/MND. A Class III Cultural Resources Inventory Report was prepared in 2021 and accepted by the BLM, and the non-confidential results of such represent the baseline conditions and are described in Section 3.8 of the EA/MND. Finally, existing soil resource conditions per a desktop review and a combination of field observations during baseline studies is described within Section 3.18.2 of the EA/MND. Baseline conditions for all other resources analyzed that are not specifically mentioned in the comment here are provided within Chapter 3 of the EA/MND. Furthermore, as discussed in Sections 3.23.2 and 3.25.5 of the EA/MND, The USFWS and the CDFW were contacted to obtain a list of threatened and endangered and sensitive species that have the potential to occur within the Project Area (the Project Area plus a 500-foot buffer). The most recent BLM Sensitive Species List was also obtained, which includes threatened and endangered species, and evaluated to determine if any species had the potential to occur within the area of analysis. WestLand evaluated the potential for special-status species to occur in the Project Area. WestLand identified three California Native Plant Society (CNPS) vegetation categories that occur in the Project Area – black mustard (*Brassica nigra*) and other mustards seminatural stands, blue palo verde (*Parkinsonia florida*)-ironwood alliance, and creosote-brittlebush alliance – as well as three special status plant species – Munz cholla (*Cylindropuntia munzii*), Flat-seeded spurge (*Euphorbia platysperma*), and Pink fairy-duster (*Calliandra erophylla*) – that were determined to have a possible presence or a high potential to occur in the Project Area (WestLand 2021). Note, as discussed in Section 3.20.2 of the EA/MND, these three plant communities are classified as sensitive by the CDFW. Biological baseline surveys, including vegetation and rare plant community surveys, were conducted in March 2021, as described in Section 3.20.2 of the EA/MND. The timing of baseline surveys was coordinated with the BLM and the baseline report was deemed complete and approved in June 2021. Additionally, the timing of the baseline flora surveys was strategically chosen to coincide with the flowering seasons of potential species of concern.

	and one in May. The Jepson Herbarium, 2023b). There are no collections from February through April (The Jepson Herbarium, 2023b). Seasonally appropriate surveys (e.g., spring surveys after adequate precipitation) are necessary to accurately evaluate whether these sensitive annual and herbaceous perennial species are present on site. CDFW highlighted this requirement in its comments on the EA/MND for the project. > CDFW is concerned that the habitat assessments were not conducted at the appropriate time(s) of year to detect all special status plants on the Project site and did not follow the standard protocol to detect special status plants…. CDFW recommends that a revised MND/EA or other CEQA document include a thorough, recent, floristic-based assessment of special-status plants completed at the appropriate time(s) of year before Imperial County adopts the MND/EA. (EA/MND at I-100.) California has experienced a significant shift in ecological conditions after the wet winter of 2022-2023. This is true of the Project Area as well. The EA/MND's biological surveys were conducted in the March 2021, in the midst of a multi-year drought. Due to the extremely high precipitation of the past winter, current ecological conditions are likely significantly different. It is extremely likely that this wet winter and recent summer rains have impacted special-status species in the Project Area and that several species not detected during the 2021 surveys would have been present during the spring of this year. The Applicant must conduct additional follow-up surveys to reassess the baseline conditions and potential impacts to sensitive species and habitats after the significant increase in precipitation over the past year. Critically, even the *County* acknowledges that its surveys were inadequate. It agreed that "the March 2021 biological baseline surveys do not represent a complete floristic inventory as it is representative of the species that were identified during the surveys and may not be representative of species that are present year-round." (EA/MND at I-101.) Because of the deficiencies of the baseline data for the proposed project area, the EA/MND fails to adequately describe the environmental baseline for biological conditions on the Project site. And without the proper baseline data, the EA/MND also lacks evidence to presume that temporary barrier fencing around the few individual plants found in earlier surveys will minimize impacts to any special status plant species throughout the Project. (EA/MND, PDF-34.) In sum, the EA/MND lacks evidence to conclude that the project will not have a significant impact with mitigation incorporated, and a fair argument still exists that the Project may have such impacts.	Although the three sensitive species above were noted to have the potential to occur within the Project Area, through their onsite surveys WestLand found that vegetation is sparse in both the upland and xeroriparian habitats of the Project area. The uplands consist of a very low-density shrub community dominated by creosote (*Larrea tridentata*) and brittlebush (*Encelia farinose*). In addition, large portions of the Project Area consist of disturbed habitats dominated by non-native annual plants. The xeroriparian habitat generally consists of the same sparse shrub community and includes widely spaced upland trees and ocotillo (*Fouquieria splendens*). In summation, WestLand found that vegetation in the Project Area is uniformly sparse and consists of very low density shrublands, upland trees and highly disturbed habitats. In addition to the CNPS vegetation categories, no BLM special status species have been identified within the Project Area or the vegetation area of analysis per the March 2021 biological baseline surveys, which included vegetation baseline surveys (WestLand 2021). The January 2021 desert tortoise baseline surveys included incidental vegetation sightings while in the field but did not include a complete habitat evaluation or floristic inventory as such work was outside the scope of the desert tortoise surveys (Stantec 2021). The pink fairyduster plant is listed as a CESA special status species and is not a BLM special status species, as delineated in the biological baseline report (WestLand 2021). Additionally, as outlined in Table 3-36 of the EA/MND, no plant species protected under Imperial County Code are present within the Project Area or vegetation area of analysis. A habitat assessment in accordance with LUPA-BIO-1 was conducted as part of the biological baseline report (WestLand 2021) for species with potential to occur or may have suitable habitat in the Project Area or vicinity; therefore, this CMA would not be required to be implanted under the Project in addition to the applicant-committed PDFs, additional CMAs, and BLM required additional mitigation (outlined in Appendix F of the EA/MND). Although based on the analysis in the EA/MND summarized above indicate the potential for the Project to impact special-status plant species covered under the CESA would be avoided through the implementation of avoidance and minimization measures, the EA/MND did acknowledge that plant species observed in the field during the March 2021 biological baseline surveys do not represent a complete floristic inventory as it is representative of the species that were identified during the surveys and may not be representative of species that are present year-round. As such, the text of the required mitigation measures in Table F-3 of Appendix F of the EA/MND, M-8 and PDF-34 has been clarified to state the pre-construction surveys conducted prior to surface disturbance would include vegetation surveys to ensure that no special status plants are present within areas proposed for disturbance. Appropriate biological monitoring and avoidance measures would be coordinated with the BLM should special status plants be identified during Project implementation. Please note that per Appendix B and Table F-2 of Appendix F of the EA/MND, LUPA-BIO-2 would not be required for implementation under the Proposed Action as required pre-construction surveys and continued monitoring would take place during all phases of the Proposed Action by a BLM Authorized Biologist. Specifically, the following PDFs and CMAs, will be implemented to ensure potential impacts to special-status species are fully avoided: • PDF-34: Pre-construction vegetation surveys, including for noxious and non-native invasive species and special status species, would be conducted in tandem with the pre-construction migration bird surveys described above. Should special status plant species be identified during Project activities, the BLM would require SMP to implement temporary barrier fencing around the individual plants for avoidance and to minimize impacts throughout the life of the Project. • LUPA-BIO-PLANT-2: Implement an avoidance setback of 0.25 mile for all Focus and BLM Special Status Species occurrences. Setbacks will be placed strategically adjacent to occurrences to protect

		ecological processes necessary to support the plant Species (see Appendix Q, Baseline Biology Report, in the Proposed LUPA and Final EIS [2015], or the most recent data and modeling). • M-8: Should special status plant species be identified during Project activities, the BLM would require SMP to implement temporary barrier fencing around the individual plants for avoidance and to minimize impacts throughout the life of the Project. Through the required pre-construction surveys, including onsite surveys anytime construction equipment is moved to a new location, as well as the implementation of PDFs and CMAs (Appendix F), impacts to special status plants are expected to be avoided and no direct or indirect adverse effects would occur. Nonetheless, if special status plants are observed during the pre-construction surveys that cannot be avoided, SMP would work with CDFW and the appropriate agencies to minimize impacts.
#7	**C. The EA/MND Fails To Assess and Mitigate Impacts to Bat Species.** Numerous commenters, including CDFW, observed that the EA/MND failed to assess or mitigate impacts to bats roosting in underground mines. (See, e.g., EA/MND at I-75). Specifically, the MND/EA (Appendix E, Biological Assessment Section 5.1.2) acknowledged that "previous survey efforts detected 20 high value bat roosts in underground mines within the Analysis Area." Additionally, the MND/EA states "these mine features were occupied by a suite of species including California leaf-nosed bat (*Macrotus californicus*), Townsend's big-eared bat (*Corynorhinus townsendii*), pallid bat (*Antrozous pallidus*) and an unknown myotis species, likely cave myotis (*Myotis velifer*)." While the EA/MND failed to conduct any underground survey or monitoring effort, commenters presented evidence from prior surveys showing that these bats are present year-round. The EA/MND does not dispute that a fair argument exists that these species may be impacted. Rather than remedy its deficient survey efforts or undertake a sufficient analysis of the Project's foreseeable direct impacts, the EA/MND attempts to excuse its lack of analysis and mitigation by claiming that the EA/MND need "analyze[] effects resulting from surface disturbance only" and explains that underground exploration is "not subject to permitting under the 43 CFR 3809 Surface Management regulations." Such an assertion is irrelevant and failure to address these issues violates CEQA and renders the EA/MND legally inadequate. Under CEQA, the County is required to consider the whole of the action in its environmental review. (CEQA Guidelines, Section 15378.) The definition of "project" is "given a broad interpretation in order to maximize protection of the environment." (*Nelson, supra*, 190 Cal.App.4th at p. 278 [BLM's review of proposed surface mining operations under NEPA does not preclude county from undertaking environmental review of entire mining proposal under CEQA]; *Lighthouse Field Beach Rescue v. City of Santa Cruz* (2005) 131 Cal.App.4th 1170, 1180 (internal quotation omitted); see also, *Muzzy Ranch Co. v. Solano County Airport Land Use Com.* (2007) 41 Cal.4th 372, 381-83; *Fullerton Joint Union High Sch. Dist. v. State Bd. of Educ.* (1982) 32 Cal.3d 779, 796-97; *Bozung v. Local Agency Formation Com.* (1975) 13 Cal.3d 263, 277-81.) A "project" is "the whole of an action" directly undertaken, supported, or authorized by a public agency "which may cause either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment." (Pub. Resources Code, § 21065; CEQA Guidelines, § 15378(a).) Critically, under CEQA, "the term 'project' refers to the underlying activity and not the governmental approval process." (*California Unions for Reliable Energy v. Mojave Desert Air Quality Mgmt. Dist.* (2009) 178 Cal.App.4th 1225, 1241, (quoting *Orinda Assn v. Bd. of Supervisors* (1986) 182 Cal.App.3d 1145, 1171-72 [emphasis added]; CEQA Guidelines, § 15378(c).) This means that the project encompasses all foreseeable direct and indirect environmental impacts associated with the project, <u>not</u> just those activities subject to a governmental permit. (*Id.* ["The term 'project' refers to the activity which is being approved	Potential impacts to bat species were evaluated within the EA/MND and related technical appendices. Additionally, minimization and avoidance measures, as well as Project design features, have been incorporated into the Project to ensure potential impacts to bat species are mitigated. The Project Design Feature (PDF)-11 to implement a 500-foot avoidance buffer during the bat maternity season (April 1 through August 31) for surface drilling around features with evidence of use by sensitive bat species is in compliance with Volume IV Section 7 Biological Resources in the DRECP Final EIS (BLM 2015) for implementing an avoidance setback of 500 feet around known bat roosts. While it is true that the EA/MND primarily analyzed effects resulting from surface disturbance only, as underground exploration is not subject to permitting under the 43 CFR 3809 Surface Management regulations, nor SMARA, and is therefore not under the decision-making realm of the BLM or County, the proponent still voluntarily conducted LiDAR mapping of the historic Oro Cruz Mine underground workings to inform the underground exploration activities. The proponent would make their best attempt at utilizing all available LiDAR data to also support surface drill siting in order to avoid the known voids (including roosts, mine shafts, and adits that may support bat species) in the underground workings. Furthermore, surface drill siting has been preliminarily located in the Plan of Operations based on geologic mapping and would be further developed should the Proposed Action be approved. Surface drilling relies on a constant circulation of fluids to lubricate the drill rig and bring samples to the surface; as such, lost circulation of the fluids would result in a lost drill hole at the depth at which an open cavity is encountered, should the drill rig go through a void, such as an area with an open underground mine working. The Proponent would make the best effort possible so that surface drilling would not intersect with underground workings due to not only technical infeasibility, but also economic infeasibility given the potential loss of productivity of a drill site if it were to be sited in an area that would potentially intersect with an underground mine working. Per PDF-11 (described in Appendix F of the EA/MND) to implement a 500-foot avoidance buffer during the bat maternity season for surface drilling around features with evidence of use by BLM sensitive bat species, the proponent would utilize data provided by the BLM with locations of known abandoned mine sites that host populations of BLM sensitive bat species to implement the buffer and to inform surface drill siting. Additionally, shielded lights on drilling equipment is a standard equipment feature that would be used during nighttime drilling to limit visual impacts from night lighting in the Project Area. Although some of the known bat species with potential to be present within the Project Area do not depend on "hawking" insects from the air and therefore would likely not be drawn to insect population that may be attracted to nighttime drill lighting, there is a potential for some foraging bat species to be present that do rely on "hawking" insects rather than foraging from the ground and/or vegetation; therefore, the creation of a source of light that would attract insects and thus some species of foraging bats is was disclosed as a

	and which may be subject to several discretionary approvals by governmental agencies. The term 'project' does not mean each separate governmental approval."]) Bats have been frequently observed in and around the Project site and are known to roost in the existing underground mines in the Cargos Muchachos Mountains. The purpose of the Project is "to access the underground Oro Cruz Mine portal for underground exploration" via drilling, making direct impacts to these species a certainty if the Project is approved. (EA/MND, sec. 2.1.1.) The County cannot hide behind the scope of BLM's permitting authority when defining the environmental impacts of the Project. (*Nelson, supra*, 190 Cal.App.4th at p. 278.) By failing to disclose or analyze the potentially significant impacts to bat species, the EA/MND is left legally inadequate.	potential impact within the EA/MND. Additionally, per LUPA-BIO-14, all long-term nighttime lighting will be directed away from riparian and wetland vegetation, occupied habitat, and suitable habitat areas for Focus and BLM Special Status Species. Long-term nighttime lighting will be directed and shielded downward to avoid interference with the navigation of night-migrating birds and to minimize the attraction of insects as well as insectivores birds and bats to project infrastructure. Therefore, through the implementation of the PDFs and CMAs summarized above, which are similar in nature to CDFW's suggested MM BIO-[D], potential impacts to bat species would be properly avoided and/or mitigated. As such, per the PDFs, CMAs, and BLM required mitigation measures included in Appendix F of the EA/MND, pre-construction surveys would be conducted prior to surface disturbing activities in order to identify presence of both wildlife, including bat species, and vegetation species that may require additional coordinated avoidance with the BLM.
#8	**II. The EA/MND's Cultural Resources Analysis Is Inadequate, and There Is a Fair Argument that the Project May Have Significant Impacts to Cultural Resources.** **A. The County Has Not Properly Analyzed or Mitigated Impacts to Tribal Cultural Resources.** The site is an important cultural resource for the Fort Yuma Quechan Indian Tribe, which has been affiliated with the location for thousands of years. In the tribe's own words: "The location holds its significance to the Quechan People as a part of a greater cultural, religious and spiritual landscape that is entwined with origin stories, traditions and ceremonies, and the cultural patrimony of the Quechan People. The Quechan Tribe considers this landscape a Traditional Cultural Place (Traditional Cultural Property). This location has a specific name within the Quechan language. As stated previously, this landscape is associated with the cultural practices, religious beliefs and history that are important to the Tribe to continue and maintain the Tribe's cultural identity. The large number of trails, geoglyphs, ceramics, etc. in this location is proof of the longterm history, continued use and significance of this area to the Quechan people and the connection of this location to the broader cultural landscape in this region. The Quechan people still utilize this area today in various cultural capacities. The preservation of this area is essential to continue the cultural, religious and traditional practices and teaching of future generations of Quechan youth. This location is tied to the origins of song cycles which live within this landscape. These songs specifically reference and speak of the landscape contained within the proposed project area. These songs are still sung today by the Quechan people. Therefore, they are still a part of everyday life and tie the Quechan people to these places. Use of this landscape for the proposed project would be a direct assault on the preservation of the history, culture and religion of the Quechan people, and for that reason this landscape must be preserved for the Quechan culture to continue. (EA/MND, Appendix I p. I-82)	Formal government-to-government consultation with Native American tribes by the BLM has been conducted since March 2021, including extensive consultation meetings with the Fort Yuma Quechan Indian Tribe. All instances of government-to-government consultation in accordance with Section 106 of the National Historic Preservation Act were provided within Sections 3.14 and 4.1 of the EA/MND. Additionally, the Imperial County Planning Commission (ICPC) has been provided an extensive summary of all County and BLM consultation with impacted Native American tribes to date, regarding the Oro Cruz Exploration Project (OCEP) as required by AB 52 and by Section 106 of the National Historic Preservation Act of 1966. The full record of tribal consulation, along with pertinent and supporting documents have been entered into the County record in anticipation of the October 25, 2023 ICPC hearing. Additionally, a Class III Cultural Resources Inventory Report was prepared in 2021 and accepted by the BLM, and the non-confidential results of such represent the baseline conditions and are described in Section 3.8 of the EA/MND. The Fort Yuma Quechan Indian Tribe was instrumental in preparing the Class III Cultural Resources Inventory Report, and provided extensive input so that the BLM, County, and Project proponent could redesign the Project to ensure that potential important cultural resources would be avoided. As stated in Section 3.8 of the EA/MND, all known cultural resource sites would be avoided thus minimizing direct impacts. No adverse impacts would occur with avoidance measures implemented. The BLM would require additional mitigation measures to minimize indirect impacts to known cultural resource sites such as a cultural monitoring and inadvertent discovery plan, periodic archaeological monitoring in consultation with the BLM ECFO archaeologist, and safeguarding all known culturally sensitive areas within 100 feet of ground disturbance with periodic archaeological monitoring and barrier fencing, as described in Section 3.8.3 and Appendix F of the EA/MND, resulting in indirect impacts being negligible, short-term, and localized. Lastly, should the Project be approved and, as such, the cultural monitoring commences upon Project initiation, the BLM will contact all tribes that have engaged in Government-to-Government consultation with the opportunity to participate as Tribal Cultural Monitors to conduct the BLM-required archaeological monitoring.
#9	**B. The Tribe Requested Consultation Under AB 52 and the County Did Not Consult.** Recognizing the irreplaceable nature of tribal cultural resources, California passed AB 52 to require lead agencies to consult with tribes during the CEQA process. (OPR 2023.) The consultation process is necessary for the protection of the resources that are "centrally important to tribal culture and tradition," which include sites, features, places, or cultural landscapes. (*Id*, Pub. Res. Code § 21074.) The consultation process	Please refer to the response to Comment #8 above, as well as the detailed tribal consultation summary submitted into the County record in preparation for the October 25, 2023, ICPC hearing. To reiterate the information presented in the EA/MND, as well as the detail tribal consultation summary submitted into the County record in preparation for the October 25, 2023, ICPC hearing, on September 9, 2021, the County distributed an AB 52 consultation letter for the proposed Project. Specifically, Project

	requires the lead agency to "seek, discuss, and consider carefully" the views of the tribe, and to "seek agreement." (OPR 2017.) This is necessary to respect and honor tribal sovereignty. (*Id.*) Effective consultation is an ongoing conversation, not a single event. (*Id.*) The law also imposes substantive requirements, namely, that "[a] project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment." (Pub. Res. Code, § 21084.2.) Evidence that could support the finding of a significant effect on a tribal resource includes formal statements from a Tribal Historic Preservation Officer. (OPR 2017) If, through consultation with a tribe, the lead agency determines that the project may hurt a tribal cultural resource, the agency must consider mitigation measures. (*Id.*) The Fort Yuma Quechan Indian Tribe asserts that it notified Imperial County of its desire to engage in consultation regarding this Project. (EA/MND, Appendix I p. I-82.) The County claims that the tribe did not respond to the letter it sent initiating consultation, and therefore no consultation was required. (Id.) This factual dispute shows that Imperial County has not successfully communicated with the tribe as intended by AB 52. Further, the evidence in the record shows that the Fort Yuma Quechan Indian Tribe was very engaged in advocating to protect their cultural resources on the site. The tribe was in frequent contact with BLM to "identify[] potential areas of concern that may be associated with the Project." (EA/MND, p. 123.) The tribe first met with BLM regarding the Project on July 12, 2021, and the EA/MND details how tribal representatives attended at least eight site visits and meetings with BLM over the next two years. (*Id.*) The tribe demonstrated its profound concern about the Project's impacts and its willingness to participate extensively in the review process. The County has violated AB 52 by ignoring this request for consultation.	information, a map, and contact information was sent to the Fort Yuma Quechan Indian Tribe. Due to the geographic location of the Project, the Fort Yuma Quechan Indian Tribe is the only Native American tribe that has claimed traditional and cultural affiliation with the Project Area and is therefore the only tribal entity required to be notified of the Project by Imperial County pursuant to AB 52. No response letter was received by Imperial County from the Fort Yuma Quechan Indian Tribe; however, since March 2021, the BLM and County have had extensive consultation meetings with the Fort Yuma Quechan Indian Tribe in accordance with Section 106 of the National Historic Preservation Act (see Sections 3.14 and 4.1 of the EA/MND). Additionally, the BLM has and continues to consult with the Fort Yuma Quechan Indian Tribe to ensure that potential concerns regarding tribal cultural resources are properly addressed.
#10	**C. The County's Determination of No Significant Impact to Cultural Resources Is Not Supported by Evidence.** It is a violation of CEQA to approve a project using an MND without first resolving uncertainties regarding the project's potential to cause significant impacts. (*Sunstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296.) This is because a lead agency must prepare an EIR whenever a fair argument supports the project could have a significant impact. (*Id.*) Despite the lack of adequate consultation, the County has concluded through an EA/MND that the Project would not have significant impacts on tribal cultural resources. (EA/MND, p. 53.) The MND cannot support this claim. The EA/MND did not find that the site is not historically or culturally significant. (Pub. Res. Code, § 21084.1.) Instead, the EA/MND merely notes that "not enough information has been provided to understand the nature, extent, and use of the resource, and therefore to fully assess impacts." (EA/MND, p. 56.) The EA/MND stops short of explaining how, if the County cannot "fully assess impacts," it can still conclude that there is no substantial evidence supporting a fair argument that the impacts may be significant. The EA/MND itself includes a letter from H. Jill McCormick, the tribe's Historic Preservation Officer, explaining that BLM's analysis of impacts did not incorporate input from the tribe regarding what sites were sacred or traditionally important. As Ms. McCormick said in the comment letter, it is not possible for BLM to make any conclusions about the impact of the Project when "there was no input on the cultural, religious, or spiritual effects of this project on the Quechan people." (EA/MND, Appendix I p. I-82)	As stated in response to Comment #1, consistent with the CEQA statutes, if a project is found to have no adverse effects, or if the potential effect can be reduced to a level that is less than significant through project revisions/mitigations, a Negative Declaration or MND can be adopted (§21080). Specifically, the statute provides that MNDs may be used, "when the initial study has identified potentially significant effects on the environment, but (1) revisions in the project plans or proposals made by, or agreed to by, the applicant before the proposed negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur, and (2) there is no substantial evidence in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment" (§21064.5). In summary, if all potential significant impacts can be eliminated or reduced to less than significant, a MND can be prepared in lieu of an EIR. Through preparation of a detailed initial study, as well as a detailed suite of technical studies, Imperial County determined that an MND was the appropriate project document under CEQA. The County held an Environmental Evaluation Committee (EEC) meeting on November 17th, 2022, where a draft version of the initial study/MND was presented to the public, and to a seven-member panel representing various County agencies/organizations. Through this public process, the EEC determined that the mitigations measures as proposed would reduce the significant effects to a less than significant level, or project design features as included would avoid them all together. For these reasons, the County found that an MND was the appropriate CEQA level of review/documentation for the project. Further, public controversy over the possible environmental effects of a project is not sufficient reason to require an EIR "if there is no substantial evidence in light of the whole record before the Lead Agency that the project may have a significant effect on the environment" (§ 21082.2).

	The Governor's Office of Planning and Research advises lead agencies to "invest time and effort into" gathering information and "seeking a mutually agreeable resolution," and the EA/MND does not show that the County followed this guidance. (OPR 2017.) A Tribal Historic Preservation Officer's statement that the tribe has not been adequately consulted and that the project would cause "great harm" to their cultural practices establishes a "fair argument" that the project might have a significant effect on tribal cultural resources. (CEQA Guidelines § 15064(f)(1), Pub. Res. Code, § 21084.2.) The County admits that it does not have enough information to assess impacts and to establish that there will not be such an impact. Therefore, the EA/MND is inadequate and an EIS/EIR is required to gather the necessary information before the Project may proceed.	As stated in response to Comment #8 and #9, as well as within the detailed tribal consultation summary submitted into the County record in preparation for the October 25, 2023, ICPC hearing, extensive government-to-government tribal consultation conducted by both the County and the BLM has occurred with the Quechan and other Tribes dating back to 2021. The BLM recognizes the attributes that give Traditional Cultural Properties significance, such as their association with historical events or traditional practices, are often intangible in nature. The status of the Section 106 process, the Traditional Cultural Property and tribal consultation was described in Sections 3. 8, 3.14 and 4.12 of the EA/MND. As stated in Section 3.8 of the EA/MND, all known cultural resource sites would be avoided thus minimizing direct impacts. No adverse impacts would occur with avoidance measures implemented. The BLM would require additional mitigation measures to minimize indirect impacts to known cultural resource sites such as a cultural monitoring and inadvertent discovery plan, periodic archaeological monitoring in consultation with the BLM ECFO archaeologist, and safeguarding all known culturally sensitive areas within 100 feet of ground disturbance with periodic archaeological monitoring and barrier fencing, as described in Section 3.8.3 and Appendix F of the EA/MND, resulting in indirect impacts being negligible, short-term, and localized. Lastly, the BLM will continue government-to-government consultation in accordance with Section 106 throughout the life of the Project. In fact, since the initial ICPC hearing on September 13, 2023, BLM has requested additional consultation meetings with the Quechan on a proposed Discovery and Monitoring Plan (DMP). The DMP is intended to provide continued opportunity for tribal engagement during the life of the Project. Once consultation on the DMP is complete and accepted, tribal members from the Quechan and/or other tribes would be offered an opportunity to monitor the activities of the proponent to ensure compliance with all cultural resource protection measures.
#11	**III. The EA/MND's Analysis of Hydrological and Water Quality Impacts Remains Deficient.** The EA/MND's evaluation of the Project's hydrological and water quality impacts is flawed because it lacks the necessary facts and analysis to support its conclusions that the Project would not create significant impacts. The EA/MND recognizes that substantially degrading surface water quality, or altering the existing draining pattern of an area, including through the alteration of the course of streams, could negatively affect the hydrology of the Project site and surrounding areas. As a result, the EA/MND's thresholds of significance recognize that the Project would have a significant hydrology impact if it would 1) "substantially degrade surface or ground water quality," or 2) "substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces," such as in a manner that could result in siltation on- or off-site. (EA/MND, Table 3-31.) The EA/MND's mapping identifies natural ephemeral drainages throughout the site, which convey water during storm events. (EA/MND, Sec. 3.22.3.) Elsewhere, the mapping shows that the Project plans to drill immediately adjacent to or on top of these ephemeral streams. (EA/MND, Figure 2-1, 3-11.) A thorough analysis of these issues is critical. Yet the EA/MND summarily concluded there would be a less than significant impact, without disclosing or analyzing how drilling may affect these streams, what mitigation might be required, or what actions the Project would take to prevent drilling from affecting the streams. (EA/MND, Sec. 3.22.3.) The EA/MND does not describe the type of drilling that would occur, what chemicals may be involved, the slope of the surrounding areas (which would inform the measures needed to prevent run off), or the steps it will take to ensure that drilling will not result in chemical or sediment runoff.2 And while the EA/MND makes a vague reference to best management practices ("BMPs"), it fails to	The Tumco Wash, depicted on Figure 2-1 of the EA/MND is an ephemeral stream and conveys water only during storm events, as stated in Section 3.22.3 of the EA/MND. The Project would require a Construction Stormwater General Permit (CGP) pursuant to the Regional Water Resources Control Board National Pollutant Discharge Elimination System requirements, and a BLM approved SWPPP would be developed and implemented to control sedimentation from disturbance associated with Project activities. The Project would also require a Lake and Streambed Alteration Agreement with the CDFW pursuant to California Fish and Game Code Section 1602. Potential impacts to surface water quality would be minimized by the implementation of the PDFs outlined in Appendix F, as well as incremental reclamation. Additional CMAs would also be implemented to minimize resource conflicts and water quality impacts, described in Appendix F. The Proposed Action would have a negligible, short-term, and localized impact on surface water resources. All Project access roads would be used strictly for Project support vehicles to access the exploration Drill Areas, and they would be signed as having limited access to prevent public use. Please note that the text of the EA/MND has been clarified to state the proposed new access road leading to Drill Area 1 would not be permanent – it would remain as a post-surface exploration feature for reclamation, monitoring, and underground exploration activities until complete, which would occur within five years from Project implementation. Additionally, pre-construction surveys would be conducted prior to any surface disturbance activity, which would include vegetation surveys. Any results from the pre-construction surveys that may require additional impact minimization or avoidance measures would be coordinated with the BLM. As stated throughout the EA/MND and the Reclamation Plan, chemicals or other hazardous materials would not be utilized during drilling activities. SMP would implement Spill Contingency Plan that complies

	commit to any such practices, which also constitutes an unlawful deferral of mitigation (see, *infra*, section V.) It is beyond dispute that surface mining for gold may have significant environmental impacts on perennial or intermittent streams. (Martin 2020, Okanogan 2023, Punia 2021, Timsina 2022, Yaraghi 2020.) The Department of Interior's surface mining regulations specifically prohibit surface mining activities within 100 feet of an ephemeral stream. (30 C.F.R. 816.57 ["No land within 100 feet of a perennial stream or an intermittent stream shall be disturbed by surface mining activities, unless the regulatory authority **specifically authorizes** surface mining activities closer to, or through, such a stream.].) Not only does the EA/MND appear to be in violation of these regulations, but it fails to provide the necessary disclosures so that the public may assess the Project's compliance with these regulations, as well as the potential environmental effects on hydrology. And without any of these necessary facts, such as the planned areas for drilling or the planned distance between drilling and streams, the EA/MND cannot specifically authorize these activities. In sum, the EA/MND simply lacks information to conclude that the Project would not result in a significant environmental impact.	with federal and state regulations for storage and handling of oil at industrial facilities (40 CFR Part 112 and California Health and Safety Code Chapter 6.67, Section 25270). The Spill Contingency Plan would include a description of the regulated materials stored at the site, discharge prevention measures (e.g., secondary and general containment, fueling transfer procedures, etc.), drainage control to ensure spill containment, and spill response and clean up procedures. It would also include spill reporting procedures, training, and periodic updates to the plan. Adherence to Spill Contingency Plan and other safety measures would mitigate the potential for fires due to hazardous releases during equipment fueling and maintenance. It would also include spill reporting procedures, training, and periodic updates to the plan. Adherence to SMP's Spill Contingency Plan would mitigate the potential for fires due to hazardous releases during equipment fueling and maintenance. The BMPs, operating practices and other environmental protection measures required by the federal, state and local Certified Unified Program Agency (CUPA) regulations would be incorporated into the Project to minimize potential impacts on the environment due to the routine transport, use, or disposal of hazardous materials. As noted above, the Project will obtain a Lake and Streambed Alteration (LSA) Agreement with the California Department of Fish and Wildlife (CDFW) pursuant to California Fish and Game Code Section 1602, and this is clearly acknowledged in the EA/MND. Potential impacts to surface water quality would be minimized by the implementation of the PDFs outlined in Appendix F, as well as incremental reclamation. Additional CMAs would also be implemented to minimize resource conflicts and water quality impacts, described in Appendix F. For these reasons, the Project would have a negligible, short-term, and localized potential impacts on surface water resources, and potential impacts would be avoided or mitigated to less than significant levels through the implementation of the BLM-approved SWPPP. All Project access roads would be used strictly for Project support vehicles to access the exploration Drill Areas, and they would be signed as having limited access to prevent public use. Please note that the text of the EA/MND has been clarified to state the proposed new access road leading to Drill Area 1 would not be permanent – it would remain as a post-exploration feature for reclamation, monitoring, and underground exploration activities until complete, anticipated within five years. Additionally, pre-construction surveys would be conducted prior to any surface disturbance activity. Any results from the pre-construction surveys that may require additional impact minimization or avoidance measures, including those related to surface waters, would be coordinated with the BLM. As discussed in the EA/MND, potential impacts to surface and groundwater under the Proposed Action, including water quality, would be negligible, short-term, and localized per the analysis provided in Section 3.22.3, and were found to be less than significant through implementation of appropriate avoidance and mitigation measures. Additionally, the Project would acquire the necessary waters of the state permitting, including the Lake and Streambed Alteration (LSA) Agreement with the CDFW, and a Construction Stormwater General Permit with the Regional Water Quality Board pursuant to California State Water Resources Control Board requirements. As such, neither undue impairment nor pollution of streams and waters within the CDCA would occur under the Project. An LSA application was submitted to the CDFW for the Project, and either final approval or concurrence that no Waters of the State (WOTS) will be impacted by the Project will be obtained from the CDFW prior to any ground-disturbing activities. Similarly, a draft SWPPP has been prepared for the Project site, and has been approved by Water Board as of September 2023. Note that through obtaining the necessary approvals from both the CDFW and the Water Board, the Project has address CBD's comment.
#12	**V. The EA/MND's Mitigation Is Improperly Deferred**	The preparation and implementation of an Operation Dust Control Plan is an Imperial County Air Pollution Control District (ICAPCD) requirement, and is not necessary to mitigated a potentially significant impact pursuant to CEQA. Consistent with ICAPCD Rule 801, the proponent would develop a site-specific

	A lead agency cannot base a negative declaration on the presumed success of mitigation measures that have not been formulated at the time of project approval. (*Sunstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296.) To address fugitive dust, the County claims any impacts will be mitigated to less than significant levels because SMP "would develop a site-specific Operation Dust Control Plan, which would be submitted to the ICAPCD." (EA/MND at I-72.) Similarly, to address any hydrological impacts, the EA/MND The California Court of Appeal had held that such improper deferral of mitigation renders an MND inadequate as a matter of law. In *Schaeffer Land Trust v. San Jose City Council*, a proposed mitigation measure required a project applicant "to obtain a biological report regarding the Stephens' kangaroo rat" and to "comply with any recommendations in the report." ((1995) 36 Cal.App.4th 1359.) Since the measure "required the applicant to comply with any recommendations of a report that had yet to be performed," the court found that the measure "was on all fours" and could not serve as the basis for a legal adequate MND. (*Ibid.*) Since the EA/MND only requires SMP to comply with recommendations that have yet to be developed or performed, the measure cannot serve as the basis for this MND. This is because the circumstances under which a lead agency may rely on a mitigated negative declaration are limited: only when "there is no substantial evidence in light of the whole record before the public agency that the project ... may have a significant effect on the environment" may an agency prepare a negative declaration or mitigated negative declaration instead of an EIR. (Pub. Res. Code § 21064.5; *see also id.* §§ 21064, 21080(c).) If there is substantial evidence supporting a fair argument (a low threshold) that a project may have a significant effect on the environment, an agency must prepare an EIR. (*Id.* § 21080(d).) Without such disclosure or analysis *before* Project approval, the EA/MND simply lacks a basis or any information to conclude that there is no fair argument that there may be significant fugitive dust impacts, including the potential dust impacts to wildlife. Proper analysis of the air quality impacts is especially important due to the significant cumulative air quality issues in the Imperial County basin.	Operation Dust Control Plan, which would be submitted to the ICAPCD, and consistent with Rule 801 requirements, approval would be obtained a minimum of 10 days prior to the first ground disturbing activities as a result of the Project. Because the Operations Dust Control Plan is required per ICAPCD Rule 801, and because implementation of said plan is relevant to air quality, it was described within the EA/MND; however, even if the measures described within the Operations Dust Control Plan were not implemented, potential air quality and dust impacts would remain less than significant, with no mitigation required. Therefore, the Operations Dust Control Plan is not deferred mitigation measure.
#13	**VI. The Project's Potentially Significant Impacts Require Preparation of an EIR.** An agency must prepare an EIR whenever it is presented with a "fair argument" that a project may have a significant effect on the environment, even if there is also substantial evidence to indicate that the impact is not significant. (*See No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal.3d 68; see also *Friends of B Street v. City of Hayward* (1980) 106 Cal.App.3d 988; Guidelines § 15064(f)(1).) **Where there are conflicting opinions regarding the significance of an impact, the agency must treat the impact as significant and prepare an EIR.** (*Stanislaus Audubon Society v. County of Stanislaus* (1995) 33 Cal.App.4th 144, 150-51; Guidelines § 15064(f)(1).) An initial study also must provide the factual basis, with analysis included, for making the determination that no significant impact will result from the project. (Guidelines, § 15063(d)(3).) In making this determination, the agency must consider the direct and indirect impacts of the project as a whole (Guidelines § 15064(d)), as well as the project's cumulative impacts (see *City of Antioch v. City Council of Pittsburg* (1986) 187 Cal.App.3d 1325, 1332-33). Here, the County must prepare an EIR because, as set forth above, there is a fair argument that the Project will cause significant impacts related to cultural resources and biological resources, among other impacts. There is substantial evidence in light of the whole record that the project may have a significant effect on the environment which cannot be mitigated or avoided, requiring recirculation and preparation of an EIR. (CEQA Guidelines, § 15073.5.) For such a controversial project with significant, irreversible environmental	As stated in response to Comments #1 and #10, consistent with the CEQA statutes, if a project is found to have no adverse effects, or if the potential effect can be reduced to a level that is less than significant through project revisions/mitigations, a Negative Declaration or MND can be adopted (§21080). Specifically, the statute provides that MNDs may be used, "when the initial study has identified potentially significant effects on the environment, but (1) revisions in the project plans or proposals made by, or agreed to by, the applicant before the proposed negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur, and (2) there is no substantial evidence in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment" (§21064.5). In summary, if all potential significant impacts can be eliminated or reduced to less than significant, a MND can be prepared in lieu of an EIR. Through preparation of a detailed initial study, as well as a detailed suite of technical studies, Imperial County determined that an MND was the appropriate project document under CEQA. The County held an Environmental Evaluation Committee (EEC) meeting on November 17th, 2022, where a draft version of the initial study/MND was presented to the public, and to a seven-member panel representing various County agencies/organizations. Through this public process, the EEC determined that the mitigations measures as proposed would reduce the significant effects to a less than significant level, or project design features as included would avoid them all together. For these reasons, the County found that an MND was the appropriate CEQA level of review/documentation for the project. Further, public controversy over the possible environmental effects of a project is not sufficient reason to require an EIR "if there is no substantial evidence in light of the whole record before the Lead Agency that the project may have a significant effect on the environment" (§ 21082.2).

	impacts, the environmental document must include a detailed and thorough analysis of the Project's likely impacts to permit informed decisions about the Project and identify effective mitigation measures and alternatives that could reduce these impacts.	It is also important to note that the BLM is the sole owner of the land where the Project is proposed, and therefore Imperial County only has discretionary authority over the Reclamation Plan and reclamation activities described therein pursuant to SMARA. As such, the "project" evaluated under CEQA would be those activities specific to site reclamation. Nonetheless, Imperial County and the BLM opted to prepare a joint EA/MND document to ensure that the potential environmental effects of both exploration activities as well as reclamation activities were fully evaluated under CEQA and NEPA. Both the public and the County EEC panel members reviewed the entirety of the joint CEQA/NEPA document when rendering the decision to prepare an EA/MND for the Project.
#14	**VII. Conclusion** As set forth above, the EA/MND does not come close to satisfying CEQA's requirements. It fails to describe the Project setting based on adequate survey data and consultation with the affected tribe and fails to provide a complete analysis of Project impacts and feasible mitigation measures. At the same time, ample evidence demonstrates that a fair argument exists that the Project may result in significant environmental impacts. In light of this evidence, CEQA requires that an EIR be prepared. For this reason, and because the Project will have irreparable impacts, we respectfully request that the Project be denied at this time. The Project should not be reconsidered until a legally adequate EIR is prepared and certified. Please include this letter and all references in your project file for the Project. Please also include all of the signatories below on your notice list for all future updates, notices, and documents related to the Project and do not hesitate to contact us with any questions at the email listed below.	See responses to Comments #1, #10 and #11 above for details regarding why the County confirmed that a MND was the appropriate CEQA level of review/documentation for the Project. Lastly, as noted under Comment #13 above, the County only has discretionary authority over the Reclamation Plan and reclamation activities described therein pursuant to SMARA. As such, the "project" evaluated under CEQA, and the emissions by which ICAPCD thresholds would be applied, would be those activities specific to site reclamation. Nonetheless, Imperial County and the BLM opted to prepare a joint EA/MND document to ensure that the potential environmental effects of both mining/exploration activities as well as reclamation activities were fully evaluated under CEQA and NEPA.

SESPE
CONSULTING, INC.
A Trinity Consultants Company
374 Poli Street, Suite 200 • Ventura, CA 93001 • (805) 275-1515

October 16, 2023

Imperial County, Planning and Development Services Department
Attn: Michael Abraham
801 Main Street
El Centro, California 92234

Re: Response to Comment Letters Received from Individuals Requesting that the Mitigated Negative Declaration be Rejected in favor of an Environmental Impact Report

Dear Mr. Abraham,

The following has been prepared in response to emails received from numerous individuals who provided additional comments regarding the Oro Cruz Exploration Project (the "Project") in advance of the initial Imperial County Planning Commission (ICPC) hearing held on September 13, 2023. The emails, which were received from approximately 102 individuals, essentially provided identical comments urging the County to reject the Mitigated Negative Declaration (MND) and prepare an Environmental Impact Report (EIR). These comments were made on the grounds that the Project would cause irreversible damage to a landscape of great cultural, religious, and spiritual importance to the Quechan people, as well as have significant impacts on the Picacho Area of Critical Environmental Concern (ACEC), including to critical habitat for the threatened Mojave Desert Tortoise. Note the additional comments provided by these individuals mirror comments previously provided during the public comment period for the Environmental Assessment/Mitigated Negative Declaration (EA/MND) conducted between November 2022 and January 2023, pursuant to the National Environmental Quality Act (NEPA)/California Environmental Quality Act (CEQA). Nonetheless, we have responded to the comments and highlighted information within the existing Project record that addresses each of the concerns raised. See Attachment 1 which contains a copy of one of the comment emails received.

Quechan Tribe: Imperial County and the Bureau of Land Management (BLM) understand that the Project area is of great cultural, religious, and spiritual importance to the Quechan people, and as a result, have conducted extensive formal government-to-government consultation with the Quechan dating back to March 2021. The ICPC has been provided an extensive summary of all County and BLM consultation with impacted Native American tribes to date, regarding the Oro Cruz Exploration Project (OCEP) as required by Assembly Bill (AB) 52 and by Section 106 of the National Historic Preservation Act of 1966. The full record of tribal consultation, along with pertinent and supporting documents, has been submitted under separate cover and entered into the County record in anticipation of the October 25, 2023 ICPC hearing.

Additionally, a Class III Cultural Resources Inventory Report was prepared in 2021 and accepted by the BLM, and the non-confidential results of such represent the baseline conditions and are described in Section 3.8 of the EA/MND. The Fort Yuma Quechan Indian Tribe was instrumental in preparing the Class III Cultural Resources Inventory Report by providing extensive input so that the BLM, County, and Project Proponent could redesign the Project to ensure that potentially important cultural resources would be

avoided. As stated in Section 3.8 of the EA/MND, all known cultural resource sites would be avoided thus minimizing direct impacts. No adverse impacts would occur with avoidance measures implemented. The BLM would require additional mitigation measures to minimize indirect impacts to known cultural resource sites such as a cultural monitoring and inadvertent discovery plan, periodic archaeological monitoring in consultation with the BLM El Centro Field Office (ECFO) archaeologist, and safeguarding all known culturally sensitive areas within 100 feet of ground disturbance with periodic archaeological monitoring and barrier fencing, as described in Section 3.8.3 and Appendix F of the EA/MND, resulting in indirect impacts being negligible, short-term, and localized.

Lastly, should the Project be approved and, as such, the cultural monitoring commences upon Project initiation, the BLM will contact all tribes that have engaged in government-to-government consultation with the opportunity to participate as Tribal Cultural Monitors to conduct the BLM-required archaeological monitoring.

Mojave Desert Tortoise: Extensive Mojave Desert tortoise surveys were conducted in support of the CEQA/NEPA process, and extensive Mojave Desert tortoise avoidance and mitigation/minimization measures will be implemented throughout the life of the Project.

Per the analysis in Section 3.23.3 of the EA/MND, impacts to threatened and endangered species (including Mojave Desert tortoise), special status species, and general wildlife species are anticipated to be negligible to minor, short-term, localized, and sufficiently mitigated to less than significant levels through the implementation of the avoidance and minimization measures summarized below. Several Project Design Features (PDFs) have been developed by the proponent for implementation during the Project to avoid or sufficiently mitigate potential impacts. Additional wildlife-specific mitigation measures would be required for implementation by the BLM, as outlined in Appendix F of the EA/MND. Specifically, detailed desert tortoise avoidance measures (17 total), summarized within the Plan of Operations (Appendix A of the EA/MND), would be implemented onsite. These include but are not limited to pre-construction tortoise surveys, onsite monitoring during tortoise active season, and employee training. Additionally, as discussed in Section 3.23.3 of the EA/MND, SMP has committed to conducting pre-construction surveys within 48 hours of surface disturbance within the species-specific buffers outlined in Appendix F of the EA/MND from the area to be disturbed in order to avoid impacts to Mojave Desert tortoise. Surveys for Mojave Desert tortoise may be combined with pre-construction migratory bird surveys if taking place during the nesting season.

In addition to the PDFs/CMAs cited by CDFW, PDF-21 included in Table F-1 of Appendix F of the EA/MND would also be implemented, which notes that if a tortoise is encountered during construction activities, work would be halted immediately per the authority of a designated Field Contact Representative (who would be a BLM-approved Authorized or Qualified Biologist). The representative would be on-site year-round during all Project activities, in proximity to the tortoise until an on-call BLM-approved Authorized Biologist arrives to move the tortoise from harm's way, or until the tortoise leaves of its own accord. Specifically, the following PDFs and CMAs, which are similar in nature to CDFW's suggested MM BIO-[F], will be implemented to ensure potential impacts to desert tortoises are properly avoided and/or mitigated:

- PDF-13: Within 24 hours of the commencement of Project activities, a BLM-approved Authorized or Qualified Biologist would inspect the area to be disturbed plus a 500-foot buffer, focusing on areas that could provide suitable desert tortoise burrow or cover sites, such as dry washes with caliche. This may be combined with the above pre-construction migratory bird survey if taking

place during the nesting season. Burrows would be flagged such that they would be avoided by Project activities. When requesting authorization of biologists to handle desert tortoises, the Permittee/BLM will submit credentials to the USFWS for review and approval at least 30 days prior to the need for the biologist to perform those activities in the field.

- PDF-21: SMP would designate a field contact representative (FCR) who would be responsible for overseeing compliance with protective stipulations for the desert tortoise and for coordination on compliance with the BLM. The FCR must be on-site during all Project activities. The FCR would have the authority to halt Project activities that are in violation of the stipulations. The FCR would have a copy of all stipulations when work is being conducted on the site. The FCR may be a crew chief or field supervisor, a project manager, any other employee of the Project Proponent, or a BLM-approved Authorized Biologist. Any incident occurring during Project activities that is considered by the FCR to be in non-compliance with the mitigation plan would be documented immediately by the FCR. The FCR would ensure that appropriate corrective action is taken. Corrective actions would be documented by the FCR. The following incidents would require immediate cessation of the construction activities causing the incident, including:
    - Imminent threat of injury or death to a desert tortoise;
    - Unauthorized handling of a desert tortoise, except on designated roads;
    - Conducting any construction activity without a biological monitor where one is required. If a tortoise is encountered during construction activities, work would be halted in proximity to the tortoise until an on-call BLM-approved Authorized Biologist can move the animal from harm's way or until the desert tortoise leaves of its own accord.
- PDF-34: Injury: Should any desert tortoise be injured or killed, all activities would be halted, and the Authorized Biologist immediately contacted. The biologist would have the responsibility for determining whether the animal should be transported to a veterinarian for care, which is paid for by the Project Proponent if involved. If the animal recovers, the USFWS is to be contacted to determine the final disposition of the animal; few injured desert tortoises are returned to the wild

Through the required pre-construction surveys, including onsite surveys anytime construction equipment is moved to a new location, as well as the implementation of PDFs and CMAs (Appendix F of EA/MND) summarized above, impacts to desert tortoise are expected to be fully avoided, or mitigated to less than significant levels.

Additionally, pre-construction surveys would be conducted year-round prior to surface disturbance occurring per the PDFs and BLM-required additional mitigation measures included in Appendix F of the EA/MND.

MND vs. EIR: Consistent with the CEQA statutes, if a project is found to have no adverse effects, or if the potential effect can be reduced to a level that is less than significant through project revisions/mitigations, a Negative Declaration or MND can be adopted (§21080). Specifically, the statute provides that MNDs may be used, "when the initial study has identified potentially significant effects on the environment, but (1) revisions in the project plans or proposals made by, or agreed to by, the applicant before the proposed negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur, and (2) there is no substantial evidence in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment" (§21064.5). In summary, if all potentially significant impacts can be eliminated or reduced to less than significant, an MND can be prepared in lieu of an EIR. Through the preparation of a detailed initial study, as well as a detailed suite of technical studies, Imperial

County determined that an MND was the appropriate project document under CEQA. The County held an Environmental Evaluation Committee (EEC) meeting on November 17th, 2022, where a draft version of the initial study/MND was presented to the public, and a seven-member panel representing various County agencies/organizations. Through this public process, the EEC determined that the mitigation measures as proposed would reduce the significant effects to a less than significant level, or Project design features as included would avoid them all together. For these reasons, the County found that an MND was the appropriate CEQA level of review/documentation for the project. Further, public controversy over the possible environmental effects of a project is not sufficient reason to require an EIR "if there is no substantial evidence in light of the whole record before the Lead Agency that the project may have a significant effect on the environment" (§ 21082.2).

It is also important to note that the BLM is the sole owner of the land where the Project is proposed, and therefore Imperial County only has discretionary authority over the Reclamation Plan and reclamation activities described therein pursuant to the Surface Mining and Reclamation Act (SMARA). As such, the "Project" evaluated under CEQA would be those activities specific to site reclamation. Nonetheless, Imperial County and the BLM opted to prepare a joint EA/MND document to ensure that the potential environmental effects of both exploration activities as well as reclamation activities were fully evaluated under CEQA and NEPA. Both the public and the County EEC panel members reviewed the entirety of the joint CEQA/NEPA document when rendering the decision to prepare an EA/MND for the Project.

Conclusion: Thank you for your time and consideration in this matter. We respectfully request that this letter response be disseminated to the Commissioners prior to the second ICPC hearing currently scheduled for October 25th, 2023. We also request that the Commissioners review the full record of consultation with tribes, including the Quechan, along with pertinent and supporting documents, which have been submitted under separate cover. Please feel free to contact me, or Ben Veach, P.E., with Stantec if you have any questions or if you need additional information.

Respectfully submitted,

Graham Stephens
Sespe Consulting, Inc.

ATTACHMENTS

1. Email Template Received from 102 Individual Commenters (example provided from Valerie A Kobal, dated September 11, 2023)

ATTACHMENT 1

Email Template Received from 102 Individual Commenters
(example provided from Valerie A Kobal, dated September 11, 2023)

Graham Stephens

From: Michael Abraham <MichaelAbraham@co.imperial.ca.us>
Sent: Tuesday, September 12, 2023 9:11 AM
To: Shelby.Hockaday@stantec.com; 'Veach, Ben'
Cc: Rodriguez Sanchez, Christian M; Martinez, Mayra Y; Sahagun, Carrie; Graham Stephens; Barnes, Hayley
Subject: FW: Reject the Oro Cruz Mitigated Negative Declaration (MND) and require an EIR

Good Morning,

Please see email below, and be prepare to response the comments.

We have received numerous email comments (with the same language) as shown below.

Thanks,

From: Valerie A Kobal <twoval@vom.com>
Sent: Monday, 11 September, 2023 8:53 PM
To: Gerardo Quero <gerardoquero@co.imperial.ca.us>
Subject: Reject the Oro Cruz Mitigated Negative Declaration (MND) and require an EIR

CAUTION: This email originated outside our organization; please use caution.

Dear Imperial County Planning Commission,

I'm writing to express my serious concerns about the impacts of the proposed Oro Cruz Exploration Project in Imperial County, California. Exploration by SMP Gold Corp. would cause irreversible damage to a landscape of great cultural, religious, and spiritual importance to the Quechan people. Furthermore, the project would have significant impacts on the Picacho Area of Critical Environmental Concern, including on critical habitat for the threatened Mojave Desert Tortoise. I urge the commission to reject the Mitigated Negative Declaration and require an Environmental Impact Report to fully analyze these significant impacts.

Sincerely,
Valerie A Kobal
p.o. box 27
Vineburg, CA 95487

CAUTION: This email originated from outside of the Trinity Consultants organization. Do not click links or open attachments unless you recognize the sender's name, sender's email address and know the content is safe.

SESPE
CONSULTING, INC.
A Trinity Consultants Company
374 Poli Street, Suite 200 • Ventura, CA 93001 • (805) 275-1515

October 16, 2023

Imperial County, Planning and Development Services Department
Attn: Michael Abraham
801 Main Street
El Centro, California 92234

Re: Response to Comment Letter Received from Faron Owl dated September 13, 2023

Dear Mr. Abraham,

The following has been prepared in response to the letter received from Faron Owl, a Quechan Tribal Elder/Member, dated September 13, 2023, which provided additional comments regarding the Oro Cruz Exploration Project (the "Project") in advance of the initial Imperial County Planning Commission ("ICPC") hearing held on September 13, 2023.

As reaffirmed in Faron's letter, the area in which the Project is proposed is of great cultural importance to the Fort Yuma Quechan Indian Tribe. As such, both the County and primarily the Bureau of Land Management (BLM), who is the sole owner of the land where the Project is proposed, have engaged in extensive government-to-government consultation in accordance with Section 106 of the National Historic Preservation Act, dating back to 2021, in an attempt to identify and avoid those areas that are considered sacred to the Quechan. The Quechan provided extensive input during the years-long preparation of the Class III Cultural Resources Inventory Report, and interested parties took great care to ensure that any identified tribal cultural resources would be properly avoided. The BLM has and would continue to conduct Section 106 government-to-government consultation with the Quechan throughout the life of the project. In fact, since the September 13th ICPC Hearing, BLM has requested another consultation meeting with the Quechan on a proposed Discovery and Monitoring Plan. The Discovery and Monitoring Plan is intended to provide continued opportunity for tribal engagement during the life of the Project. Tribal members from the Quechan and/or other tribes will also be offered an opportunity to monitor onsite activities during operations to ensure compliance with all cultural resource protection measures.

It is also important to note that because the BLM is the sole owner of the land where the Project is proposed, Imperial County only has discretionary authority over the Reclamation Plan and reclamation activities described therein pursuant to the Surface Mining and Reclamation Act (SMARA). As such, the "project" evaluated under CEQA would be those activities specific to site reclamation. Nonetheless, Imperial County and the BLM opted to prepare a joint Environmental Assessment/Mitigated Negative Declaration (EA/MND) document to ensure that the potential environmental effects, including those pertaining to tribal cultural resources, of both mining/exploration activities as well as reclamation activities were fully evaluated under CEQA and NEPA.

Thank you for your time and consideration in this matter. We respectfully request that this letter response be disseminated to the Commissioners prior to the second ICPC hearing currently scheduled for October 25th, 2023. We also request that the Commissioners review the full record of consultation with tribes, including the Quechan, along with pertinent and supporting documents, which have been submitted under separate cover. Please feel free to contact me, or Ben Veach, P.E., with Stantec if you have any questions or if you need additional information.

Respectfully submitted,

Graham Stephens
Sespe Consulting, Inc.

ATTACHMENTS

1. Letter Received from Faron Owl (September 13, 2023)

ATTACHMENT 1

Letter Received from Faron Owl (September 13, 2023)

September 13, 2023

Dear Imperial County Planning Commission:

RE: Oro Cruz Exploration Project

Just west of the Quechan Indian land lays a place many believe has magical powers. However, for the Quechan and other native people in the region for centuries, the land holds not mythical magic, but a real religious and cultural connection with the land, air, water insects, winged, and four legged beings.

The preservation of this site (Trail of Dreams to the Quechan) is important to the Quechans to continue religious, traditional practices, and cultural teaching of future generations of Quechan children. The site is a place for prayers and ceremonies; it is the site of our creation story and should be interpreted as a literal and historical account of how the Quechan people were created.

I am writing to you because of my growing concern regarding the impacts of the proposed Oro Cruz Exploration Project in Imperial County, California. Exploration, by SMP Gold Corp., will permanently desecrate the area and destroy our tribal cultural and religious heritage. I urge the Imperial County Planning Commission to require an Environmental Impact Study to properly analyze the irreparable impact on this sacred land before making a decision on the project.

Please include this letter in your project file for the Oro Cruz Exploration Project. Also, include all future updates, notices, and documents related to the Project. Please do not hesitate to contact me with any questions at the number or email listed below.

Sincerely,

Faron Owl
Quechan Tribal Elder/Member
(928) 210-0114
owl.rez19@gmail.com

ATTACHMENT J-LETTERS FROM APPLICANT REGARDING CONSULTATION

Southern Empire Resources Corp.
420 – 789 West Pender Street
Vancouver, BC, Canada
V6C 1H2

Southern Empire RESOURCES CORP

9/29/2023

RECEIVED
By Planning & Developments Services at 9:00 am, Oct 02, 2023

Jim Minnick, Director
Imperial County Planning and Development Services Department
801 Main St
El Centro, CA 92243
Sent via email: jimminnick@co.imperial.ca.us

RE: Bureau of Land Management (BLM) Native American Consultation

Dear Mr. Minnick,

I write to request consideration of information which will be provided separately from this letter. The information summarizes in full Imperial County and BLM consultation with impacted Native American tribes regarding the Oro Cruz Exploration Project (OCEP) as required by AB 52 and by Section 106 of the National Historic Preservation Act of 1966. The full record of consultation with tribes, along with pertinent and supporting documents are too extensive to provide with this letter. Please provide this information to the Imperial County Planning Commission (ICPC) to support an expedited ICPC Hearing date.

The ICPC Hearing held on September 13, 2023 failed to reach a decision on the Reclamation Plan and Mitigated Negative Declaration (MND) resolutions due to unsupported objections to the OCEP by individuals and groups adversarial to it. The majority of public comments received by the ICPC stated BLM had not done tribal consultation as required. These comments provided the ICPC with misinformation and are not supported in the public record.

The consultation performed by the EL Centro Field Office of the BLM is summarized in brief in Table 3-19 (p. 53) of the August 2023 OCEP Environmental Assessment/Mitigated Negative Declaration (EA/MND), part of the 1388 pages of material entered into public record for public and ICPC review. The complete record of the government-to-government tribal consultation conducted by both the County and the BLM, dating back to 2021, will follow this letter and should be considered to be an attachment to this letter. The BLM proposed, planned and executed numerous government-to-government/Section 106 consultation meetings with interested tribes and the Fort Yuma Quechan Tribe in particular. These meetings included the State Historic Preservation Office (SHPO), the Advisory Council on Historic Preservation and even included a site visit. The information provided separately summarizes these proceedings.

The ICPC concluded their September 13th Hearing by tabling their decision and "requesting" BLM host an additional consultation meeting with the Quechan. Since the BLM had already rendered their decision by publishing their Decision Record with a Finding of No Significant Impact (FONSI), further discussion on the BLM decision itself is not proper.

Southern Empire Resources Corp.
420 – 789 West Pender Street
Vancouver, BC, Canada
V6C 1H2

Southern Empire RESOURCES CORP.

BLM considers the Section 106 consultation requirement to be sacrosanct and as such will continue government-to-government consultation throughout the life of the project. In fact, since the September 13th Hearing, BLM has requested another consultation meeting with the Quechan on a proposed Discovery and Monitoring Plan (DMP). This DMP is intended to provide continued opportunity for tribal engagement during the life of the project. Once consultation on the DMP is complete and accepted, tribal members from the Quechan and/or other tribes would be offered an opportunity to monitor the activities of the SMP OCP to ensure compliance with all cultural resource protection measures.

In summary, please consider this letter and the following documented consultation evidence to be sufficient to supply the ICPC with justification to place the SMP OCP on the ICPC's earliest Hearing Agenda.

Southern Empire Resources Corp. (SMP)

David Tupper
Vice President, Exploration
dtupper@smp.gold

cc:

Michael Abraham (ICPD)	MichaelAbraham@co.imperial.ca.us
Carey Sahagun (BLM)	csahagun@blm.gov
Del Fortner (SMP Representative)	delfortner.df@gmail.com
Dale Wallster (SMP Pres., CEO)	dale@smp.gold

Oro Cruz Explora. on Project – Summary of Tribal Consultation To-Date

Attachment No.	Date	Tribal Entities	Coordination Description & Results
Imperial County			
#1	September 9, 2021	Fort Yuma-Quechan Indian Tribe	Official Imperial County tribal consultation notification letter pursuant to Assembly Bill 52 (AB 52). The County informed the Fort Yuma-Quechan Indian Tribe, via certified mail, of their determination that the Project application had been deemed complete, and of their eventual decision to undertake the Project. The County also noted in the letter that pursuant to Public Resources Code, Section 21080.3.1 (b), the Tribe had thirty (30) days from the receipt of the letter to request consultation, in writing, with the Imperial County Planning & Development Services Department. No response to the County's letter, or request to engage in government-to-government consultation pursuant to AB 52, was received.
Bureau of Land Management (BLM)			
#2	March 31, 2021	16 Tribal Entities (see attached)	Certified letters, with return receipts requested, were sent by the BLM to sixteen tribes, indicating that the BLM had received a mining Exploration Plan of Operations (Project) from SMP Gold Corp. to conduct exploratory drilling activities. The BLM also requested that the tribes inform the BLM, in writing, if either the tribe had no interest in this Project, or if they wished to enter into government-to-government consultation. The letter also mentioned that this notice/request for government-to-government consultation was provided pursuant to Section 106 of the National Historic Preservation Act (NHPA) and 36 CFR 800.2(c)(2)(ii)(C). Note, one of the certified letters was directly addressed to Mr. Jordan D. Joaquin, President of the Fort Yuma Quechan Indian Tribe.
#3	April 13, 2021	Viejas Band of Kumeyaay Indians	Email communications between the BLM and the Viejas Band of Kumeyaay Indians regarding the Cultural Resources Survey Work Plan, onsite Kumeyaay Cultural Monitors, etc.

Attachment No.	Date	Tribal Entities	Coordination Description & Results
#4	April 21, 2021	Fort Yuma-Quechan Indian Tribe	Letter response from Jill McCormick, the Historic Preservation Officer for the Fort Yuma-Quechan Indian Tribe, providing additional comments on the project, as well as requesting continued dialog and to schedule a meeting to discuss the comments provided.
#5	April 29, 2021	Colorado River Indian Tribes	Letter response from the Colorado River Indian Tribes requesting in-person government-to-government consultation.
#6	May 3, 2021	Fort Yuma-Quechan Indian Tribe	Email response from the Fort Yuma-Quechan Indian Tribe with their April 21, 2021, letter attached (see Attachment #4 and the description above).
#7	June 1, 2021	Fort Yuma-Quechan Indian Tribe	Certified letter response from the BLM to Mr. Jordan D. Joaquin, President of the Fort Yuma Quechan Indian Tribe addressing specific comments and questions provided in the Tribes April 21, 2021, letter response (see Attachment #4 and the description above). The letter closes with a request for a government-to-government meeting in order to discuss the Project, the contents of these letters and any other topics or issues of concern.
#8	July 12, 2021	Fort Yuma-Quechan Indian Tribe	Copy of the PowerPoint presentation presented by the BLM to the Fort Yuma-Quechan Indian Tribe at their Tribal Council Meeting on July 12, 2021. The presentation provided a Project overview, and requested continued Section 106 and government-to-government consultation. The presentation also noted upcoming opportunities for the Tribe to review the revised survey work plan and cultural resource inventories, as well as comment on the NEPA/CEQA document.
#9	July 30, 2021	Fort Yuma-Quechan Indian Tribe	Email from the BLM to Mr. Jordan D. Joaquin, President of the Fort Yuma Quechan Indian Tribe, acknowledging the government-to-government consultation meeting that occurred on July 12, 2021, and providing follow up information and documentation discussed during that meeting, as well as the input provided in the Inventory Work Plan and the Project as a whole. The BLM closes with another request for a government-to-government meeting in order to discuss the Project, as well as the contents of comment letters provided thus far and any other topics or issues of concern.

Attachment No.	Date	Tribal Entities	Coordination Description & Results
#10	August 10, 2021	17 Tribal Entities (see attached)	A second batch of certified letters, with return receipts requested, was sent by the BLM to seventeen tribes, indicating their continued desire to consult on the Project. Specifically, the letter asked for comment on the draft Cultural Resources Survey Work Plan as well as the proposed Area of Potential Effects (APE) to be evaluated. Again, one of the certified letters was directly addressed to Mr. Jordan D. Joaquin, President of the Fort Yuma Quechan Indian Tribe.
#11	August 11, 2021	Fort Yuma-Quechan Indian Tribe	Email exchanges between the BLM and Jill McCormick and Jordan D. Joaquin of the Fort Yuma Quechan Indian Tribe regarding comments provided on the project, and ongoing consultation.
#12	August 12, 2021	Viejas Band of Kumeyaay Indians	Additionally emails between the BLM and the Viejas Band of Kumeyaay Indians regarding the APE, onsite Kumeyaay Cultural Monitors, etc.
#13	August 13, 2021	San Pasqual Band of Mission Indians	Email response from the San Pasqual Band of Mission Indians, along with a letter dated July 13, 2021, requesting to engage in consultation under Section 106 of the NHPA, and to be provided access to any cultural resource reports for the Project.
#14	March 4, 2022	Previously Notified Tribal Entities (see attached)	Email from the BLM to the tribal representatives, informing them of the 30-day NEPA public scoping period, and encouraging the Tribes to provide public comment on the scope of the project/upcoming environmental document.

Attachment No.	Date	Tribal Entities	Coordination Description & Results
#15	August 25, 2022	16 Tribal Entities (see attached)	A third batch of certified letters, with return receipts requested, was sent by the BLM to sixteen tribes, indicating their continued desire to consult on the Project. Specifically, the purpose of this letter was to: 1) provide an updated area of potential effect (APE) determination; 2) provide the cultural resources Class III inventory report for this project for your review; 3) to invite you or your designated representative(s) to attend a Section 106 consulting parties field site visit of the proposed project area on September 20, 2022; 4) to invite you or your designated representative(s) to attend a Section 106 consulting parties virtual meeting to present the results of the cultural resources investigations on September 21, 2022; and, 5) to reiterate our invitation and request to engage in government-to-government consultation with the Tribe on this Project. Again, one of the certified letters was directly addressed to Mr. Jordan D. Joaquin, President of the Fort Yuma Quechan Indian Tribe.
#16	September 7, 2022	Viejas Band of Kumeyaay Indians	Additionally emails between the BLM and the Viejas Band of Kumeyaay Indians regarding the APE, onsite Kumeyaay Cultural Monitors, etc.
#17	September 9, 2022	San Pasqual Band of Mission Indians	Additional email response from the San Pasqual Band of Mission Indians, along with a letter dated September 9, 2021, requesting to continue to engage in consultation under AB 52, and to be provided access to any cultural resource reports for the Project. It's unclear if the Tribe had previously, in writing, formally requested to be notified by the County under AB 52 of proposed projects in the geographic area with which the tribe is traditionally and culturally affiliated.
#18	September 19, 2022	Previously Notified Tribal Entities (see attached)	Email notice that went out to all tribal entities/representatives who had previously requested consultation, providing supplemental information for the upcoming site tour scheduled for September 20, 2022.
#19	September 19, 2022	Previously Notified Tribal Entities (see attached)	Email notice that went out to all tribal entities/representatives who had previously requested consultation, with an invitation to a virtual meeting/presentation on September 21, 2022. The email notes this presentation is a part of continued Section 106 consultation.

Attachment No.	Date	Tribal Entities	Coordination Description & Results
#20	September 28, 2022	Previously Notified Tribal Entities (see attached)	Email notice to all tribal entities/representatives who had previously requested consultation, noting that due to the comments and feedback received during the site visit and virtual meeting/presentation, the BLM would be extending the comment period for the cultural resources Class III inventory report and area of potential effects for two additional weeks.
#21	October 14, 2022	Fort Yuma-Quechan Indian Tribe	Additional letter response from the Fort Yuma-Quechan Indian Tribe, specifically Mr. Jordan D. Joaquin who is the Tribe's President, providing additional detailed comments, as well as requesting continued consultation and to schedule a meeting to discuss the comments provided. Note, the letter ends with a statement that the *"Fort Yuma Quechan Tribe would like to continue consultation on this project with the BLM"*.
#22	October 18, 2022	Previously Notified Tribal Entities (see attached)	Email to all tribal entities/representatives who attended the September 21, 2022 virtual meeting/presentation, with the complete meeting minutes from said meeting. Note, Jill McCormick, Information Officer, Manfred Scott, President, as well as David Degranby and Ernestina Noriega, all members of Fort Yuma Quechan Indian Tribe, were noted to have been in attendance at the virtual meeting.
#23	October 28, 2022	Fort Yuma-Quechan Indian Tribe	A certified letter, with return receipt requested, and electronic notice was provided to Mr. Jordan D. Joaquin of the Fort Yuma Quechan Indian Tribe acknowledging the desire to continue government to government consultation pursuant to Section 106 of the NHPA. The letter acknowledges the comments provided in the October 20, 2022 letter, and requests that the Tribe provide additional details regarding tangible resources so that the BLM can properly avoid them or provide appropriate mitigations. The letter ends with a request to provide a time/date so that the BLM and Tribe may meet again.

Attachment No.	Date	Tribal Entities	Coordination Description & Results
#24	November 9, 2022	Fort Yuma-Quechan Indian Tribe	Copy of the PowerPoint presentation presented by the BLM to the Fort Yuma-Quechan Indian Tribe at their Tribal Council Meeting on November 9, 2022. The presentation also requested continued Section 106 and government-to-government consultation, and noted upcoming opportunities for the Tribe to comment on the NEPA/CEQA document as well as the Section 106 determinations of eligibility and findings of effect to consulting parties.
#25	November 16, 2022	Previously Notified Tribal Entities	Email from the BLM to the tribal representatives, informing them of the 30-day NEPA public comment period, and encouraging the tribes to provide public comment on the complete EA/MND document and technical information presented therein.
#26	April 13, 2023	Jamul Indian Village of California	Email exchange between the BLM and The Jamul Indian Village of California/Kumeyaay Nation. Lisa K. Cumper, the Tribal Historic Preservation Office, notes her Tribe will defer to the wishes of a closer tribe for this project.
#27	April 13, 2023	16 Tribal Entities (see attached)	A fourth batch of certified letters, with return receipts requested, was distributed to sixteen tribal entities by the BLM, indicating their continued desire to consult on the Project. Specifically, the purpose of this letter was to: 1) Update the BLM's summary of identification efforts; 2) Provide the final revised Class III Cultural Resource Inventory for Oro Cruz Exploration Project, Imperial County, California prepared by ASM Affiliates Inc. (ASM) with a summary of changes from the draft report; and, 3) Provide the Agency's proposed determinations of eligibility and findings of effect for the Project for a 30-day consultation period. Again, one of the certified letters was directly addressed to Mr. Jordan D. Joaquin, President of the Fort Yuma Quechan Indian Tribe.

Attachment No.	Date	Tribal Entities	Coordination Description & Results
#28	June 28, 2023	N/A (State Historic Preservation Officer (SHPO)	Letter from the SHPO, acknowledging that the BLM conducted or offered formal government-to-government consultation beginning on March 31, 2021, to eleven tribes, including the Quechan Indian Tribe. SHPO's letter also acknowledges that during consultation, the Quechan Indian Tribe conveyed to BLM that the project area is located within a much larger Traditional Cultural Property (TCP) within the Project APE, and that therefore the BLM will treat the TCP as eligible for inclusion in the NRHP. The letter also notes that the BLM determined that due to the avoidance of resources that would contribute to the TCP, the TCP will not be adversely affected by the Project. Finally, the SHPO concludes that following review of the submitted supporting documentation, pursuant to 36 CFR § 800.5(b), they not object to a finding of no adverse effects to historic properties.
#29	September 1, 2023	Previously Notified Tribal Entities	Email from the BLM to the tribal representatives, informing them that the BLM had issued their Decision Record for the project, and indicating they would soon be initiating consultation on a Monitoring and Discovery Plan.
#30	September 1, 2023	Previously Notified Tribal Entities	Email from the BLM to the tribal representatives, informing them that the EA/MND had been revised in response to comments received, and indicating they would soon be initiating consultation on a Monitoring and Discovery Plan.

Attachment 1

Imperial County
Assembly Bill 52 Consultation Request Letter – Fort Yuma-Quechan Indian Tribe
September 9, 2021

Imperial County Planning & Development Services
Planning / Building

Jim Minnick
DIRECTOR

September 9, 2021

CERTIFIED MAIL NO.
7016 2140 0000 2120 2972

Jill McCormick
Quechan Historic Preservation Officer
Fort Yuma- Quechan Indian Tribe
P.O. Box 1899
Yuma, AZ 85366

Subject: Tribal Culture Resources under the California Environmental Quality Act, AB 52 (Gatto, 2014). Formal Notification of Determination that a Project Application is Complete or Decision to undertake a Project, and Notification of Consultation Opportunity, pursuant to Public Resources Code Section 21080.3.1(d).

Dear Ms. McCormick:

The Imperial County Planning & Development Services Department has determined that project application is complete for Reclamation Plan #21-0001, which proposes a mineral exploration project at the Oro Cruz Pit Area within lands administered by the Bureau of Land Management.

The location of this proposed Reclamation Plan #21-0001 is comprised of nine (9) Assessor's Parcel Numbers (APNs) which includes #050-110-006, #050-110-007, #050-110-008, #050-110-009, #050-110-023, #050-110-024, #050-280-001, #050-280-012, and #050-280-013. And is described as Township 15 South, Range 20 East, Section 1, 2, 12, and 13, and Township 15 South, Range 21 East, Sections 6, 7, and 18.

Attached for your use, please find the application and supporting documentation that was submitted by to the ICPDS Department for your review.

Pursuant to Public Resources Code, Section 21080.3.1(b), you have thirty (30) days from the receipt of this letter to request consultation, in writing, with the Imperial County Planning & Development Services Department. Your response is expected by October 9, 2021.

The contact person for this project is Patricia Valenzuela, Planner IV. Patricia Valenzuela can be reached at 442-265-1736, extension 1749 or via-email at patriciavalenzuela@co.imperial.ca.us.

Very Respectfully,

Jim Minnick, Director
Planning & Development Services

By: _____
Jeanine Ramos
Planner I

ATTACHMENTS: Copy of Assessor Plat
Aerial Photo of Subject Site

CC: Jim Minnick, ICPDS Director
Michael Abraham, AICP, Assistant ICPDS Director
Patricia Valenzuela, Planer IV

JR\VG\S:\AllUsers\APN\050\110\006\vp21-0001\AB52\RP21-0001 AB 52 Ltr 09.09.2021 .docx

July 23, 2021

Ms. Patricia Valenzuela
IMPERIAL COUNTY PLANNING AND DEVELOPMENT SERVICES
801 Main Street
El Centro, California 92243

Re: RECLAMATION PLAN APPLICATION FOR EXPLORATION ACTIVITIES AT THE EXISTING ORO CRUZ PIT AREA, IMPERIAL COUNTY
IMPERIAL COUNTY FILE NUMBER TBD
BLM CASE FILE NUMBER CACA-059124

Dear Ms. Valenzuela:

Please find enclosed an Exploration Reclamation Plan Application Package and associated permitting fees for exploration activities on Bureau of Land Management (BLM) land in Imperial County, California (the Project). The Project is designed to evaluate economic mineral deposits at the Oro Cruz Pit Area located northwest of Yuma, Arizona, in Imperial County, California.

As you are aware, SMP Gold Corp. (SMP) has filed a Project Plan of Operations with the BLM who has determined that it meets the content requirements at 43 CFR 3809.401(b); and we have begun discussions and planning with BLM to initiate review of the Project under the National Environmental Policy Act.

The Project Area has been previously disturbed by mining activities and is considered reclaimed. The Project is a short-term exploration Project that includes using existing access roads; improving existing roads; constructing new temporary exploration drilling access roads and drill pads; and constructing a new access road and 2.8-acre staging area for access to the Oro Cruz Portal on BLM lands. The total surface disturbance for the proposed activities is estimated at 20.6 acres and is all on BLM lands, i.e. no private land is involved. The Project mobilization, road construction, drilling, and borehole abandonment will require 12 to 24 months to complete, and reclamation of temporary roads and drill sites is proposed to be implemented concurrently with the exploration activities. Reclamation activities and subsequent monitoring for the success of reclamation of those areas would be completed within five (5) years of Project initiation.

As required by the California Surface Mining and Reclamation Act (SMARA) and applicable County mining ordinance(s), this Exploration Reclamation Plan was prepared and is being submitted to the County for approval. This Exploration Reclamation Plan was prepared in compliance with the following:

- SMARA, as amended (Public Resources Code Section 2710 et seq.);
- California Code of Regulations (CCR; Title 14, Division 2, Chapter 8, Subchapter 1, Section 3500 et seq.);
- Imperial County, Code of Ordinances (Title 9, Division 20 – Surface Mining and Reclamation);
- Imperial County, General Plan (1993); and

- Imperial County, General Plan (1993); and
- California Environmental Quality Act (California Public Resources Code [PRC], Sections 21000 - 21178, and Title 14 CCR, Section 753, and Chapter 3, Sections 15000 – 15387).

This Exploration Reclamation Plan Application Package includes the following:

- Imperial County Reclamation Plan Application;
- Oro Cruz Exploration Project Reclamation Plan prepared by Sespe Consulting, Inc. (attachment to the Reclamation Plan Application); and
- A technical memorandum describing the Project in the context of requirements under CEQA.

A check in the amount of $5,300 (Check No. 138388) was sent by Westland Resources, Inc., in a separate submittal, and provided as a Reclamation Plan Permit fee for minor reclamation projects pursuant to Imperial County, California - Code of Ordinances, Title 9 - LAND USE CODE, Division 9 - FEES, § 90901.07, Mining Reclamation.

Thank you in advance for your time and we look forward to continuing to work with you during this Project permitting process.

Respectfully,

David Tupper
Vice President - Exploration
SMP Gold Corp.

Attachments: Imperial County Reclamation Plan Application
Oro Cruz Exploration Project Reclamation Plan prepared by Sespe Consulting, Inc.
Technical Memorandum

cc: Jim Minnick, Imperial County Planning and Development Services
Del Fortner
Dale Wallster, SMP Gold Corp.
John Hecht, Sespe Consulting, Inc.
David Cerasale, WestLand Resources, Inc.
Amanda Best, WestLand Resources, Inc.
Carrie Sahagun, BLM El Centro Field Office
Mayra Martinez, BLM El Centro Field Office

IMPERIAL COUNTY
PLANNING & DEVELOPMENT SERVICES DEPARTMENT

Reclamation Plan Application

OWNER, OPERATOR AND AGENT:

1. Applicant (Name, Mailing Address and Telephone Number):

   SMP Gold Corp.
   912 N. Division Street
   Carson City, Nevada 89703
   Phone: (604) 682-8592

2. Property Owner (s), or owner of Surface Rights (Name, Mailing Address and Telephone Number): [if different from applicant]

   Same as Applicant

3. Owner of Mineral Rights (Name, Mailing Address and Telephone Number): [if different than applicant]

   Same as Applicant

5. Lessee (Name, Mailing Address and Telephone Number):

   Not applicable

6. Operator (Name, Mailing Address and Telephone Number): [if different than applicant]

   Same as Applicant

7. Agent of Process (Name, Mailing Address and Telephone Number):

Patricia Valenzuela, Planner IV
801 Main Street
El Centro, California 92243
Phone: (442) 265-1736

LOCATION:

8. Legal Description: (must be full legal)

Township 15 South, Range 20 East, Sections 1, 2, 12 and 13, and
Township 15 South, Range 21 East, Sections 6, 7 and 18

See attached Figures 1 and 2

Assessor Parcel No.: See attached Table 1.

Longitude: West 144.811888 deg

Latitude: North 32.875392 deg

Elevation: Approximately 500 - 1,100 feet

9. Size of the land(s) that will be affected by mining operation. Total acreage:

20.6 acres
See attached Section 1.5.2

10. Describe existing and proposed access to the mine site: (please be specific)

See attached Section 1.5.3

GEOLOGICAL BACKGROUND:

11. Mineral commodity to be minded:

Exploration for minerals including gold

12. General Geological description of the area:

See attached Section 1.4.1

13. Detailed description of the geology of the actual site in which surface mining is to be conducted:

Not applicable. Project proposes exploration, not surface mining.

14. Brief description of the environmental setting of the site and the surrounding areas. Existing land uses, soil, vegetation, ground water elevation and surface water characteristics.

See attached Section 1.4

MINING OPERATION AND PRODUCTION:

15. Proposed starting date of operation: 4th quarter 2021

Estimated life of operation: 12 to 24 months

Termination Date: 4th quarter 2022 to 2023

Duration of first phase: Not applicable

Second phase:

Third phase:

Fourth phase:

16. Operation will be (include days and hours of operation):

Continuous: X

Intermittent:

Seasonal:

17. Maximum anticipated annual production (Tons or Cubic Yards):

Not applicable

18. Total anticipated production:

Minerals: Not applicable cubic yards/tons _____

Tailings retained on site: cubic yards/tons _____

Tailings disposed off site: cubic yards/tons _____

Maximum anticipated depth (indicate on map location of benchmarks to verify mine depth):

19. Describe mining method:

Not applicable

See attached Section 1.5.4 for a description of exploration drilling activitites

20. Describe nature of processing and explain disposal of tailings or waste.

Not applicable

21. Do you plan to use cyanide or other toxic materials in your operations?

No

Do you plan to use or store petroleum products or other hazardous materials on the site?

Yes

See attached Sections 1.6.2 and 1.8

Describe refueling and maintenance of vehicles.

See attached Section 1.6.2 and 1.8

22. Indicate the quantity of water to be used, source of water, method of conveyance to the mine site, the quantity, quality and method of disposal of used and/or surplus water. Indicate if water well to be used for mine operation (drilling, reactivation, changing use or increasing volume of water well may require Conditional Use Permit approval).

See Section 1.7.1

23. Describe phases of mining if applicable and concurrent reclamation including time schedule for concurrent activities.

Not applicable

24. Describe the types of equipment that will be used in the operation, including the estimated average daily trips (ADT) that will be generated by the operation.

See attached Section 1.5.5

25. Include the following maps: (NOTE: Without these the application is automatically incomplete.)

    (1) Topographic Map with overlay showing proposed area to be mined.

    (2) Site Plan showing mine layout and dimensions.

    (3) General Vicinity Map showing the location of the mine site in Imperial County.

    (4) Cross Section Map.

RECLAMATION:

26. Indicate by overlay of map of Item No. 24, or by color or symbol on map those areas to be covered by the reclamation plan:

Total acreage: 20.6 acres

27. Describe the ultimate physical condition of the site and specify the proposed use (s) or potential uses of the land after reclamation. Explain if utilities, haul or access roads will be removed or reclaimed.

See attached Section 2.1

28. Describe relationship of the interim uses than mining and the ultimate physical condition to:

(a) Imperial County Zoning Ordinance

(b) Imperial County General Plan

The Project is entirely on BLM lands, see attached Section 1.2

29. Notarized statement that all owners of the possessory interest in the land have been notified of the proposed uses or potential uses identified in Item No. 25 (see Attachment "A").

The Project is entirely on BLM lands, see attached Section 1.2

SMP has filed a Project Plan of Operations with the BLM, and they have determined that it meets the content requirements at 43 CFR 3809.401(b). Preliminary discussions and planning with BLM have begun to initiate review of the Project under the National Environmental Policy Act

30. Describe soil conditions and proposed topsoil salvage plan.

See attached Section 2 and Appendix A

31. Describe the methods, their sequence and timing, to be used in bringing the reclamation of the land to its end state. Indicate on map (Items Nos. 24 and 25) or on diagrams as necessary. Include discussion of the pertinent items listed below.

(a) Backfilling and grading

(b) Stabilization of slopes

(c) Stabilization of permanent waste dumps, tailings, etc.

(d) Rehabilitation of pre-mining drainage

(e) Removal, disposal or utilization of residual equipment, structure, refuse, etc.

(f) Control and disposal of contaminants, especially with regard to surface runoff and ground water

(g) Treatment of streambeds and streambanks to control erosion and sedimentation

(h) Removal or minimization of residual hazards

(i) Resoiling, revegetation with evidence that selected plants can survive given the site's topography, soil and climate:

See Attached Section 2 and associated Figures and Appendices

32. If applicant has selected a short term phasing of his reclamation, describe in detail the specific reclamation to be accomplished during the first phase:

Not applicable

33. Describe how reclamation of this site in this manner may affect future mining at this site and in the surrounding area:

See attached Section 2.1

34. Notarized statement that the person submitting the plan accepts responsibility for reclaiming the mined lands in accordance with the Reclamation Plan (Attachment "B"):

See Attached.

35. Include Reclamation Cost Calculations as Attachment "C":

To be provided at a later date.

36. Describe proposed Revegetation Plan (attach as "Attachment D" if necessary):

See attached Appendix A

ATTACHMENT "A"

STATEMENT OF NOFICATION

I, the undersigned, have notified all owners of the possessory interest in the land of the proposed use (s) or potential uses identified in Item No. 26 of the Reclamation Plan.

Signed this _____ day

of _____, 2005.

_____

Operator or Operator's Agent

MAIN OFFICE: 801 Main Street El Centro, CA 92243 (760) 482-4236 FAX: (760) 353-8338 E-MAIL: planning@imperialcounty.net
ECON. DEV. OFFICE: 836 Main Street El Centro, CA 92243 (760) 482-4900 FAX: (760) 337-8907

ATTACHMENT "B"

STATEMENT OF RESPONSIBILITY

I, the undersigned, hereby agree to accept full responsibility for reclaiming all mined lands as described and submitted herein with any modifications requested by the County of Imperial as conditions of approval.

Signed this 2 day

of July, 2021.

Operator or Operator's Agent

Sworn before me this
2nd day of July, 2021

Stewart L. Lockwood

STEWART L. LOCKWOOD
Barrister & Solicitor
BENNETT JONES LLP
2500 PARK PLACE - 666 BURRARD STREET
VANCOUVER, B.C. V6C 2X8
TEL: 604.891.5313 FAX: 604.891.5100

ATTACHMENT "C"

RECLAMATION COST ANALYSIS

Note: Reclamation Cost Analysis will be forthcoming following Imperial County review of Reclamation Plan.

MAIN OFFICE: 801 Main Street El Centro, CA 92243 (760) 482-4236 FAX: (760) 353-8338 E-MAIL: planning@imperialcounty.net
ECON. DEV. OFFICE: 836 Main Street El Centro, CA 92243 (760) 482-4900 FAX: (760) 337-8907

ATTACHMENT "D"

REVEGATION PLAN

(REVISED MARCH 25, 2005)
JH/lh/S:/forms_lists/reclamation plan aplication

MAIN OFFICE: 801 Main Street El Centro, CA 92243 (760) 482-4236 FAX: (760) 353-8338 E-MAIL: planning@imperialcounty.net
ECON. DEV. OFFICE: 836 Main Street El Centro, CA 92243 (760) 482-4900 FAX: (760) 337-8807

SMP GOLD CORP.
ORO CRUZ EXPLORATION PROJECT
REVEGETATION PLAN

Prepared for: SMP GOLD CORP.

Prepared by: WestLand Resources, Inc.

Date: June 11, 2021

Project No.: 2072.03 13

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FIGURES

(follow text)

Figure 1. Vicinity Map
Figure 2. Project Location
Figure 3. Vegetation Classifications

APPENDICES

Appendix A. Representative Photographs

1. INTRODUCTION AND BACKGROUND

SMP Gold Corp. (SMP) proposes mineral exploration activities at the Oro Cruz Pit Area (the Project) within lands administered by the Bureau of Land Management (BLM), northwest of Yuma, Arizona, in Imperial County, California. The Project is located on previously mined BLM lands within Township 15 South, Range 20 East, Sections 1, 2, 12, and 13, and Township 15 South, Range 21 East, Sections 6, 7, and 18 (the Project Area, **Figures 1 and 2**) that are managed by the El Centro Field Office. The Project Area includes seven drill areas and access roads (**Figure 2**). Within these areas, the Project entails 20.6 acres of surface disturbance. The Project Area has been previously disturbed by mining activities. Current surrounding land uses include prospecting and recreation.

Activities would be conducted in accordance with BLM regulations published in the Code of Federal Regulations (CFR) at 43 CFR part 3809 (BLM 2016) and 43 CFR 3715 (BLM 1998). Pursuant to 43 CFR 3809.21 and 3809.301, the Project would result in minor surface reworking of previously mined and disturbed areas, and measures would be taken to prevent unnecessary or undue degradation during Project operations. The Project would comply with the performance standards in 43 CFR 3809.420 and other Federal and state laws related to environmental protection and protection of cultural resources; the Project is "reasonably incident" to mining as defined in 43 CFR 3715.0-5; and the Project would attain the stated level of protection and reclamation required by specific laws in the California Desert Conservation Area. The Project Area occurs within the Picacho Area of Critical Environmental Concern (ACEC) as designated under the Desert Renewable Energy Conservation Plan, and thus requires a BLM Plan of Operations.

The Project is described in the Draft Exploration Plan of Operations (Plan) dated December 17, 2020. The BLM has reviewed the Plan and has determined that the filed Plan meets the content requirements at 43 CFR 3809.401(b).

2. PROJECT AREA DESCRIPTION

Vegetation in the Project Area is low desert scrub typical of the high temperature region of southeastern California. In general, vegetation is sparse in both the upland and xeroriparian habitats. The uplands consist of a very low-density shrub community dominated by creosote (*Larrea tridentata*) and brittlebush (*Encelia farinose).* In addition, large portions of the Project Area consist of disturbed habitats dominated by non-native annual plants. The xeroriparian habitat generally consists of the same sparce shrub community and includes widely spaced upland trees and ocotillo (*Fouquieria splendens*). In summation, vegetation in the Project Area is uniformly sparce and consist of very low density shrublands, upland trees and highly disturbed habitats. Representative photographs of the Project Area are provided in **Appendix A.**

For the purposes of vegetation mapping, an Analysis Area that encompasses the proposed disturbance on seven drill areas and associated access roads was defined (**Figure 3**). A total of 37 plant species were identified during field surveys within the Analysis Area (**Table 1)**. Plant species observations do not represent a complete floristic survey. Three California Native Plant Society vegetation categories were identified during pedestrian surveys and thematically mapped using the Supervised Classification tool in ArcGIS Pro 2.7 (**Figure 3**).

Brassica (nigra) and other mustards semi-natural stands

Brassica (nigra) and other mustards semi-natural stands vegetation category occupies approximately 18% of the Analysis Area and 24% of the Project Area (**Figure 3**). This vegetation category corresponds with disturbed and barren areas. Although the named dominant species, black mustard (*Brassica nigra*), was not observed, Saharan mustard (*Brassica tourneforti*), a closely related non-native mustard was often present in both naturally disturbed areas including wash scour and human- disturbed areas such as roads, camp sites, and rock waste piles. This natural community is not classified as sensitive by the California Department of Fish and Wildlife (CDFW 2020)

Parkinsonia florida—Olneya tesota alliance

Parkinsonia florida—Olneya tesota alliance occupies approximately 2% of the Analysis Area and 2% of the Project Area (**Figure 3**). The vegetation category is primarily restricted to xeroriparian areas including washes, drainages and narrow canyons. Besides the named alliance's dominant plants, blue palo verde (*Parkinsonia florida*) and ironwood (*Olneya tesota*), other commonly occurring plants include sweetbush (*Bebbia juncea*), lance leaved ditaxis (*Ditaxis lanceolata*), desert lavender (*Hyptis emoryi*), ocotillo (*Fouquieria splendens*) and Anderson's desert thorn (*Lycium andersonii*). This natural community is classified as sensitive by the California Department of Fish and Wildlife (CDFW 2020).

Larrea tridentata — Encelia farinosa alliance

Larrea tridentata — Encelia farinosa alliance occupies approximately 79% of the Analysis Area and 74% of the Project Area and occurs in a variety of topographic settings (**Figure 3**). Besides the named alliance's dominant plants, creosote (*Larrea tridentata*) and brittlebush (*Encelia farinosa*), other commonly occurring plants include ocotillo, beavertail prickly pear (*Opuntia basilaris*), and burrobush (*Ambrosia dumosa*). This natural community is classified as sensitive by the California Department of Fish and Wildlife (CDFW 2020).

Table 1. Plant Species Observed in the Analysis Area During the Field Survey

This list represents species observed during the field survey and does not represent a complete floristic survey.

Common Name	Scientific Name
PLANTS	
PERENNIALS	
burrobush	*Ambrosia dumosa*
burrobush	*Ambrosia salsola*
western milkweed	*Asclepias albicans*
sweetbush	*Bebbia juncea*
Paloverde	*Cercidium floridum*
pink fairyduster	*Cylindropuntia erophylla*
hairy prairie clover	*Dalea mollis*
narrowleaf silverbush	*Ditaxis lanceolata*
Inciensio	*Encelia farinose*
rough jointfir	*Ephedra aspera*
desert trumpet	*Eriogonum inflatum*
California fagonbush	*Fagonia laevis*
California barrel cactus	*Ferocactus cylindraceus*
ocotillo	*Fouquieria splendens*
paleface	*Hibiscus denudatus*
desert lavender	*Hyptis emoryi*
creosote	*Larrea tridentata*
water jacket	*Lycium andersonii*
Parry's false prairie-clover	*Marina parryi*
desert wishbone-bush	*Mirabilis laevis*
desert tobacco	*Nicotiana obtusifolia*
ironwood	*Olneya tesota*

Common Name	Scientific Name
beavertail pricklypear	*Opuntia basilaris*
blue paloverde	*Parkinsonia florida*
Schott's pygmycedar	*Peucephyllum schottii*
velvet turtleback	*Psathyrotes ramosissima*
desert globemallow	*Sphaeralcea ambigua*
Mesquite	*Posopis juliflora*
Tamarisk*	*Tamarix pentandra*
American threefold	*Trixis californica*
ANNUALS	
sixweeks threeawn	*Aristida adscensionis*
Asian mustard*	*Brassica tournefortii*
brittle spineflower	*Chorizanthe brevicornu*
devil's spineflower	*Chorizanthe rigida*
pygmy poppy	*Eschscholzia minutiflora*
Arizona lupine	*Lupinus arizonicus*
Mojave desertstar	*Monoptilon bellioides*
desert palafox	*Palafoxia arida var. arida*
cleftleaf phacelia	*Phacelia crenulata*
desert Indianwheat	*Plantago ovata*
yellowdome	*Trichoptilium incisum*
*non-native	

3. RECLAMATION AND REVEGETATION PLAN OVERVIEW

The intent of the California Surface Mining and Reclamation Act (SMARA) is to "maintain an effective and comprehensive surface mining and reclamation policy with regulation of surface mining operations so as to assure that: (a) adverse environmental effects are prevented or minimized and that mined lands are reclaimed to a usable condition which is readily adaptable for alternative uses; (b) the production and conservation of aggregates are encouraged, while giving consideration to values relating to recreation, watershed, wildlife, range and forage, and aesthetic enjoyment; and (c) residual hazards to the public health and safety are eliminated" (Section 2712). Article 9, Section 3700 of SMARA states the following: "Reclamation of mined lands shall be implemented in conformance with standards in this Article. The standards shall apply to each surface mining operation to the extent that:

- They are consistent with required mitigation identified in conformance with CEQA; and
- They are consistent with the planned or actual subsequent use or uses of the site."

The Oro Cruz Exploration Project Reclamation Plan prepared by Sespe Consulting Inc. (2021) describes the Reclamation Plan for reclaiming land disturbed by exploration drilling within the Project Area, as required under SMARA. This Reclamation Plan addresses the reclamation activities that will be undertaken following completion of the exploratory drilling, in conformance with SMARA.

The anticipated post-Project land uses are mining, recreational uses, and open space. Following the completion of all drilling, solids, and desiccated drilling muds that have been contained in the sump would be treated by evaporation and by allowing solids to settle out in excavated mud pits or sumps at the drill site. The sumps would then be backfilled. The drilling muds that would be used do not contain toxic or deleterious materials. The proposed drilling mud material data sheets could be provided to BLM upon request. The inert drilling mud materials would be disposed of in accordance with applicable state and federal regulations. The drill site, mud pits, and outer berm would then be returned to natural grade with a track hoe using rocks and soil set aside during site construction and mud pit excavation.

This technical memorandum describes the revegetation plan associated with the planned reclamation.

Reclaimed areas would be revegetated with a BLM-approved seed mix. These areas would be revegetated after cover placement and at the appropriate time of the year for optimum seed germination and plant growth.

4. SITE PREPARATION

The revegetation plan is based on those portions of the Project Area proposed to be reclaimed to open space. For those portions of the Project Area to be reclaimed for future mining and/or recreational uses, revegetation may not be feasible and/or appropriate.

Following completion of exploratory drilling, equipment demobilization and surface preparation of the roads and drill pads, the following typical sequence of revegetation activities will be undertaken:

- Installation of erosion control devices, such as waddles, where necessary;
- Application of seed mix either by hydroseeding or mechanical broadcasting; and
- Maintenance and monitoring.

Generally, initial seedbed preparation on flatter surfaces would include ripping or discing the surface along contours. Conventional seeding techniques (including drill and broadcast) would be used as appropriate depending on soil/cover characteristics and landform. Hydroseed, hydromulch, and

tackifier may be used on slopes that are not suitable for conventional seeding. Mulch may be applied to minimize erosion and promote moisture retention where appropriate.

Prior to application of the seed mix, the final contours, hydrology, and soils composition of the revegetation areas will be reviewed by a qualified biologist/revegetation specialist to determine the optimal broadcast rates and make any appropriate modifications to the overall revegetation plan.

Areas to be revegetated will be prepared as follows:

- Vegetation, trash, debris, and weeds will be cleared. All weeds will be removed from the area and properly disposed of offsite.
- Any eroded areas will be repaired uniformly without leaving holes or depressions that would potentially prohibit plant growth.
- Compacted areas will be ripped to a depth of one foot and left in a textured or rough condition with shallow rills and furrows to create optimal conditions for revegetation.
- Any salvaged plants will be replanted on the pads and roads in a random pattern.
- A native plant seed mix will be broadcast at a rate recommended by the BLM and Imperial County which will include a mixture of shrubs, native grasses, and annuals; and
- The seeds will be covered by hand-rake or using a chain attached to a small tractor with any salvaged top soil to protect the seeds from desiccation and predation.

5. CONTROL OF WEEDS AND NON-NATIVE VEGETATION

The predominance of exotic, invasive weed species throughout California has presented a formidable challenge to most revegetation projects. Weed species are opportunistic and have mechanisms for dispersal and establishment that can eventually lead to displacement of native species. To ensure that weed species competition is controlled, the Project site areas will be inspected by the qualified biologist/revegetation specialist prior to revegetation implementation. The qualified biologist/revegetation specialist will also determine the most effective treatments for control of invasive species. If weed control activities are necessary, they will likely include a combination of treatments such as herbicide application, hand removal, and soil solarization.

Non-native invasive plants that threaten California's wildlands have been categorized by the California Invasive Plant Council (Cal-IPC). Invasive plants that have been classified by Cal-IPC as "High" (severe ecological impacts on physical processes, plant and animal communities, and vegetation structure) or "Moderate" (substantial and apparent—but generally not severe—ecological impacts on physical processes, plant and animal communities, and vegetation structure) in terms of ecological threat will be controlled as necessary within the revegetation areas for up to three (3) years in order to prevent aggressive weeds from out-competing native plant species for resources (e.g., space, water, nutrients, and light). These invasive weeds will be removed mechanically, if feasible. In circumstances

where mechanical control is not effective, EPA-approved systemic herbicides may be used. Herbicides will be applied under the direction of a licensed applicator.

Prior to initiation of revegetation efforts, the biologist will consult the most recent Cal-IPC list, and a list of specific species to be controlled under this Reclamation Plan will be developed. Additional species may be added to the list based on actual conditions and the recommendation of the qualified biologist/revegetation specialist.

6. SEED MIX

Revegetation would require site-appropriate, BLM-approved native seed mixtures. A diverse native plant community would be targeted through the definition of seed mixtures and application rates. The seed mix list would be reviewed before revegetation activities are initiated to confirm the availability of the seeds, and the list would be adjusted as needed. The seed mix and mulch materials would be certified by the revegetation contractor to be relatively weed free.

The proposed native seed mixture will consist of the following: creosotebush (*Larrea tridentata*), burrobush (*Ambrosia dumosa*), brittlebush (*Encelia farinosa*), desert spineflower (*Geraea canescens*), turtleback (*Psathyrotes ramosissima*), forget-me-not (*Cryptantha* spp.), and hairy prairie clover (*Dalea mollis*). Seeds will be purchased and mixed in equal quantities and will be hand broadcasted at approximately 10 pounds per acre (**Table 2**). If any part of the proposed seed mixture is not commercially available at the time of purchase, BLM will be consulted to identify appropriate and available replacements for the seed mixture.

Table 2. Native Live Seed Mixture

Common Name	Scientific Name	Pounds/Acre
creosotebush	*Larrea tridentata*	3
burrobush	*Ambrosia dumosa*	3
brittlebush	*Encelia farinosa*	1.5
desert spineflower	*Geraea canescens*	1
turtleback	*Psathyrotes ramosissima*	0.5
forget-me-not	*Cryptantha* spp.	0.5
hairy prairie clover	*Dalea mollis*	0.5
	Total	**10**

The seed mix would be designed to meet the following criteria:

- Native non-invasive species that have a high compatibility with the existing landscape;
- Species and plant type diversity to promote a sustainable vegetative cover throughout the seasonal changes and other climate related variances; and
- Species and plant type diversity to promote a variety of germination periods and seasonal growth.

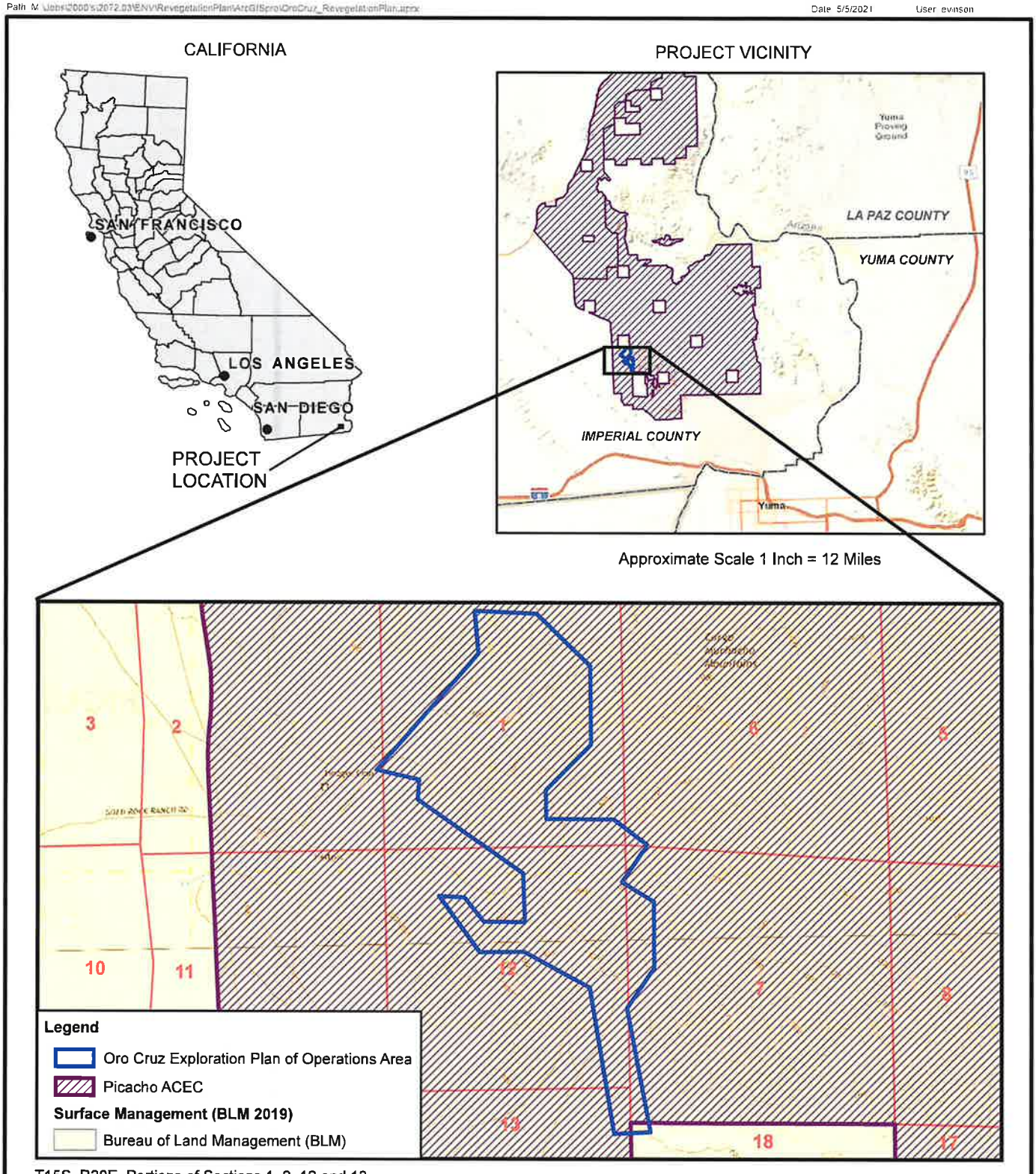
7. SUCCESS CRITERIA

The basic goal of revegetation is to re-establish self-sustaining native plant communities within the disturbed areas. California Code of Regulations (CCR) Section 3705(m) requires that reclaimed revegetated sites be "similar to naturally occurring habitats in the surrounding area." In order to accomplish this revegetation will be deemed successful upon achieving 25 percent of the vegetative cover of adjacent similar vegetation. Because the specific locations of drill pads are not known at this time and flexibility is built into the project to allow for adaptation of exact locations based on drilling results, comparison sites will be chosen in field once the exact drill pad locations are identified. This is an appropriate success criterium for the following reasons:

- The Project will entail only a small amount of total disturbance, and much of this will be within areas that have been previously disturbed.
- The Project contemplates temporary activities over a relatively short time period.
- The Project Area has been previously disturbed from past mining activities, and there is a striking lack of vegetation throughout the Project Area. Vegetation in both the uplands and washes is sparse with limited vegetation cover (**Appendix A**).
- The planned revegetation effort is planned to enhance the success of the revegetation and will augment the reseeding that will occur naturally.

FIGURES

Path: M:\Jobs\2000's\2072.03\ENV\RevegetationPlan\ArcGIS\pro\OroCruz_RevegetationPlan.aprx Date: 5/5/2021 User: evinson



T15S, R20E, Portions of Sections 1, 2, 12 and 13,
T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California,
Ogilby and Hedges USGS 7.5' Quadrangles (2018)
Data Source: SMP
Image Source: ArcGIS Online, World Street Map

WestLand Resources

N

0 1,500 3,000 Feet

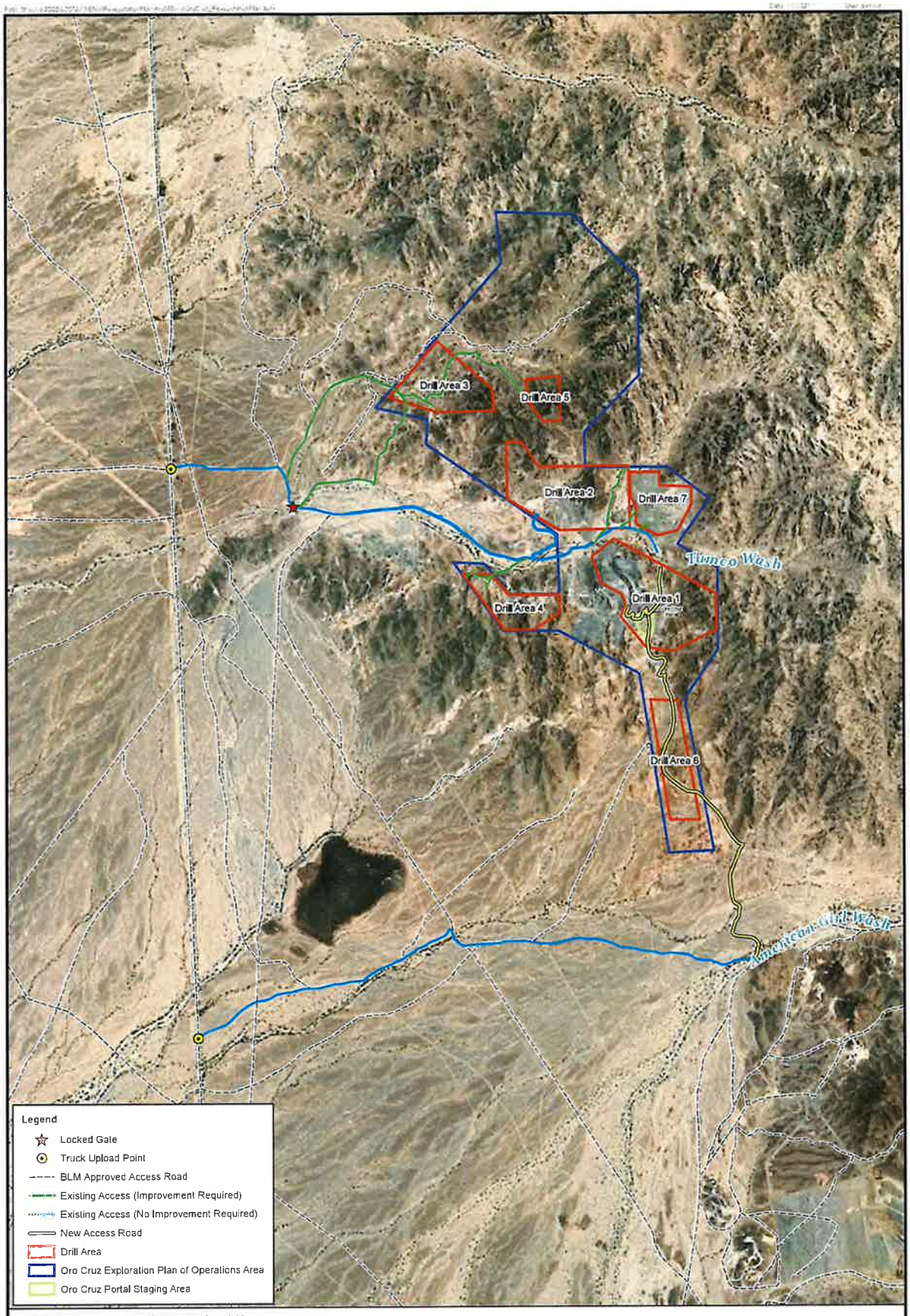
0 500 1,000 Meters

SMP GOLD CORP.

Oro Cruz Exploration Project Revegetation Plan

VICINITY MAP

Figure 1



T15S, R20E, Portions of Sections 1, 2, 12 and 13,
T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California, Data Source: SMP
Image Source: ArcGIS Online, World Imagery, 2018

WestLand Resources

N

0 800 1,600 Feet

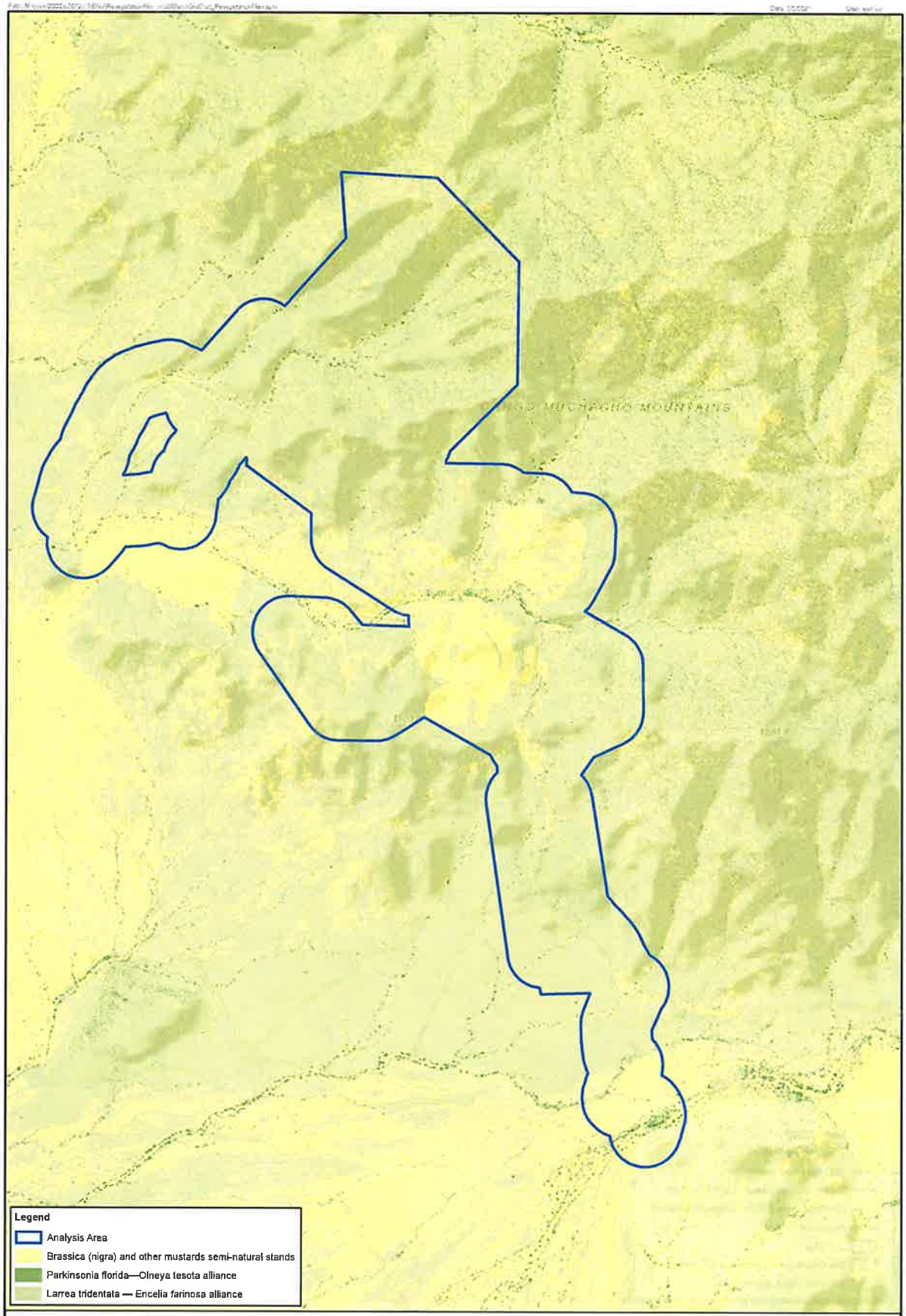
0 250 500 Meters

SMP GOLD CORP.

Oro Cruz Exploration Project
Revegetation Plan

PROJECT LOCATION

Figure 2



T15S, R20E, Portions of Sections 1, 2, 11, 12 and 13,
T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California,
Imperial County, California,
Data Source: SMP
Image Source: Supervised Classification from NAIP 2020

WestLand Resources

SMP GOLD CORP.

Oro Cruz Exploration Project
Revegetation Plan

VEGETATION CLASSIFICATION

Figure 3

APPENDIX A
Representative Photographs

Photo 1.
Drill Area 1

Photo 2.
Drill Area 1

Photo 3.
Drill Area 2

Photo 4.
Drill Area 2

Photo 5.
Drill Area 3

Photo 6.
Drill Area 3

Photo 7.
Drill Area 4

Photo 8.
Drill Area 4

Photo 9.
Drill Area 5

Photo 10.
Drill Area 5

Photo 11.
Drill Area 6

Photo 12.
Drill Area 6

Photo 13.
Access Road to Drill Area 6

Photo 14.
Drill Area 7

Photo 15.
Drill Area 7

Attachment 2

BLM
1st Letter to Sixteen Tribes Requesting for Section 106 Government-to-Government Consultation
March 31, 2021

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

March 31, 2021

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Raymond Welch, Chairman
Barona Band of Mission Indians
1095 Barona Road
Lakeside, CA 92040

Dear Chairman Welch,

The Bureau of Land Management (BLM) El Centro Field Office has received a mining Exploration Plan of Operations (Project) from SMP Gold Corp. to conduct exploratory drilling activities in south-eastern Imperial County (please see Enclosure 1: Project Figures). The Project proposes new exploration at the existing Oro Cruz mine site within seven drill areas totaling approximately 223 acres. The Project also proposes to utilize existing roads, construction of approximately 2.6 miles of existing road improvements, 6.2 miles of a new 12-foot-wide temporary exploration drilling access road, 8 helicopter landing pads, and 65 drill pads to support exploration in the seven drill areas. Finally, the Project includes constructing approximately 1.8 miles of a new permanent, 15-foot-wide access road and a 2.6-acre staging area for access to the Oro Cruz Portal on BLM lands. The staging area at the Oro Cruz Portal would be used for exploration within the proposed drill areas and underground mine area. The area would house a 1,300-gallon diesel fuel tank and fueling station, two diesel-powered generators (125 kW or equivalent), two portable compressors (375 Series or equivalent), parking for access to the underground mine, and laydown areas for exploration drilling. Once exploration activities are completed, disturbed areas would be restored.

The BLM is the lead federal agency for the Project under the National Environmental Policy Act (NEPA), Endangered Species Act (ESA), and Section 106 of the National Historic Preservation Act (NHPA). Consistent with Section 106 and the principles of various Executive Orders we are contacting you at the earliest stages of Project review and seeking your views and comments, particularly with regard to any issues that may affect resources that are important to your Tribe. This letter serves to provide initial notification of the proposed Project, explain the role of the BLM, invite the Tribe to enter into government-to-government consultation and provide the inventory work plan for your review and comment. The BLM will update the Tribe on the proposed Project throughout the review process, unless the Tribe has no further interest in

consulting on this Project. We would request that you inform us in writing if the Tribe has no interest in this Project or entering into government-to-government consultation.

Specific to Section 106 of the NHPA, the implementing regulation at 36 CFR 800 requires the BLM to consult with Indian tribes that attach religious or cultural significance to historic properties that may be affected by an undertaking. The Project area is located with the Picacho Area of Critical Environmental Concern known for its sensitive cultural and biological resources however much of the proposed Project area has been heavily disturbed by prior mining activities.

We request your assistance in identifying any issues or concerns the Tribe may have about the proposed Project, including places of religious and cultural significance that might be affected and should be taken into consideration. The area of potential affects (APE) for the current exploration Project has been defined to include the seven drill areas, all new roads, any existing roads proposed for improvements, and any non-designated BLM routes of travel that would be utilized for the Project due to the potential for physical impacts to cultural resources from the exploration activities. The proposed Project would not result in permanent installation of above-ground infrastructure and restoration of impacts is part of the overall Project description. Any visual, auditory, or atmospheric (VAA) disturbances resulting from ground disturbing activities would be temporary, therefore defining a separate VAA APE is not warranted for the undertaking at this time.

ASM Affiliates in coordination with WestLand Resources (WestLand) has been retained to complete the cultural resources survey, and WestLand has prepared the enclosed *A Cultural Resources Survey Work Plan for the Proposed Oro Cruz Exploration Project, Imperial County, California* (Inventory Work Plan, Enclosure 2). It is being provided to Tribes and other consulting parties for a 30-day review period. Any comments on the Inventory Work Plan should be submitted to the BLM by May 4, 2021. SMP Gold Corp. may also be reaching out separately to discuss the project with Tribes.

Finally, the regulations at 36 CFR 800.2(c)(2)(ii)(C) also state that Federal agency consultation with an Indian tribes must recognize the government-to-government relationship and requires the agency to consult with representatives designated or identified by the tribal government. To facilitate government-to-government consultation on this Project for the purposes of Section 106 and to meet the requirements of the regulation, the BLM requests that the Tribal government identify in writing those tribal representatives who have been designated to consult with BLM on this Project.

We appreciate your time in review of the enclosures and welcome your input. Any comments should be provided to the BLM on or before May 4, 2021. For information or clarification about anything in this letter, or to schedule a government-to-government consultation meeting with the BLM, please contact Carrie Sahagun at csahagun@blm.gov or by phone at (760) 337-4437. If you have any questions or we can provide additional clarification, please do not hesitate to

contact us. Thank you for your continuing cooperation with this office. We look forward to hearing from you soon.

Sincerely,

Ryan Chatterton
Field Manager

Enclosures:

1. Project Figures
2. Inventory Work Plan

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

March 31, 2021

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Marcus Cuero, Chairman
Campo Band of Mission Indians
36190 Church Road, Suite 1
Campo, CA 91906

Dear Chairman Cuero,

The Bureau of Land Management (BLM) El Centro Field Office has received a mining Exploration Plan of Operations (Project) from SMP Gold Corp. to conduct exploratory drilling activities in south-eastern Imperial County (please see Enclosure 1: Project Figures). The Project proposes new exploration at the existing Oro Cruz mine site within seven drill areas totaling approximately 223 acres. The Project also proposes to utilize existing roads, construction of approximately 2.6 miles of existing road improvements, 6.2 miles of a new 12-foot-wide temporary exploration drilling access road, 8 helicopter landing pads, and 65 drill pads to support exploration in the seven drill areas. Finally, the Project includes constructing approximately 1.8 miles of a new permanent, 15-foot-wide access road and a 2.6-acre staging area for access to the Oro Cruz Portal on BLM lands. The staging area at the Oro Cruz Portal would be used for exploration within the proposed drill areas and underground mine area. The area would house a 1,300-gallon diesel fuel tank and fueling station, two diesel-powered generators (125 kW or equivalent), two portable compressors (375 Series or equivalent), parking for access to the underground mine, and laydown areas for exploration drilling. Once exploration activities are completed, disturbed areas would be restored.

The BLM is the lead federal agency for the Project under the National Environmental Policy Act (NEPA), Endangered Species Act (ESA), and Section 106 of the National Historic Preservation Act (NHPA). Consistent with Section 106 and the principles of various Executive Orders we are contacting you at the earliest stages of Project review and seeking your views and comments, particularly with regard to any issues that may affect resources that are important to your Tribe. This letter serves to provide initial notification of the proposed Project, explain the role of the BLM, invite the Tribe to enter into government-to-government consultation and provide the inventory work plan for your review and comment. The BLM will update the Tribe on the proposed Project throughout the review process, unless the Tribe has no further interest in

consulting on this Project. We would request that you inform us in writing if the Tribe has no interest in this Project or entering into government-to-government consultation.

Specific to Section 106 of the NHPA, the implementing regulation at 36 CFR 800 requires the BLM to consult with Indian tribes that attach religious or cultural significance to historic properties that may be affected by an undertaking. The Project area is located with the Picacho Area of Critical Environmental Concern known for its sensitive cultural and biological resources however much of the proposed Project area has been heavily disturbed by prior mining activities.

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Sincerely,

Ryan Chatterton
Field Manager

Enclosures:

1. Project Figures
2. Inventory Work Plan

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

March 31, 2021

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Ms. Sherry Cordova, Chairperson
Cocopah Indian Tribe
14515 S. Veterans Dr.
Somerton, AZ 85350

Dear Chairperson Cordova,

The Bureau of Land Management (BLM) El Centro Field Office has received a mining Exploration Plan of Operations (Project) from SMP Gold Corp. to conduct exploratory drilling activities in south-eastern Imperial County (please see Enclosure 1: Project Figures). The Project proposes new exploration at the existing Oro Cruz mine site within seven drill areas totaling approximately 223 acres. The Project also proposes to utilize existing roads, construction of approximately 2.6 miles of existing road improvements, 6.2 miles of a new 12-foot-wide temporary exploration drilling access road, 8 helicopter landing pads, and 65 drill pads to support exploration in the seven drill areas. Finally, the Project includes constructing approximately 1.8 miles of a new permanent, 15-foot-wide access road and a 2.6-acre staging area for access to the Oro Cruz Portal on BLM lands. The staging area at the Oro Cruz Portal would be used for exploration within the proposed drill areas and underground mine area. The area would house a 1,300-gallon diesel fuel tank and fueling station, two diesel-powered generators (125 kW or equivalent), two portable compressors (375 Series or equivalent), parking for access to the underground mine, and laydown areas for exploration drilling. Once exploration activities are completed, disturbed areas would be restored.

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We request your assistance in identifying any issues or concerns the Tribe may have about the proposed Project, including places of religious and cultural significance that might be affected and should be taken into consideration. The area of potential affects (APE) for the current exploration Project has been defined to include the seven drill areas, all new roads, any existing roads proposed for improvements, and any non-designated BLM routes of travel that would be utilized for the Project due to the potential for physical impacts to cultural resources from the exploration activities. The proposed Project would not result in permanent installation of above-ground infrastructure and restoration of impacts is part of the overall Project description. Any visual, auditory, or atmospheric (VAA) disturbances resulting from ground disturbing activities would be temporary, therefore defining a separate VAA APE is not warranted for the undertaking at this time.

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Finally, the regulations at 36 CFR 800.2(c)(2)(ii)(C) also state that Federal agency consultation with an Indian tribes must recognize the government-to-government relationship and requires the agency to consult with representatives designated or identified by the tribal government. To facilitate government-to-government consultation on this Project for the purposes of Section 106 and to meet the requirements of the regulation, the BLM requests that the Tribal government identify in writing those tribal representatives who have been designated to consult with BLM on this Project.

We appreciate your time in review of the enclosures and welcome your input. Any comments should be provided to the BLM on or before May 4, 2021. For information or clarification about anything in this letter, or to schedule a government-to-government consultation meeting with the BLM, please contact Carrie Sahagun at csahagun@blm.gov or by phone at (760) 337-4437. If you have any questions or we can provide additional clarification, please do not hesitate to

contact us. Thank you for your continuing cooperation with this office. We look forward to hearing from you soon.

Sincerely,

Ryan Chatterton
Field Manager

Enclosures:

1. Project Figures
2. Inventory Work Plan

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

March 31, 2021

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Ms. Amelia Flores, Chairwoman
Colorado River Indian Tribes
26600 Mohave Rd.
Parker, AZ 85344

Dear Chairwoman Flores,

The Bureau of Land Management (BLM) El Centro Field Office has received a mining Exploration Plan of Operations (Project) from SMP Gold Corp. to conduct exploratory drilling activities in south-eastern Imperial County (please see Enclosure 1: Project Figures). The Project proposes new exploration at the existing Oro Cruz mine site within seven drill areas totaling approximately 223 acres. The Project also proposes to utilize existing roads, construction of approximately 2.6 miles of existing road improvements, 6.2 miles of a new 12-foot-wide temporary exploration drilling access road, 8 helicopter landing pads, and 65 drill pads to support exploration in the seven drill areas. Finally, the Project includes constructing approximately 1.8 miles of a new permanent, 15-foot-wide access road and a 2.6-acre staging area for access to the Oro Cruz Portal on BLM lands. The staging area at the Oro Cruz Portal would be used for exploration within the proposed drill areas and underground mine area. The area would house a 1,300-gallon diesel fuel tank and fueling station, two diesel-powered generators (125 kW or equivalent), two portable compressors (375 Series or equivalent), parking for access to the underground mine, and laydown areas for exploration drilling. Once exploration activities are completed, disturbed areas would be restored.

The BLM is the lead federal agency for the Project under the National Environmental Policy Act (NEPA), Endangered Species Act (ESA), and Section 106 of the National Historic Preservation Act (NHPA). Consistent with Section 106 and the principles of various Executive Orders we are contacting you at the earliest stages of Project review and seeking your views and comments, particularly with regard to any issues that may affect resources that are important to your Tribe. This letter serves to provide initial notification of the proposed Project, explain the role of the BLM, invite the Tribe to enter into government-to-government consultation and provide the inventory work plan for your review and comment. The BLM will update the Tribe on the proposed Project throughout the review process, unless the Tribe has no further interest in

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Field Manager

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March 31, 2021

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Robert Pinto, Sr., Chairman
Ewiiaapaayp Band of Kumeyaay Indians
4054 Willows Road
Alpine, CA 91901

Dear Chairman Pinto,

The Bureau of Land Management (BLM) El Centro Field Office has received a mining Exploration Plan of Operations (Project) from SMP Gold Corp. to conduct exploratory drilling activities in south-eastern Imperial County (please see Enclosure 1: Project Figures). The Project proposes new exploration at the existing Oro Cruz mine site within seven drill areas totaling approximately 223 acres. The Project also proposes to utilize existing roads, construction of approximately 2.6 miles of existing road improvements, 6.2 miles of a new 12-foot-wide temporary exploration drilling access road, 8 helicopter landing pads, and 65 drill pads to support exploration in the seven drill areas. Finally, the Project includes constructing approximately 1.8 miles of a new permanent, 15-foot-wide access road and a 2.6-acre staging area for access to the Oro Cruz Portal on BLM lands. The staging area at the Oro Cruz Portal would be used for exploration within the proposed drill areas and underground mine area. The area would house a 1,300-gallon diesel fuel tank and fueling station, two diesel-powered generators (125 kW or equivalent), two portable compressors (375 Series or equivalent), parking for access to the underground mine, and laydown areas for exploration drilling. Once exploration activities are completed, disturbed areas would be restored.

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Ryan Chatterton
Field Manager

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March 31, 2021

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Jordan D. Joaquin, President
Fort Yuma Quechan Indian Tribe
P.O. Box 1899
Yuma, AZ 85366-1899

Dear President Joaquin,

The Bureau of Land Management (BLM) El Centro Field Office has received a mining Exploration Plan of Operations (Project) from SMP Gold Corp. to conduct exploratory drilling activities in south-eastern Imperial County (please see Enclosure 1: Project Figures). The Project proposes new exploration at the existing Oro Cruz mine site within seven drill areas totaling approximately 223 acres. The Project also proposes to utilize existing roads, construction of approximately 2.6 miles of existing road improvements, 6.2 miles of a new 12-foot-wide temporary exploration drilling access road, 8 helicopter landing pads, and 65 drill pads to support exploration in the seven drill areas. Finally, the Project includes constructing approximately 1.8 miles of a new permanent, 15-foot-wide access road and a 2.6-acre staging area for access to the Oro Cruz Portal on BLM lands. The staging area at the Oro Cruz Portal would be used for exploration within the proposed drill areas and underground mine area. The area would house a 1,300-gallon diesel fuel tank and fueling station, two diesel-powered generators (125 kW or equivalent), two portable compressors (375 Series or equivalent), parking for access to the underground mine, and laydown areas for exploration drilling. Once exploration activities are completed, disturbed areas would be restored.

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Finally, the regulations at 36 CFR 800.2(c)(2)(ii)(C) also state that Federal agency consultation with an Indian tribes must recognize the government-to-government relationship and requires the agency to consult with representatives designated or identified by the tribal government. We are in receipt of your letter dated March 11, 2021 designating the Cultural Committee and the Historic Preservation Officer as representatives to work on behalf of the Fort Yuma Quechan Tribe regarding consultation matters. Ms. Jill McCormick, Quechan Historic Preservation Officer will also receive a copy of this letter and enclosures.

We appreciate your time in review of the enclosures and welcome your input. Any comments should be provided to the BLM on or before May 4, 2021. For information or clarification about anything in this letter, or to schedule a government-to-government consultation meeting with the BLM, please contact Carrie Sahagun at csahagun@blm.gov or by phone at (760) 337-4437. If you have any questions or we can provide additional clarification, please do not hesitate to

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United States Department of the Interior

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1661 S. 4th Street
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March 31, 2021

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Ms. Bernice Paipa, Chairwoman
Iipay Nation of Santa Ysabel
P.O. Box 130
Santa Ysabel, CA 92070

Dear Chairwoman Paipa,

The Bureau of Land Management (BLM) El Centro Field Office has received a mining Exploration Plan of Operations (Project) from SMP Gold Corp. to conduct exploratory drilling activities in south-eastern Imperial County (please see Enclosure 1: Project Figures). The Project proposes new exploration at the existing Oro Cruz mine site within seven drill areas totaling approximately 223 acres. The Project also proposes to utilize existing roads, construction of approximately 2.6 miles of existing road improvements, 6.2 miles of a new 12-foot-wide temporary exploration drilling access road, 8 helicopter landing pads, and 65 drill pads to support exploration in the seven drill areas. Finally, the Project includes constructing approximately 1.8 miles of a new permanent, 15-foot-wide access road and a 2.6-acre staging area for access to the Oro Cruz Portal on BLM lands. The staging area at the Oro Cruz Portal would be used for exploration within the proposed drill areas and underground mine area. The area would house a 1,300-gallon diesel fuel tank and fueling station, two diesel-powered generators (125 kW or equivalent), two portable compressors (375 Series or equivalent), parking for access to the underground mine, and laydown areas for exploration drilling. Once exploration activities are completed, disturbed areas would be restored.

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March 31, 2021

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CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Ms. Erica Pinto, Chairwoman
Jamul Indian Village
P.O. Box 612
Jamul, CA 91935

Dear Chairwoman Pinto,

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March 31, 2021

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CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Ms. Carmen Lucas
Kwaaymii Laguna Band of Indians
P.O. Box 775
Pine Valley, CA 91962

Dear Ms. Lucas,

The Bureau of Land Management (BLM) El Centro Field Office has received a mining Exploration Plan of Operations (Project) from SMP Gold Corp. to conduct exploratory drilling activities in south-eastern Imperial County (please see Enclosure 1: Project Figures). The Project proposes new exploration at the existing Oro Cruz mine site within seven drill areas totaling approximately 223 acres. The Project also proposes to utilize existing roads, construction of approximately 2.6 miles of existing road improvements, 6.2 miles of a new 12-foot-wide temporary exploration drilling access road, 8 helicopter landing pads, and 65 drill pads to support exploration in the seven drill areas. Finally, the Project includes constructing approximately 1.8 miles of a new permanent, 15-foot-wide access road and a 2.6-acre staging area for access to the Oro Cruz Portal on BLM lands. The staging area at the Oro Cruz Portal would be used for exploration within the proposed drill areas and underground mine area. The area would house a 1,300-gallon diesel fuel tank and fueling station, two diesel-powered generators (125 kW or equivalent), two portable compressors (375 Series or equivalent), parking for access to the underground mine, and laydown areas for exploration drilling. Once exploration activities are completed, disturbed areas would be restored.

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Sincerely,

Ryan Chatterton
Field Manager

Enclosures:
1. Project Figures
2. Inventory Work Plan

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

March 31, 2021

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Ms. Gwendolyn Parada, Chairperson
La Posta Band of Kumeyaay Indians
8 Crestwood Rd.
Boulevard, CA 91905

Dear Chairwoman Parada,

The Bureau of Land Management (BLM) El Centro Field Office has received a mining Exploration Plan of Operations (Project) from SMP Gold Corp. to conduct exploratory drilling activities in south-eastern Imperial County (please see Enclosure 1: Project Figures). The Project proposes new exploration at the existing Oro Cruz mine site within seven drill areas totaling approximately 223 acres. The Project also proposes to utilize existing roads, construction of approximately 2.6 miles of existing road improvements, 6.2 miles of a new 12-foot-wide temporary exploration drilling access road, 8 helicopter landing pads, and 65 drill pads to support exploration in the seven drill areas. Finally, the Project includes constructing approximately 1.8 miles of a new permanent, 15-foot-wide access road and a 2.6-acre staging area for access to the Oro Cruz Portal on BLM lands. The staging area at the Oro Cruz Portal would be used for exploration within the proposed drill areas and underground mine area. The area would house a 1,300-gallon diesel fuel tank and fueling station, two diesel-powered generators (125 kW or equivalent), two portable compressors (375 Series or equivalent), parking for access to the underground mine, and laydown areas for exploration drilling. Once exploration activities are completed, disturbed areas would be restored.

The BLM is the lead federal agency for the Project under the National Environmental Policy Act (NEPA), Endangered Species Act (ESA), and Section 106 of the National Historic Preservation Act (NHPA). Consistent with Section 106 and the principles of various Executive Orders we are contacting you at the earliest stages of Project review and seeking your views and comments, particularly with regard to any issues that may affect resources that are important to your Tribe. This letter serves to provide initial notification of the proposed Project, explain the role of the BLM, invite the Tribe to enter into government-to-government consultation and provide the inventory work plan for your review and comment. The BLM will update the Tribe on the proposed Project throughout the review process, unless the Tribe has no further interest in

consulting on this Project. We would request that you inform us in writing if the Tribe has no interest in this Project or entering into government-to-government consultation.

Specific to Section 106 of the NHPA, the implementing regulation at 36 CFR 800 requires the BLM to consult with Indian tribes that attach religious or cultural significance to historic properties that may be affected by an undertaking. The Project area is located with the Picacho Area of Critical Environmental Concern known for its sensitive cultural and biological resources however much of the proposed Project area has been heavily disturbed by prior mining activities.

We request your assistance in identifying any issues or concerns the Tribe may have about the proposed Project, including places of religious and cultural significance that might be affected and should be taken into consideration. The area of potential affects (APE) for the current exploration Project has been defined to include the seven drill areas, all new roads, any existing roads proposed for improvements, and any non-designated BLM routes of travel that would be utilized for the Project due to the potential for physical impacts to cultural resources from the exploration activities. The proposed Project would not result in permanent installation of above-ground infrastructure and restoration of impacts is part of the overall Project description. Any visual, auditory, or atmospheric (VAA) disturbances resulting from ground disturbing activities would be temporary, therefore defining a separate VAA APE is not warranted for the undertaking at this time.

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Finally, the regulations at 36 CFR 800.2(c)(2)(ii)(C) also state that Federal agency consultation with an Indian tribes must recognize the government-to-government relationship and requires the agency to consult with representatives designated or identified by the tribal government. To facilitate government-to-government consultation on this Project for the purposes of Section 106 and to meet the requirements of the regulation, the BLM requests that the Tribal government identify in writing those tribal representatives who have been designated to consult with BLM on this Project.

We appreciate your time in review of the enclosures and welcome your input. Any comments should be provided to the BLM on or before May 4, 2021. For information or clarification about anything in this letter, or to schedule a government-to-government consultation meeting with the BLM, please contact Carrie Sahagun at csahagun@blm.gov or by phone at (760) 337-4437. If you have any questions or we can provide additional clarification, please do not hesitate to

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Field Manager

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1661 S. 4th Street
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March 31, 2021

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Ms. Angela Elliott Santos, Chairwoman
Manzanita Band of Kumeyaay Indians
P.O. Box 1302
Boulevard, CA 91905

Dear Chairwoman Elliott Santos,

The Bureau of Land Management (BLM) El Centro Field Office has received a mining Exploration Plan of Operations (Project) from SMP Gold Corp. to conduct exploratory drilling activities in south-eastern Imperial County (please see Enclosure 1: Project Figures). The Project proposes new exploration at the existing Oro Cruz mine site within seven drill areas totaling approximately 223 acres. The Project also proposes to utilize existing roads, construction of approximately 2.6 miles of existing road improvements, 6.2 miles of a new 12-foot-wide temporary exploration drilling access road, 8 helicopter landing pads, and 65 drill pads to support exploration in the seven drill areas. Finally, the Project includes constructing approximately 1.8 miles of a new permanent, 15-foot-wide access road and a 2.6-acre staging area for access to the Oro Cruz Portal on BLM lands. The staging area at the Oro Cruz Portal would be used for exploration within the proposed drill areas and underground mine area. The area would house a 1,300-gallon diesel fuel tank and fueling station, two diesel-powered generators (125 kW or equivalent), two portable compressors (375 Series or equivalent), parking for access to the underground mine, and laydown areas for exploration drilling. Once exploration activities are completed, disturbed areas would be restored.

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Ryan Chatterton
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BUREAU OF LAND MANAGEMENT
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El Centro CA 92243
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March 31, 2021

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Michael Linton, Chairman
Mesa Grande Band of Mission Indians
P.O. Box 270
Santa Ysabel, CA 92070

Dear Chairman Linton,

The Bureau of Land Management (BLM) El Centro Field Office has received a mining Exploration Plan of Operations (Project) from SMP Gold Corp. to conduct exploratory drilling activities in south-eastern Imperial County (please see Enclosure 1: Project Figures). The Project proposes new exploration at the existing Oro Cruz mine site within seven drill areas totaling approximately 223 acres. The Project also proposes to utilize existing roads, construction of approximately 2.6 miles of existing road improvements, 6.2 miles of a new 12-foot-wide temporary exploration drilling access road, 8 helicopter landing pads, and 65 drill pads to support exploration in the seven drill areas. Finally, the Project includes constructing approximately 1.8 miles of a new permanent, 15-foot-wide access road and a 2.6-acre staging area for access to the Oro Cruz Portal on BLM lands. The staging area at the Oro Cruz Portal would be used for exploration within the proposed drill areas and underground mine area. The area would house a 1,300-gallon diesel fuel tank and fueling station, two diesel-powered generators (125 kW or equivalent), two portable compressors (375 Series or equivalent), parking for access to the underground mine, and laydown areas for exploration drilling. Once exploration activities are completed, disturbed areas would be restored.

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BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

March 31, 2021

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Stephen Cope, Chairman
San Pasqual Band of Diegueño Indians
P.O. Box 365
Valley Center, CA 92082

Dear Chairman Cope,

The Bureau of Land Management (BLM) El Centro Field Office has received a mining Exploration Plan of Operations (Project) from SMP Gold Corp. to conduct exploratory drilling activities in south-eastern Imperial County (please see Enclosure 1: Project Figures). The Project proposes new exploration at the existing Oro Cruz mine site within seven drill areas totaling approximately 223 acres. The Project also proposes to utilize existing roads, construction of approximately 2.6 miles of existing road improvements, 6.2 miles of a new 12-foot-wide temporary exploration drilling access road, 8 helicopter landing pads, and 65 drill pads to support exploration in the seven drill areas. Finally, the Project includes constructing approximately 1.8 miles of a new permanent, 15-foot-wide access road and a 2.6-acre staging area for access to the Oro Cruz Portal on BLM lands. The staging area at the Oro Cruz Portal would be used for exploration within the proposed drill areas and underground mine area. The area would house a 1,300-gallon diesel fuel tank and fueling station, two diesel-powered generators (125 kW or equivalent), two portable compressors (375 Series or equivalent), parking for access to the underground mine, and laydown areas for exploration drilling. Once exploration activities are completed, disturbed areas would be restored.

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Enclosures:

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BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
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March 31, 2021

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Cody J. Martinez, Chairman
Sycuan Band of Kumeyaay Nation
1 Kwaaypaay Court
El Cajon, CA 92019

Dear Chairman Martinez,

The Bureau of Land Management (BLM) El Centro Field Office has received a mining Exploration Plan of Operations (Project) from SMP Gold Corp. to conduct exploratory drilling activities in south-eastern Imperial County (please see Enclosure 1: Project Figures). The Project proposes new exploration at the existing Oro Cruz mine site within seven drill areas totaling approximately 223 acres. The Project also proposes to utilize existing roads, construction of approximately 2.6 miles of existing road improvements, 6.2 miles of a new 12-foot-wide temporary exploration drilling access road, 8 helicopter landing pads, and 65 drill pads to support exploration in the seven drill areas. Finally, the Project includes constructing approximately 1.8 miles of a new permanent, 15-foot-wide access road and a 2.6-acre staging area for access to the Oro Cruz Portal on BLM lands. The staging area at the Oro Cruz Portal would be used for exploration within the proposed drill areas and underground mine area. The area would house a 1,300-gallon diesel fuel tank and fueling station, two diesel-powered generators (125 kW or equivalent), two portable compressors (375 Series or equivalent), parking for access to the underground mine, and laydown areas for exploration drilling. Once exploration activities are completed, disturbed areas would be restored.

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March 31, 2021

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Thomas Tortez, Chairman
Torres-Martinez Desert Cahuilla Indians
P.O. Box 1160
Thermal, CA 92274

Dear Chairman Tortez,

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Enclosures:

1. Project Figures
2. Inventory Work Plan

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

March 31, 2021

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. John Christman, Chairman
Viejas Band of Kumeyaay Indians
P.O. Box 908
Alpine, CA 91903-0908

Dear Chairman Christman,

The Bureau of Land Management (BLM) El Centro Field Office has received a mining Exploration Plan of Operations (Project) from SMP Gold Corp. to conduct exploratory drilling activities in south-eastern Imperial County (please see Enclosure 1: Project Figures). The Project proposes new exploration at the existing Oro Cruz mine site within seven drill areas totaling approximately 223 acres. The Project also proposes to utilize existing roads, construction of approximately 2.6 miles of existing road improvements, 6.2 miles of a new 12-foot-wide temporary exploration drilling access road, 8 helicopter landing pads, and 65 drill pads to support exploration in the seven drill areas. Finally, the Project includes constructing approximately 1.8 miles of a new permanent, 15-foot-wide access road and a 2.6-acre staging area for access to the Oro Cruz Portal on BLM lands. The staging area at the Oro Cruz Portal would be used for exploration within the proposed drill areas and underground mine area. The area would house a 1,300-gallon diesel fuel tank and fueling station, two diesel-powered generators (125 kW or equivalent), two portable compressors (375 Series or equivalent), parking for access to the underground mine, and laydown areas for exploration drilling. Once exploration activities are completed, disturbed areas would be restored.

The BLM is the lead federal agency for the Project under the National Environmental Policy Act (NEPA), Endangered Species Act (ESA), and Section 106 of the National Historic Preservation Act (NHPA). Consistent with Section 106 and the principles of various Executive Orders we are contacting you at the earliest stages of Project review and seeking your views and comments, particularly with regard to any issues that may affect resources that are important to your Tribe. This letter serves to provide initial notification of the proposed Project, explain the role of the BLM, invite the Tribe to enter into government-to-government consultation and provide the inventory work plan for your review and comment. The BLM will update the Tribe on the proposed Project throughout the review process, unless the Tribe has no further interest in

consulting on this Project. We would request that you inform us in writing if the Tribe has no interest in this Project or entering into government-to-government consultation.

Specific to Section 106 of the NHPA, the implementing regulation at 36 CFR 800 requires the BLM to consult with Indian tribes that attach religious or cultural significance to historic properties that may be affected by an undertaking. The Project area is located with the Picacho Area of Critical Environmental Concern known for its sensitive cultural and biological resources however much of the proposed Project area has been heavily disturbed by prior mining activities.

We request your assistance in identifying any issues or concerns the Tribe may have about the proposed Project, including places of religious and cultural significance that might be affected and should be taken into consideration. The area of potential affects (APE) for the current exploration Project has been defined to include the seven drill areas, all new roads, any existing roads proposed for improvements, and any non-designated BLM routes of travel that would be utilized for the Project due to the potential for physical impacts to cultural resources from the exploration activities. The proposed Project would not result in permanent installation of above-ground infrastructure and restoration of impacts is part of the overall Project description. Any visual, auditory, or atmospheric (VAA) disturbances resulting from ground disturbing activities would be temporary, therefore defining a separate VAA APE is not warranted for the undertaking at this time.

ASM Affiliates in coordination with WestLand Resources (WestLand) has been retained to complete the cultural resources survey, and WestLand has prepared the enclosed *A Cultural Resources Survey Work Plan for the Proposed Oro Cruz Exploration Project, Imperial County, California* (Inventory Work Plan, Enclosure 2). It is being provided to Tribes and other consulting parties for a 30-day review period. Any comments on the Inventory Work Plan should be submitted to the BLM by May 4, 2021. SMP Gold Corp. may also be reaching out separately to discuss the project with Tribes.

Finally, the regulations at 36 CFR 800.2(c)(2)(ii)(C) also state that Federal agency consultation with an Indian tribes must recognize the government-to-government relationship and requires the agency to consult with representatives designated or identified by the tribal government. To facilitate government-to-government consultation on this Project for the purposes of Section 106 and to meet the requirements of the regulation, the BLM requests that the Tribal government identify in writing those tribal representatives who have been designated to consult with BLM on this Project.

We appreciate your time in review of the enclosures and welcome your input. Any comments should be provided to the BLM on or before May 4, 2021. For information or clarification about anything in this letter, or to schedule a government-to-government consultation meeting with the BLM, please contact Carrie Sahagun at csahagun@blm.gov or by phone at (760) 337-4437. If you have any questions or we can provide additional clarification, please do not hesitate to

contact us. Thank you for your continuing cooperation with this office. We look forward to hearing from you soon.

Sincerely,

Ryan Chatterton
Field Manager

Enclosures:

1. Project Figures
2. Inventory Work Plan

Attachment 3

BLM
Email(s) with the Viejas Band of Kumeyaay Indians
April 13, 2021

[EXTERNAL] RE: Initiation of consultation on the SMP Oro Cruz Mining Exploration Project

Ray Teran <rteran@viejas-nsn.gov>
Tue 4/13/2021 12:42 PM

To: Sahagun, Carrie L <csahagun@blm.gov>
Cc: Chatterton, Michael (Ryan) R <mrchatterton@blm.gov>; Ernest Pingleton <epingleton@viejas-nsn.gov>; Uyen Le <ULe@VIEJAS.com>; John Christman <JChristman@viejas-nsn.gov>

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Carrie, we are in receipt of the Cultural Resources Survey Work Plan. Our previous comments (below) stand. Ray

From: Ray Teran
Sent: Thursday, April 1, 2021 1:56 PM
To: 'Sahagun, Carrie L' <csahagun@blm.gov>
Cc: Cha erton, Michael (Ryan) R <mrcha erton@blm.gov>; Ernest Pingleton <epingleton@viejas-nsn.gov>; Uyen Le <ULe@VIEJAS.com>; John Christman <JChristman@viejas-nsn.gov>
Subject: RE: Ini a on of consulta on on the SMP Oro Cruz Mining Explora on Project

The Viejas Band of Kumeyaay Indians ("Viejas") has reviewed the proposed project and at this me we have determined that the project site has cultural significance or es to Viejas. Cultural resources have been located within or adjacent to the APE-DE of the proposed project.

Viejas Band request that a Kumeyaay Cultural Monitor be on site for ground disturbing ac vi es and to inform us of any new developments such as inadvertent discovery of cultural ar facts, crema on sites, or human remains.

If you wish to u lize Viejas cultural monitors, please call Ernest Pingleton at 619-655-0410 or email, epingleton@viejas-nsn.gov, for contrac ng and scheduling. Thank you.

If a Tribe, having a closer proximity to the Project, requests to perform cultural monitoring, Viejas will differ to them.

From: Sahagun, Carrie L [mailto:csahagun@blm.gov]
Sent: Thursday, April 1, 2021 1:53 PM
To: John Christman <JChristman@viejas-nsn.gov>
Cc: Cha erton, Michael (Ryan) R <mrcha erton@blm.gov>; Ray Teran <rteran@viejas-nsn.gov>; Ernest Pingleton <epingleton@viejas-nsn.gov>; Uyen Le <ULe@VIEJAS.com>
Subject: Ini a on of consulta on on the SMP Oro Cruz Mining Explora on Project

Dear Chairman Christman,
Please find a ached our recent le er and enclosures regarding inia on of c onsultaon on another ne w mining exploraon pr oject in eastern Imperial County. If you have any quesons, please r each out. We look forward to hearing from you.
-Carrie

Carrie L. Sahagun

Assistant Field Manager
BLM El Centro Field Ofic e
1661 S. 4th Street
El Centro, CA 92243
(760) 337-4437
USDI, Region 8

Attachment 4

BLM
Letter from the Fort Yuma-Quechan Indian Tribe
April 21, 2021

QUECHAN INDIAN TRIBE

Fort Yuma Indian Reservation

Historic Preservation Office

P.O. Box 1899
Yuma, Arizona 85366-1899
Phone (760) 572-2423
Cell (928) 261-0254

Sent Via Electronic Transmission

Ryan Chatterton
Field Manager
Bureau of Land Management
El Centro Field Office
1661 S. 4th Street
El Centro, CA 92243

April 21, 2021

RE: SMP Gold Corp. – Cultural Resources Survey Work Plan for the Proposed Oro Cruz Exploration Project, Imperial County, California

Dear Mr. Chatterton:

We would like to provide the following comments on the above referenced project.

General Comments

- The proposed project location is sited within a region that is highly significant to the Quechan Tribe. This is a location that the Tribe attaches great cultural, religious and spiritual significance to. The Quechan Tribe objects to the proposed mining project and the proximity of the operation to a significant cultural landscape and items of cultural patrimony which are integral to the spiritual and everyday lives of the Quechan people.

- Although the proposed project will be utilizing locations that have been disturbed by previous mining activities, the proposed project location is within the Picacho Area of Critical Environmental Concern, which contains significant cultural and biological resources. These cultural and biological resources are still integral to the Quechan culture, religion, and spiritual practices and therefore, any impact to the area would cause great harm to their overall cultural practices. The location holds its significance to the Quechan People as a part of a greater cultural, religious and spiritual landscape that is entwined with their origin stories, traditions and ceremonies, and the cultural patrimony of the Quechan People. Impacts to any one area would disturb the entire landscape as a whole.

Work Plan Comments

- Is the work plan meant to fulfill NHPA, Section 106, and CEQA requirements?

- **Page 4 – Regulatory Background** – This section fails to make mention of Tribal Cultural Resources under the CEQA discussion of this section. CEQA mandates consideration of Tribal Cultural Values in determination of project impacts and mitigation. Also, there needs to be a discussion of how information about Tribal Cultural Resources will be collected, and how this information will be utilized in the CEQA process.

- **Page 7 – Survey Methods –** The work plan states that archaeologists will conduct a 100-percent-coverage survey. This wording is questionable, when later in the work plan a significant portion of the project area is eliminated due to previous projects, disturbed areas and areas with greater than 30 percent slope. If areas are being eliminated from archaeological survey, then this cannot be called 100-percent-coverage.
  In regards to transect spacing of 15 meter intervals, we feel this distance is too large and should be decreased to 5 meter intervals. Additionally, we question the ability of an archaeological contracting company to adequately identify cultural items. We feel it is highly improbable for archaeologists from outside this area to understand and identify items of cultural, religious and spiritual significance within the Quechan culture. How does the BLM plan to address this issue? Information provided by Tribal members should be sought out and given the same weight as the archaeologists and used to make important project decisions.

- **Page 8 – Cultural Setting -** The cultural setting contains no input from the Tribes. All information is provided from an historical perspective that fails to address the regional Tribal history from a Tribal Perspective. As discussed previously, the significant cultural, religious, and spiritual nature of this project should warrant an accurate reflection of the environmental and cultural context from a Tribal perspective. The references section of the work plan includes very few sources on Tribes. Given that the work plan specifically mentions the Quechan Tribe of the Fort Yuma Reservation and the Torres-Martinez Desert Cahuilla for further consultation for this proposed project (page 27), it would seem that specific research references should have been sought out to gain a more thorough understanding of these cultures to aid in the identification of precise cultural practices and the types of cultural items that may be encountered during the survey work. Also, CEQA mandates Tribal input and consideration of Tribal Cultural Values in determination of project impacts and mitigation. Therefore, an accurate cultural context that incorporates Tribal perspectives should be completed to satisfy the mandates of CEQA, NHPA, and Section 106 sections 800.4 (a), (3), (4), and (b) (1). Additionally, Section 106 of NHPA contains the same requirements.

- **Page 14 – Delineation of the Area of Potential Effect -** We disagree with the APE as defined by BLM. The direct APE has been designated to include 65 boreholes placed in seven drill areas, helicopter landing pads, the staging area at the Oro Cruz Portal, and will include the use and improvements to existing access roads, and construction of temporary access roads all of which comprise a total area of 223 acres that contain all ground disturbing activities. The BLM has failed to fully consider the impacts of these

activities within the project area to the culture, religion, and spiritual practices of the Quechan people in their determination of the project APE. We also disagree with the BLM's assessment regarding the lack of necessity for establishing a separate visual, auditory, or atmospheric (VAA) APE for the project. The evaluation of the VAA APE was deemed not necessary, because the project activities would be temporary. This fact does not take into account the impacts to the intangible elements of this area and the effects on Quechan Tribal members. Nor does the proposed lack of a VAA APE address the effects/impacts to the unique characteristics of this area, the cumulative adverse effects or the diminishment of the integrity of the feeling, association and location to the Quechan People that still utilize this area for cultural practices.

Per 36 CFR 800.16 (d),

> Area of potential effects means the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.

Given the nature of this undertaking as a proposed mining project, which will cause immediate and lasting harm to a known location that the Quechan Tribe attaches religious and cultural significance to, we assert that the APE and lack of VAA APE as determined by BLM is not adequate. The VAA analysis only assesses the impacts to "cultural resources" within the proposed APE. Nowhere in the work plan are "cultural resources" defined.

Additionally, per 36 CFR 800.16 (d), **use** of historic properties must be taken into account when defining the APE. Nowhere in the work plan document is there an accurate assessment of the APE and VAA that employs Tribal perspectives and uses of the proposed project area.

The VAA should not merely assess the effects/impacts to tangible cultural resources, but rather it should also assess the visual, auditory, and atmospheric effects/impacts to the intangible and the effects/impacts to the Quechan Tribal member using the location for cultural practices.

Further, in the work plan (page19, paragraph 1), the following statement is made. "The scale of the proposed project is relatively small and spread out over a larger landscape, potentially affecting roughly 21 acres of BLM lands in the proposed APE that would encompass 255 acres." 36 CFR 800.16 (d) does not discuss acreage as a limiting factor for the determination of the APE.

- **Page 19 – Previous Cultural Resources Work** – This section details previous projects and cultural resource assessments that have been conducted within the proposed project area over the past three decades. There is no discussion of the validity of these reports given the amount of time since they were conducted. All of the reports referenced are well over ten years old and therefore are no longer considered current and should be updated. The age of the previous surveys, also brings into the question the qualifications of the archaeologists who conducted the surveys. Further information should be provided regarding transect intervals and sites definitions to determine whether the archaeologists truly understood these discrete features at the time of the surveys 20-30 years ago. These concepts have only recently become more defined in the archaeological record. Further, the work plan does not make it clear if the areas included in these previous assessments are being excluded from the current survey efforts for this project. If, in fact, these

previous project assessments are to be considered valid, we are requesting to be provided copies of all reports that are referenced in Table 3 of the work plan prior to the finalization of the work plan.

- **Pages 23 and 25** - Both pages contain statements that no prehistoric sites, artifacts or features have been previously identified with the proposed APE. This statement is hard to believe given the wealth of cultural resources known to exist in the project area. The statement could be true given that typical survey methodology employs 15 meter transect intervals, which are normally spaced too far apart to adequately scan ground surfaces for artifacts and features. Additionally, as mentioned previously, the experience level of the archaeologists play a major role in survey outcomes in areas such as this. The subtle nature of the resources requires experienced individuals who are able to identify such resources. Moreover, in accordance with the National Historic Preservation Act (16 U.S.C. 470 et seq., 1966) Section 101 (d)(6)(A)

  > Properties of traditional religious and cultural importance to an Indian tribe or native Hawaiian organization may be determined to be eligible for inclusion on the National Register.

  We contend that this area has not been adequately assessed as an area of traditional and religious importance to the Quechan Tribe. Therefore, the BLM ECFO has not fulfilled its obligations to protect the Trust interest of the Quechan Tribe to the maximum extent feasible for resources held in trust by the U.S. Government.

- **Pages 25-26 – Slope Analysis -** Scanning rock slopes with binoculars is not an adequate method of detecting cultural resources. If aspects of the project are to be sites within mountain slope areas, these areas need to be adequately surveyed by means that are appropriate to identify the types of cultural resources that may be located in rock outcroppings, niches, and overhangs.

- **Page 27 Summary and Recommendations** – This section begins by stating that the project has the potential to affect approximately 279 acres. It then states that 255 acres have been subjected to previous cultural resources projects. Later in the paragraph it states that 75 acres have been subjected to previous mining disturbances. Line 15 references 204 acres that were derived from taking the original 279 acres and subtracting the 75 acres that were previously disturbed. However, throughout the document, beginning on page one, the figure of 223 acres was used for the total acres for project activities then on page 19 it is stated that the APE is 255 acres, and now on page 27 that figure changed to 279 acres. In this same paragraph, the 204 acres referenced above are reduced to 123 acres by eliminating 81 acres deemed steep terrain with slopes greater than 30 percent. We assert that the 204 acres was derived inaccurately from the 279 acres figure that is only referenced in one location in the document. The final paragraph on page 27 states that Westland recommends intensive cultural resources inventory on 123 acres of the proposed APE. There is a question as to how this figure was arrived at. The previous paragraph states that 172 acres of the proposed APE are on a relatively flat alluvial fan with slopes of less than 30 percent and as was established in a previous paragraph, 81 acres have been deemed steep terrain that cannot be surveyed for safety reasons. These two figures (172 and 81) when combined equal a sum of 253 acres, again a different figure than the aforementioned 279, 255, or 223. There is a difference of 130

acres between the two figures (253 and 123), and no explanation for the discrepancy and what rational is being used to determine the areas where survey will and will not occur. An accurate accounting of the total APE acreage needs to be established to eliminate the confusion found in this section.
This section reads like a bad mathematical story problem with key information left out leaving the reader to guess at the missing information about how specific acreages were determined.

- Overall, we find this work plan to be culturally insufficient and lacking in specifics regarding the fieldwork and reporting methodologies, the types of sites and artifacts that are expected to be encountered, and the cultural significance of the landscape. The work plan creates confusion as to the areas to be surveyed, how the survey will be conducted, the qualifications of the survey crews, and whether Tribal representatives are being sought out to participate in the survey work.

The Historic Preservation Office would like to continue the dialogue on this project with the BLM, and would like to schedule a meeting to discuss our comments. If you have any questions or need additional information, please feel free to contact the Historic Preservation Office.

Sincerely,

H. Jill McCormick, M.A.
Historic Preservation Officer

Cc: Carrie Sahagun, Assistant Field Manager, BLM ECFO
Julianne Polanco, California State Historic Preservation Officer
Bill Marzella, Program Analyst/BLM Liaison, ACHP

Attachment 5

BLM
Letter from the Colorado River Indian Tribes
April 29, 2021

COLORADO RIVER INDIAN TRIBES

Tribal Historic Preservation Office

26600 Mohave Road
Parker, Arizona 85344
Telephone: (928)-669-5822 Fax: (928) 669-5843

April 29, 2021

Bureau of Land Management
El Centro Field Office
1661 S. 4th Street
El Centro, CA 92243

RE: Oro Cruz Mine

Dear Ms. Carrie Sahagun:

The Colorado River Indian Tribes' Tribal Historic Preservation Office ("CRIT THPO") has received your letter dated March 31, 2021, regarding the *proposed SMP Gold Corp to conduct exploratory drilling activities in south-eastern Imperial County at the existing Oro Cruz mine site.*

As a preliminary matter, the Colorado River Indian Tribes are a federally recognized Indian tribe comprised of over 4,200 members belonging to the Mohave, Chemehuevi, Hopi and Navajo Tribes. The almost 300,000-acre Colorado River Indian Reservation sits astride the Colorado River between Blythe, California and Parker, Arizona. The ancestral homelands of the Tribe's members, however, extend far beyond the Reservation boundaries. Significant portions of public and private lands in California, Arizona and Nevada were occupied by the ancestors of the Colorado River Indian Tribes' Mohave and Chemehuevi members since time immemorial. These landscapes remain imbued with substantial cultural, spiritual and religious significance for the Tribes' current members and future generations. For this reason, we have a strong interest in ensuring that potential cultural resource impacts are adequately considered and mitigated.

In particular, the Colorado River Indian Tribes are concerned about the removal of artifacts from this area and corresponding destruction of the Tribes' footprint on this landscape. As such, the Tribes request that all prehistoric cultural resources, including both known and yet-to-be-discovered sites, be avoided if feasible. If avoidance of the site is infeasible, then the Tribes request that the resources be left in-situ or reburied in a nearby area, after consultation. This language should be incorporated into enforceable mitigation measures.

In addition, we respond as follows:

__X__ Given the potential impact of the project on important cultural resources, the Colorado River Indian Tribes request in-person government-to-government consultation. Please contact the CRIT THPO to discuss our concerns and schedule a meeting with Tribal Council.

_____In the event any human remains or objects subject to provision of the Native American Graves Protection and Repatriation Act, or cultural resources such as sites, trails, artifacts are identified during ground disturbance, please contact the CRIT THPO within 48 hours.

_____The Colorado River Indian Tribes request tribal monitoring of any ground disturbing activity as a condition of project approval. The Tribes request notification of any opportunities to provide tribal monitoring for the project.

_____The Colorado River Indian Tribes do not have any specific comment on the proposed project and instead defer to the comments of other affiliated tribes.

Thank you for your consideration. Please contact the undersigned, or Administrative Assistant, Rena Van Fleet at (928) 669-5822, rena.vanfleet@crit-nsn.gov, if you have any questions or concerns.

Sincerely,

COLORADO RIVER INDIAN TRIBES
TRIBAL HISTORIC PRESERVATION OFFICE

/s/ Bryan Etsitty, Director
26600 Mohave Road
Parker, AZ 85344
Phone: (928) 669-5822
E-mail: betsitty@crit-nsn.gov

cc: critthpo@crit-nsn.gov

Attachment 6

BLM
Email(s) with the Fort Yuma-Quechan Indian Tribe
May 3, 2021

[EXTERNAL] RE: Initiation of consultation on the SMP Oro Cruz Mining Exploration Project

Quechan Historic Preservation Officer <historicpreservation@quechantribe.com>
Mon 5/3/2021 7:51 AM
To: Sahagun, Carrie L <csahagun@blm.gov>

1 attachments (389 KB)
Quechan_Comments_SMP_Corp_Oro_Cruz_Exploration_Project_Work_Plan.pdf;

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Please find a ached our comment le er for the SMP Oro Cruz Mining Explora on Project Work Plan.

From: Sahagun, Carrie L [mailto:csahagun@blm.gov]
Sent: Thursday, April 01, 2021 1:30 PM
To: executivesecretary@quechantribe.com; Jill McCormick
Cc: Chatterton, Michael (Ryan) R
Subject: Initiation of consultation on the SMP Oro Cruz Mining Exploration Project

Dear President Joaquin and Jill,
Please find a ached our recent le er and enclosures regarding ini a on of consulta on on another new mining explora on project in eastern Imperial County. If you have any ques ons, please reach out. We look forward to hearing from you.
-Carrie

Carrie L. Sahagun
Assistant Field Manager
BLM El Centro Field Of ice
1661 S. 4th Street
El Centro, CA 92243
(760) 337-4437
USDI, Region 8

Virus-free. www.avast.com

Attachment 7

BLM
Letter from the Fort Yuma-Quechan Indian Tribe
June 1, 2021

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

June 1, 2021

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Jordan D. Joaquin, President
Fort Yuma Quechan Indian Tribe
P.O. Box 1899
Yuma, AZ 85366-1899

Dear President Joaquin,

The Bureau of Land Management (BLM) El Centro Field Office is in receipt of the letter from the Quechan Indian Tribe Historic Preservation Officer, Ms. Jill McCormick, dated April 21, 2021, provided in response to our request to initiate government-to-government and Section 106 consultation on the SMP Gold Corp mining exploration Plan of Operations (Project). This letter has been prepared to provide additional follow-up and clarification of certain items raised in the April 21, 2021 letter. We also request additional information from the Tribe and look forward to a government-to-government meeting with the Tribal Council and our continued dialog and consultation on this Project as it progresses.

First, thank you for confirming that the Picacho Area of Critical Environmental Concern (ACEC) is a region of importance to the Tribe. Over many years of consultation with the Tribe, this has been a common theme. In recognition of that, during the Desert Renewable Energy Conservation Area planning process, the BLM was pleased to nominate the area as a new ACEC recognizing that important landscape and its significant cultural resources. While the proposed Project is within the ACEC, it is mostly sited in areas that have been heavily disturbed by prior mining activities, although there would be some new ground disturbance as part of the drilling exploration program. The April 21, 2021 letter states that "impacts to any one area would disturb the entire landscape as a whole." We seek to better understand this viewpoint about potential impacts to the larger region from the proposed Project. The Section 106 process requires that the federal agency take effects into account as part of its decision-making process and therefore it is important that we have a solid understanding of the types of impacts that the Tribe is concerned about.

The April 21, 2021 letter also contained several additional comments and questions regarding the Inventory Work Plan entitled, *A Cultural Resources Survey Work Plan for the Proposed Oro Cruz Exploration Project, Imperial County, California,* prepared by WestLand Resources.

We would like to address several of those specific comments and questions here:

1. **Regulatory Background:** The Inventory Work Plan was prepared for the BLM to guide the proposed archaeological survey which will be undertaken to assist in the identification of historic properties with the area of potential effect (APE). This is part of the Section 106 process of the National Historic Preservation Act. WestLand Resources also included language within the Inventory Work Plan regarding the California Environmental Quality Act (CEQA) should the Project require review and permitting under those regulations as well. The County of Imperial will likely be the CEQA lead agency and the Tribe should contact the Planning Department for any questions about CEQA, Tribal Cultural Resources, and how information about such resources will be utilized as part of their environmental review.

2. **Survey Methods:** It is the BLM's intention that all areas within the APE that have not been heavily disturbed due to recent mining activities and that can be safely accessed shall be subject to archaeological inventory. The Inventory Work Plan does discuss prior investigations that have taken place within the APE as part of the record search and literature review, however, none of those prior survey areas are proposed for elimination from the current survey effort. The information was included for informational purposes and this will be clarified to help ensure there is no confusion within the Final Inventory Work Plan.

   The Inventory Work Plan also calls for utilizing 15 meter transects during the survey and the Tribe has proposed transects of 5 meter spacing. 15 meters is a professional standard that the BLM utilizes in order to ensure that there is consistency across inventory projects within the California Desert District. It is also consistent with the California State Historic Preservation Office requirements for pedestrian survey, especially given the high degree of surface visibility in the project area. During the inventory, when new cultural resources are found, transect widths will be reduced to 3-5 meters in order to locate and record any artifacts or features as well as define site boundaries. The April 21, 2021 letter questions the ability of the archaeologists to recognize and document cultural items of significance to Tribes. It is our understanding that WestLand Resources has reached out to Tribes via letter with invitations to participate in the inventory and fieldwork for the Project. The BLM hopes that tribal participation in the field inventories will be robust and would like outcomes of that participation included within the BLM Class III Report documenting the results of the inventory. Tribal perspectives shared during both the survey and any government-to-government meetings or other Section 106 meetings will be given full consideration in Project decisions.

3. **Cultural Setting:** A comment was received about the Cultural Setting stating that it contained no input from the Tribe and that it failed to address the regional Tribal history from a Tribal Perspective. The BLM provided the Inventory Work Plan to Tribes for their review and input for a 30-day review period. If the Tribe has specific information they would like to see included please provide it as soon as possible so that it can be incorporated into the Final Inventory Work Plan and/or the inventory report that will be prepared once the surveys are complete. WestLand Resources has also augmented the

Cultural Setting section to include more ethnographic information about the Tribes who traditionally utilized the area, including the Quechan people.

4. **Delineation of the APE:** The APE was defined by the BLM as the entirety of the seven drill areas, all new roads, any existing roads proposed for improvements, and any non-designated BLM routes of travel that would be utilized for the Project. This totals approximately 279 acres with less than 21 of those acres proposed for actual construction impacts. It is our determination that there is a potential for effects beyond those 21 acres and therefore the BLM made the determination to expand the APE to the larger area as a whole. This also allows for a greater ability to redesign roads or drilling pads in order to avoid resources. The April 21, 2021 letter objected to the APE determination and stated that the BLM had not taken into account the impacts of Project activities within the Project area to the culture, religion, and spiritual practices of the Quechan people. The letter goes on to state:

   > "Given the nature of this undertaking as a proposed mining project, which will cause immediate and lasting harm to a known location that the Quechan Tribe attaches religious and cultural significance to…Additionally, per 36 CFR 800.16 (d), use of historic properties must be taken into account when defining the APE. Nowhere in the work plan document is there an accurate assessment of the APE and VAA that employs Tribal perspectives and uses of the proposed project area. The VAA should not merely assess the effects/impacts to tangible cultural resources, but rather it should also assess the visual, auditory, and atmospheric effects/impacts to the intangible and the effects/impacts to the Quechan Tribal member using the location for cultural practices."

   The BLM was not aware of tribal uses of the Project Area for cultural practices other than those that take place within the larger ACEC nor were we aware that the Project area is a known location to which the Quechan Tribe attaches religious and cultural significance. We respectfully request clarification from the Tribe as to as to how Project activities will affect the practices and/or specific resources of the Quechan Indian Tribe so that we may use that to potentially reconsider the boundaries of the APE. This will also aid in our determinations as to whether potential visual, auditory or atmospheric (VAA) effects are encompassed by the APE or if it should be expanded to a certain extent. The BLM also acknowledges the Tribal input that while they may be temporary, VAA effects could be detrimental.

5. **Previous Cultural Resources Work and Pages 23 and 25:** As stated above in item number 2, the Inventory Work Plan does discuss prior investigations that have taken place within the APE as part of the record search and literature review, however, none of those prior survey areas are proposed for elimination from the current survey effort. The information was included for informational purposes and this will be clarified to help ensure there is no confusion within the Final Inventory Work Plan.

6. **Slope Analysis:** Areas within the APE that contain a slope of 30% or greater are proposed for elimination of archaeological survey due to safety constraints. We do not

want anyone injured as part of conducting inventories for this Project. Also, no Project components are proposed for such locations. Drill pads that may be located above such steep slopes on flatter areas would be accessed by helicopter and surveyed in advance by archaeologists.

7. **Summary and Recommendations:** The April 21, 2021 letter points out the Inventory Work Plan is unclear in several areas regarding acreage totals. WestLand is currently working to rectify any potential confusing text. Essentially the total acreage of the APE is approximately 279, of which 75 have been disturbed by prior industrial mining and reclamation leaving 204 acres. 81 acres of the 204 are at 30% or greater slope leaving 123 acres. 123 acres is what is currently proposed for archaeological inventory.

Thank you for providing important input and comments on the Inventory Work Plan and the Project as a whole. We look forward to sharing the Final Inventory Work Plan with you in the near future. We would like to request a government-to-government meeting in order to discuss the Project, the contents of these letters and any other topics or issues of concern. Please let us know a date or dates that would be convenient for the Quechan Tribal Council. If you have any questions or we can provide additional clarification, please do not hesitate to contact me. Thank you for your continuing cooperation with this Office. We look forward to meeting with you soon.

Sincerely,

Ryan Chatterton
Field Manager

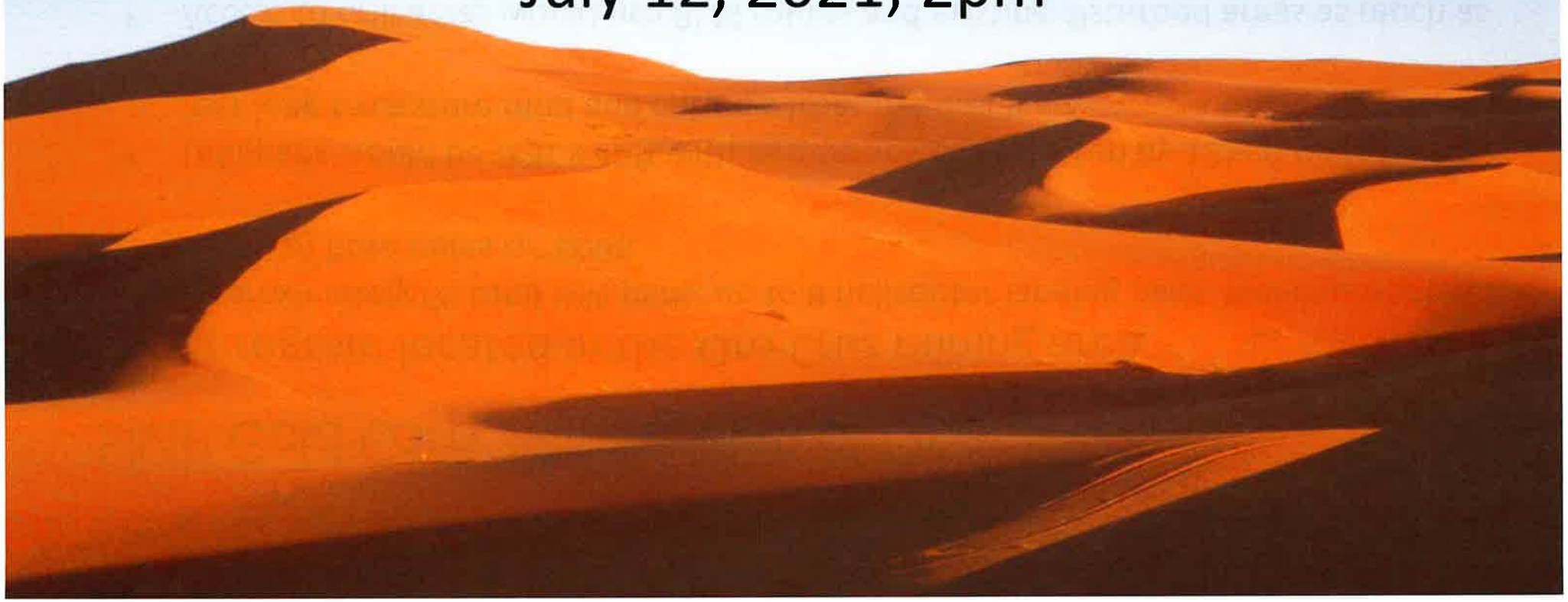
Attachment 8

BLM
PowerPoint Presentation given to the Fort Yuma-Quechan Indian Tribe, Tribal Council
July 12, 2021

U.S. Department of the Interior
Bureau of Land Management

Bureau of Land Management
El Centro Field Office

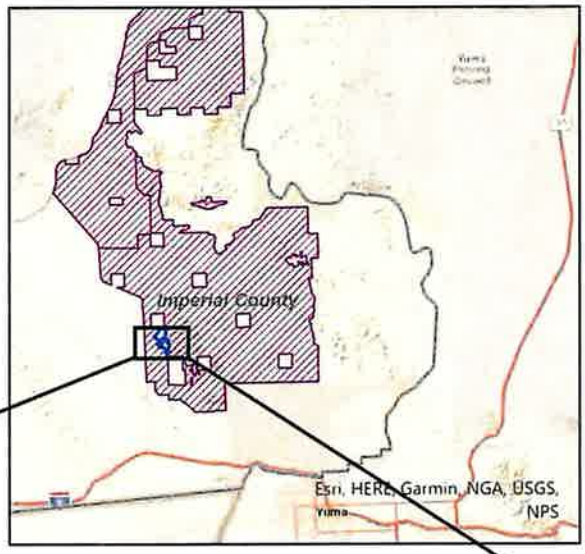
Quechan Tribal Council Meeting
July 12, 2021; 2pm



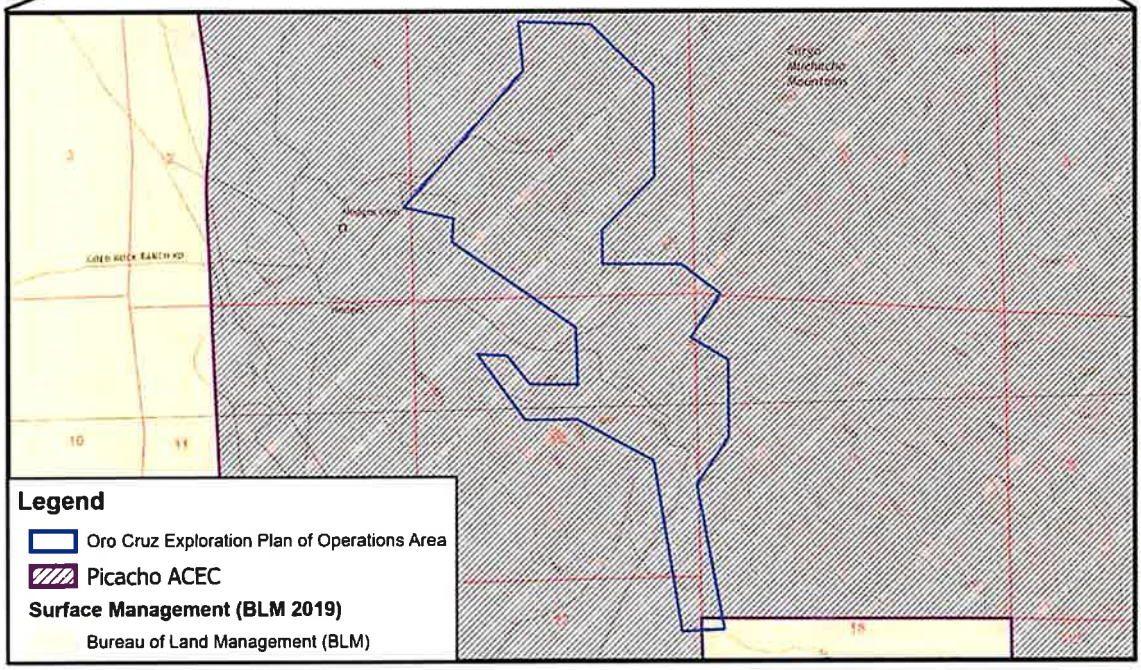
SMP Gold Corp. Mining Plan of Operations

Drilling program located in the Oro Cruz mining area

- Approximately 65 total drill pads, up to 8 helicopter landing pads, maximum total depth of bore holes is ~800ft
- Drill pads would be 60ft x 40ft with two sumps 10 feet deep by 12feet wide by 12 feet long to capture mud and cuttings from the drill fluid.
- Access to drill areas would use BLM routes and existing disturbed areas as much as possible. Routes to access project areas would be 12-15 ft wide.
- 2.6 acre staging area next to the existing Oro Cruz underground mine portal: would be used to house a 1,300-gallon diesel fuel tank and fueling station, two diesel-powered generators two portable compressors, parking for access to the underground mine, and laydown areas for exploration drilling.
- Total project disturbance from all drilling activities and new routes = ~21 acres
- Restoration of all disturbance areas required



Approximate Scale 1 Inch = 12 Miles



T15S, R20E, Portions of Sections 1, 2, 12 and 13,
T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California,
Ogilby and Hedges USGS 7.5' Quadrangles (2018)
Data Source: SMP
Image Source: ArcGIS Online, World Street Map

WestLand Resources

N

0 1,500 3,000 Feet

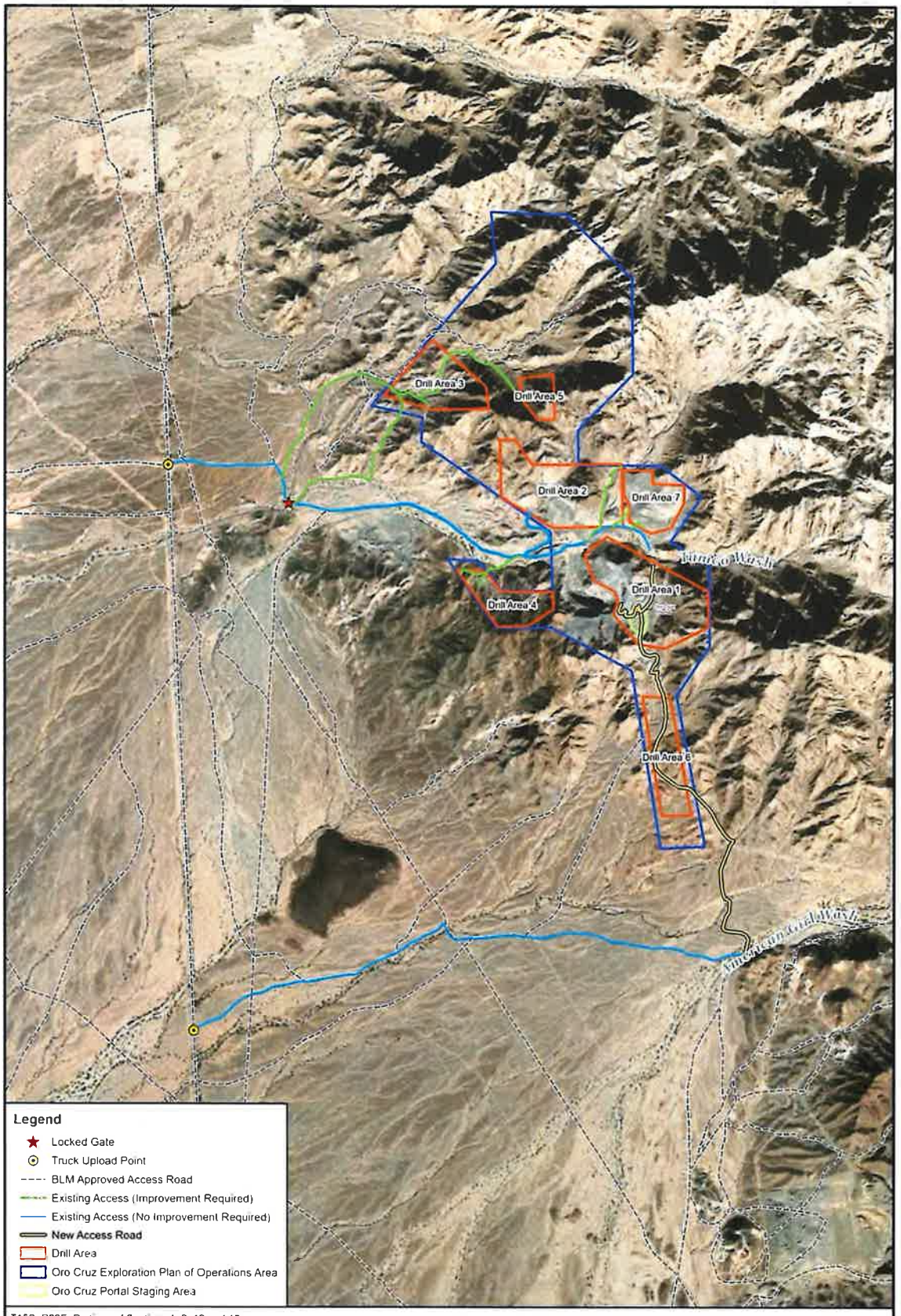
0 500 1,000 Meters

SMP GOLD CORP.

Oro Cruz Exploration Plan of Operations

VICINITY MAP

Figure 1


Drill Area 3
Drill Area 5
Drill Area 2
Drill Area 7
Drill Area 1
Drill Area 4
Drill Area 6
Legend
Locked Gate
Truck Upload Point
BLM Approved Access Road
Existing Access (Improvement Required)
Existing Access (No Improvement Required)
New Access Road
Drill Area
Oro Cruz Exploration Plan of Operations Area
Oro Cruz Portal Staging Area
T15S, R20E, Portions of Sections 1, 2, 12 and 13
T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California. Data Source: SMP
Image Source: ArcGIS Online, World Imagery, 2018
WestLand Resources
N
0 800 1,600 Feet
0 400 800 Meters
SMP GOLD CORP.
Oro Cruz Exploration Plan of Operations
PROJECT LOCATION
Figure 2

Cultural Resources and Section 106 Current Project Status

- Initiated consultation with Indian Tribes and the SHPO
- Proposed an area of potential effect and survey work plan. Requiring inventory of all areas proposed for disturbance that have not already been heavily impacted by past mining activities
- Tribal participants are invited to participate in the survey efforts and to provide their input
- All reports would be shared with consulting parties and tribes for review and input

SMP Gold Corp. Project: Next steps for BLM

- Send out revised survey work plan
- Complete biological and cultural resources inventories
- Initiate public scoping for the National Environmental Policy Act (NEPA) process
- Continue Section 106 and Government to Government consultation

BLM Contact Information

Ryan Chatterton, Field Manager
(760) 337-4410, mrchatterton@blm.gov

Carrie Sahagun, Assistant Field Manager
(760) 337-4437, csahagun@blm.gov

Mayra Martinez, Geologist
mymartinez@blm.gov

Attachment 9

BLM
Email(s) with the Fort Yuma-Quechan Indian Tribe
July 30, 2021

Government-to-Government Consultation Follow-up - SMP Plan of Operations

Chatterton, Michael (Ryan) R <mrchatterton@blm.gov>

Fri 7/30/2021 3:11 PM

To: Jordan D. Joaquin, President <president@quechantribe.com>
Cc: Jill McCormick <historicpreservation@quechantribe.com>; Sahagun, Carrie L <csahagun@blm.gov>

1 attachments (195 KB)
SMP - BLM - Correspondence 20210729.pdf;

Dear President Joaquin,

During our government-to-government consulta on mee ng on July 12, 2021, in regards to SMP's Plan of Opera on, the Quechan tribe requested informa on on the reasonably foreseeable developments for this project. The a ached le er is a response from SMP to the BLM in reference to the requested informa on. The BLM is only sharing informa on provided by SMP and the le er is not meant to represent the perspec ve of the BLM in anyway.

I would also like to follow up on the BLM's request to the tribe at the mee ng for a recommenda on on the area of poten al effect for the SMP Plan of Opera ons. Ms. McCormick requested two weeks to provide addi onal feedback. We are hoping to finalize the cultural work plan early next week. We also acknowledge and appreciate the tribe's prior no fica on that this project is located within a general area that the tribe a aches great cultural, religious, and spiritual significance to and would appreciate input on the loca ons where this project has to poten al to cause impacts both directly and indirectly.

Thanks,

Michael (Ryan) Chatterton
Field Manager, El Centro Field Office
Bureau of Land Management, California
Department of the Interior, Region 8
760-337-4410 Office

Attachment 10

BLM
2nd Letter to Seventeen Tribes Requesting Continued Section 106 Consultation
August 10, 2021

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

August 10, 2021

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Raymond Welch, Chairman
Barona Band of Mission Indians
1095 Barona Road
Lakeside, CA 92040

Dear Chairman Welch,

The Bureau of Land Management (BLM) El Centro Field Office would like to continue our consultation with you regarding the mining exploration Plan of Operations (Project) from SMP Gold Corp. to conduct exploratory drilling activities in south-eastern Imperial County. As discussed in our March 31, 2021 letter, the Project proposes new exploration at the existing Oro Cruz mine site within seven drill areas. It includes construction of approximately 2.6 miles of existing road improvements, 6.2 miles of a new 12-foot-wide temporary exploration drilling access road, 8 helicopter landing pads, and 65 drill pads to support exploration in the seven drill areas. Finally, the Project includes constructing approximately 1.8 miles of a new permanent, 15-foot-wide access road and a 2.6-acre staging area for access to the Oro Cruz Mine Portal on BLM lands. The staging area at the Oro Cruz Portal would be used for exploration within the proposed drill areas and underground mine area. Total disturbance for the project would be approximately 21 acres.

The purpose of this current letter is twofold. First, please find enclosed the final cultural resources survey work plan prepared by WestLand Resources (WestLand) in cooperation with ASM Affiliates titled, *A Cultural Resources Survey Work Plan for the Proposed Oro Cruz Exploration Project, Imperial County, California.* Our prior letter requested review and comment on the work plan and the document has been revised in the following ways:

1. Clarified explanation of the survey areas and areas of potential effect (APE) on pages 22-23, and 28-30.

2. Additional ethnographic information added to the Cultural Context section on pages 10-13.

3. Added language to clarify that tribal monitors had been invited to participate in the inventory effort on page 7.

The BLM understands that WestLand has already begun contacting Tribes to request participation in the upcoming project surveys and they will continue to coordinate as fieldwork is scheduled.

The second purpose of this letter to provide clarification on the APE for the proposed Project. The APE was defined by the BLM as the entirety of the seven drill areas, all new roads, any existing roads proposed for improvements, and any non-designated BLM routes of travel that would be utilized for the Project. This totals approximately 279 acres with approximately only 21 of those acres proposed for actual construction impacts. It is our determination that there is a potential for effects beyond those 21 acres and therefore the BLM made the decision to expand the APE to the larger area as a whole and require inventory of areas within the APE not previously disturbed by past mining activities. This also allows for a greater ability to redesign roads or drilling pads in order to avoid resources. We are aware of the sensitivity of the larger Picacho Area of Critical Environmental Concern within which this project is sited and recognize that visual, auditory, or atmospheric disturbances resulting from ground disturbing activities are of concern to Tribes. We look forward to continued consultations with Tribes about cultural resources that could be affected by the proposed Project and anticipate sharing the results of the inventory and the report later this fall or early winter.

We appreciate your time and attention in reviewing this Project and welcome your input. For information or clarification about anything in this letter, or to schedule a government-to-government consultation meeting with the BLM, please contact Carrie Sahagun at csahagun@blm.gov or by phone at (760) 337-4437. I can also be reached at 760-337-4410. If you have any questions or we can provide additional clarification, please do not hesitate to contact us. Thank you for your continuing cooperation with this office.

Sincerely,

Ryan Chatterton
Field Manager

Enclosure: Survey Work Plan, WestLand Resources

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

August 10, 2021

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Marcus Cuero, Chairman
Campo Band of Mission Indians
36190 Church Road, Suite 1
Campo, CA 91906

Dear Chairman Cuero,

The Bureau of Land Management (BLM) El Centro Field Office would like to continue our consultation with you regarding the mining exploration Plan of Operations (Project) from SMP Gold Corp. to conduct exploratory drilling activities in south-eastern Imperial County. As discussed in our March 31, 2021 letter, the Project proposes new exploration at the existing Oro Cruz mine site within seven drill areas. It includes construction of approximately 2.6 miles of existing road improvements, 6.2 miles of a new 12-foot-wide temporary exploration drilling access road, 8 helicopter landing pads, and 65 drill pads to support exploration in the seven drill areas. Finally, the Project includes constructing approximately 1.8 miles of a new permanent, 15-foot-wide access road and a 2.6-acre staging area for access to the Oro Cruz Mine Portal on BLM lands. The staging area at the Oro Cruz Portal would be used for exploration within the proposed drill areas and underground mine area. Total disturbance for the project would be approximately 21 acres.

The purpose of this current letter is twofold. First, please find enclosed the final cultural resources survey work plan prepared by WestLand Resources (WestLand) in cooperation with ASM Affiliates titled, *A Cultural Resources Survey Work Plan for the Proposed Oro Cruz Exploration Project, Imperial County, California.* Our prior letter requested review and comment on the work plan and the document has been revised in the following ways:

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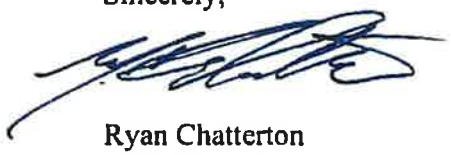
3. Added language to clarify that tribal monitors had been invited to participate in the inventory effort on page 7.

The BLM understands that WestLand has already begun contacting Tribes to request participation in the upcoming project surveys and they will continue to coordinate as fieldwork is scheduled.

The second purpose of this letter to provide clarification on the APE for the proposed Project. The APE was defined by the BLM as the entirety of the seven drill areas, all new roads, any existing roads proposed for improvements, and any non-designated BLM routes of travel that would be utilized for the Project. This totals approximately 279 acres with approximately only 21 of those acres proposed for actual construction impacts. It is our determination that there is a potential for effects beyond those 21 acres and therefore the BLM made the decision to expand the APE to the larger area as a whole and require inventory of areas within the APE not previously disturbed by past mining activities. This also allows for a greater ability to redesign roads or drilling pads in order to avoid resources. We are aware of the sensitivity of the larger Picacho Area of Critical Environmental Concern within which this project is sited and recognize that visual, auditory, or atmospheric disturbances resulting from ground disturbing activities are of concern to Tribes. We look forward to continued consultations with Tribes about cultural resources that could be affected by the proposed Project and anticipate sharing the results of the inventory and the report later this fall or early winter.

We appreciate your time and attention in reviewing this Project and welcome your input. For information or clarification about anything in this letter, or to schedule a government-to-government consultation meeting with the BLM, please contact Carrie Sahagun at csahagun@blm.gov or by phone at (760) 337-4437. I can also be reached at 760-337-4410. If you have any questions or we can provide additional clarification, please do not hesitate to contact us. Thank you for your continuing cooperation with this office.

Sincerely,



Ryan Chatterton
Field Manager

Enclosure: Survey Work Plan, WestLand Resources

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

August 10, 2021

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Ms. Sherry Cordova, Chairperson
Cocopah Indian Tribe
14515 S. Veterans Dr.
Somerton, AZ 85350

Dear Chairperson Cordova,

The Bureau of Land Management (BLM) El Centro Field Office would like to continue our consultation with you regarding the mining exploration Plan of Operations (Project) from SMP Gold Corp. to conduct exploratory drilling activities in south-eastern Imperial County. As discussed in our March 31, 2021 letter, the Project proposes new exploration at the existing Oro Cruz mine site within seven drill areas. It includes construction of approximately 2.6 miles of existing road improvements, 6.2 miles of a new 12-foot-wide temporary exploration drilling access road, 8 helicopter landing pads, and 65 drill pads to support exploration in the seven drill areas. Finally, the Project includes constructing approximately 1.8 miles of a new permanent, 15-foot-wide access road and a 2.6-acre staging area for access to the Oro Cruz Mine Portal on BLM lands. The staging area at the Oro Cruz Portal would be used for exploration within the proposed drill areas and underground mine area. Total disturbance for the project would be approximately 21 acres.

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Sincerely,

Ryan Chatterton
Field Manager

Enclosure: Survey Work Plan, WestLand Resources

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

August 10, 2021

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Ms. Amelia Flores, Chairwoman
Colorado River Indian Tribes
26600 Mohave Rd.
Parker, AZ 85344

Dear Chairwoman Flores,

The Bureau of Land Management (BLM) El Centro Field Office would like to continue our consultation with you regarding the mining exploration Plan of Operations (Project) from SMP Gold Corp. to conduct exploratory drilling activities in south-eastern Imperial County. As discussed in our March 31, 2021 letter, the Project proposes new exploration at the existing Oro Cruz mine site within seven drill areas. It includes construction of approximately 2.6 miles of existing road improvements, 6.2 miles of a new 12-foot-wide temporary exploration drilling access road, 8 helicopter landing pads, and 65 drill pads to support exploration in the seven drill areas. Finally, the Project includes constructing approximately 1.8 miles of a new permanent, 15-foot-wide access road and a 2.6-acre staging area for access to the Oro Cruz Mine Portal on BLM lands. The staging area at the Oro Cruz Portal would be used for exploration within the proposed drill areas and underground mine area. Total disturbance for the project would be approximately 21 acres.

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Sincerely,

Ryan Chatterton
Field Manager

Enclosure: Survey Work Plan, WestLand Resources

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

August 10, 2021

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Robert Pinto, Sr., Chairman
Ewiiaapaayp Band of Kumeyaay Indians
4054 Willows Road
Alpine, CA 91901

Dear Chairman Pinto,

The Bureau of Land Management (BLM) El Centro Field Office would like to continue our consultation with you regarding the mining exploration Plan of Operations (Project) from SMP Gold Corp. to conduct exploratory drilling activities in south-eastern Imperial County. As discussed in our March 31, 2021 letter, the Project proposes new exploration at the existing Oro Cruz mine site within seven drill areas. It includes construction of approximately 2.6 miles of existing road improvements, 6.2 miles of a new 12-foot-wide temporary exploration drilling access road, 8 helicopter landing pads, and 65 drill pads to support exploration in the seven drill areas. Finally, the Project includes constructing approximately 1.8 miles of a new permanent, 15-foot-wide access road and a 2.6-acre staging area for access to the Oro Cruz Mine Portal on BLM lands. The staging area at the Oro Cruz Portal would be used for exploration within the proposed drill areas and underground mine area. Total disturbance for the project would be approximately 21 acres.

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Sincerely,

Ryan Chatterton
Field Manager

Enclosure: Survey Work Plan, WestLand Resources

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
El Centro Field Office
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August 10, 2021

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Jordan D. Joaquin, President
Fort Yuma Quechan Indian Tribe
P.O. Box 1899
Yuma, AZ 85366-1899

Dear President Joaquin,

The Bureau of Land Management (BLM) El Centro Field Office would like to continue our consultation with you regarding the mining exploration Plan of Operations (Project) from SMP Gold Corp. to conduct exploratory drilling activities in south-eastern Imperial County. As discussed in our March 31, 2021 letter, the Project proposes new exploration at the existing Oro Cruz mine site within seven drill areas. It includes construction of approximately 2.6 miles of existing road improvements, 6.2 miles of a new 12-foot-wide temporary exploration drilling access road, 8 helicopter landing pads, and 65 drill pads to support exploration in the seven drill areas. Finally, the Project includes constructing approximately 1.8 miles of a new permanent, 15-foot-wide access road and a 2.6-acre staging area for access to the Oro Cruz Mine Portal on BLM lands. The staging area at the Oro Cruz Portal would be used for exploration within the proposed drill areas and underground mine area. Total disturbance for the project would be approximately 21 acres.

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3. Added language to clarify that tribal monitors had been invited to participate in the inventory effort on page 7.

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We appreciate your time and attention in reviewing this Project and welcome your input. For information or clarification about anything in this letter, or to schedule a government-to-government consultation meeting with the BLM, please contact Carrie Sahagun at csahagun@blm.gov or by phone at (760) 337-4437. I can also be reached at 760-337-4410. If you have any questions or we can provide additional clarification, please do not hesitate to contact us. Thank you for your continuing cooperation with this office.

Sincerely,

Ryan Chatterton
Field Manager

Enclosure: Survey Work Plan, WestLand Resources

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

August 10, 2021

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Ms. Bernice Paipa, Chairwoman
Iipay Nation of Santa Ysabel
P.O. Box 130
Santa Ysabel, CA 92070

Dear Chairwoman Paipa,

The Bureau of Land Management (BLM) El Centro Field Office would like to continue our consultation with you regarding the mining exploration Plan of Operations (Project) from SMP Gold Corp. to conduct exploratory drilling activities in south-eastern Imperial County. As discussed in our March 31, 2021 letter, the Project proposes new exploration at the existing Oro Cruz mine site within seven drill areas. It includes construction of approximately 2.6 miles of existing road improvements, 6.2 miles of a new 12-foot-wide temporary exploration drilling access road, 8 helicopter landing pads, and 65 drill pads to support exploration in the seven drill areas. Finally, the Project includes constructing approximately 1.8 miles of a new permanent, 15-foot-wide access road and a 2.6-acre staging area for access to the Oro Cruz Mine Portal on BLM lands. The staging area at the Oro Cruz Portal would be used for exploration within the proposed drill areas and underground mine area. Total disturbance for the project would be approximately 21 acres.

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Sincerely,

Ryan Chatterton
Field Manager

Enclosure: Survey Work Plan, WestLand Resources

United States Department of the Interior

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El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

August 10, 2021

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Ms. Erica Pinto, Chairwoman
Jamul Indian Village
P.O. Box 612
Jamul, CA 91935

Dear Chairwoman Pinto,

The Bureau of Land Management (BLM) El Centro Field Office would like to continue our consultation with you regarding the mining exploration Plan of Operations (Project) from SMP Gold Corp. to conduct exploratory drilling activities in south-eastern Imperial County. As discussed in our March 31, 2021 letter, the Project proposes new exploration at the existing Oro Cruz mine site within seven drill areas. It includes construction of approximately 2.6 miles of existing road improvements, 6.2 miles of a new 12-foot-wide temporary exploration drilling access road, 8 helicopter landing pads, and 65 drill pads to support exploration in the seven drill areas. Finally, the Project includes constructing approximately 1.8 miles of a new permanent, 15-foot-wide access road and a 2.6-acre staging area for access to the Oro Cruz Mine Portal on BLM lands. The staging area at the Oro Cruz Portal would be used for exploration within the proposed drill areas and underground mine area. Total disturbance for the project would be approximately 21 acres.

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Sincerely,

Ryan Chatterton
Field Manager

Enclosure: Survey Work Plan, WestLand Resources

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

August 10, 2021

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Ms. Carmen Lucas
Kwaaymii Laguna Band of Indians
P.O. Box 775
Pine Valley, CA 91962

Dear Ms. Lucas,

The Bureau of Land Management (BLM) El Centro Field Office would like to continue our consultation with you regarding the mining exploration Plan of Operations (Project) from SMP Gold Corp. to conduct exploratory drilling activities in south-eastern Imperial County. As discussed in our March 31, 2021 letter, the Project proposes new exploration at the existing Oro Cruz mine site within seven drill areas. It includes construction of approximately 2.6 miles of existing road improvements, 6.2 miles of a new 12-foot-wide temporary exploration drilling access road, 8 helicopter landing pads, and 65 drill pads to support exploration in the seven drill areas. Finally, the Project includes constructing approximately 1.8 miles of a new permanent, 15-foot-wide access road and a 2.6-acre staging area for access to the Oro Cruz Mine Portal on BLM lands. The staging area at the Oro Cruz Portal would be used for exploration within the proposed drill areas and underground mine area. Total disturbance for the project would be approximately 21 acres.

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Sincerely,

Ryan Chatterton
Field Manager

Enclosure: Survey Work Plan, WestLand Resources

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro, CA 92243
www.blm.gov/office/el-centro-field-office

August 10, 2021

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Ms. Gwendolyn Parada, Chairperson
La Posta Band of Kumeyaay Indians
8 Crestwood Rd.
Boulevard, CA 91905

Dear Chairperson Parada,

The Bureau of Land Management (BLM) El Centro Field Office would like to continue our consultation with you regarding the mining exploration Plan of Operations (Project) from SMP Gold Corp. to conduct exploratory drilling activities in south-eastern Imperial County. As discussed in our March 31, 2021 letter, the Project proposes new exploration at the existing Oro Cruz mine site within seven drill areas. It includes construction of approximately 2.6 miles of existing road improvements, 6.2 miles of a new 12-foot-wide temporary exploration drilling access road, 8 helicopter landing pads, and 65 drill pads to support exploration in the seven drill areas. Finally, the Project includes constructing approximately 1.8 miles of a new permanent, 15-foot-wide access road and a 2.6-acre staging area for access to the Oro Cruz Mine Portal on BLM lands. The staging area at the Oro Cruz Portal would be used for exploration within the proposed drill areas and underground mine area. Total disturbance for the project would be approximately 21 acres.

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Sincerely,

Ryan Chatterton
Field Manager

Enclosure: Survey Work Plan, WestLand Resources

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

August 10, 2021

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Ms. Angela Elliott Santos Chairwoman
Manzanita Band of Kumeyaay Indians
P.O. Box 1302
Boulevard, CA 91905

Dear Chairwoman Elliott Santos,

The Bureau of Land Management (BLM) El Centro Field Office would like to continue our consultation with you regarding the mining exploration Plan of Operations (Project) from SMP Gold Corp. to conduct exploratory drilling activities in south-eastern Imperial County. As discussed in our March 31, 2021 letter, the Project proposes new exploration at the existing Oro Cruz mine site within seven drill areas. It includes construction of approximately 2.6 miles of existing road improvements, 6.2 miles of a new 12-foot-wide temporary exploration drilling access road, 8 helicopter landing pads, and 65 drill pads to support exploration in the seven drill areas. Finally, the Project includes constructing approximately 1.8 miles of a new permanent, 15-foot-wide access road and a 2.6-acre staging area for access to the Oro Cruz Mine Portal on BLM lands. The staging area at the Oro Cruz Portal would be used for exploration within the proposed drill areas and underground mine area. Total disturbance for the project would be approximately 21 acres.

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Ryan Chatterton
Field Manager

Enclosure: Survey Work Plan, WestLand Resources

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

August 10, 2021

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Michael Linton, Chairman
Mesa Grande Band of Mission Indians
P.O. Box 270
Santa Ysabel, CA 92070

Dear Chairman Linton,

The Bureau of Land Management (BLM) El Centro Field Office would like to continue our consultation with you regarding the mining exploration Plan of Operations (Project) from SMP Gold Corp. to conduct exploratory drilling activities in south-eastern Imperial County. As discussed in our March 31, 2021 letter, the Project proposes new exploration at the existing Oro Cruz mine site within seven drill areas. It includes construction of approximately 2.6 miles of existing road improvements, 6.2 miles of a new 12-foot-wide temporary exploration drilling access road, 8 helicopter landing pads, and 65 drill pads to support exploration in the seven drill areas. Finally, the Project includes constructing approximately 1.8 miles of a new permanent, 15-foot-wide access road and a 2.6-acre staging area for access to the Oro Cruz Mine Portal on BLM lands. The staging area at the Oro Cruz Portal would be used for exploration within the proposed drill areas and underground mine area. Total disturbance for the project would be approximately 21 acres.

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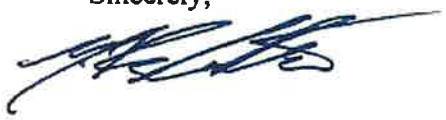

Ryan Chatterton
Field Manager

Enclosure: Survey Work Plan, WestLand Resources

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro, CA 92243
www.blm.gov/office/el-centro-field-office

August 10, 2021

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Stephen Cope, Chairman
San Pasqual Band of Diegueño Indians
P.O. Box 365
Valley Center, CA 92082

Dear Chairman Cope,

The Bureau of Land Management (BLM) El Centro Field Office would like to continue our consultation with you regarding the mining exploration Plan of Operations (Project) from SMP Gold Corp. to conduct exploratory drilling activities in south-eastern Imperial County. As discussed in our March 31, 2021 letter, the Project proposes new exploration at the existing Oro Cruz mine site within seven drill areas. It includes construction of approximately 2.6 miles of existing road improvements, 6.2 miles of a new 12-foot-wide temporary exploration drilling access road, 8 helicopter landing pads, and 65 drill pads to support exploration in the seven drill areas. Finally, the Project includes constructing approximately 1.8 miles of a new permanent, 15-foot-wide access road and a 2.6-acre staging area for access to the Oro Cruz Mine Portal on BLM lands. The staging area at the Oro Cruz Portal would be used for exploration within the proposed drill areas and underground mine area. Total disturbance for the project would be approximately 21 acres.

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Enclosure: Survey Work Plan, WestLand Resources

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

August 10, 2021

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Cody J. Martinez, Chairman
Sycuan Band of Kumeyaay Nation
1 Kwaaypaay Court
El Cajon, CA 92019

Dear Chairman Martinez,

The Bureau of Land Management (BLM) El Centro Field Office would like to continue our consultation with you regarding the mining exploration Plan of Operations (Project) from SMP Gold Corp. to conduct exploratory drilling activities in south-eastern Imperial County. As discussed in our March 31, 2021 letter, the Project proposes new exploration at the existing Oro Cruz mine site within seven drill areas. It includes construction of approximately 2.6 miles of existing road improvements, 6.2 miles of a new 12-foot-wide temporary exploration drilling access road, 8 helicopter landing pads, and 65 drill pads to support exploration in the seven drill areas. Finally, the Project includes constructing approximately 1.8 miles of a new permanent, 15-foot-wide access road and a 2.6-acre staging area for access to the Oro Cruz Mine Portal on BLM lands. The staging area at the Oro Cruz Portal would be used for exploration within the proposed drill areas and underground mine area. Total disturbance for the project would be approximately 21 acres.

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3. Added language to clarify that tribal monitors had been invited to participate in the inventory effort on page 7.

The BLM understands that WestLand has already begun contacting Tribes to request participation in the upcoming project surveys and they will continue to coordinate as fieldwork is scheduled.

The second purpose of this letter to provide clarification on the APE for the proposed Project. The APE was defined by the BLM as the entirety of the seven drill areas, all new roads, any existing roads proposed for improvements, and any non-designated BLM routes of travel that would be utilized for the Project. This totals approximately 279 acres with approximately only 21 of those acres proposed for actual construction impacts. It is our determination that there is a potential for effects beyond those 21 acres and therefore the BLM made the decision to expand the APE to the larger area as a whole and require inventory of areas within the APE not previously disturbed by past mining activities. This also allows for a greater ability to redesign roads or drilling pads in order to avoid resources. We are aware of the sensitivity of the larger Picacho Area of Critical Environmental Concern within which this project is sited and recognize that visual, auditory, or atmospheric disturbances resulting from ground disturbing activities are of concern to Tribes. We look forward to continued consultations with Tribes about cultural resources that could be affected by the proposed Project and anticipate sharing the results of the inventory and the report later this fall or early winter.

We appreciate your time and attention in reviewing this Project and welcome your input. For information or clarification about anything in this letter, or to schedule a government-to-government consultation meeting with the BLM, please contact Carrie Sahagun at csahagun@blm.gov or by phone at (760) 337-4437. I can also be reached at 760-337-4410. If you have any questions or we can provide additional clarification, please do not hesitate to contact us. Thank you for your continuing cooperation with this office.

Sincerely,

Ryan Chatterton
Field Manager

Enclosure: Survey Work Plan, WestLand Resources

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

August 10, 2021

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Thomas Tortez, Chairman
Torres-Martinez Desert Cahuilla Indians
P.O. Box 1160
Thermal, CA 92274

Dear Chairman Tortez,

The Bureau of Land Management (BLM) El Centro Field Office would like to continue our consultation with you regarding the mining exploration Plan of Operations (Project) from SMP Gold Corp. to conduct exploratory drilling activities in south-eastern Imperial County. As discussed in our March 31, 2021 letter, the Project proposes new exploration at the existing Oro Cruz mine site within seven drill areas. It includes construction of approximately 2.6 miles of existing road improvements, 6.2 miles of a new 12-foot-wide temporary exploration drilling access road, 8 helicopter landing pads, and 65 drill pads to support exploration in the seven drill areas. Finally, the Project includes constructing approximately 1.8 miles of a new permanent, 15-foot-wide access road and a 2.6-acre staging area for access to the Oro Cruz Mine Portal on BLM lands. The staging area at the Oro Cruz Portal would be used for exploration within the proposed drill areas and underground mine area. Total disturbance for the project would be approximately 21 acres.

The purpose of this current letter is twofold. First, please find enclosed the final cultural resources survey work plan prepared by WestLand Resources (WestLand) in cooperation with ASM Affiliates titled, *A Cultural Resources Survey Work Plan for the Proposed Oro Cruz Exploration Project, Imperial County, California.* Our prior letter requested review and comment on the work plan and the document has been revised in the following ways:

1. Clarified explanation of the survey areas and areas of potential effect (APE) on pages 22-23, and 28-30.

2. Additional ethnographic information added to the Cultural Context section on pages 10-13.

3. Added language to clarify that tribal monitors had been invited to participate in the inventory effort on page 7.

The BLM understands that WestLand has already begun contacting Tribes to request participation in the upcoming project surveys and they will continue to coordinate as fieldwork is scheduled.

The second purpose of this letter to provide clarification on the APE for the proposed Project. The APE was defined by the BLM as the entirety of the seven drill areas, all new roads, any existing roads proposed for improvements, and any non-designated BLM routes of travel that would be utilized for the Project. This totals approximately 279 acres with approximately only 21 of those acres proposed for actual construction impacts. It is our determination that there is a potential for effects beyond those 21 acres and therefore the BLM made the decision to expand the APE to the larger area as a whole and require inventory of areas within the APE not previously disturbed by past mining activities. This also allows for a greater ability to redesign roads or drilling pads in order to avoid resources. We are aware of the sensitivity of the larger Picacho Area of Critical Environmental Concern within which this project is sited and recognize that visual, auditory, or atmospheric disturbances resulting from ground disturbing activities are of concern to Tribes. We look forward to continued consultations with Tribes about cultural resources that could be affected by the proposed Project and anticipate sharing the results of the inventory and the report later this fall or early winter.

We appreciate your time and attention in reviewing this Project and welcome your input. For information or clarification about anything in this letter, or to schedule a government-to-government consultation meeting with the BLM, please contact Carrie Sahagun at csahagun@blm.gov or by phone at (760) 337-4437. I can also be reached at 760-337-4410. If you have any questions or we can provide additional clarification, please do not hesitate to contact us. Thank you for your continuing cooperation with this office.

Sincerely,

Ryan Chatterton
Field Manager

Enclosure: Survey Work Plan, WestLand Resources

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

August 10, 2021

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. John Christman, Chairman
Viejas Band of Kumeyaay Indians
P.O. Box 908
Alpine, CA 91903-0908

Dear Chairman Christman,

The Bureau of Land Management (BLM) El Centro Field Office would like to continue our consultation with you regarding the mining exploration Plan of Operations (Project) from SMP Gold Corp. to conduct exploratory drilling activities in south-eastern Imperial County. As discussed in our March 31, 2021 letter, the Project proposes new exploration at the existing Oro Cruz mine site within seven drill areas. It includes construction of approximately 2.6 miles of existing road improvements, 6.2 miles of a new 12-foot-wide temporary exploration drilling access road, 8 helicopter landing pads, and 65 drill pads to support exploration in the seven drill areas. Finally, the Project includes constructing approximately 1.8 miles of a new permanent, 15-foot-wide access road and a 2.6-acre staging area for access to the Oro Cruz Mine Portal on BLM lands. The staging area at the Oro Cruz Portal would be used for exploration within the proposed drill areas and underground mine area. Total disturbance for the project would be approximately 21 acres.

The purpose of this current letter is twofold. First, please find enclosed the final cultural resources survey work plan prepared by WestLand Resources (WestLand) in cooperation with ASM Affiliates titled, *A Cultural Resources Survey Work Plan for the Proposed Oro Cruz Exploration Project, Imperial County, California.* Our prior letter requested review and comment on the work plan and the document has been revised in the following ways:

1. Clarified explanation of the survey areas and areas of potential effect (APE) on pages 22-23, and 28-30.

2. Additional ethnographic information added to the Cultural Context section on pages 10-13.

3. Added language to clarify that tribal monitors had been invited to participate in the inventory effort on page 7.

The BLM understands that WestLand has already begun contacting Tribes to request participation in the upcoming project surveys and they will continue to coordinate as fieldwork is scheduled.

The second purpose of this letter to provide clarification on the APE for the proposed Project. The APE was defined by the BLM as the entirety of the seven drill areas, all new roads, any existing roads proposed for improvements, and any non-designated BLM routes of travel that would be utilized for the Project. This totals approximately 279 acres with approximately only 21 of those acres proposed for actual construction impacts. It is our determination that there is a potential for effects beyond those 21 acres and therefore the BLM made the decision to expand the APE to the larger area as a whole and require inventory of areas within the APE not previously disturbed by past mining activities. This also allows for a greater ability to redesign roads or drilling pads in order to avoid resources. We are aware of the sensitivity of the larger Picacho Area of Critical Environmental Concern within which this project is sited and recognize that visual, auditory, or atmospheric disturbances resulting from ground disturbing activities are of concern to Tribes. We look forward to continued consultations with Tribes about cultural resources that could be affected by the proposed Project and anticipate sharing the results of the inventory and the report later this fall or early winter.

We appreciate your time and attention in reviewing this Project and welcome your input. For information or clarification about anything in this letter, or to schedule a government-to-government consultation meeting with the BLM, please contact Carrie Sahagun at csahagun@blm.gov or by phone at (760) 337-4437. I can also be reached at 760-337-4410. If you have any questions or we can provide additional clarification, please do not hesitate to contact us. Thank you for your continuing cooperation with this office.

Sincerely,

Ryan Chatterton
Field Manager

Enclosure: Survey Work Plan, WestLand Resources

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro, CA 92243
www.blm.gov/office/el-centro-field-office

August 10, 2021

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Preston Arrow-weed
Ah-Mut Pipa Foundation
P. O. Box 160
Bard, CA 92222

Dear Mr. Arrow-weed,

The Bureau of Land Management (BLM) El Centro Field Office would like to initiate consultation with you regarding the mining exploration Plan of Operations (Project) from SMP Gold Corp. to conduct exploratory drilling activities in south-eastern Imperial County. The Project proposes new exploration at the existing Oro Cruz mine site within seven drill areas. It includes construction of approximately 2.6 miles of existing road improvements, 6.2 miles of a new 12-foot-wide temporary exploration drilling access road, 8 helicopter landing pads, and 65 drill pads to support exploration in the seven drill areas. Finally, the Project includes constructing approximately 1.8 miles of a new permanent, 15-foot-wide access road and a 2.6-acre staging area for access to the Oro Cruz Mine Portal on BLM lands. The staging area at the Oro Cruz Portal would be used for exploration within the proposed drill areas and underground mine area. Total disturbance for the project would be approximately 21 acres.

The purpose of this current letter is twofold. First, please find enclosed the final cultural resources survey work plan prepared by WestLand Resources (WestLand) in cooperation with ASM Affiliates titled, *A Cultural Resources Survey Work Plan for the Proposed Oro Cruz Exploration Project, Imperial County, California.* An earlier version of the survey work plan had been previously sent to consulting parties and for their review and comment and the document has been revised in the following ways:

1. Clarified explanation of the survey areas and areas of potential effect (APE) on pages 22-23, and 28-30.

2. Additional ethnographic information added to the Cultural Context section on pages 10-13.

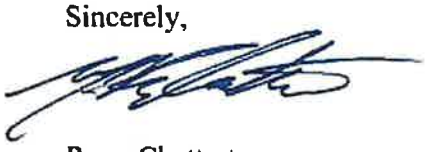
3. Added language to clarify that tribal monitors had been invited to participate in the inventory effort on page 7.

The BLM understands that WestLand has already begun contacting Tribes to request participation in the upcoming project surveys and they will continue to coordinate as fieldwork is scheduled.

The second purpose of this letter to provide clarification on the APE for the proposed Project. The APE was defined by the BLM as the entirety of the seven drill areas, all new roads, any existing roads proposed for improvements, and any non-designated BLM routes of travel that would be utilized for the Project. This totals approximately 279 acres with approximately only 21 of those acres proposed for actual construction impacts. It is our determination that there is a potential for effects beyond those 21 acres and therefore the BLM made the decision to expand the APE to the larger area as a whole and require inventory of areas within the APE not previously disturbed by past mining activities. This also allows for a greater ability to redesign roads or drilling pads in order to avoid resources. We are aware of the sensitivity of the larger Picacho Area of Critical Environmental Concern within which this project is sited and recognize that visual, auditory, or atmospheric disturbances resulting from ground disturbing activities are of concern to Tribes. We look forward to continued consultations with Tribes and consulting parties about cultural resources that could be affected by the proposed Project and anticipate sharing the results of the inventory and the report later this fall or early winter.

We appreciate your time and attention in reviewing this Project and welcome your input. For information or clarification about anything in this letter, or to schedule a consultation meeting with the BLM, please contact Carrie Sahagun at csahagun@blm.gov or by phone at (760) 337-4437. I can also be reached at 760-337-4410. If you have any questions or we can provide additional clarification, please do not hesitate to contact us. Thank you for your continuing cooperation with this office.

Sincerely,



Ryan Chatterton
Field Manager

Enclosure: Survey Work Plan, WestLand Resources

Attachment 11

BLM
Email(s) with the Fort Yuma-Quechan Indian Tribe
August 11, 2021

RE: [EXTERNAL] RE: Government-to-Government Consultation Follow-up - SMP Plan of Operations

Quechan Historic Preservation Officer <historicpreservation@quechantribe.com>
Wed 8/11/2021 3:14 PM

To: Chatterton, Michael (Ryan) <mrchatterton@blm.gov>
Cc: Sahagun, Carrie L <csahagun@blm.gov>

Thank you for the response Ryan. I will discuss this with Council later this week and get back with you with any addi onal informa on we may want to provide, ques ons, and if we would like to schedule a mee ng to discuss things further.

From: Chatterton, Michael (Ryan) [mailto:mrchatterton@blm.gov]
Sent: Wednesday, August 11, 2021 2:18 PM
To: Quechan Historic Preservation Officer
Cc: Sahagun, Carrie L
Subject: Re: [EXTERNAL] RE: Government-to-Government Consultation Follow-up - SMP Plan of Operations

Hi Jill,
Appreciate you ge. ng back to me and am certainly happy to provide more clarifica on. I'd like to give you an update first, however. Yesterday we mailed out the finalized work plan for the SMP Gold Oro Cruz mining explora on project to consul ng par es, including all Tribes. I expect Carrie to be emailing a digital copy of our letter and the work plan later today. As to what specific informa on we were reques□ng regarding the APE, it was clarifica on from the Tribe as to as to how the project ac vi es may poten□ally affect the prac ces and/or specific resources of the Quechan Indian Tribe in order to aid in our determina□ons as to whether poten□al visual, auditory or atmospheric effects are encompassed by the current APE or if it should be expanded. Your April 21 letter objected to the BLM's current APE determina□on. If you have addi onal informa□on to provide, we would s ll take that into considera□on even though we have finalized the work plan.

Also, did you have any follow up ques ons on the SMP informa on that we shared on Friday, July 30? We would be happy to schedule a virtual call or mee□ng with the BLM or SMP or both to discuss. We are looking forward to con nuing our consulta ons with the Tribe on this project and sharing the results of the inventory later this fall.

Thanks very much for your me Jill.

Michael (Ryan) Chatterton
Field Manager, El Centro Field Office
Bureau of Land Management, California
Department of the Interior, Region 8
760-337-4410 Office

From: Quechan Historic Preserva□on Officer <historicpreserva on@quechantribe.com>
Sent: Wednesday, August 11, 2021 7:20 AM
To: Chatterton, Michael (Ryan) <mrchatterton@blm.gov>
Subject: [EXTERNAL] RE: Government-to-Government Consulta on Follow-up - SMP Plan of Opera□ons

This email has been received from outside of DOI - Use caution before clicking on links, opening

attachments, or responding.

Good morning Ryan,
Thank you for the email. Sorry for the delayed response, but we have been having issues with our internet and email systems due to the recent series of storms that have been occurring. I wanted to follow up with you regarding your email and ask what specific informa□on are you reques ng? I believe that we discussed the APE in our last mee ng with the BLM, so I am not sure exactly what specific informa on that BLM is reques□ng for us to provide. Can you please provide some clarity on what exactly you are reques ng from the Tribe?

Jill

From: Chatterton, Michael (Ryan) R [mailto:mrchatterton@blm.gov]
Sent: Friday, July 30, 2021 3:11 PM
To: Jordan D. Joaquin, President
Cc: Jill McCormick; Sahagun, Carrie L
Subject: Government-to-Government Consultation Follow-up - SMP Plan of Operations

Dear President Joaquin,

During our government-to-government consulta on mee ng on July 12, 2021, in regards to SMP's Plan of Opera on, the Quechan tribe requested informa□on on the reasonably foreseeable developments for this project. The attached letter is a response from SMP to the BLM in reference to the requested informa□on. The BLM is only sharing informa□on provided by SMP and the letter is not meant to represent the perspec□ve of the BLM in anyway.

I would also like to follow up on the BLM's request to the tribe at the mee□ng for a recommenda on on the area of poten al effect for the SMP Plan of Opera□ons. Ms. McCormick requested two weeks to provide addi onal feedback. We are hoping to finalize the cultural work plan early next week. We also acknowledge and appreciate the tribe's prior no□fica on that this project is located within a general area that the tribe attaches great cultural, religious, and spiritual significance to and would appreciate input on the loca ons where this project has to poten al to cause impacts both directly and indirectly.

Thanks,
Michael (Ryan) Chatterton
Field Manager, El Centro Field Office
Bureau of Land Management, California
Department of the Interior, Region 8
760-337-4410 Office

Virus-free. www.avast.com

Attachment 12

BLM
Email(s) with the Viejas Band of Kumeyaay Indians
August 12, 2021

Re: [EXTERNAL] RE: Continuation of consultation on SMP Gold Oro Cruz mining exploration project

Sahagun, Carrie L <csahagun@blm.gov>

Thu 8/12/2021 10:32 AM

To: Ray Teran <rteran@viejas-nsn.gov>; John Christman <JChristman@viejas-nsn.gov>; Ernest Pingleton <epingleton@viejas-nsn.gov>; Uyen Le <ULe@VIEJAS.com>
Cc: Chatterton, Michael (Ryan) <mrchatterton@blm.gov>

Thank you very much Ray. We will incorporate these comments into the project and make sure to keep the Tribe updated.
Take care-

Carrie L. Sahagun
Assistant Field Manager
BLM El Centro Field Of ice
1661 S. 4th Street
El Centro, CA 92243
(760) 337-4437
USDI, Region 8

From: Ray Teran <rteran@viejas-nsn.gov>
Sent: Thursday, August 12, 2021 9:19 AM
To: Sahagun, Carrie L <csahagun@blm.gov>; John Christman <JChristman@viejas-nsn.gov>; Ernest Pingleton <epingleton@viejas-nsn.gov>; Uyen Le <ULe@VIEJAS.com>
Cc: Cha erton, Michael (Ryan) <mrcha erton@blm.gov>
Subject: [EXTERNAL] RE: Con nua on of consulta on on SMP Gold Oro Cruz mining explora on project

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

The Viejas Band of Kumeyaay Indians ("Viejas") has reviewed the proposed project and at this me we have determined that the project site has cultural significance or es to Viejas. Cultural resources have been located within or adjacent to the APE-DE of the proposed project.

Viejas Band request that a Kumeyaay Cultural Monitor be on site for ground disturbing ac vi es and to inform us of any new developments such as inadvertent discovery of cultural ar facts, crema on sites, or human remains.

If you wish to u lize Viejas cultural monitors (Viejas rate is $54.15/hr. plus GSA mileage), please call Ernest Pingleton at 619-655-0410 or email, epingleton@viejas-nsn.gov, for contrac ng and scheduling. Thank you.

If a Tribe, having a closer proximity to the Project, requests to perform cultural monitoring, Viejas will differ to them.

From: Sahagun, Carrie L [mailto:csahagun@blm.gov]
Sent: Wednesday, August 11, 2021 4:31 PM
To: John Christman <JChristman@viejas-nsn.gov>; Ray Teran <rteran@viejas-nsn.gov>; Ernest Pingleton <epingleton@viejas-nsn.gov>; Uyen Le <ULe@VIEJAS.com>
Cc: Cha erton, Michael (Ryan) <mrcha erton@blm.gov>
Subject: Con nua on of consulta on on SMP Gold Oro Cruz mining explora on project

Dear Chairman Christman, Ms. Le, Ray and Chuka,
I hope this email finds you all well. Please find a ached a copy of our le er, sent yesterday, con nuing consulta on on the SMP Gold Oro Cruz mining explora on project. I've also a ached a digital copy of the inventory work plan that was included. If you have any ques ons, please let us know and we would also be glad to schedule a government-to-government mee ng with you at a me that is convenient.
Thanks very much,
-Carrie

Carrie L. Sahagun
Assistant Field Manager
BLM El Centro Field Of ice
1661 S. 4th Street
El Centro, CA 92243
(760) 337-4437
USDI, Region 8

Attachment 13

BLM
Email(s) with the San Pasqual Band of Mission Indians
August 13, 2021

[EXTERNAL] Oro Cruz

Angelina Gutierrez <angelinag@sanpasqualtribe.org>

Fri 8/13/2021 1:42 PM

To: Sahagun, Carrie L <csahagun@blm.gov>
Cc: John Flores <JohnF@sanpasqualtribe.org>; Desiree Morales Whitman <Desireem@sanpasqualtribe.org>

1 attachments (174 KB)
Oro Cruz .pdf;

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Mis Sahagun,
Please see a ach file.

Regards,

Angelina Gutierrez
THPO Monitor Supervisor
San Pasqual Environmental Department
angelinag@sanpasqualtribe.org
Phone (760) 651-5219
Cell: (760) 803-5648

IPAI

SAN PASQUAL BAND OF MISSION INDIANS

SAN PASQUAL RESRVATION

TRIBAL COUNCIL

Stephen W. Cope
Tribal Chairman

Justin Quis Quis
Vice Chairman

Jenny Alto
Secretary-Treasurer

Roberta Cameron
Councilmember

Melody S. Arviso
Councilmember

July 13, 2021

Carrie Sanagun
United States Department of the Interior
Bureau of Land Management
El Centro Field Office
1661 S.4th Street
El Centro, Ca. 92243

RE: CACA-053124/CR CA-670-21-003/8100(P) Ca670.25

Dear Mis. Sahagun,

The San Pasqual Band of Mission Indians Tribal Historic Preservation Office has received your notification of the project referenced above. This letter constitutes our response on behalf of Desiree Morales Whitman THPO Officer.

We have consulted our maps and determined that the project as described is not within the boundaries of the recognized San Pasqual Indian Reservation. It is, however, within the boundaries of the territory that the tribe considers its Traditional Use Area (TUA). Furthermore, we would like to engage in consultation under Section 106 of the NHPA so that San Pasqual can have a voice in the developing the measures that will be taken to protect these sites and mitigate any adverse impacts. We would appreciate being given access to any cultural resource reports that have been or will be generated during the environmental review process so we can contribute most effectively to the consultation process.

We appreciate involvement with your initiative and look forward to working with you on future efforts. If you have questions or need additional information, please do not hesitate to contact me by telephone 760-803-5648 or by e-mail at Angelinag@sanpasqualtribe.org and please CC: THPO@sanpasqualtribe.org

Respectfully,

Angelina Gutierrez

Angelina Gutierrez
Tribal Historic Preservation Office, Monitor Supervisor
San Pasqual Band of Mission Indians

Attachment 14

BLM
Email(s) to Previously Notified Tribes Regarding NEPA Public Scoping
March 4, 2022

News release: BLM seeks public input on proposed mineral exploration project- SMP Corp Oro Cruz

Sahagun, Carrie L <csahagun@blm.gov>

Fri 3/4/2022 11:39 AM

Cc: Martinez, Mayra Y <mymartinez@blm.gov>; Chatterton, Michael (Ryan) <mrchatterton@blm.gov>; Day, Grant L <gday@blm.gov>

Bcc: counciloffice@barona-nsn.gov <counciloffice@barona-nsn.gov>; marcuscuero@campo-nsn.gov <marcuscuero@campo-nsn.gov>; Johnathan Mesa <jmesa@campo-nsn.gov>; jbrundin@cocopah.com <jbrundin@cocopah.com>; tafoyal@cocopah.com <tafoyal@cocopah.com>; Tashina Harper Executive Assistant <tashina.harper@crit-nsn.gov>; critthpo@crit-nsn.gov <critthpo@crit-nsn.gov>; Robert Pinto <rpinto@leaningrock.net>; Michael Garcia <michaelg@leaningrock.net>; Jill McCormick <historicpreservation@quechantribe.com>; Jordan D. Joaquin, President <president@quechantribe.com>; Bernice Paipa <bpaipa@iipaynation-nsn.gov>; Erica M. Pinto <epinto@jiv-nsn.gov>; Lisa Cumper <lcumper@jiv-nsn.gov>; Gwendolyn Parada <lp13boots@aol.com>; Gwendolyn Parada <gparada@lptribe.net>; Stephen Rochester <sbr@rocketmail.com>; Angela Elliott Santos <aelliottsantos7@aol.com>; Lisa Haws <lisahaws@msn.com>; Johnny EagleSpirit <johnny@eagle-spirit.us>

Dear Tribal leaders,
With this email I wanted to con nue to keep you informed about the status of the SMP Gold Corp. Oro Cruz mining explora on project. Today the BLM is ini a ng a 30 day public scoping period in accordance with the Na onal Environmental Policy Act. The BLM will u lize the public input as part of prepara on of an environmental assessment for the proposed project. Please let us know if you have any ques ons, comments or would like to schedule a government-to-government consulta on mee ng.

Please find below the news release about the scoping period. It also contains links to the project website.
Thanks very much,
Carrie

Carrie L. Sahagun
Assistant Field Manager
BLM El Centro Field Of ice
1661 S. 4th Street
El Centro, CA 92243
(760) 337-4437
USDI, Region 8

U.S. Department of the Interior
Bureau of Land Management

News Release

BLM California Desert District
Media Contact: Kate Miyamoto, 720-768-6729, kmiyamoto@blm.gov
March 4, 2022

BLM seeks public input on proposed mineral exploration project

EL CENTRO, Calif. — The Bureau of Land Management El Centro Field Office is initiating an environmental review and seeking public input on a proposal from Southern Empire Resources Corporation to conduct mineral exploration for gold at the Oro Cruz Pit Area in Cargo Muchacho Mountains in Imperial County.

The proposed project includes approximately two miles of existing road improvements and construction of 6.2 miles of new roads, up to eight helicopter landing pads, 65 drill pads, and a 2.8 acre staging area. The proposed exploration activities would occur within the Picacho Area of Critical Environmental Concern, approximately seven miles north of Ogilby. The surface disturbance on BLM-managed land from the proposed exploration activities is approximately 20.5 acres.

The environmental review will analyze potential impacts to the natural, cultural and recreation resources from the proposed exploration activities. Public input should identify the following: specific concerns; potential alternatives that should be considered and why; references or information that should be considered in the environmental analysis; or sources of credible research. More information about the project is available on ePlanning: https://go.usa.gov/xzg7a.

Public input on the proposed project is due by April 4. Public comments may be submitted through the ePlanning website listed above; by email to mymartinez@blm.gov; by fax at 760-337-4490, Attn: Mayra Martinez; or by mail to Bureau of Land Management, Attn: Mayra Martinez, 1661 S 4th St., El Centro, CA 92243.

Before including an address, phone number, email address or other personally identifiable information in a comment, members of the public should be aware that the entire comment, including personally identifiable information, could be made publicly available at any time. While the public may ask the BLM to withhold personally identifiable information from public review, the BLM cannot guarantee it will be able to do so.

-BLM-

The BLM manages more than 245 million acres of public land located primarily in 12 western states, including Alaska, on behalf of the American people. The BLM also administers 700 million acres of sub-surface mineral estate throughout the nation. Our mission is to sustain the health, diversity, and productivity of America's public lands for the use and enjoyment of present and future generations.

El Centro Field Office, 1661 S 4th Street, El Centro, CA 92243
Follow the BLM on Twitter, Facebook, and Flickr @BLMCA and @BLMCalifornia

Kate Miyamoto
Acting Public Affairs Specialist
California Desert District - Bureau of Land Management
office: 303-239-3668
work cell: 720-768-6729

Attachment 15

BLM
3rd Letter to Sixteen Tribes Requesting Continued Section 106 Consultation
August 25, 2022

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

August 25, 2022

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.24

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Ms. Amelia Flores, Chairwoman
Colorado River Indian Tribes
26600 Mohave Rd.
Parker, AZ 85344

Dear Chairwoman Flores,

The Bureau of Land Management (BLM) El Centro Field Office (ECFO) would like to continue our government-to-government consultation with you pursuant to Section 106 of the National Historic Preservation Act and other relevant laws and regulations regarding the SMP Gold Corp. (SMP) proposed project to conduct exploratory drilling activities in south-eastern Imperial County[1]. The purpose of this letter is to:

1) provide an updated area of potential effect (APE) determination,
2) provide the cultural resources Class III inventory report for this project for your review,
3) to invite you or your designated representative(s) to attend a Section 106 consulting parties field site visit of the proposed project area on September 20, 2022,
4) to invite you or your designated representative(s) to attend a Section 106 consulting parties virtual meeting to present the results of the cultural resources investigations on September 21, 2022,
5) to reiterate our invitation and request to engage in government-to-government consultation with the Tribe on this Project.

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Section 106 consultation on this project was initiated with Tribes in March 2021 about the project, APE determination and the work plan for cultural resources field work. Based on comments provided, in August 2021 the BLM clarified the APE and revised the work plan and provided this to consulting parties. The BLM also notified Tribes that they would be invited to participate in the upcoming inventory which was scheduled for the fall of 2021. Consultation with individual Tribes on the project continued and the BLM continued to receive input about the potential for the project to cause visual, auditory, or atmospheric (VAA) effects.

Upon review and consideration of the comments received from Tribes and the State Historic

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Stantec conducted a viewshed analysis in ArcGIS software using center points of project's seven proposed drill areas and a height of 40 ft, the tallest height of the drilling equipment. The extent to which the human eye can generally distinguish the drill equipment from the surrounding background was determined to be about 1 mile on average (Hockaday 2022b). The extent of potential auditory effects was delineated by creating noise contours in a noise modeling software (SoundPlan) to detail the furthest distance in miles where potential project noise, with two drill rigs running at once, would attenuate to an imperceptible level. The extent of the potential auditory effects incorporates the furthest noise contour where noise would attenuate to a nearly inaudible level to the human ear; approximately 1.7 miles to the west of the project area (Hockaday 2022a). Based on the results of these visual and auditory studies a VAA APE was delineated that extends up to 1.7 miles to the west and approximately 1 mile to the east.

The BLM has determined that the total project APE consists of two components: the Physical Effects APE and the Visual, Auditory Assessment (VAA) APE described above. A map depicting the total project APE and its components is enclosed (Map, Enclosure 1); this map can also be found in the Class III Cultural Resources Inventory Report referenced below.
The Physical Effects APE includes all ground disturbing activities such as access roads, fencing, drill pads, helicopter landing pads, and staging areas (Map: blue hash lines areas). The VAA APE was determined using sound and visual studies of the area to determine the extents of which historic properties may be affected by the sounds and sights of the drilling and exploratory activities (Map: pink shaded areas).

Class III Cultural Resources Inventory Report

A public version of the Class III cultural resources inventory report titled, *Class III Cultural Resource Inventory for the Oro Cruz Exploration Project, Imperial County, California* (Report), is enclosed for your review and comment (Enclosure 2). If you would like a copy of the confidential appendix, please contact BLM El Centro Archaeologist, Grant Day (contact information below). This report documents the results of the field work that was conducted as well as the results of the VAA analysis of potential effects to cultural resources. A summary of the findings and recommendations of the contractor are provided below.

Project has the potential to physically affect approximately 279 acres of BLM-managed land in Imperial County, California. However, the review of previous cultural resources projects, mining records, and modern aerial imagery indicated that approximately 75 acres of the proposed Physical Effects APE were subjected to previous severe mining disturbances related to the operations of the American Girl Mining Project, the Golden Queen Mine Complex, the Golden Cross Mine Complex, and the Oro Cruz Portal (BLM 1994b; Burney et al. 1993; Rozelle 2010). Of the remaining 204 acres of the proposed Physical Effects APE, approximately 81 acres were located in steep terrain with slopes greater than 30 percent. The remaining 123 acres were subjected to an intensive pedestrian survey at 15-meter intervals (Map: green shaded areas). Much of the overall project area has been impacted by historic mining activities and most of the archaeological sites recorded within the Physical Effects APE are mining related. Two sites were not mining related: a trail segment (CA-IMP-1469) and a small ceramic sherd site (CA-IMP-

13336). The TUMCO historic mining site (CA-IMP-3297/3300/3302) is the only site within the APE that has been determined eligible for the National Register of Historic Places. Avoidance of all archaeological sites, regardless of their status has been recommended for this project; fencing and periodic archaeological monitoring have been recommended for resources located near existing and proposed roads and ground disturbing activity areas.

Twenty-five cultural prehistoric resources, that may be in continued use by Native American Tribes, were identified within the VAA APE and are discussed within the Report. Most of the sites are far enough away from the Project areas, the Physical Effects APE, and the proposed helicopter drill sites that they would fall within the noise level contours of ~40-35 dBa L_{eq} or lower, which would be the equivalent of a suburban residential area at night. The closest of the 25 selected sites is 630 meters (2,067 feet) away from the APE for physical effects, and the others are between 950 and 2565 meters (3,117 and 8,415 feet) away. The contractor recommends that the proposed project would not be likely to have an adverse auditory effect on the integrity of the setting or feeling of the 25 selected sites within the VAA APE. The BLM continues to request your assistance in identifying and resolving potential impacts to cultural sites by the proposed project, including identifying sacred sites and places of traditional religious and cultural significance which could be affected or that are near the proposed project areas.

We are in the process of preparing our formal determinations of eligibility and findings of effect for this project and seek your input on the updated APE determination and the Report recommendations. We ask that you provide your input or any additional information that would be relevant to the cultural resources within the Project APE by October 3, 2022. This should allow sufficient time to review the Report and if desired attend the field site visit and/or the virtual presentation discussed below.

Field Site Visit of the Project Area, Tuesday, September 20, 2022

To facilitate consultation on this project, the BLM would like to invite you or your designated representative(s) to attend a Section 106 consulting parties site visit to the proposed project area. The BLM, in coordination with SMP representatives and archaeologists from ASM Affiliates, will tour and discuss portions of the project area. This will also be an opportunity to discuss avoidance measures, monitoring protocol, and discovery procedures. **Please note that this trip will involve hiking in potentially rough (off-trail) areas. Please wear field boots and proper clothing for hiking in rocky and uneven desert terrain (this is not a driving tour).** We welcome your participation in this field visit. In consideration of the ongoing COVID-19 pandemic, we remind individuals to take the appropriate actions: wear a mask or face covering (currently not required), maintain social distancing, and wash hands frequently and/or use hand sanitizer. The site visit is scheduled for the morning of **Tuesday, September 20, 2022.** We plan to meet at **9:00 AM**, just north of the intersection of Ogilby Road and the Union Pacific railroad tracks (about 4.0 miles north of Interstate 8 on Ogilby Road). Please RSVP for this fieldtrip with Grant Day (contact information below). Mr. Day can also provide additional meeting directions/instructions upon request.

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To facilitate the Section 106 consultation, the BLM would also like to invite you or a designated representative(s) to attend a consulting parties virtual meeting on the results of the Class III investigations conducted by ASM Affiliates. This online presentation and discussion is

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Sincerely,

Vicki L. Wood
Acting Field Manager

Enclosure:

1. Map: SMP Project APE
2. *Class III Cultural Resource Inventory for the Oro Cruz Exploration Project, Imperial County, California, (ASM Affiliates, Inc. August 2022)*

Citations:

Hockaday, Shelby

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United States Department of the Interior

BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

August 25, 2022

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.24

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Marcus Cuero, Chairman
Campo Band of Mission Indians
36190 Church Road, Suite 1
Campo, CA 91906

Dear Chairman Cuero,

The Bureau of Land Management (BLM) El Centro Field Office (ECFO) would like to continue our government-to-government consultation with you pursuant to Section 106 of the National Historic Preservation Act and other relevant laws and regulations regarding the SMP Gold Corp. (SMP) proposed project to conduct exploratory drilling activities in south-eastern Imperial County[1]. The purpose of this letter is to:

1) provide an updated area of potential effect (APE) determination,
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Upon review and consideration of the comments received from Tribes and the State Historic

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Preservation Office (SHPO), the BLM ECFO asked its third-party contractor, Stantec Inc., to assess and determine the extents of the visual and auditory effects of the proposed drilling operations.

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BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

August 25, 2022

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.24

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Raymond Welch, Chairman
Barona Band of Mission Indians
1095 Barona Road
Lakeside, CA 92040

Dear Chairman Welch,

The Bureau of Land Management (BLM) El Centro Field Office (ECFO) would like to continue our government-to-government consultation with you pursuant to Section 106 of the National Historic Preservation Act and other relevant laws and regulations regarding the SMP Gold Corp. (SMP) proposed project to conduct exploratory drilling activities in south-eastern Imperial County[1]. The purpose of this letter is to:

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United States Department of the Interior

BUREAU OF LAND MANAGEMENT
El Centro Field Office
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August 25, 2022

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.24

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Robert Pinto, Sr., Chairman
Ewiiaapaayp Band of Kumeyaay Indians
4054 Willows Road
Alpine, CA 91901

Dear Chairman Pinto,

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Project has the potential to physically affect approximately 279 acres of BLM-managed land in Imperial County, California. However, the review of previous cultural resources projects, mining records, and modern aerial imagery indicated that approximately 75 acres of the proposed Physical Effects APE were subjected to previous severe mining disturbances related to the operations of the American Girl Mining Project, the Golden Queen Mine Complex, the Golden Cross Mine Complex, and the Oro Cruz Portal (BLM 1994b; Burney et al. 1993; Rozelle 2010). Of the remaining 204 acres of the proposed Physical Effects APE, approximately 81 acres were located in steep terrain with slopes greater than 30 percent. The remaining 123 acres were subjected to an intensive pedestrian survey at 15-meter intervals (Map: green shaded areas). Much of the overall project area has been impacted by historic mining activities and most of the archaeological sites recorded within the Physical Effects APE are mining related. Two sites were not mining related: a trail segment (CA-IMP-1469) and a small ceramic sherd site (CA-IMP-

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Twenty-five cultural prehistoric resources, that may be in continued use by Native American Tribes, were identified within the VAA APE and are discussed within the Report. Most of the sites are far enough away from the Project areas, the Physical Effects APE, and the proposed helicopter drill sites that they would fall within the noise level contours of ~40-35 dBa L_{eq} or lower, which would be the equivalent of a suburban residential area at night. The closest of the 25 selected sites is 630 meters (2,067 feet) away from the APE for physical effects, and the others are between 950 and 2565 meters (3,117 and 8,415 feet) away. The contractor recommends that the proposed project would not be likely to have an adverse auditory effect on the integrity of the setting or feeling of the 25 selected sites within the VAA APE. The BLM continues to request your assistance in identifying and resolving potential impacts to cultural sites by the proposed project, including identifying sacred sites and places of traditional religious and cultural significance which could be affected or that are near the proposed project areas.

We are in the process of preparing our formal determinations of eligibility and findings of effect for this project and seek your input on the updated APE determination and the Report recommendations. We ask that you provide your input or any additional information that would be relevant to the cultural resources within the Project APE by October 3, 2022. This should allow sufficient time to review the Report and if desired attend the field site visit and/or the virtual presentation discussed below.

Field Site Visit of the Project Area, Tuesday, September 20, 2022

To facilitate consultation on this project, the BLM would like to invite you or your designated representative(s) to attend a Section 106 consulting parties site visit to the proposed project area. The BLM, in coordination with SMP representatives and archaeologists from ASM Affiliates, will tour and discuss portions of the project area. This will also be an opportunity to discuss avoidance measures, monitoring protocol, and discovery procedures. **Please note that this trip will involve hiking in potentially rough (off-trail) areas. Please wear field boots and proper clothing for hiking in rocky and uneven desert terrain (this is not a driving tour).** We welcome your participation in this field visit. In consideration of the ongoing COVID-19 pandemic, we remind individuals to take the appropriate actions: wear a mask or face covering (currently not required), maintain social distancing, and wash hands frequently and/or use hand sanitizer. The site visit is scheduled for the morning of **Tuesday, September 20, 2022.** We plan to meet at **9:00 AM**, just north of the intersection of Ogilby Road and the Union Pacific railroad tracks (about 4.0 miles north of Interstate 8 on Ogilby Road). Please RSVP for this fieldtrip with Grant Day (contact information below). Mr. Day can also provide additional meeting directions/instructions upon request.

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Sincerely,

Vicki L. Wood
Acting Field Manager

Enclosure:

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United States Department of the Interior

BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

August 25, 2022

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.24

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Ms. Gwendolyn Parada, Chairperson
La Posta Band of Kumeyaay Indians
8 Crestwood Rd.
Boulevard, CA 91905

Dear Chairperson Parada,

The Bureau of Land Management (BLM) El Centro Field Office (ECFO) would like to continue our government-to-government consultation with you pursuant to Section 106 of the National Historic Preservation Act and other relevant laws and regulations regarding the SMP Gold Corp. (SMP) proposed project to conduct exploratory drilling activities in south-eastern Imperial County[1]. The purpose of this letter is to:

1) provide an updated area of potential effect (APE) determination,
2) provide the cultural resources Class III inventory report for this project for your review,
3) to invite you or your designated representative(s) to attend a Section 106 consulting parties field site visit of the proposed project area on September 20, 2022,
4) to invite you or your designated representative(s) to attend a Section 106 consulting parties virtual meeting to present the results of the cultural resources investigations on September 21, 2022,
5) to reiterate our invitation and request to engage in government-to-government consultation with the Tribe on this Project.

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Upon review and consideration of the comments received from Tribes and the State Historic

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August 25, 2022

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.24

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Ms. Angela Elliott Santos, Chairwoman
Manzanita Band of Kumeyaay Indians
P.O. Box 1302
Boulevard, CA 91905

Dear Chairwoman Santos,

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August 25, 2022

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.24

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Ms. Bernice Paipa, Chairwoman
Iipay Nation of Santa Ysabel
P.O. Box 130
Santa Ysabel, CA 92070

Dear Chairwoman Paipa,

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Project has the potential to physically affect approximately 279 acres of BLM-managed land in Imperial County, California. However, the review of previous cultural resources projects, mining records, and modern aerial imagery indicated that approximately 75 acres of the proposed Physical Effects APE were subjected to previous severe mining disturbances related to the operations of the American Girl Mining Project, the Golden Queen Mine Complex, the Golden Cross Mine Complex, and the Oro Cruz Portal (BLM 1994b; Burney et al. 1993; Rozelle 2010). Of the remaining 204 acres of the proposed Physical Effects APE, approximately 81 acres were located in steep terrain with slopes greater than 30 percent. The remaining 123 acres were subjected to an intensive pedestrian survey at 15-meter intervals (Map: green shaded areas). Much of the overall project area has been impacted by historic mining activities and most of the archaeological sites recorded within the Physical Effects APE are mining related. Two sites were not mining related: a trail segment (CA-IMP-1469) and a small ceramic sherd site (CA-IMP-

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Twenty-five cultural prehistoric resources, that may be in continued use by Native American Tribes, were identified within the VAA APE and are discussed within the Report. Most of the sites are far enough away from the Project areas, the Physical Effects APE, and the proposed helicopter drill sites that they would fall within the noise level contours of ~40-35 dBa L_{eq} or lower, which would be the equivalent of a suburban residential area at night. The closest of the 25 selected sites is 630 meters (2,067 feet) away from the APE for physical effects, and the others are between 950 and 2565 meters (3,117 and 8,415 feet) away. The contractor recommends that the proposed project would not be likely to have an adverse auditory effect on the integrity of the setting or feeling of the 25 selected sites within the VAA APE. The BLM continues to request your assistance in identifying and resolving potential impacts to cultural sites by the proposed project, including identifying sacred sites and places of traditional religious and cultural significance which could be affected or that are near the proposed project areas.

We are in the process of preparing our formal determinations of eligibility and findings of effect for this project and seek your input on the updated APE determination and the Report recommendations. We ask that you provide your input or any additional information that would be relevant to the cultural resources within the Project APE by October 3, 2022. This should allow sufficient time to review the Report and if desired attend the field site visit and/or the virtual presentation discussed below.

Field Site Visit of the Project Area, Tuesday, September 20, 2022

To facilitate consultation on this project, the BLM would like to invite you or your designated representative(s) to attend a Section 106 consulting parties site visit to the proposed project area. The BLM, in coordination with SMP representatives and archaeologists from ASM Affiliates, will tour and discuss portions of the project area. This will also be an opportunity to discuss avoidance measures, monitoring protocol, and discovery procedures. **Please note that this trip will involve hiking in potentially rough (off-trail) areas. Please wear field boots and proper clothing for hiking in rocky and uneven desert terrain (this is not a driving tour).** We welcome your participation in this field visit. In consideration of the ongoing COVID-19 pandemic, we remind individuals to take the appropriate actions: wear a mask or face covering (currently not required), maintain social distancing, and wash hands frequently and/or use hand sanitizer. The site visit is scheduled for the morning of **Tuesday, September 20, 2022.** We plan to meet at **9:00 AM,** just north of the intersection of Ogilby Road and the Union Pacific railroad tracks (about 4.0 miles north of Interstate 8 on Ogilby Road). Please RSVP for this fieldtrip with Grant Day (contact information below). Mr. Day can also provide additional meeting directions/instructions upon request.

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Sincerely,

Vicki L. Wood
Acting Field Manager

Enclosure:

1. Map: SMP Project APE
2. *Class III Cultural Resource Inventory for the Oro Cruz Exploration Project, Imperial County, California, (ASM Affiliates, Inc. August 2022)*

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United States Department of the Interior

BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

August 25, 2022

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.24

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Ms. Erica Pinto, Chairwoman
Jamul Indian Village
P.O. Box 612
Jamul, CA 91935

Dear Chairwoman Pinto,

The Bureau of Land Management (BLM) El Centro Field Office (ECFO) would like to continue our government-to-government consultation with you pursuant to Section 106 of the National Historic Preservation Act and other relevant laws and regulations regarding the SMP Gold Corp. (SMP) proposed project to conduct exploratory drilling activities in south-eastern Imperial County[1]. The purpose of this letter is to:

1) provide an updated area of potential effect (APE) determination,
2) provide the cultural resources Class III inventory report for this project for your review,
3) to invite you or your designated representative(s) to attend a Section 106 consulting parties field site visit of the proposed project area on September 20, 2022,
4) to invite you or your designated representative(s) to attend a Section 106 consulting parties virtual meeting to present the results of the cultural resources investigations on September 21, 2022,
5) to reiterate our invitation and request to engage in government-to-government consultation with the Tribe on this Project.

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Upon review and consideration of the comments received from Tribes and the State Historic

[1] Formal letters providing information about the project and requesting government-to-government consultation were sent to the Tribal government with copies to staff dated March 31, 2021 and August 10, 2021.

Preservation Office (SHPO), the BLM ECFO asked its third-party contractor, Stantec Inc., to assess and determine the extents of the visual and auditory effects of the proposed drilling operations.

Stantec conducted a viewshed analysis in ArcGIS software using center points of project's seven proposed drill areas and a height of 40 ft, the tallest height of the drilling equipment. The extent to which the human eye can generally distinguish the drill equipment from the surrounding background was determined to be about 1 mile on average (Hockaday 2022b). The extent of potential auditory effects was delineated by creating noise contours in a noise modeling software (SoundPlan) to detail the furthest distance in miles where potential project noise, with two drill rigs running at once, would attenuate to an imperceptible level. The extent of the potential auditory effects incorporates the furthest noise contour where noise would attenuate to a nearly inaudible level to the human ear; approximately 1.7 miles to the west of the project area (Hockaday 2022a). Based on the results of these visual and auditory studies a VAA APE was delineated that extends up to 1.7 miles to the west and approximately 1 mile to the east.

The BLM has determined that the total project APE consists of two components: the Physical Effects APE and the Visual, Auditory Assessment (VAA) APE described above. A map depicting the total project APE and its components is enclosed (Map, Enclosure 1); this map can also be found in the Class III Cultural Resources Inventory Report referenced below.
The Physical Effects APE includes all ground disturbing activities such as access roads, fencing, drill pads, helicopter landing pads, and staging areas (Map: blue hash lines areas). The VAA APE was determined using sound and visual studies of the area to determine the extents of which historic properties may be affected by the sounds and sights of the drilling and exploratory activities (Map: pink shaded areas).

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United States Department of the Interior

BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
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www.blm.gov/office/el-centro-field-office

August 25, 2022

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.24

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Stephen Cope, Chairman
San Pasqual Band of Diegueño Indians
P.O. Box 365
Valley Center, CA 92082

Dear Chairman Cope,

The Bureau of Land Management (BLM) El Centro Field Office (ECFO) would like to continue our government-to-government consultation with you pursuant to Section 106 of the National Historic Preservation Act and other relevant laws and regulations regarding the SMP Gold Corp. (SMP) proposed project to conduct exploratory drilling activities in south-eastern Imperial County[1]. The purpose of this letter is to:

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August 25, 2022

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.24

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Michael Linton, Chairman
Mesa Grande Band of Mission Indians
P.O. Box 270
Santa Ysabel, CA 92070

Dear Chairman Linton,

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We are in the process of preparing our formal determinations of eligibility and findings of effect for this project and seek your input on the updated APE determination and the Report recommendations. We ask that you provide your input or any additional information that would be relevant to the cultural resources within the Project APE by October 3, 2022. This should allow sufficient time to review the Report and if desired attend the field site visit and/or the virtual presentation discussed below.

Field Site Visit of the Project Area, Tuesday, September 20, 2022

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Sincerely,

Vicki L. Wood
Acting Field Manager

Enclosure:

1. Map: SMP Project APE
2. *Class III Cultural Resource Inventory for the Oro Cruz Exploration Project, Imperial County, California. (ASM Affiliates, Inc. August 2022)*

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United States Department of the Interior

BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

August 25, 2022

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.24

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Thomas Tortez, Chairman
Torres-Martinez Desert Cahuilla Indians
P.O. Box 1160
Thermal, CA 92274

Dear Chairman Tortez,

The Bureau of Land Management (BLM) El Centro Field Office (ECFO) would like to continue our government-to-government consultation with you pursuant to Section 106 of the National Historic Preservation Act and other relevant laws and regulations regarding the SMP Gold Corp. (SMP) proposed project to conduct exploratory drilling activities in south-eastern Imperial County[1]. The purpose of this letter is to:

1) provide an updated area of potential effect (APE) determination,
2) provide the cultural resources Class III inventory report for this project for your review,
3) to invite you or your designated representative(s) to attend a Section 106 consulting parties field site visit of the proposed project area on September 20, 2022,
4) to invite you or your designated representative(s) to attend a Section 106 consulting parties virtual meeting to present the results of the cultural resources investigations on September 21, 2022,
5) to reiterate our invitation and request to engage in government-to-government consultation with the Tribe on this Project.

Updated APE Determination

Section 106 consultation on this project was initiated with Tribes in March 2021 about the project, APE determination and the work plan for cultural resources field work. Based on comments provided, in August 2021 the BLM clarified the APE and revised the work plan and provided this to consulting parties. The BLM also notified Tribes that they would be invited to participate in the upcoming inventory which was scheduled for the fall of 2021. Consultation with individual Tribes on the project continued and the BLM continued to receive input about the potential for the project to cause visual, auditory, or atmospheric (VAA) effects.

Upon review and consideration of the comments received from Tribes and the State Historic

[1] Formal letters providing information about the project and requesting government-to-government consultation were sent to the Tribal government with copies to staff dated March 31, 2021 and August 10, 2021.

Preservation Office (SHPO), the BLM ECFO asked its third-party contractor, Stantec Inc., to assess and determine the extents of the visual and auditory effects of the proposed drilling operations.

Stantec conducted a viewshed analysis in ArcGIS software using center points of project's seven proposed drill areas and a height of 40 ft, the tallest height of the drilling equipment. The extent to which the human eye can generally distinguish the drill equipment from the surrounding background was determined to be about 1 mile on average (Hockaday 2022b). The extent of potential auditory effects was delineated by creating noise contours in a noise modeling software (SoundPlan) to detail the furthest distance in miles where potential project noise, with two drill rigs running at once, would attenuate to an imperceptible level. The extent of the potential auditory effects incorporates the furthest noise contour where noise would attenuate to a nearly inaudible level to the human ear; approximately 1.7 miles to the west of the project area (Hockaday 2022a). Based on the results of these visual and auditory studies a VAA APE was delineated that extends up to 1.7 miles to the west and approximately 1 mile to the east.

The BLM has determined that the total project APE consists of two components: the Physical Effects APE and the Visual, Auditory Assessment (VAA) APE described above. A map depicting the total project APE and its components is enclosed (Map, Enclosure 1); this map can also be found in the Class III Cultural Resources Inventory Report referenced below.
The Physical Effects APE includes all ground disturbing activities such as access roads, fencing, drill pads, helicopter landing pads, and staging areas (Map: blue hash lines areas). The VAA APE was determined using sound and visual studies of the area to determine the extents of which historic properties may be affected by the sounds and sights of the drilling and exploratory activities (Map: pink shaded areas).

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Project has the potential to physically affect approximately 279 acres of BLM-managed land in Imperial County, California. However, the review of previous cultural resources projects, mining records, and modern aerial imagery indicated that approximately 75 acres of the proposed Physical Effects APE were subjected to previous severe mining disturbances related to the operations of the American Girl Mining Project, the Golden Queen Mine Complex, the Golden Cross Mine Complex, and the Oro Cruz Portal (BLM 1994b; Burney et al. 1993; Rozelle 2010). Of the remaining 204 acres of the proposed Physical Effects APE, approximately 81 acres were located in steep terrain with slopes greater than 30 percent. The remaining 123 acres were subjected to an intensive pedestrian survey at 15-meter intervals (Map: green shaded areas). Much of the overall project area has been impacted by historic mining activities and most of the archaeological sites recorded within the Physical Effects APE are mining related. Two sites were not mining related: a trail segment (CA-IMP-1469) and a small ceramic sherd site (CA-IMP-

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Sincerely,

Vicki L. Wood
Acting Field Manager

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August 25, 2022

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.24

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Cody J. Martinez, Chairman
Sycuan Band of Kumeyaay Nation
1 Kwaaypaay Court
El Cajon, CA 92019

Dear Chairman Martinez,

The Bureau of Land Management (BLM) El Centro Field Office (ECFO) would like to continue our government-to-government consultation with you pursuant to Section 106 of the National Historic Preservation Act and other relevant laws and regulations regarding the SMP Gold Corp. (SMP) proposed project to conduct exploratory drilling activities in south-eastern Imperial County[1]. The purpose of this letter is to:

1) provide an updated area of potential effect (APE) determination,
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August 25, 2022

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.24

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Ms. Sherry Cordova
Chairperson
Cocopah Indian Tribe
14515 S. Veterans Dr.
Somerton, AZ 85350

Dear Chairperson Cordova,

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Sincerely,

Vicki L. Wood
Acting Field Manager

Enclosure:

1. Map: SMP Project APE
2. *Class III Cultural Resource Inventory for the Oro Cruz Exploration Project, Imperial County, California, (ASM Affiliates, Inc. August 2022)*

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Hockaday, Shelby

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United States Department of the Interior

BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

August 25, 2022

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.24

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Ms. Carmen Lucas
Kwaaymii Laguna Band of Indians
P.O. Box 775
Pine Valley, CA 91962

Dear Ms. Lucas,

The Bureau of Land Management (BLM) El Centro Field Office (ECFO) would like to continue our consultation with you regarding the SMP Gold Corp. (SMP) proposed project to conduct exploratory drilling activities in south-eastern Imperial County[1]. The purpose of this letter is to:

1) provide an updated area of potential effect (APE) determination,
2) provide the cultural resources Class III inventory report for this project for your review,
3) to invite you or your designated representative(s) to attend a Section 106 consulting parties field site visit of the proposed project area on September 20, 2022,
4) to invite you or your designated representative(s) to attend a Section 106 consulting parties virtual meeting to present the results of the cultural resources investigations on September 21, 2022,
5) to reiterate our invitation and request to engage in government-to-government consultation with the Tribe on this Project.

Updated APE Determination

Consultation on this project was initiated in March 2021 about the project, APE determination and the work plan for cultural resources field work. Based on comments provided, in August 2021 the BLM clarified the APE and revised the work plan and provided this to consulting parties. The BLM also notified Tribes that they would be invited to participate in the upcoming inventory which was scheduled for the fall of 2021. Consultation on the project continued and the BLM continued to receive input about the potential for the project to cause visual, auditory, or atmospheric (VAA) effects.

Upon review and consideration of the comments received from Tribes and the State Historic Preservation Office (SHPO), the BLM ECFO asked its third-party contractor, Stantec Inc., to assess and determine the extents of the visual and auditory effects of the proposed drilling

[1] Formal letters providing information about the project consultation were sent March 31, 2021 and August 10, 2021.

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Stantec conducted a viewshed analysis in ArcGIS software using center points of project's seven proposed drill areas and a height of 40 ft, the tallest height of the drilling equipment. The extent to which the human eye can generally distinguish the drill equipment from the surrounding background was determined to be about 1 mile on average (Hockaday 2022b). The extent of potential auditory effects was delineated by creating noise contours in a noise modeling software (SoundPlan) to detail the furthest distance in miles where potential project noise, with two drill rigs running at once, would attenuate to an imperceptible level. The extent of the potential auditory effects incorporates the furthest noise contour where noise would attenuate to a nearly inaudible level to the human ear; approximately 1.7 miles to the west of the project area (Hockaday 2022a). Based on the results of these visual and auditory studies a VAA APE was delineated that extends up to 1.7 miles to the west and approximately 1 mile to the east.

The BLM has determined that the total project APE consists of two components: the Physical Effects APE and the Visual, Auditory Assessment (VAA) APE described above. A map depicting the total project APE and its components is enclosed (Map, Enclosure 1); this map can also be found in the Class III Cultural Resources Inventory Report referenced below.
The Physical Effects APE includes all ground disturbing activities such as access roads, fencing, drill pads, helicopter landing pads, and staging areas (Map: blue hash lines areas). The VAA APE was determined using sound and visual studies of the area to determine the extents of which historic properties may be affected by the sounds and sights of the drilling and exploratory activities (Map: pink shaded areas).

Class III Cultural Resources Inventory Report

A public version of the Class III cultural resources inventory report titled, *Class III Cultural Resource Inventory for the Oro Cruz Exploration Project, Imperial County, California* (Report), is enclosed for your review and comment (Enclosure 2). If you would like a copy of the confidential appendix, please contact BLM El Centro Archaeologist, Grant Day (contact information below). This report documents the results of the field work that was conducted as well as the results of the VAA analysis of potential effects to cultural resources. A summary of the findings and recommendations of the contractor are provided below.

Project has the potential to physically affect approximately 279 acres of BLM-managed land in Imperial County, California. However, the review of previous cultural resources projects, mining records, and modern aerial imagery indicated that approximately 75 acres of the proposed Physical Effects APE were subjected to previous severe mining disturbances related to the operations of the American Girl Mining Project, the Golden Queen Mine Complex, the Golden Cross Mine Complex, and the Oro Cruz Portal (BLM 1994b; Burney et al. 1993; Rozelle 2010). Of the remaining 204 acres of the proposed Physical Effects APE, approximately 81 acres were located in steep terrain with slopes greater than 30 percent. The remaining 123 acres were subjected to an intensive pedestrian survey at 15-meter intervals (Map: green shaded areas). Much of the overall project area has been impacted by historic mining activities and most of the archaeological sites recorded within the Physical Effects APE are mining related. Two sites were not mining related: a trail segment (CA-IMP-1469) and a small ceramic sherd site (CA-IMP-13336). The TUMCO historic mining site (CA-IMP-3297/3300/3302) is the only site within the APE that has been determined eligible for the National Register of Historic Places. Avoidance of

all archaeological sites, regardless of their status has been recommended for this project; fencing and periodic archaeological monitoring have been recommended for resources located near existing and proposed roads and ground disturbing activity areas.

Twenty-five cultural prehistoric resources, that may be in continued use by Native American Tribes, were identified within the VAA APE and are discussed within the Report. Most of the sites are far enough away from the Project areas, the Physical Effects APE, and the proposed helicopter drill sites that they would fall within the noise level contours of ~40-35 dBa L_{eq} or lower, which would be the equivalent of a suburban residential area at night. The closest of the 25 selected sites is 630 meters (2,067 feet) away from the APE for physical effects, and the others are between 950 and 2565 meters (3,117 and 8,415 feet) away. The contractor recommends that the proposed project would not be likely to have an adverse auditory effect on the integrity of the setting or feeling of the 25 selected sites within the VAA APE. The BLM continues to request your assistance in identifying and resolving potential impacts to cultural sites by the proposed project, including identifying sacred sites and places of traditional religious and cultural significance which could be affected or that are near the proposed project areas.

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Vicki L. Wood
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August 25, 2022

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.24

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. John Christman, Chairman
Viejas Band of Kumeyaay Indians
P.O. Box 908
Alpine, CA 91903-0908

Dear Chairman Christman,

The Bureau of Land Management (BLM) El Centro Field Office (ECFO) would like to continue our government-to-government consultation with you pursuant to Section 106 of the National Historic Preservation Act and other relevant laws and regulations regarding the SMP Gold Corp. (SMP) proposed project to conduct exploratory drilling activities in south-eastern Imperial County[1]. The purpose of this letter is to:

1) provide an updated area of potential effect (APE) determination,
2) provide the cultural resources Class III inventory report for this project for your review,
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Upon review and consideration of the comments received from Tribes and the State Historic

[1] Formal letters providing information about the project and requesting government-to-government consultation were sent to the Tribal government with copies to staff dated March 31, 2021 and August 10, 2021.

Preservation Office (SHPO), the BLM ECFO asked its third-party contractor, Stantec Inc., to assess and determine the extents of the visual and auditory effects of the proposed drilling operations.

Stantec conducted a viewshed analysis in ArcGIS software using center points of project's seven proposed drill areas and a height of 40 ft, the tallest height of the drilling equipment. The extent to which the human eye can generally distinguish the drill equipment from the surrounding background was determined to be about 1 mile on average (Hockaday 2022b). The extent of potential auditory effects was delineated by creating noise contours in a noise modeling software (SoundPlan) to detail the furthest distance in miles where potential project noise, with two drill rigs running at once, would attenuate to an imperceptible level. The extent of the potential auditory effects incorporates the furthest noise contour where noise would attenuate to a nearly inaudible level to the human ear; approximately 1.7 miles to the west of the project area (Hockaday 2022a). Based on the results of these visual and auditory studies a VAA APE was delineated that extends up to 1.7 miles to the west and approximately 1 mile to the east.

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Vicki L. Wood
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August 25, 2022

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.24

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Jordan D. Joaquin, President
Fort Yuma Quechan Indian Tribe
P.O. Box 1899
Yuma, AZ 85366-1899

Dear President Joaquin,

The Bureau of Land Management (BLM) El Centro Field Office (ECFO) would like to continue our government-to-government consultation with you pursuant to Section 106 of the National Historic Preservation Act and other relevant laws and regulations regarding the SMP Gold Corp. (SMP) proposed project to conduct exploratory drilling activities in south-eastern Imperial County[1]. The purpose of this letter is to:

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Vicki L. Wood
Acting Field Manager

Enclosure:

1. Map: SMP Project APE
2. *Class III Cultural Resource Inventory for the Oro Cruz Exploration Project, Imperial County, California, (ASM Affiliates, Inc. August 2022)*

Citations:

Hockaday, Shelby

2022a *Noise Modeling for Indirect Auditory Area of Potential Effect*. Copies available from Stantec Consulting Services Inc., Elko, NV.

2022b *Viewshed Analysis for Indirect Visual Area of Potential Effect*. Copies available from Stantec Consulting Services Inc., Elko, NV.

Attachment 16

BLM
Email(s) with the Viejas Band of Kumeyaay Indians
September 7, 2022

[EXTERNAL] RE: CA-670-21-003 SMP Gold Corp. -exploratory drilling -eastern Imperial County, CA

Ray Teran <rteran@viejas-nsn.gov>
Wed 9/7/2022 9:29 AM
To: Day, Grant L <gday@blm.gov>
Cc: Uyen Le <ULe@VIEJAS.com>;Ernest Pingleton <epingleton@viejas-nsn.gov>

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

The Viejas Band of Kumeyaay Indians ("Viejas") has reviewed the proposed project and at this time we have determined that the project site has cultural significance or ties to Viejas. Cultural resources have been located within or adjacent to the APE-DE of the proposed project.

Viejas Band request that a Kumeyaay Cultural Monitor be on site for ground disturbing activities and to inform us of any new developments such as inadvertent discovery of cultural artifacts, cremation sites, or human remains.

If you wish to utilize Viejas cultural monitors (Viejas rate is $54.15/hr. plus GSA mileage), please call Ernest Pingleton at 619-655-0410 or email, epingleton@viejas-nsn.gov, for contracting and scheduling. Thank you.

If a Tribe, having a closer proximity to the Project, requests to perform cultural monitoring, Viejas will differ to them.

From: Uyen Le <ULe@VIEJAS.com>
Sent: Wednesday, September 7, 2022 8:21 AM
To: Ernest Pingleton <epingleton@viejas-nsn.gov>; Ray Teran <rteran@viejas-nsn.gov>
Subject: FW: CA-670-21-003 SMP Gold Corp. -exploratory drilling -eastern Imperial County, CA

From: Day, Grant L <gday@blm.gov>
Sent: Tuesday, September 6, 2022 5:31 PM
Cc: Sahagun, Carrie L <csahagun@blm.gov>; Mar nez, Mayra Y <mymar nez@blm.gov>
Subject: CA-670-21-003 SMP Gold Corp. -exploratory drilling -eastern Imperial County, CA

Caution! This message was sent from outside your organization.

Dear Tribes,

This email is to confirm receipt of a le er the BLM El Centro Field Office sent out about the SMP Gold Corp. proposed project to conduct exploratory drilling ac vi es in south-eastern Imperial County; the le er was dated August 25, 2022. The purpose of that le er was to:

1. provide an updated area of poten al effect (APE) determina on,
2. provide the cultural resources Class III inventory report for this project for your review,
3. to invite you or your designated representa ve(s) to a end a Sec on 106 consul ng par es field site visit of the proposed project area on September 20, 2022, (start 9am)
4. to invite you or your designated representa ve(s) to a end a Sec on 106 consul ng par es virtual mee ng to present the results of the cultural resources inves ga ons on September 21, 2022, (9:00am -10:30am)
5. to reiterate our invita on and request to engage in government-to-government consulta on with the Tribe on this Project.

A general copy of that le er is a ached. Enclosures included a map showing the project APE and a copy of the Class III Cultural Resources Inventory report. Due to the size of the Class III report it has not been included with this email, but a copy of the map showing the project APE is a ached. If you did not receive this le er or if you have ques ons about these materials, or would like to schedule a mee ng with the BLM, please contact Grant Day at gday@blm.gov or by phone at (760) 337-4473.

Thank-you,
Grant

Grant L. Day
Archaeologist
BLM El Centro Field Of ice
1661 S. 4th Street
El Centro, CA 92243
(760) 337-4473
USDI, Region 8

Attachment 17

BLM
Email(s)/Letter(s) with the San Pasqual Band of Mission Indians
September 9, 2022

[EXTERNAL] CACA-059124/CR CA-670-21-003/8100

Angelina Gutierrez <angelinag@sanpasqualtribe.org>

Fri 9/9/2022 10:59 AM

To: Day, Grant L <gday@blm.gov>

Cc: Desiree Morales Whitman <Desireem@sanpasqualtribe.org>;John Flores <JohnF@sanpasqualtribe.org>

1 attachments (222 KB)

CACA-059124 CR Ca-670-21-003 8100.pdf;

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Please see a ached file thank you.

Respectfully,

Angelina Gutierrez
Tribal Historic Preservation Office-Monitor Supervisor
San Pasqual Environmental Department
angelinag@sanpasqualtribe.org
Phone (760) 651-5219
Cell: (760) 803-5648

IPAI

SAN PASQUAL BAND OF MISSION INDIANS

SAN PASQUAL RESERVATION

TRIBAL COUNCIL

Stephen W. Cope
Chairman

Justin Quis Quis
Vice Chairman

Jenny Alto
Secretary-Treasurer

Roberta Cameron
Councilman

Melody S. Arviso
Councilman

September 9, 2022

United State Department of the Interior
Bureau of Land Management
1661 S. 4th Street
El Centro CA 92243

RE: CACA-059124/CR Ca-670-21-003/8100

Dear Mrs. Wood,

The San Pasqual Band of Mission Indians Tribal Historic Preservation Office has received your notification of the project referenced above. This letter constitutes our response on behalf of Desiree M. Whitman THPO of the San Pasqual Band of Diegueno Indians.

We have consulted our maps and determined that the project as described is not within the boundaries of the recognized San Pasqual Indian Reservation. It is, however, within the boundaries of the territory that the tribe considers its Traditional Use Area (TUA). Furthermore, As the project progresses, we would like to engage in formal government-to-government consultation under AB-52. So that San Pasqual can have a voice in the development of the measures that will be taken to protect these sites and mitigate any adverse impacts. We would appreciate being given access to any cultural resource reports that have been or will be generated during the environmental review process so we can contribute most effectively to the consultation process.

We appreciate your involvement with your initiative and look forward to working with you on future efforts. If you have questions or need additional information, please do not hesitate to contact me by telephone at 760-651-5142 or angelinag@sanpasqualtribe.org

Sincerely,

Angelina Gutierrez

Angelina Gutierrez
Tribal Historic Preservation Office, Deputy THPO/Monitor Supervisor
San Pasqual Band of Mission Indians

Attachment 18

BLM
Email(s) to Previously Notified Tribes Regarding Site Tour
September 19, 2022

From: Day, Grant L
To: Sahagun, Carrie L
Cc: Martinez, Mayra Y
Subject: CA-670-21-003 SMP Gold Corp. -exploratory drilling -eastern Imperial County, CA
Date: Monday, September 19, 2022 12:57:47 PM
Attachments: Maps showing meeting location.pdf
Aerials showing meeting location.pdf

All,

I have attached a series of maps and aerials showing the meeting location for tomorrow's field tour. Let me know if you have any questions. The site visit is scheduled for tomorrow morning (Tuesday, September 20, 2022). We plan to meet at 9:00 AM, just north of the intersection of Ogilby Road and the Union Pacific railroad tracks (about 4.0 miles north of Interstate 8 on Ogilby Road).

The BLM, in coordination with SMP representatives and archaeologists from ASM Affiliates, will tour and discuss portions of the project area. This will also be an opportunity to discuss avoidance measures, monitoring protocol, and discovery procedures. Please note that this trip will involve hiking in potentially rough (off-trail) areas. Please wear field boots and proper clothing for hiking in rocky and uneven desert terrain (this is not a driving tour). We welcome your participation in this field visit. In consideration of the ongoing COVID-19 pandemic, we remind individuals to take the appropriate actions: wear a mask or face covering (currently not required), maintain social distancing, and wash hands frequently and/or use hand sanitizer.

Looking forward to seeing you all tomorrow.

Thank-you,
Grant

Grant L. Day
Archaeologist
BLM El Centro Field Office
1661 S. 4th Street
El Centro, CA 92243
(760) 337-4473
USDI, Region 8

Wildlife Refuge
North Algodones Dunes Wilderness...
Glamis
Orita
Sandia
Holtville
Colorado River
Martinez Lake
Bard
Winterhaven
Buckshot
Avenue B and C
Los Algodones
Yuma
El Prado Estates
Layers
Google
Map data ©2022 Google, INEGI
United States
Terms
Privacy
Send feedback
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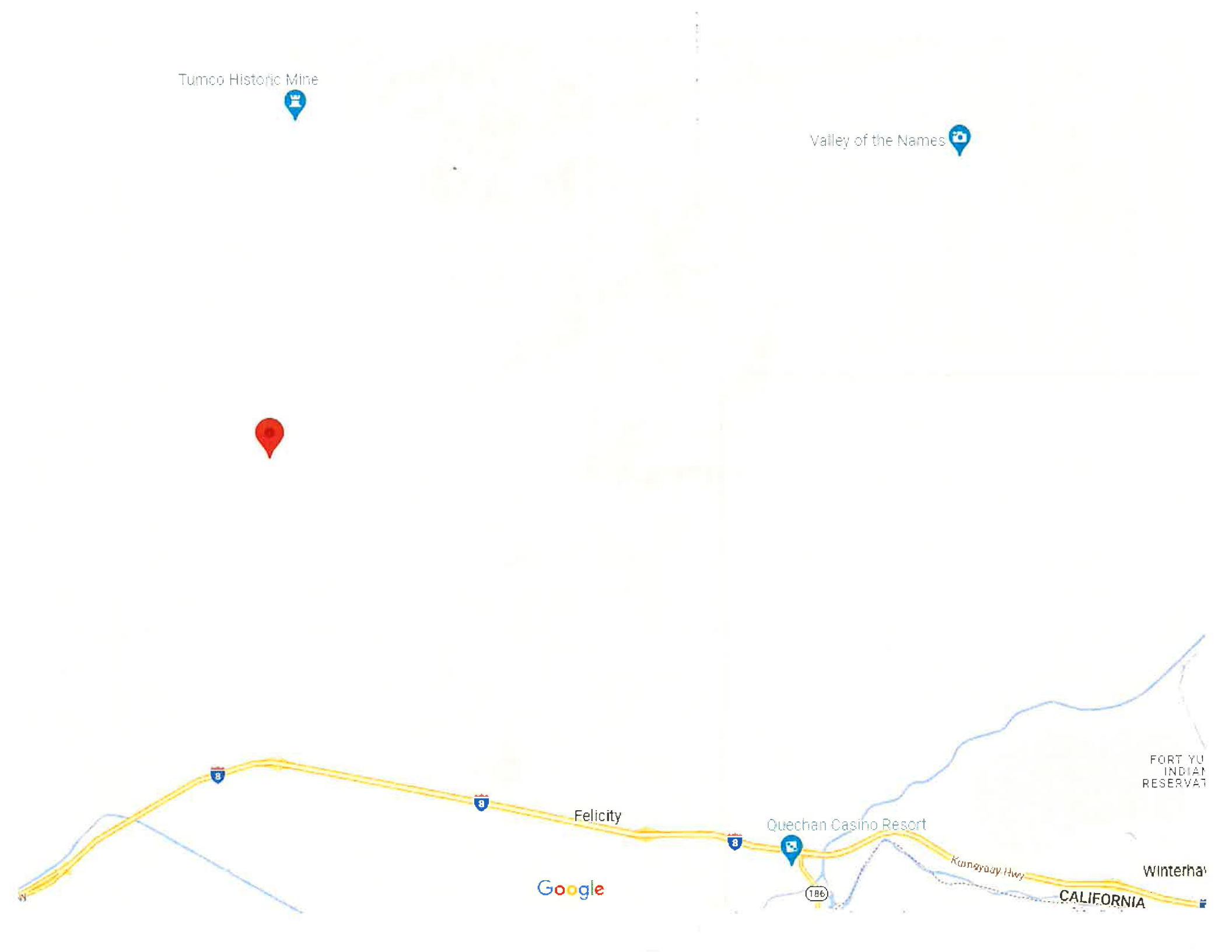
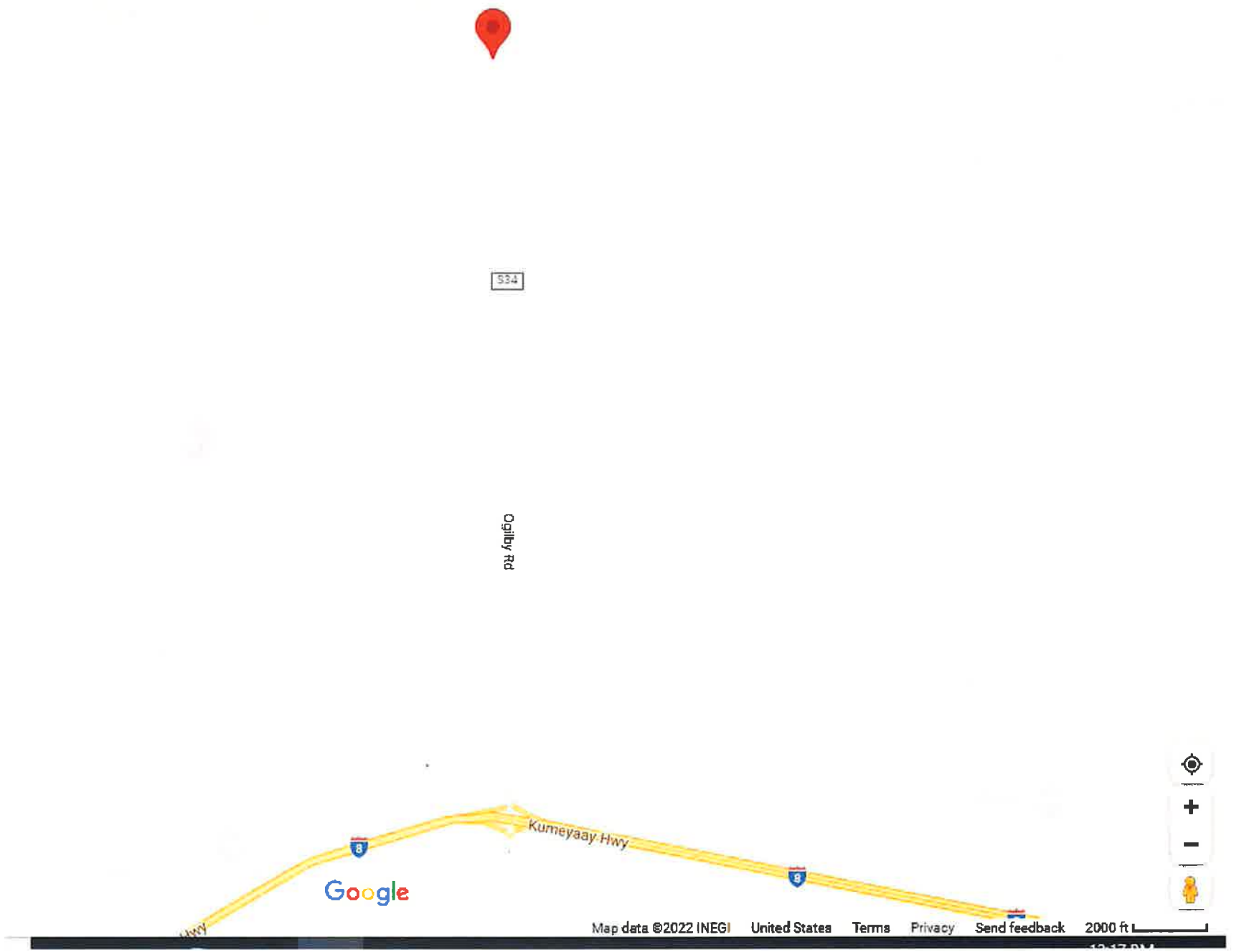

Tumco Historic Mine
Valley of the Names
Felicity
Quechan Casino Resort
Kumeyaay Hwy
186
CALIFORNIA
Google


534
Ogilby Rd
Kumeyaay Hwy
8
9
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United States
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Send feedback
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Ogilby Rd
S34
Ogilby Rd
S34
Ogilby Rd
Side Winder Rd
Side Winder Rd
Google
Map data ©2022
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Terms
Privacy
Send feedback
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North Algodones Dunes Wilderness...
Glamis
Colorado River
Martinez Lake
Hovley
Orita
Sandia
Holtville
Bard
Winterhaven
Buckshot
Los Algodones
Avenue B and C
El Prado Estates
Yuma
Calexico
Fortuna Foothills
Mexicali
Islas Agrarias Grupo A
Ejido Lazaro Cardenas
Ciudad Morelos
Somerton
El Edén
Puebla
Tecolotes
Ejido Sinaloa
Ejido Queretaro
Batáquez
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Imagery ©2022 TerraMetrics, Map data ©2022 Google, INEGI
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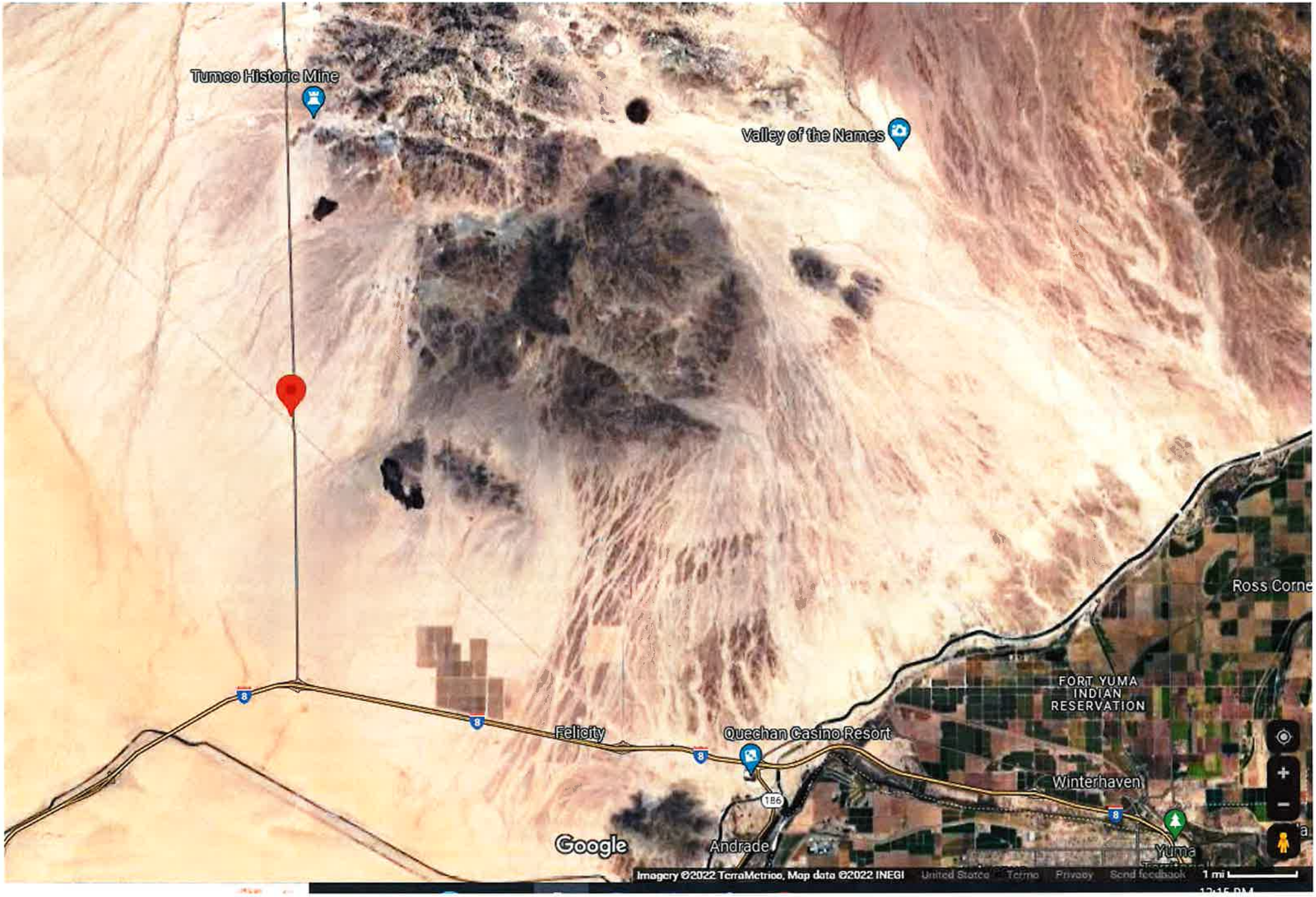
Tumco Historic Mine
Valley of the Names
Ross Corne
FORT YUMA
INDIAN
RESERVATION
Felicity
Quechan Casino Resort
Winterhaven
Andrade
Yuma
Google
Imagery ©2022 TerraMetrics, Map data ©2022 INEGI
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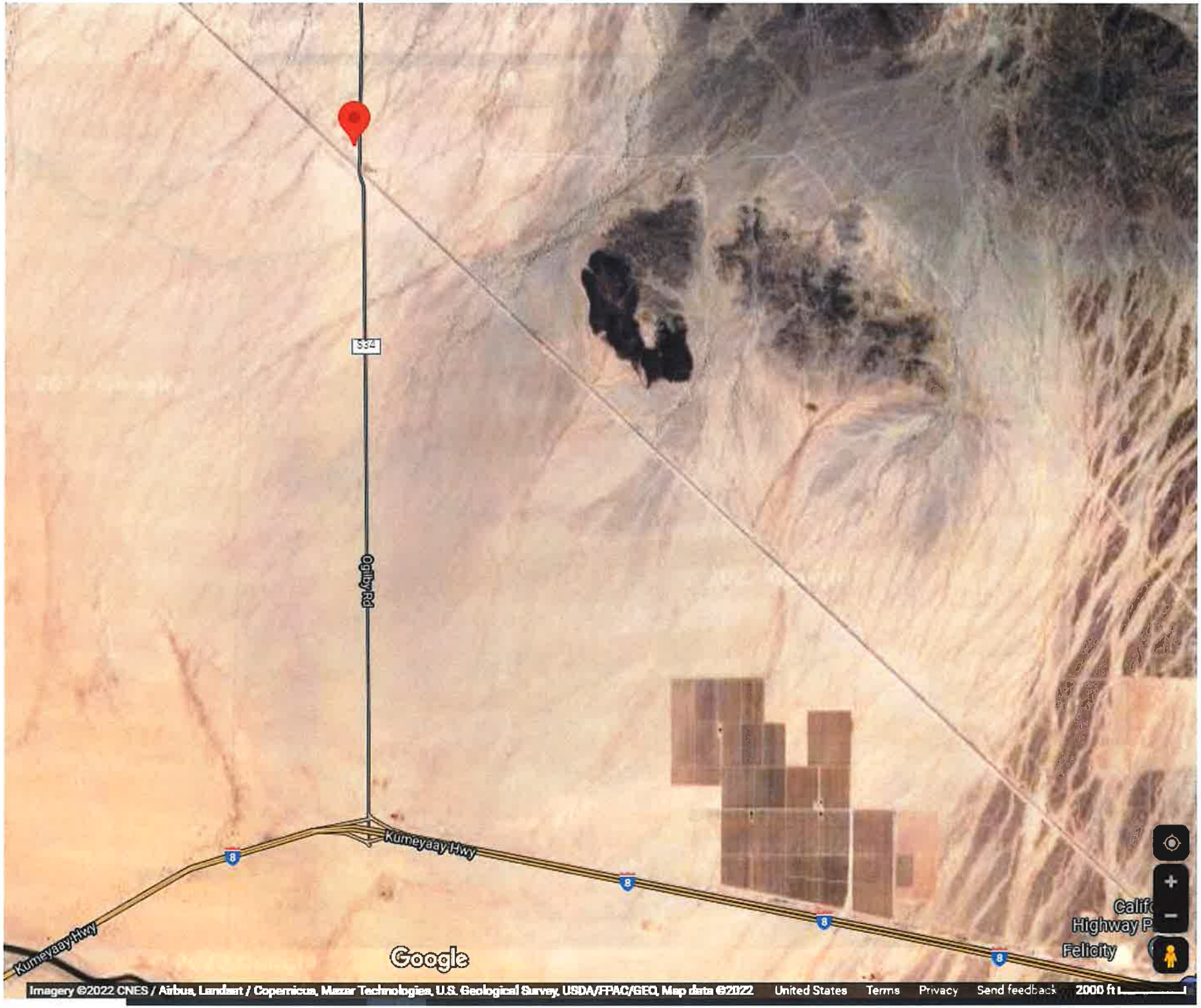
S34
Ogilby Rd
Kumeyaay Hwy
8
Kumeyaay Hwy
Google
Felicity
Imagery ©2022 CNES / Airbus, Landsat / Copernicus, Maxar Technologies, U.S. Geological Survey, USDA/FPAC/GEO, Map data ©2022
United States
Terms
Privacy
Send feedback
2000 ft

Ogilby Rd
S34
Ogilby Rd
Side Winder Rd
Side Winder Rd
S34
Ogilby Rd
Google
Imagery ©2022 Maxar Technologies, U.S. Geological Survey, USDA/FPAC/GEO, Map data ©2022
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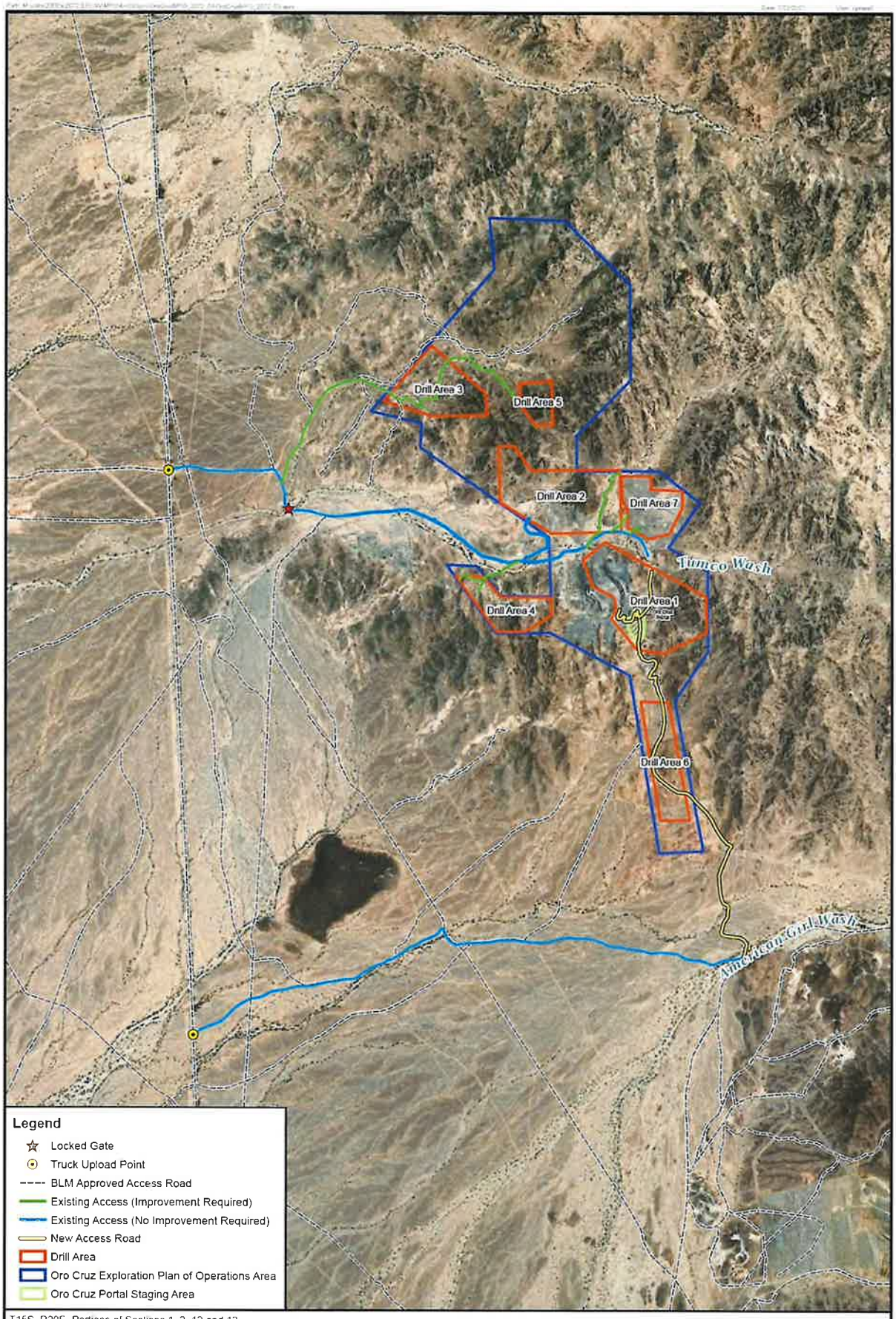
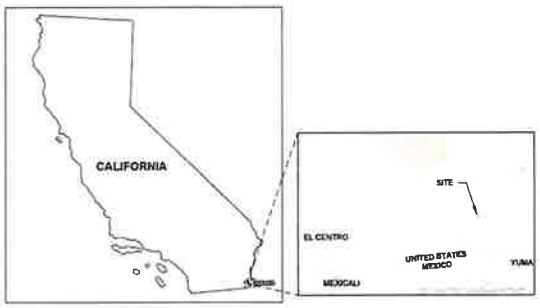

Drill Area 3
Drill Area 5
Drill Area 2
Drill Area 7
Drill Area 4
Drill Area 1
Drill Area 6
Timco Wash
American Girl Wash
Legend
Locked Gate
Truck Upload Point
BLM Approved Access Road
Existing Access (Improvement Required)
Existing Access (No Improvement Required)
New Access Road
Drill Area
Oro Cruz Exploration Plan of Operations Area
Oro Cruz Portal Staging Area
T15S, R20E, Portions of Sections 1, 2, 12 and 13,
T15S, R21E, Portions of Sections 6, 7, and 18
Imperial County, California. Data Source: SMP
Image Source: ArcGIS Online, World Imagery, 2018
N
0 800 1,600 Feet
0 400 800 Meters
WestLand Resources
SMP GOLD CORP.
Oro Cruz Exploration Plan of Operations
PROJECT LOCATION
Figure 2



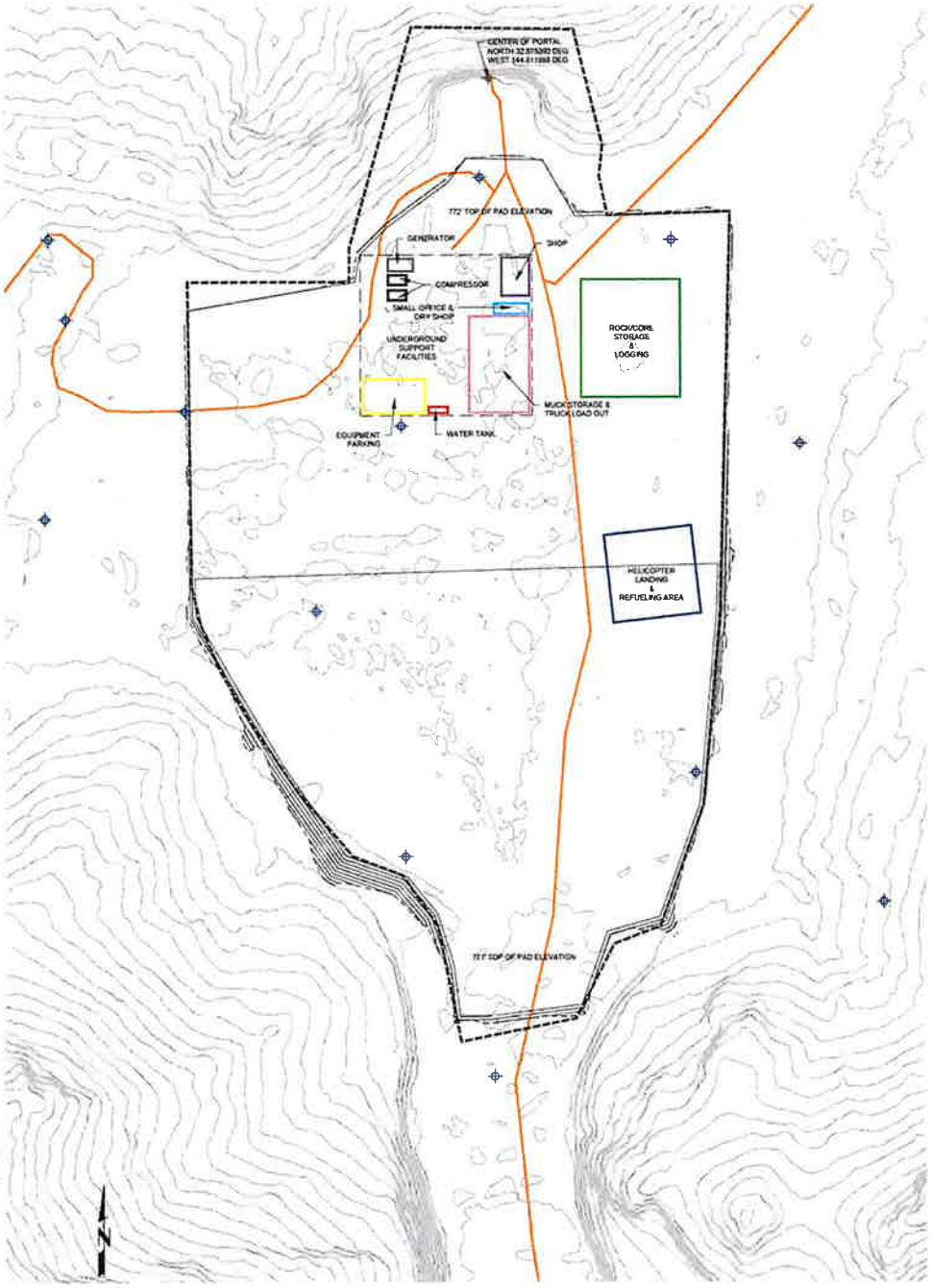
INDEX MAP

SHEET INDEX

FIGURE 1:	VIC NITY MAP
FIGURE 2:	PROJECT LOCATION APNs
FIGURE 3A:	BLM CLA M BOUNDAR ES
FIGURE 3B:	DR LL AREA 1
FIGURE 3C:	DR LL AREA 2
FIGURE 3D:	DR LL AREA 3
FIGURE 3E:	DR LL AREA 4
FIGURE 3F:	DR LL AREA 5
FIGURE 3G:	DR LL AREA 6
FIGURE 3H:	DR LL AREA 7
FIGURE 4:	EXPLORATION PLAN
FIGURE 5A:	PORTAL STAG NG AREA GRAD NG
FIGURE 5B:	CONCEPTUAL DRILL SITE LAYOUT
FIGURE 6:	RECLAMATION PLAN

LEGEND

- EXIST NG CONTOURS
- PAD CONTOURS
- NEW ACCESS ROAD
- POTENTIAL LOCATION OF ROAD-ACCESS RC OR CORE DRILL HOLE



THIS DRAWING HAS BEEN PREPARED IN ACCORDANCE WITH A STANDARD OF CARE ORDINARY AND CUSTOMARY WITHIN THE PRACTICE OF ENGINEERING. THE SCOPE OF RESPONSIBILITY OF THE UNDERSIGNED IS LIMITED SPECIFICALLY TO THE AREA OF PRACTICE OF CIVIL ENGINEERING DEFINED IN THE CALIFORNIA PROFESSIONAL ENGINEERS ACT.

500 0 500 1000
SCALE IN FEET
SCALE 1" = 500'
SCALE INDICATED IS BASED ON A 24" X 36" FORMAT PRINT

SOURCE DATA:

BOUNDAR ES	
ORO CRUZ CLA M BOUNDARY	WESTLAND RESOURCES
ORO CRUZ EXPLORATION	WESTLAND RESOURCES
TOPOGRAPHY	
LiDAR:	EAGLE MAPP NG LTD , FLIGHT DATE 01/15/2021
GROUND CONTROL:	DESERT SURVEY NG & ENGINEERING, GORDON O. OLSON, PE, PLS (CA PLS NO. 7107)
CONTOUR NTERVAL:	10 FEET
DATUM:	HORZ= NAD83, CALIFORNIA ZONE 5, US FOOT VERT= NAVD88

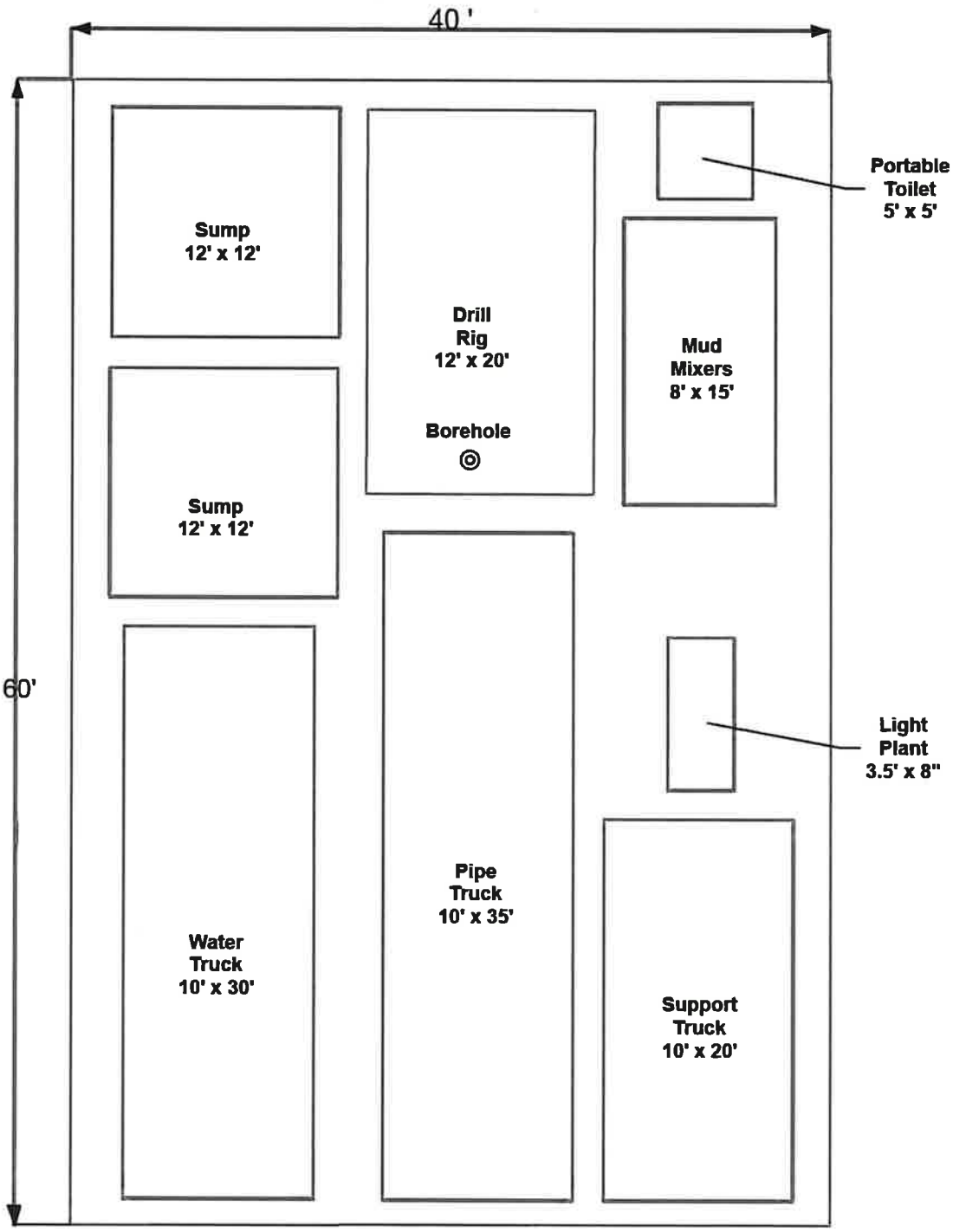
SESPE CONSULTING, INC.
A Trinity Consultants Company
374 Poli Street, Suite 200 • Ventura, CA 93001
(805) 275-1515 • www.sespeconsulting.com

REVISIONS

SMP GOLD CORP.
ORO CRUZ EXPLORATION PROJECT

PORTAL STAGING AREA GRADING

FIGURE 4



Note: Layout will vary depending on site conditions

SMP GOLD CORP.

Oro Cruz Exploration
Plan of Operations

WestLand Resources

N

0 5 10 Feet

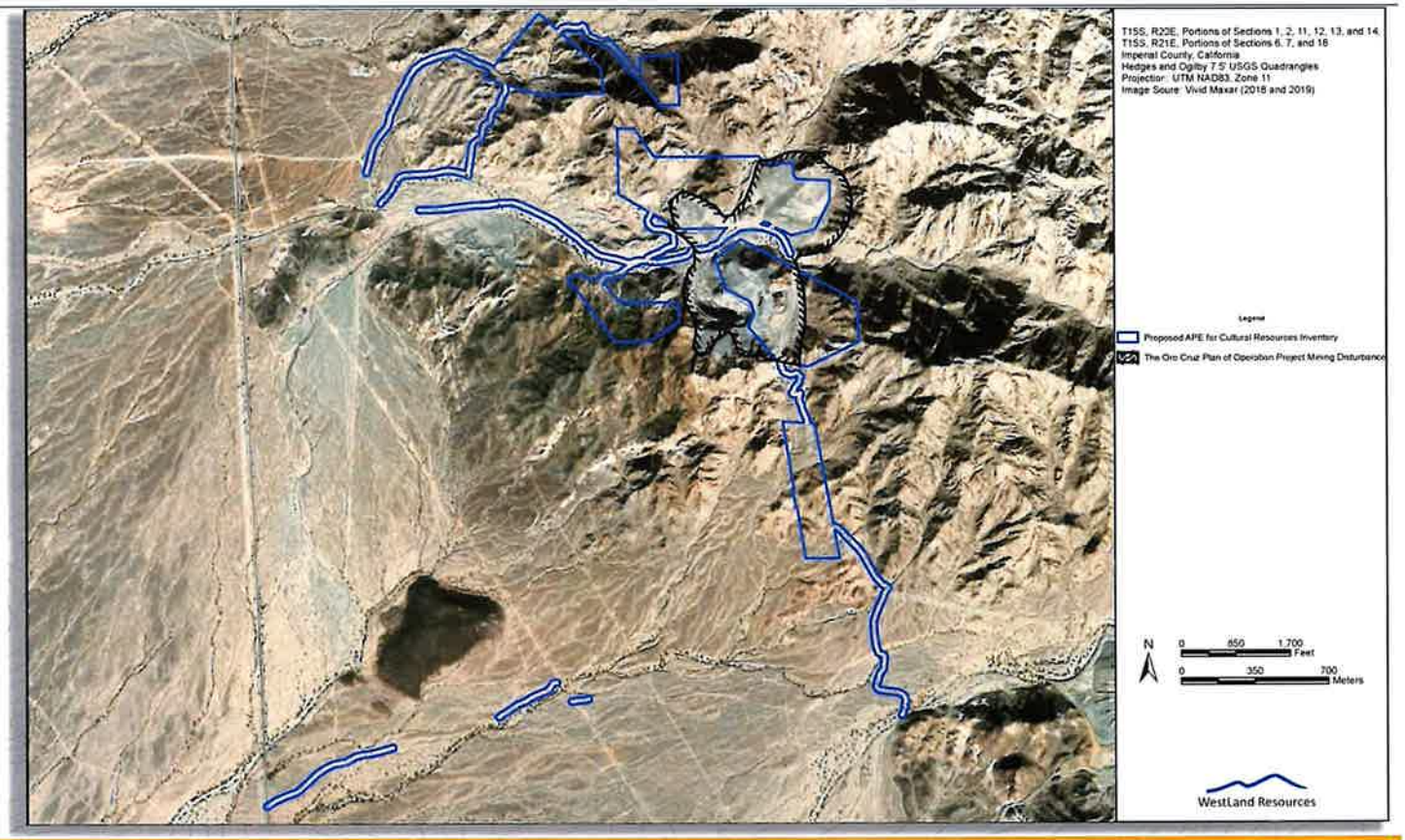
0 1.5 3 Meters

TYPICAL ROAD-ACCESSED DRILL SITE LAYOUT

Figure 5

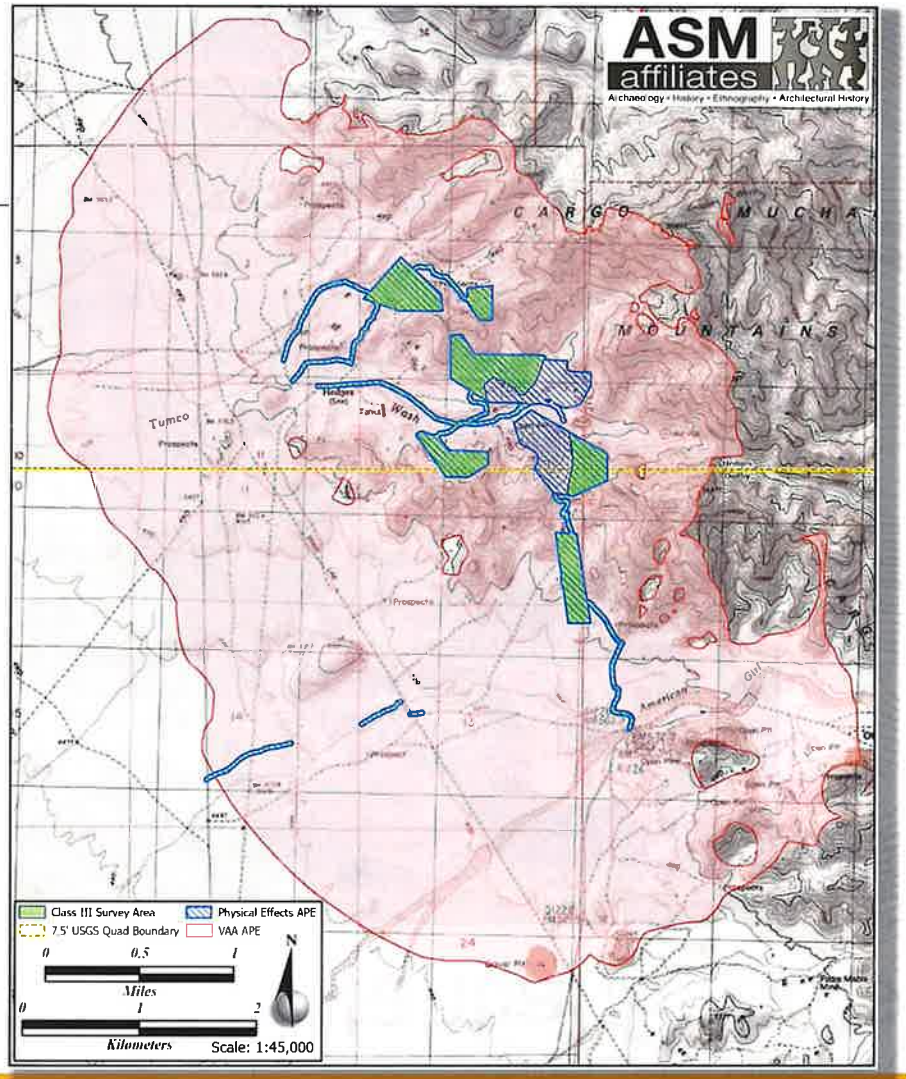
Physical Effects - Area of Potential Effects

- Total acres = 279
- Previously disturbed acres = 75



VAA Area of Potential Effects

- Visual, atmospheric, and auditory effects in relation to the Physical Effects APE



Attachment 19

BLM
Email(s) to Previously Notified Tribes Regarding Virtual Meeting/Presentation
September 19, 2022

From: Day, Grant L
To: Sahagun, Carrie L; Martinez, Mayra Y
Subject: Virtual Presentation: CA-670-21-003 SMP Gold Corp. -exploratory drilling -eastern Imperial County, CA
Date: Monday, September 19, 2022 3:10:47 PM

All,

You should have received an invitation for a Teams call, if you have not then please respond to this email. Let me know if you have any other questions or issues.

Virtual Presentation of Cultural Resource Findings, Wednesday, September 21, 2022
To facilitate the Section 106 consultation, the BLM would like to invite you or a designated representative(s) to attend a consulting parties virtual meeting on the results of the Class III investigations conducted by ASM Affiliates. This online presentation and discussion is scheduled for the morning of Wednesday, September 21, 2022. We plan to start the meeting at 9:00 AM and conclude by 10:30 AM (possibly until 11:00 AM if discussions wish to continue).

We appreciate your time and look forward to discussions during the virtual presentation,

Grant

Grant L. Day
Archaeologist
BLM El Centro Field Office
1661 S. 4th Street
El Centro, CA 92243
(760) 337-4473
USDI, Region 8

Attachment 20

BLM
Email(s) to Previously Notified Tribes Regarding Extension of Inventory Report Comment Period
September 28, 2022

CA-670-21-003 SMP Gold Corp. -exploratory drilling -eastern Imperial County, CA

Day, Grant L <gday@blm.gov>

Wed 9/28/2022 7:38 AM

Cc: Sahagun, Carrie L <csahagun@blm.gov>;Martinez, Mayra Y <mymartinez@blm.gov>

Bcc: Counciloffice@barona-nsn.gov <Counciloffice@barona-nsn.gov>;marcuscuero@campo-nsn.gov <marcuscuero@campo-nsn.gov>;Johnathan Mesa <jmesa@campo-nsn.gov>;jbrundin@cocopah.com <jbrundin@cocopah.com>;sherry@cocopah.com <sherry@cocopah.com>;Tashina Harper Executive Assistant <tashina.harper@crit-nsn.gov>;rloudbear@critdoj.com <rloudbear@critdoj.com>;critthpo@crit-nsn.gov <critthpo@crit-nsn.gov>;Robert Pinto <rpinto@leaningrock.net>;Michael Garcia <michaelg@leaningrock.net>;Jordan D. Joaquin, President <president@quechantribe.com>;Quechan Historic Preservation Officer <historicpreservation@quechantribe.com>;Bernice Paipa <bpaipa@iipaynation-nsn.gov>;Erica Pinto <epinto@jiv-nsn.gov>;Lisa Cumper <lcumper@jiv-nsn.gov>;lp13boots@aol.com <lp13boots@aol.com>;Stephen Rochester <sbr@rocketmail.com>;CourtCoyle@aol.com <CourtCoyle@aol.com>;Angela Elliott Santos <aelliottsantos7@aol.com>;Lisa Haws <lisahaws@msn.com>

Dear Tribal Leaders and other Consulting Parties,

In the Bureau of Land Management (BLM) El Centro Field Office (ECFO) consultation letter dated August 25, 2022 regarding the Oro Cruz mining exploration project, we presented the cultural resources Class III inventory report and the updated project area of potential effects including a visual and auditory assessment area. The BLM also recently hosted a field tour of the proposed exploration area (Sept. 20) and held a virtual presentation and Section 106 consultation meeting (Sept. 21). We appreciate all the comments and feedback received during these events. At the conclusion of the virtual meeting last week one of the Tribes asked to review previously recorded site records and requested additional time to provide input. Therefore, the BLM is extending the comment period for the cultural resources Class III inventory report and area of potential effects for two weeks, to October 17, 2022. Next steps in the Section 106 process include preparation of the BLM's proposed eligibility determinations and findings of effect for the project. Later this fall/early winter will also see publication of the Oro Cruz National Environmental Policy Act Environmental Assessment.

For information or clarification about anything in this email, or to schedule a government-to-government consultation meeting with the BLM, please contact myself, Grant Day at gday@blm.gov or by phone at (760) 337-4473. If you have any questions, please do not hesitate to contact us. Thank you for your continuing cooperation with this office.

Sincerely,
Grant

Grant L. Day
Archaeologist
BLM El Centro Field Of ice
1661 S. 4th Street
El Centro, CA 92243
(760) 337-4473
USDI, Region 8

Attachment 21

BLM
Letter from the Fort Yuma-Quechan Indian Tribe
October 14, 2022

QUECHAN INDIAN TRIBE

Fort Yuma Indian Reservation

Office of Tribal Administration

P.O. Box 1899
Yuma, Arizona 85366-1899
Phone (760) 919-3600
Fax (760) 572-2102

Sent Via Electronic Transmission

Ryan Chatterton
Field Manager
Bureau of Land Management
El Centro Field Office
1661 S. 4th Street
El Centro, CA 92243

October 14, 2022

RE: SMP Gold Corp. – Class III Cultural Resources Inventory Report for the Proposed Oro Cruz Exploration Project, Imperial County, California

Dear Mr. Chatterton:

We would like to provide the following comments on the above referenced project.
The proposed project location is sited within a region that is highly significant to the Quechan Tribe. This is a location that the Tribe attaches great cultural, religious and spiritual significance to. The Quechan Tribe objects to the proposed mining project and the proximity of the operation to a significant cultural landscape that is essential to the cultural patrimony of the Quechan people and will directly impact the religious, spiritual, and everyday lives of the Quechan people.

Although the proposed project will be utilizing locations that have been disturbed by previous mining activities, the project location is within the Picacho Area of Critical Environmental Concern, which contains significant religious, cultural and biological resources for the Tribe. These cultural and biological resources are still integral to the Quechan culture, religion, and spiritual practices and therefore, any impact to the area would cause great harm to their overall cultural practices.
The location holds its significance to the Quechan People as a part of a greater cultural, religious and spiritual landscape that is entwined with our origin stories, traditions and ceremonies, and the cultural patrimony of the Quechan People. Impacts to any one area would disturb the entire landscape as a whole. This location is tied to the origins of song cycles which live within this landscape. These songs specifically reference and speak of the landscape contained within the project area. These songs are still sung today by the

Quechan people. Therefore they are still a part of everyday life and tie our people to these places. Use of this landscape for the proposed project would be a direct assault on the preservation of our history, culture and religion, and for that reason this landscape must be preserved for our culture to continue.

Class III Inventory Report Comments

- **Page 77, Newly Recorded Sites, CA-IMP-13336** – The ceramic sherds at this site are incorrectly recorded as a "red-on-buff type." Another sherd was recorded to contain "three incised parallel lines." During the field visit on September 20, 2022, the sherds were examined and found to not be "red-on-buff", and the "three incised parallel lines" could be identified on any of the sherds. It is clear that the field archaeologists were unfamiliar with the local ceramic traditions of this area. The information collected during the surveys is utilized to make important decisions on the project. Qualified archaeologists, with familiarity and experience with the local cultural traditions, should be used to conduct survey work.

- **Delineation of the Area of Potential Effect (APE) and Visual, Auditory, and Atmospheric Effects (VAA)** - We disagree with the physical APE and the VAA APE as determined by the BLM. In the Class III Cultural Resources Inventory Report, page 10, it states, "... Stantec Consulting (Stantec), in consultation with the BLM, delineated the VAA APE." Further, it states that the VAA APE identifies sites or locations potentially deemed sacred or traditionally important by Native American Tribes." Why was the VAA APE determined by Stantec and the BLM without consultation with the Quechan Tribe? How can Stantec and the BLM determine traditional, religious and culturally significant sites for the Quechan Tribe? The VAA must include input from the Tribe to accurately assess the effects of the proposed project to the Quechan people. Consequently, the results of the VAA are irrelevant, because there was no input on the cultural, religious, and spiritual effects of this project on the Quechan people.

  Further, the VAA APE (Map 4, Appendix A), does not include all sites that have been previously identified within the VAA, some of which are eligible for the NRHP. The BLM land management practices over many decades have allowed the continued degradation of this sacred cultural landscape. Many of the sites in this area are being actively destroyed by mining, OHV activities, and by the use of the area for open, long-term camping. This fact is in direct opposition to the BLM's trust responsibility to the Tribe to ensure protection of Tribal resources.

  The actions taken in regards to the VAA APE and this project as a whole run counter to the mission and Federal Trust Responsibilities of the BLM. Executive Order 3335 reaffirmed the responsibilities of the Department of Interior concerning protection of Tribal resources,

  > The trust responsibility consists of the highest moral obligations that the United States must meet to ensure the protection of tribal and individual Indian lands, assets, resources, and treaty and similarly recognized rights.

President Biden has reasserted the responsibilities of the federal government in a recent memorandum to the heads of executive departments and agencies,

> It is a priority of my Administration to make respect for Tribal sovereignty and self-governance, commitment to fulfilling Federal trust and treaty responsibilities to Tribal Nations, and regular, meaningful, and robust consultation with Tribal Nations cornerstones of Federal Indian policy.

Further, in line with the Joint Secretary's Order 3403, "...Bureaus and Offices should seek to protect the treaty, religious, subsistence and cultural interest of federally recognized Indian Tribes in a manner that the management is consistent with the nation-to-nation relationship and fulfills the United States' unique trust obligation to federally recognized Indian Tribes and their citizens." The Quechan Tribe is demanding that BLM ECFO fulfill their obligations to the Tribe and engage is discussions that allow the Tribe to be an equal party in the decisions that impact our cultural patrimony.

The Quechan Tribe considers this landscape a Traditional Cultural Place (TCP). This place has a specific name within the Quechan language. As stated previously, this landscape is associated with the cultural practices, religious beliefs and history that are important to the Tribe to continue and maintain our cultural identity. The large amount of trails, geoglyphs, ceramics, etc. in this location is proof of the long term history and continued use and significance of the area. The Quechan people still utilize this area today in various cultural capacities. The preservation of this area is essential to continue the cultural, religious and traditional practices and teaching of our future generations.

The Fort Yuma Quechan Tribe would like to continue consultation on this project with the BLM. More discussion on the effects of this project and its impact to the Quechan Tribe must occur. We would like to schedule a meeting to discuss our comments and concerns about this project before any further decisions on this project are made. If you have any questions or need additional information, please feel free to contact the Historic Preservation Office.

Sincerely,

Jordan D. Joaquin, President
Quechan Indian Tribe

Cc: Carrie Sahagun, Assistant Field Manager, BLM ECFO
Julianne Polanco, California State Historic Preservation Officer
Bill Marzella, Program Analyst/BLM Liaison, ACHP
Ira Matt, Director, Office of Native American Affairs, ACHP

Attachment 22

BLM
Email(s) to Previously Notified Tribes with September 21, 222, Meeting Minutes
October 18, 2022

From: Hockaday, Shelby
To: Day, Grant L; Sahagun, Carrie L; Martinez, Mayra Y
Subject: RE: Virtual Presentation: CA-670-21-003 SMP Gold Corp. -exploratory drilling -eastern Imperial County, CA
Date: Tuesday, October 18, 2022 5:00:00 PM
Attachments: Oro Cruz Section 106 Consultation Meeting Notes - 20220921.docx

Hello Grant, Carrie, and Mayra,

I was finally able to get to cleaning up the draft meeting minutes from the September 21 consultation meeting with tribes – I apologize for the delay on these. Please find the notes I took during the call attached.

Best,
Shelby

Shelby Hockaday M.Sc.
Project Manager

Mobile: 775 548-6581
Shelby.Hockaday@stantec.com

Stantec
5390 Kietzke Lane Suite 103
Reno NV 89511-2302

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Please consider the environment before printing this email.

From: Day, Grant L <gday@blm.gov>
Sent: Monday, September 19, 2022 3:11 PM
To: Sahagun, Carrie L <csahagun@blm.gov>; Martinez, Mayra Y <mymartinez@blm.gov>
Subject: Virtual Presentation: CA-670-21-003 SMP Gold Corp. -exploratory drilling -eastern Imperial County, CA

All,

You should have received an invitation for a Teams call, if you have not then please respond to this email. Let me know if you have any other questions or issues.

Virtual Presentation of Cultural Resource Findings, Wednesday, September 21, 2022
To facilitate the Section 106 consultation, the BLM would like to invite you or a designated representative(s) to attend a consulting parties virtual meeting on the results of the Class III investigations conducted by ASM Affiliates. This online presentation and discussion is scheduled for the morning of Wednesday, September 21, 2022. We plan to start the meeting at 9:00 AM

and conclude by 10:30 AM (possibly until 11:00 AM if discussions wish to continue).

We appreciate your time and look forward to discussions during the virtual presentation,

Grant

Grant L. Day
Archaeologist
BLM El Centro Field Office
1661 S. 4th Street
El Centro, CA 92243
(760) 337-4473
USDI, Region 8

Oro Cruz Exploration Project

Class III Cultural Resources Inventory Report, Section 106 Consultation Meeting

September 21, 2022, 9:00am – 11:00am

Microsoft Teams Meeting

Attendees

- Carrie Sahagun – Acting Field Manager, BLM El Centro Field Office
- Mayra Martinez – Geologist and Project Manager, BLM El Centro Field Office
- Grant Day – Archaeologist and Meeting Organizer, BLM El Centro Field Office
- Jay LaPlante – Tribal Liaison, BLM California State Office
- Hannah Robinson – Archaeologist, BLM California Desert District
- Michael Abraham – CEQA Project Manager (Reclamation Plan and Initial Study), Imperial County
- Dave Tupper – Vice President of Exploration, SMP
- Del Fortner – Environmental Permitting, SMP
- Fred Huntington – Cultural Resources Lead, WestLand Resources
- Mark Becker – Project Archaeologist, ASM Affiliates (Contracted by WestLand Resources)
- LeRoy Shingoitewa – Tribal Monitor Manager, WestLand Resources
- Shelby Hockaday – NEPA Manager, Stantec Consulting Services Inc.
- Brendon Greenaway – Section 106 Compliance, State Historic Preservation Office
- Jill McCormick – Information Officer, Fort Yuma Quechan Indian Tribe Culture Committee
- Manfred Scott – President, Fort Yuma Quechan Indian Tribe Culture Committee
- David Degranby – Fort Yuma Quechan Indian Tribe Culture Committee
- Ernestina Noriega – Fort Yuma Quechan Indian Tribe Culture Committee
- Angelina Gutierrez – Tribal Monitor Supervisor, San Pasqual Band of Mission Indians

Meeting Introduction

- Carrie Sahagun (BLM) welcomed everyone to the meeting. This meeting is meant to provide an overview of the results of the cultural resources field surveys and investigation conducted by ASM Affiliates (ASM) and distributed by the BLM last month. Many of those present on the call today participated in a field trip yesterday to the site. The BLM thanked everyone for joining the site visit.
- Grant Day (BLM) will provide an overview of where the BLM is in the process now. Mark Becker (ASM) will provide an overview of the work that ASM has done thus far. Then, the BLM will go over the next steps in the process.
- Carrie asked if there was anything else that should be added to today's agenda. Brendon Greenaway (SHPO) asked if the Class III Cultural Resources Inventory Report was submitted formally to SHPO yet. Grant stated that it has not yet been formally submitted.

Project and Field Survey Presentation (Grant Day, BLM and Mark Becker, ASM)

- There are 16 consulting tribes involved in the Section 106 consultation process, the SHPO, Imperial County, and SMP.

- The BLM Initiated consultation in March 2021, which has included the following:
    - Area of Potential Effects (APE) determinations; a draft cultural resources inventory work plan; and invitations to meet to discuss the Project.
    - The Physical APE and work plan were revised and provided to consulting parties in August 2021.
    - Fieldwork was conducted in September and October 2021.
    - A revised Cultural Resources Inventory Report with new Indirect APEs delineated was distributed in August 2022.
    - A field-based site visit to discuss inventoried cultural sites and reporting was held yesterday, September 20, 2022.
- Mark (ASM) provided and overview relief photo of the Project Area and explained that a range of topography was surveyed, including flatter areas and higher mountain tops.
    - The Physical APE is 279 acres, and there are 75 acres of previously disturbed area within that from previous mining activities. The Physical APE includes areas of proposed drilling and roadways into the Project Area, some of which are existing BLM roads.
        - The full 279 acres were not fully surveyed. The previously disturbed 75 acres were spot checked to confirm the level of previous disturbance. In some cases, field surveyors found more modern disturbance within that. In areas with extreme slope, it was impossible to climb to survey without technical gear. Undisturbed areas were the focus of the survey.
    - The Visual, Auditory, and Atmospheric APE (i.e., Indirect APE) surrounds the Physical APE and was delineated after concerns were raised for additional potential effects outside the APE.
    - The Class III survey conducted was a combination of a pedestrian survey and helicopter survey; the helicopter helped to access areas at mountain tops. Mark showed a map with slope analysis and where the pedestrian, physical survey took place. Out of all the helicopter areas they looked at, there were two that were inaccessible and those were excluded from the surveys. They tried to reach as many helicopter pad areas as possible.
        - The pedestrian survey was conducted by three archaeologists and one tribal monitor. The helicopter survey was conducted by two archaeologists and one tribal monitor; helicopter surveys were in smaller areas and were not as intensive as pedestrian surveys.
    - Typical per BLM protocols, the surveys were conducted at 15-minute intervals. Ernest Molino of the Fort Yuma Quechan Indian Tribe was present as the Tribal Monitor.
- Results of the Class III Surveys:
    - There are 2 prehistoric sites within the Physical APE: 1 new and 1 re-recorded trail
    - There are 10 historic sites that were re-recorded, including the Tumco Historic Townsite.
    - Manfred Scott (Quechan Culture Committee) asked that if a trail is identified and reported to the BLM, why isn't it previously recorded if it was present within the Physical APE. He stated that destruction of cultural resources occurs with mining and past disturbances and that there are more cultural sites that have been impacted that are not recorded.

- Mark asked if Manfred was referring to the trail that was identified yesterday during the site visit that goes up to the existing mine. Manfred confirmed that was the trail he was referencing; it has been split into two and looks like it has been impacted from miners walking up to the structures and looks like it is a prehistoric trail because of the formations of the trail.
- Mark mentioned when Jill McCormick (Quechan Information Officer) and he were walking they did identify what looked like a new prehistoric trail, and it was outside of the Physical APE. Some of the trails are within the VAA APE and not the Physical APE. Manfred said even if its outside the Project Area and the APEs, it should still be noted for other projects for reference and asked why it isn't recorded if it is in the area.
    - Grant stated that he took a GPS point from the trail they were looking at that he will record it and be going back to survey it.
    - Del Fortner (SMP) asked if Grant could invite the Quechan to join in on the fieldwork to record that trail. Grant said that we will try to sync scheduling.
    - Jill stated that she could be available to join the fieldwork.

- Mark stated that there is an additional, prehistoric/historic trail just north of the Tumco Cemetery.
    - Jill disagreed with this statement. Looking at Google Earth, the trail extends past the road because there is so much activity in that area with people off-roading, it is visible that it extends into the Physical APE. Mark said he will take a look again at the location of the trail; during field surveys, there were unable to locate it. Jill stated the trail should be recorded.
- One new ceramic scatter was recorded during surveys and the site was visited yesterday. Mark explained that at least two different types of pottery are present at the site.
    - Manfred asked if surveyors went further east from where they found the pottery. Mark confirmed they did; the standard procedure when finding something like that is to go at least 30 meters outside of where the artifact was identified, in some cases even 50 meters. Manfred said a lot of times pottery shards can be found along the trail, but because of the washes, some of the shards could be washed out with water and moved; it is likely that there could be additional pottery shards found further away along the trails. Mark confirmed that if these artifacts are identified, they begin surveying at 5-meter intervals.
    - Jill asked if the entire area that was surveyed around the scatter was the full extent of the proposed Project impact area. Mark stated that it included the Physical APE and with the nature of the proposed drilling operations, the site is something that could easily be avoided.
- Mark showed a map of the Tumco/Hedges Historic Townsite. This site has been recorded multiple times; there are three to four trinomials for this site. There is an original recorded boundary for Tumco but an earlier archaeologist stated that there was historic mining activity within the USGS quadrangle map sections and defined the sections the material was in, which is where the original boundary came from. Later on, an actual survey of the site

was conducted, and a boundary was delineated, but it was never officially recorded at the South Coast Information Center. Subsequent archaeologists went out to the site and recorded a new trinomial for it. ASM attempted to correct the differing boundaries delineated previously to correct the trinomials in this recent survey to show the actual boundary and develop a fourth trinomial. ASM will include the Tumco cemetery into the newly developed trinomial. Mark shared a map with an overlay of the Physcial APE to superimpose where the historic recorded site intersects with the Tumco boundary.

- Earlier mapping showed Tumco Cemetery mapped differently than the recently updated boundary. The cemetery is right off of the road that is currently in use. It would be easy to avoid this area from traffic under the Project.
- Del noted that SMP intends to work very closely with an onsite archaeological compliance officer to ensure avoidance of any and all concerns and include a buffer area if needed to ensure no incidental impacts occur. Physical effects to sites will be avoided. The entire exploration plan has flexibility to move drilling locations around.
- Manfred stated that when dealing with historic sites, referencing the cemetery, sometimes excavators take human remains to other areas and asked how we can know whether remains are actually present in the cemetery and if there is documentation.
    - Mark stated that they don't have documentation if anything has been re-interred. Just looking at the gravesites in the photo, it looks relatively un-disturbed, so it is suspected the burials are still intact. It was likely a miner cemetery.
- Historic tailings and prospects are present within the Tumco boundary as well, including old retaining walls and prospecting pits. Within the Class III survey area, archaeologists identified machine mounts, a hearth with can scatters, building foundations, a cistern, and an open mine pit with a protective fence. The BLM has been going out there to try to fence these areas off to reduce accidents around the mine pits.

- Other historic sites identified during the surveys included additional prospects with a mine shaft and prospects that extended the previously recorded areas.
- Mark showed another map of the survey area and stated that when they survey active BLM roads, they record where features were located. The active road doesn't look like it is currently disturbing any features. ASM used these features to correlate the previous evaluation and survey maps trying to match up with past findings and create a better overlay. They also verified the access road that is currently being used is clear of artifacts and ensured that artifacts and features to the edges of roads would be completely avoided and protected.
- Mark showed an example of what drilling equipment looks like and what may be seen on this Project for the exploration activities.
    - Manfred asked how deep the drilling equipment can go. Fred Huntington (WestLand Resources) states that the ore body that has been previously mapped is a cigar shaped deposit that slopes downward; in some areas the drill rig might go 100 meters and in others it could go 400 meters, it just depends on how deep the target

is and if the ore body is trending underneath the existing mountains. If drilling occurs on top of mountains the rigs would go deeper. The Project proposes to go through the existing Oro Cruz Mine Portal, which is about 200 kilometers of underground tunnels, and drill below ground. The drilling depth is variable. The goal of exploration is to collect enough information to verify historic data and map the deposits.

- Manfred asked if the Project proposes wet or dry drilling. David Tupper (SMP) stated it is required to be wet. Water would have to be transported to the Project, which is also a health requirement.
    - David noted that the photo of the drilling equipment shows a reverse circulation rig. SMP prefers to use a diamond core drill rig, which takes a core sample at the time of drilling, but all rigs would go the same depths, which are fairly standard.
        - Manfred asked for clarification if when the materials are pulled out of the drill sample, the driller looks to see if there are gold deposits at the depth that the drill rig went. David confirmed that was the process and added that the samples are then sent for chemical assay.
        - Manfred asked for clarification on underground drilling, if they are drilling from within the underground mine shaft, are they still going 100 to 400 meters, or if the depth is subtracted from the surface elevation. David confirmed that wherever there is a station for underground drilling, a drill hole shorter in depth would be drilled.

- An overview map of the VAA APE was shown. The Indirect Visual APE is based on whether a drill rig would be visible within the Project Area if someone was standing at the edge of the Indirect APE boundary. The Indirect Auditory APE is based on how far sound travels based on noise modeling, as the closer to the edge of the boundary a person would be, the sound of Project activities would be almost imperceptible.
    - A map of known trails, geoglyphs, and rock art sites was shown within the VAA APE. Grant will also record the new trail that was identified yesterday and discussed earlier on this meeting so that it can be officially recorded and mapped.
        - These mapped sites represent locations that are possibly in use or could be used. The goal was to provide a visual of where the overlay of sites is within the VAA APE and in relation to the Project Area to show potential effects.
        - Jill asked if the map shown correlated with Map 3 in the Cultural Resources Inventory Report Appendix A, and if there were other types of artifacts that were excluded.
            - Mark confirmed that was the correct map in the appendix, and that there are no historic sites on this map. The sites with the ceramic shards or lithic scatters are not shown on the map. Jill asked why these were excluded. Mark stated that at the time of the report preparation, the goal was to the look at the recorded sites that

could potentially be used. If there are other sites such as lithic scatters that are currently being visited or could be visited, those can be added to the report mapping. The sites mapped were based on assumptions. Jill stated they would like to see everything that has been recorded shown on the map within the VAA APE.

- Manfred stated that if mapping is going to be completed, everything that is related to a tribal resource should be shown and recorded. When they aren't recorded, it is considered a big impact because new projects may come in and assume that there are no artifacts present if they are not recorded and mapped properly, which incorrectly makes it seem like tribal influences were never present in that area.
- Jill stated that the tribe doesn't have any information about the sites currently shown and the site nomenclature doesn't mean anything without a kind of description of what each of the sites are. Determining impacts should be done by the tribes and not based on assumptions by someone else for what to include and what to leave out as they don't know what the sites are, so they don't know what impact determinations are. The determinations will be different between the BLM, the proponent, and the tribes. The VAA APE impact determinations and impact analysis should include the tribes in the process. Jill clarified that the statement was being made for Imperial County as well as the impacts need to be discussed under CEQA too.
- Carrie stated that the goal of this meeting is exactly related to Jill's statement, the BLM wants to ensure the recorded sites were discussed appropriately within the report and for the BLM to understand which sites are out there and are being used by the tribes, and which are important to the tribes. The BLM wants to receive input back from the tribes on the report and the mapping. Map 3 in Appendix A of the report is the records search map. The map shown in the presentation is the VAA APE and is a bit different, it was an attempt to pull out the sites that may be actively used by the tribes. If there are other sites, the BLM wants to hear from the tribes to ensure they know what resources out there to include all impacts to in-use sites.
    - Jill corrected that she was referring to Map 4 of the report; however, they identified more trails that weren't recorded from these surveys during the site visit yesterday. The BLM is going by what was previously recorded, and there are a lot of sites not recorded that have been seen out there even on the field site visit that needs to be assessed that was not surveyed for this Project. Jill stated that they would reject

the complete analysis of the report because it didn't include the tribes' input.

- Carrie stated that was the reason for this meeting and for providing the report for the tribes' feedback to incorporate into the Section 106 consultation process so that the BLM can understand what sites are important to the tribes. The survey was only conducted on the ground for where physical effects could potentially occur. The additional results for the larger indirect APE can only go by what the records search says. If the tribe knows of more sites, the BLM wants to know where those are.
- Jill stated there should have been interaction with the tribe when making these maps as it seems somebody else determined what was significant to the tribes and what was in-use. Carrie reiterated that that was the goal of this meeting now. Jill stated they were frustrated with being asked to do that analysis right now.

- Carrie said there is information in the report that was sent out for review. Mark stated the report includes the full records search and the tables that include available information on each of these recorded sites.
  - Jill noted that Table 2 Previously Recorded Resources Within One Mile has very little information. They want to know what kind of scatters, how many, and what the trail details are for each of the sites.
  - Manfred asked when they talk about ceramic scatter whether there is information on what type of ceramics they are or just pottery shards, if they are still there, and have they been re-recorded. Many of them are from the 1970s or 1980s, so they don't know if they are still there or if they've been collected.
    - Mark stated the information available is primarily from surveys. The archaeologists that are out there recording during the surveys sometimes provide basic details like "lithic scatter" or "shards" without any more details.
    - Jill asked if the BLM knows if these artifacts are still out there since the sites are on BLM. Manfred asked if recorded geoglyphs are being protected in any way other than just being fenced off to keep people from driving over them.

        - Carrie said the BLM does fence them off sometimes, depending on the situation for each site.
    - Manfred stated that although there are certain shards or geoglyphs present, the whole area has already been impacted so the tribe can't make connections for what is out there. The tribes used to be able to use the mountains to communicate but they are impacted by towers and cultural resources have been destroyed. If there is no information about the area, they aren't able to identify something that's already been destroyed. There are tangible and non-tangible resources. In other areas, cultural resources have been destroyed and the tribes are unable to make connections to the sites or findings, but they still want to protect it. They don't know if things are still out there from decades ago or not. Campers go out and collect things too and the tribes end up losing their resources again.
    - Jill asked again whether the the artifacts shown on the map have been collected or not.
        - Grant stated that the sites within the VAA APE outside of the Physical APE have not been re-surveyed, they do not know if they have been collected or not.
- Jill asked for clarification on if the BLM was asking for tribal input on the VAA APE with regard to the recorded sites today.
    - Carrie clarified the BLM is asking for input from the tribes on resources within the VAA APE where you would be able to see or hear the Project for sites that are currently in-use and where effects would occur to those sites from visual and auditory impacts. These areas shown need input from the tribe if they are in-use within the VAA APE for the BLM to understand if they might be affected and if there are ways to mitigate. If there are sites out there that the tribes are using, the BLM needs to be aware of and see if there is a way to protect those resources. The comment period for the Cultural Resources Inventory Report that the BLM sent out ends October 3. The BLM has been asking for input since the Project first started on overarching concerns for the area. The BLM can extend the comment period if needed because they want to hear from the tribes if there are concerns with the report findings.
        - Jill stated the tribe will need and extension and that the whole VAA APE should be surveyed.

- Carrie stated that once a site has been recorded it is left in place. The VAA APE is way beyond where the Project would create physical impacts. Carrie asked for areas in current use by the tribe if the tribe needs the full records search to be able to provide that information to the BLM.
    - Jill said she can't find the site numbers corresponding within the report for those sites shown on the map right now.
    - Carrie asked Mark if the records search for these resources was included in the appendix of the report. Mark stated that they weren't, but it is something that they can include, normally it is included on a CD.
    - Jill stated that for example, site number IMP 002432 only has a description that it is a petroglyph. There isn't information on whether it is a single, a scratch, or a motif.
        - Carrie said that Mark will have to go back and look at the site record for that information.

- Carrie asked again if there are areas within the VAA APE that the tribes are actively using that the BLM can include and take into consideration for impact avoidance.
    - Manfred stated that a lot of tribes have been to these areas, but they don't go to them anymore because many have been destroyed by mining, which has disrupted the tribe's spirituality. The sites can't be put it back in use because the integrity is gone. The only thing they can do is to protect what is there now before more damage occurs. When cultural and tribal artifacts are destroyed, it is really damaging to the tribe, and they can't be replaced. Everything is being impacted by noise, trains, airplanes – it is devastating. Even if no more mining were to occur, the inside of the mountain has been disturbed with underground drilling. What more can be said about how devastating it is. Tribal traditions include all of the vegetation, mountains, and wildlife that are out there and are a part of the ecosystem.
    - Jill voiced concern for the way the report is being presented, with input being requested only for the VAA and how it will be affected, when there are resources out there that will be impacted that the BLM has a responsibility to protect, but they aren't discussing that aspect. The concern is about the intangible impacts to the tribes. The sites still have to be there to have tribal connections to the land and the entire area should be considered rather than splitting out into in-use and not in-use. Jill stated that the BLM has a bigger responsibility other than to every proponent that wants to come in and conduct these projects. Information has been provided several times to the BLM by the tribes with their feelings on the project.

- Carrie thanked Manfred and Jill for their input. The BLM understands the sensitivity of the area as a whole. It is difficult to put these concerns into words, and she saw their faces out there yesterday when looking at the prior mining disturbance and the concern they felt. There is no way to make a mining project better, but the BLMs job is to ask if something can be done to minimize impacts.
- Jill added, regarding the assessment of the VAA APE map and sites, that all of the sites previously recorded have been recorded by archaeologists and their descriptions lack cultural input from the tribes on what they are. Tribal input has been left out of the process for documentation, and they are concerned with being pushed to provide input on a report within 30 days for how to mitigate impacts.
- Ernestina Noriega (Quechan Cultural Committee) stated that people using the area are already being impacted by noise, visual impacts, and dust, there is a train and a freeway nearby. Proceeding with mining projects will just add to the impacts, and people may be exposed to Valley Fever. Seeing the disturbance spiritually drained her during the site visit; to see the giant hole in the earth from past mining is devastating to her.

- Del stated that his initial understanding was that the Physical APE was delineated with help from the tribes and asked for BLM clarification.
  - Grant clarified that the initial work plan was sent out with the Physical APE and no comments were received back from the tribes. Letters were initially sent on April 21, 2021. The Quechan noted they disagreed with the Physical APE and the BLM failed to consider the impacts to the practices of the Quechan people in determination of the APE.
  - Del then asked for clarification if that response from the Quechan led to the development of the VAA APE to address concerns. Grant confirmed.
    - Del stated that he felt the VAA APE was a really good representation of potential visual and auditory impacts. It was drawn based on assumptions of what the effects would be from the entire proposed exploration plan, however, not all roads or drill pads would be operating at one time, so the VAA APE wouldn't be experiencing constant impacts in any one place. The proposed exploration would be temporary.
    - Jill expressed concern with considering it temporary despite the impacts to tribal resources given that holes will be drilled and there will be a combination of impacts. She stated that this is the first time the tribe has seen the VAA APE.
- Angelina Gutierrez (San Pasqual Band of Mission Indians) asked what the BLM was going to do to avoid sites as a whole. There would be a direct impact to the existing sites, and the tribes are providing input right now on the sites that are recorded. She asked what would be done to avoid sites if the Project is being considered.
  - Carrie stated that the BLM has been in early review of this Project and gathering the studies necessary. No decision has been made on this Project and Section 106 consultation will continue. An environmental assessment will be going out to the

public and tribes for review to disclose potential impacts under all disciplines, which is planned for this Fall, but a decision has not yet been made. The BLM is seeking input on what potential impacts the tribes feel there would be. Everybody needs the survey information with what was found out there, so they will be adding that piece for the consultation and continuing discussions. The BLM is hearing that there are intangible effects from the Project. As far as on the ground changes with what was learned from the survey, the BLM would require the applicant to avoid and move the drill rigs/Project from anywhere where there could be a physical affect. That's why the BLM wanted to have these discussions to identify if there are areas within the Physical APE where drilling could be limited or other measures to minimize those kinds of effects could be implemented. Carrie said the BLM is hearing loud and clear that a decision to not permit the Project would be on the table, but the BLM has to take everything into consideration and are still in the early process.

- Manfred said complete avoidance needs to be considered on the Project because there are cumulative impacts. Impacts won't stop here until the whole mountain is destroyed looking for gold that will make somebody rich, but entire areas are being destroyed that are occupied by tribes. He expressed that the Project hasn't happened yet, but the Section 106 laws don't really help, they only provide agency to agency consultation, but expressed concern with whether the tribe has the same power as a government entity and the government-to-government consultation doesn't seem accurate.
- Jill state that the tribe's resources and areas of significance are being outweighed right now for somebody who wants to make money off of their land. These are public lands as well, and they should be used for the betterment of all people, not just one company. Ernestina expressed concern with impacts to animals and insects whose homes could be impacted, and potential for animal mortalities on the highway.

- Jay LaPlante (BLM California State Office) expressed understanding with what the tribe was stating with sentiments that the tribal lands are always under a threat. He confirmed that the BLM is hearing that the tribe is asking for more information on these identified sites. He is not sure whether the assessment that has been done so far will support the tribe's input. He stated time extensions on tribal input can be considered to ensure that they are provided enough information to provide input so that the BLM has enough information to satisfy the decision-making process for the Project. including time extensions so that the tribe can provide enough information that satisfies the tribe for this decision-making process of whether this Project Is moving forward or not.
  - Carrie stated that the BLM fully intends to get the records search information over to Jill and the Quechan Culture Committee as soon as possible so that they had additional detail.
  - Jay brought up going back out to the site to survey the areas of concern to see what the ceramic pieces are and what the trail is. The BLM asked for clarification if the Quechan were asking for that information so they can actually see the site and be able to protect it.

- Jill referred to Pages 85 and 86 of the report and asked whether the unevaluated sites are going to continue to be unevaluated, and what will happen if the sites continue to be impacted and degraded. If another project comes along, the sites will continue to lose integrity and disappear from the record.
    - Mark stated that recommendations are provided for unevaluated and evaluated sites within the report. Jill stated she was referring the National Register eligibility – fencing may be recommended, but sites have already been impacted from roads and such. She asked for clarification if the sites that have not been recorded are going to ever be assessed for eligibility. Jill referred to two sites listed in the report that neither site has been evaluated and should be avoided.
        - Carrie said the sites that are within the Physical APE would be avoided. The BLM tries to avoid resources whether they are eligible or not with all of their projects.
        - Jill asked if the BLM was going to evaluate them because the report says they are not.
        - Carrie clarified that the BLM could assume eligibility and can avoid them, that's what they try to do. The BLM practice is to avoid all resources, eligible or not.
- Manfred stated that all of the artifacts out there that haven't been looked at should be surveyed and re-recorded for better documentation and the tribe should be able to provide input and assessment on those sites.
    - Carrie explained that revisiting every single one of the resources within the records search area is not reasonably possible as it would take years. What needs to be looked at for this specific analysis are which sites are actively being used and what could be affected by visual and auditory impacts. The BLM needs to know if the sites that are identified are being used so that an accurate assessment can be made.
    - Jill said the tribe needs more information to be able to determine if there would be impacts because they don't know what the sites are based on the numerical IDs in the report.
    - Carrie offered for the BLM could go out to the site again with the Quechan and San Pasqual tribes to visit the important in-use locations and the BLM can assess where they fall within the viewshed of the Project and the auditory analysis area. Carrie confirmed additional information for the recorded sites will be provided for the tribe to review.
    - Jill asked for an extension on the comment period of the report as they would not be able to provide a review and comments by the deadline of October 3.

  - Carrie confirmed the BLM will discuss a timeline extension and asked if Grant could schedule a field trip with them as soon as possible for the tribe to show important in-use locations. Grant will need to go out there soon in order to record the trail that was identified yesterday. The BLM will either FedEx or drive over the records search documentation. Carrie clarified that the Project was not only be considered by the BLM but was also going through an Imperial County environmental review process as well and a joint document is being prepared by the two agencies.
  - Jill stated they need more time and that they had not yet consulted with Imperial County.
- Grant provided an overview of the remaining presentation, including preliminary assessment of affects and recommendations.
  - Site avoidance is feasible within the entire Physical APE.
  - Based on the noise assessment, noise from drill rigs would be similar to suburban residences at nighttime and drill rigs would be at each location for 2 to 5 days. Fencing can be used to enhance site avoidance, and cultural monitors would be on site.

Next Steps

- Tribes to provide comment and feedback on the Cultural Resources Inventory Report and the Project. The BLM will discuss a timeline extension for comments.
- The BLM will prepare determinations of eligibility and findings of effects.
- The joint NEPA/CEQA document will be prepared and is planning for publication for public review this Fall/early Winter.
- A follow up site visit with the Quechan and Grant will be scheduled to go out as soon as possible.

Attachment 23

BLM
BLM Letter to the Fort Yuma-Quechan Indian Tribe
October 28, 2022

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

October 28, 2022

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.24

TRANSMITTED ELECTRONICALLY AND CERTIFIED MAIL/RETURN RECEIPT

Mr. Jordan D. Joaquin, President
Fort Yuma Quechan Indian Tribe
P.O. Box 1899
Yuma, AZ 85366-1899

Dear President Joaquin,

The Bureau of Land Management (BLM) El Centro Field Office (ECFO) would like to continue government to government consultation with you pursuant to Section 106 of the National Historic Preservation Act and other relevant laws and regulations regarding the SMP Gold Corp. (SMP) proposed project to conduct exploratory drilling activities in south-eastern Imperial County, California.

Thank you for your comments provided by letter dated October 14, 2022, and sent via email on October 17, 2022. The BLM wishes to discuss your comments at our next government to government consultation meeting, the date and time for which is currently being coordinated by Grant Day, BLM Archaeologist, and Jill McCormick, Quechan Indian Tribe Historic Preservation Officer, for early November.

In preparation for this discussion and to better understand how the proposed project may cause effects, we are requesting the Tribe provide additional information about the Traditional Cultural Place as specified in the letter. As part of the Section 106 process, the agency is required to identify cultural resources, evaluate their significance to the National Register of Historic Places (NRHP) and then assess affects to those eligible resources, i.e. historic properties. Please be assured that it is our practice to keep sensitive Tribal/cultural site information confidential and upon request we can take additional measures to further protect/redact specific information about cultural practices. The BLM recognizes the attributes that give Traditional Cultural Properties (TCPs) significance, such as their association with historical events or traditional practices, are often intangible in nature. While the beliefs and continuity of use/practices associated with a TCP are of central importance, a NRHP eligible property must be a tangible resource. For a TCP to be recorded and evaluated, its geographic location needs to be physically defined, the integrity of the property needs to be determined, and its connection or continuity with the ongoing, current practices and traditions of the Tribe needs to be established (see National

Register Bulletin 15, Chapter VIII). The BLM also recognizes that providing this type of information may violate the Tribe's cultural norms. However, defining, evaluating, and managing TCPs by the federal agency generally requires some of this information to be described and shared. Please note that evaluating the significance and integrity of a TCP does not equate to questioning the beliefs of the Tribe.

We appreciate your time and attention to this project and look forward to meeting soon. For information or clarification about anything in this letter, or to confirm a date/time for our next government-to-government consultation meeting, please contact Grant Day at gday@blm.gov or by phone at (760) 337-4473. I can also be reached at 760-337-4437. Thank you for your continuing cooperation with this office.

Sincerely,

Carrie Sahagun
Acting Field Manager

Attachment 24

BLM
PowerPoint Presentation given to the Fort Yuma-Quechan Indian Tribe, Tribal Council
November 9, 2022

U.S. Department of the Interior
Bureau of Land Management

Bureau of Land Management
El Centro Field Office

Quechan Tribal Council Meeting
November 9, 2022; 9:30 am

U.S. Department of the Interior
Bureau of Land Management

SMP Gold Corp. Proposed Mining Exploration Plan of Operations

Project Background

In 2020 SMP Gold Corp. (SMP) submitted a Plan of Operations (Plan) for an exploration drilling program at the Oro Cruz project site in eastern Imperial County:

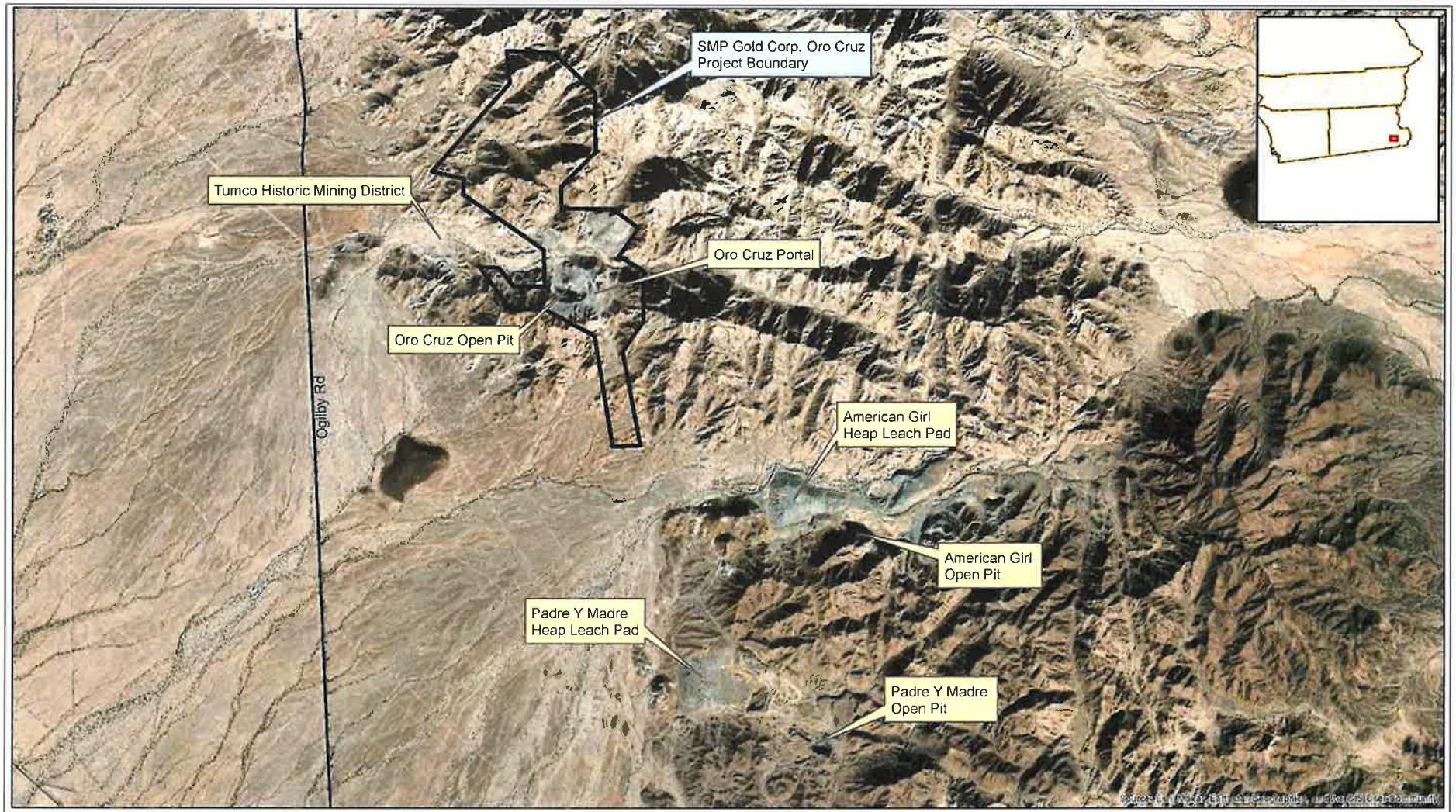
- Seven drill areas with 65 drill sites, including 8 helicopter accessed drill sites, maximum depth ~800 ft
- New access roads and temporary access road improvements, a new permanent access road for access to the Oro Cruz portal, and 2.8 acre staging area
- Total project disturbance ~20.5 acres

The project is located within the Picacho Area of Critical Environmental Concern (ACEC).

The November 2021 revised Plan was determined to be complete.

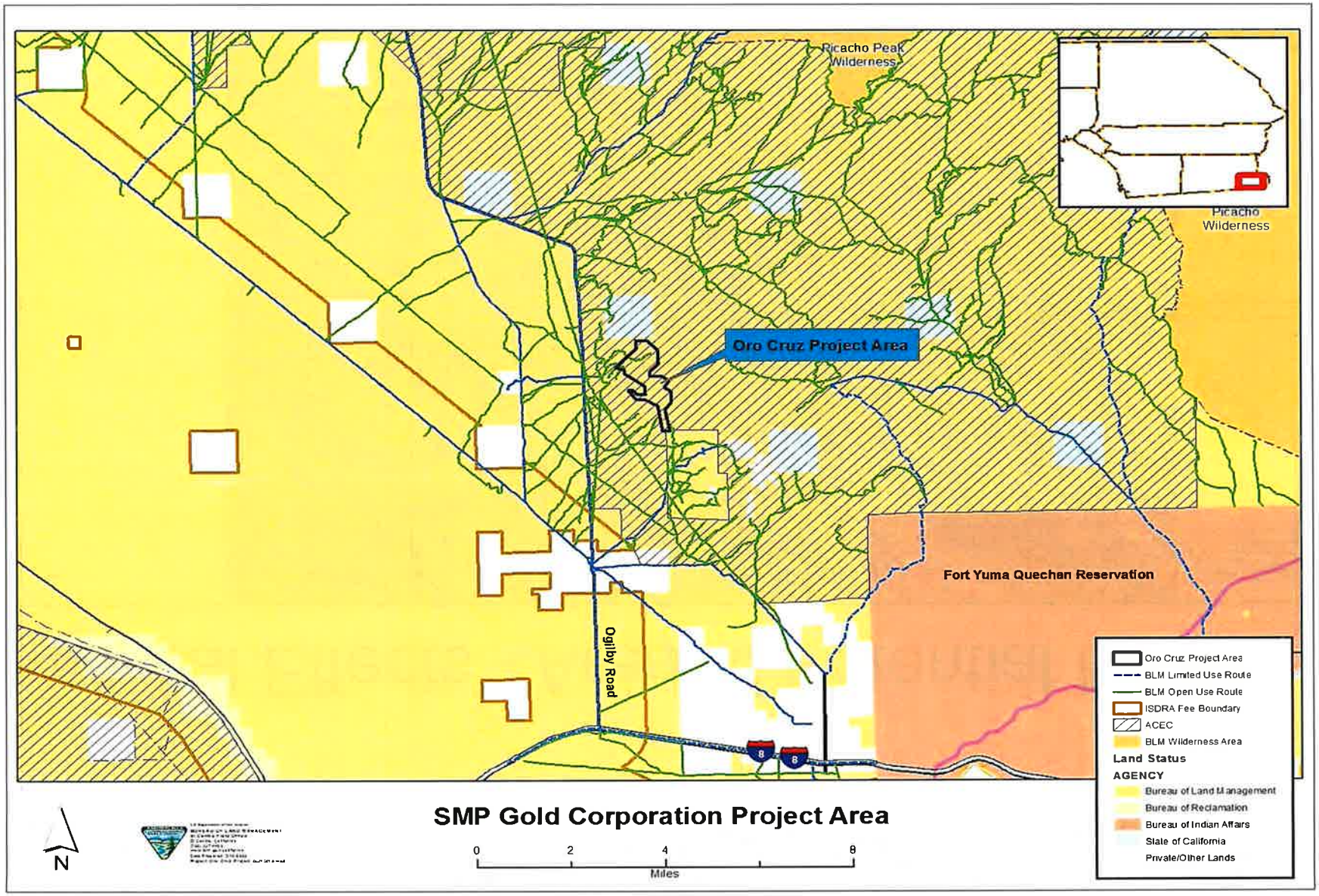
U.S. Department of the Interior
Bureau of Land Management

Mining History

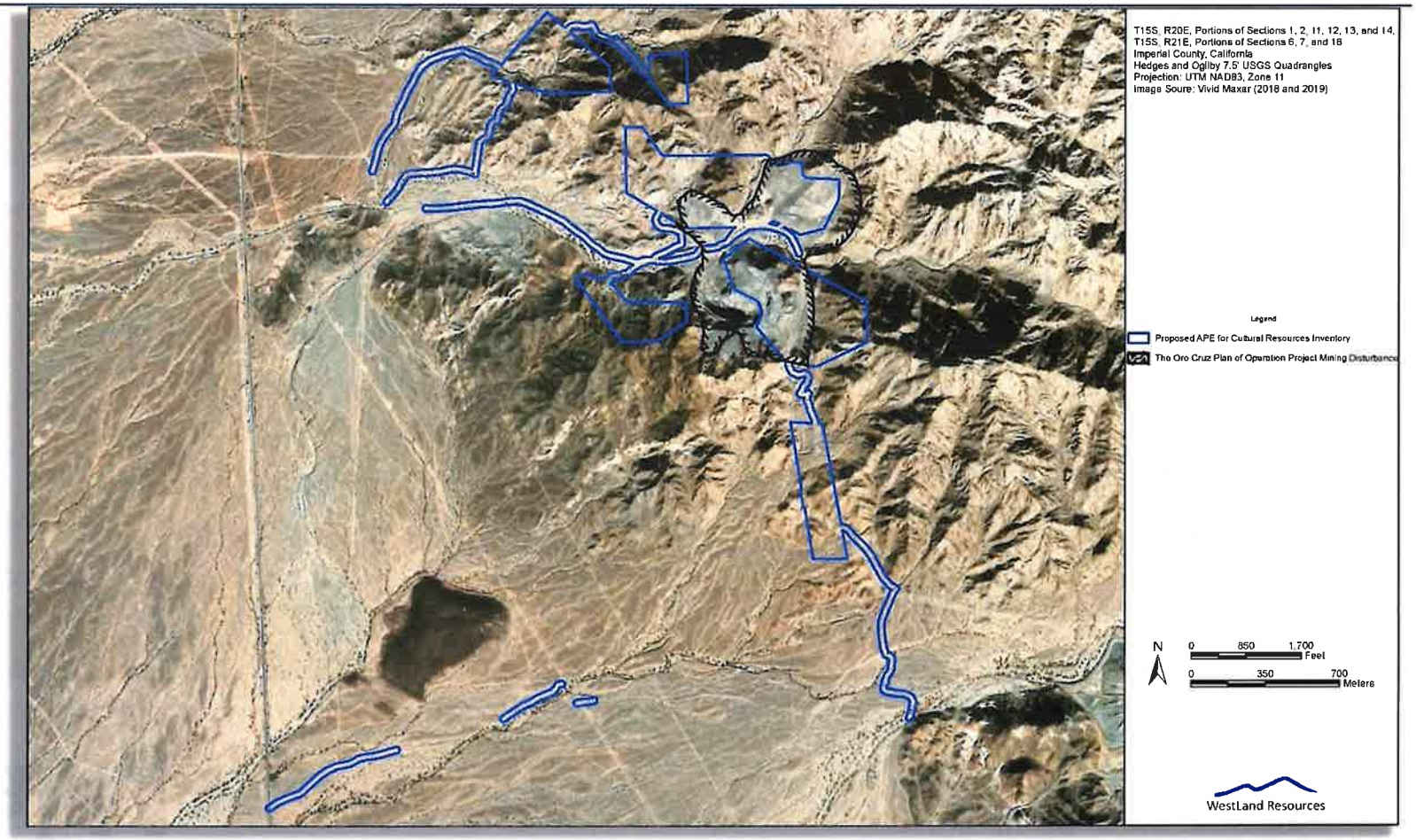


American Girl Mining Joint Venture, 1986-1999

Regional Map



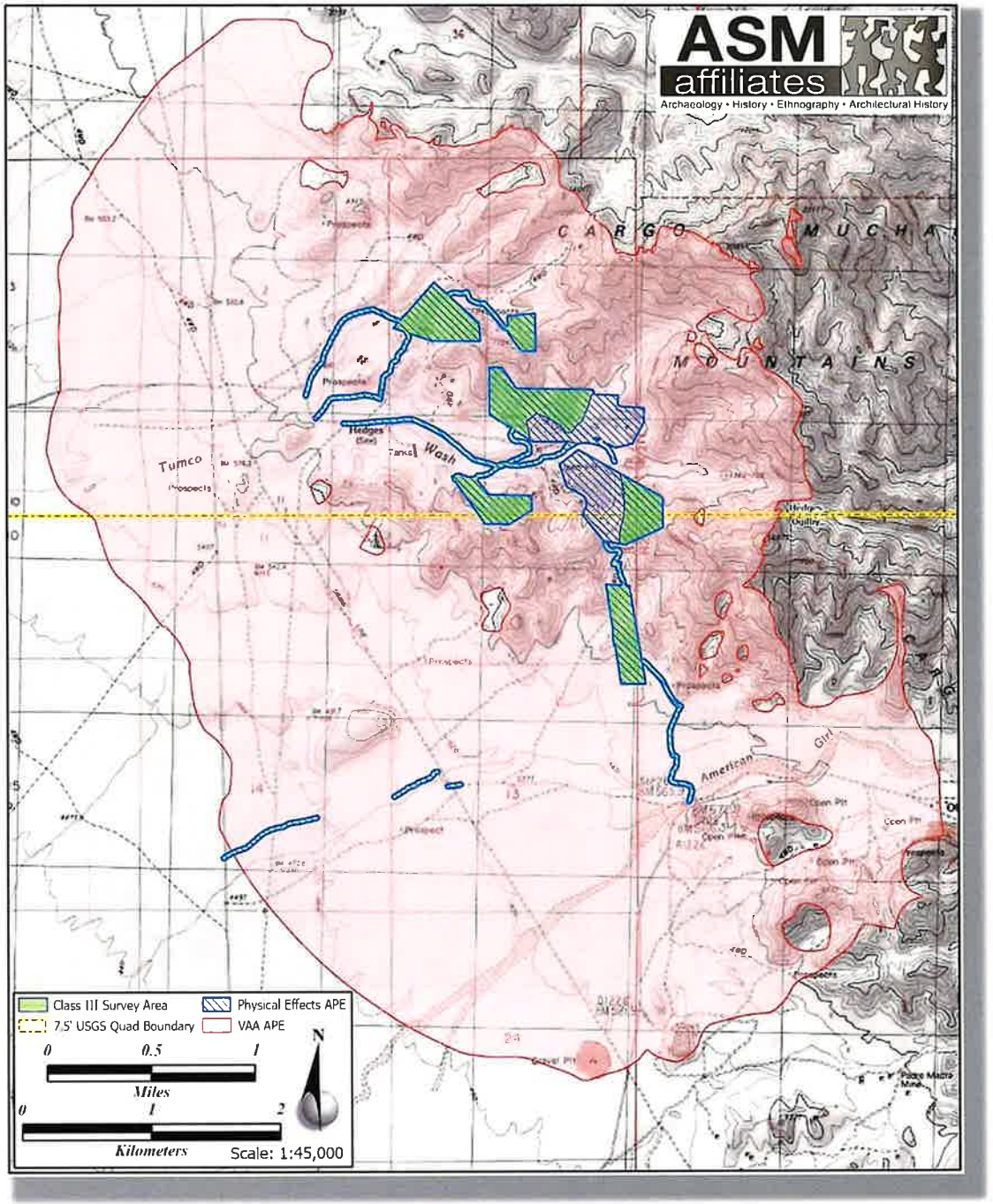
Physical Effects - Area of Potential Effects



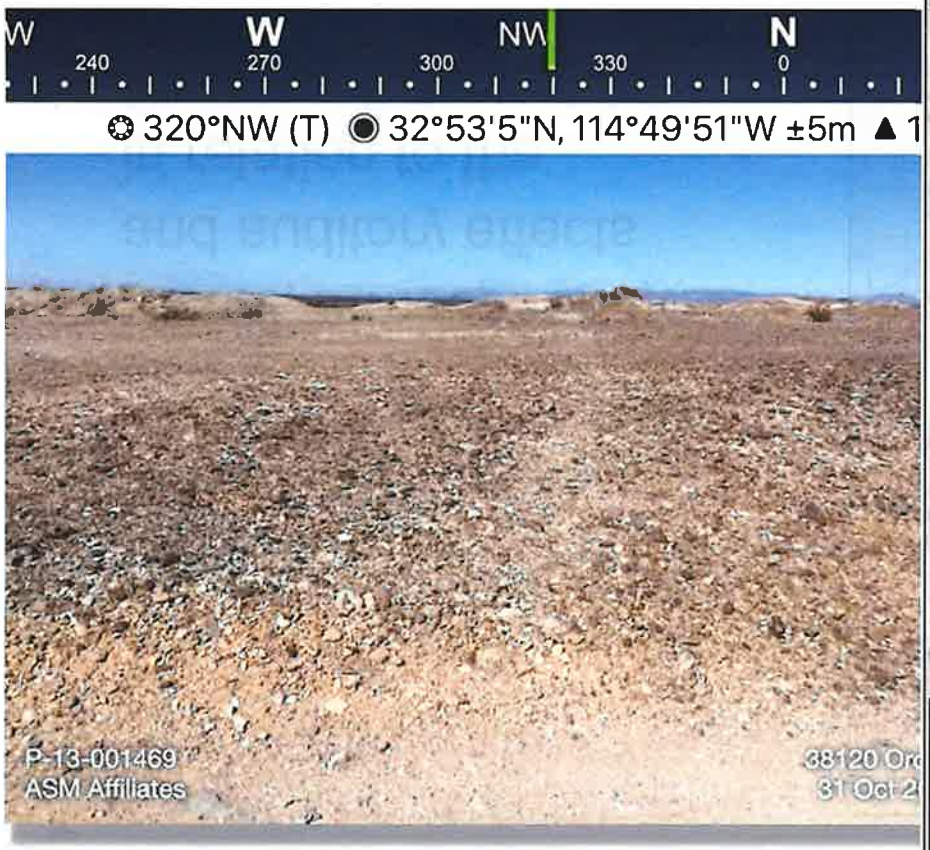
- Total acres = 279
- Previously disturbed acres = 75

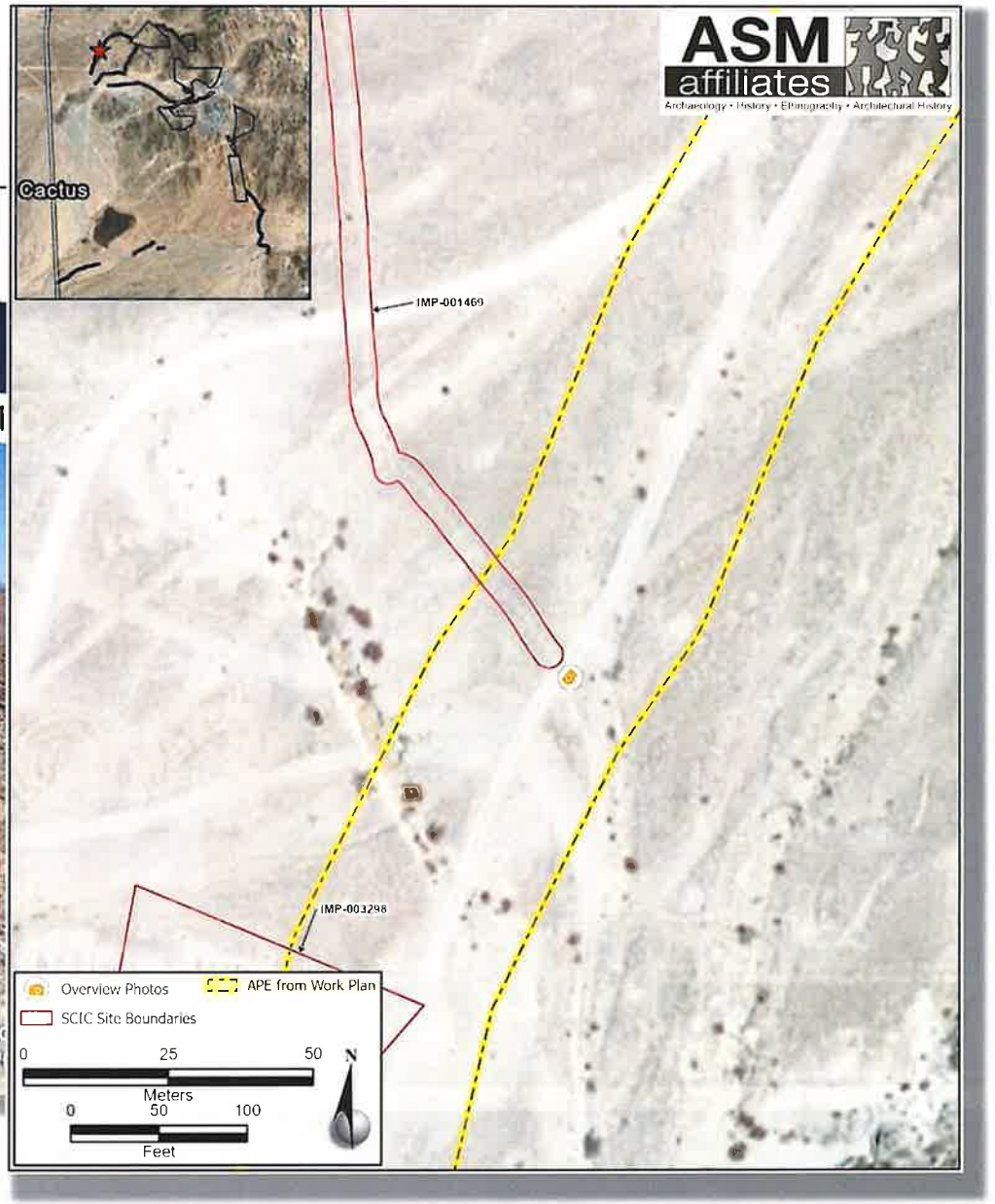
VAA Area of Potential Effects

- Visual, atmospheric, and auditory effects in relation to the Physical Effects APE



Prehistoric/historic trail (IMP-1469)





Section 106 Status

- Initiated consultation in March 2021 with Indian Tribes, State Historic Preservation Officer.
- One government-to-government consultation meeting to date, and two site visits to the Oro Cruz project location with the Quechan Indian Tribe.
- Revised cultural resources inventory report and amended APE was sent out for a 30-day consultation period ending October 17, 2022. All sites will be physically avoided.
- Quechan Indian Tribe comments on the revised cultural resources report included identification of a Traditional Cultural Property (TCP) within the project APE.
- Today's meeting to discuss the project and the TCP. The BLM has requested more information about the nature, extent and use of the TCP by letter dated October 28, 2022.
- BLM will prepare preliminary Section 106 findings and determinations and provide to Consulting parties for 30-day review period in early December.

Next steps

- Publish joint NEPA/CEQA document for 30-day public comment period: Environmental Assessment/Initial Study-mitigated negative declaration

- Provide preliminary Section 106 determinations of eligibility and findings of effect to consulting parties.

- Continue Section 106 and Government to Government consultation

BLM Contact Information

Carrie Sahagun, Acting Field Manager
(760) 337-4437, csahagun@blm.gov

Mayra Martinez, Geologist
(760) 337- 4428, mymartinez@blm.gov

Grant Day, Archaeologist
(760) 337-4473, gday@blm.gov

Attachment 25

BLM
Email(s) to Previously Notified Tribes Regarding NEPA Document/Comment Period
November 16, 2022

From:	Day, Grant L
To:	Hockaday, Shelby
Cc:	Martinez, Mayra Y
Subject:	Fw: CA-670-21-003 SMP Gold Corp. -exploratory drilling -eastern Imperial County, CA
Date:	Wednesday, November 16, 2022 10:17:22 AM
Attachments:	image.png Oro Cruz Exploration EA News Release.pdf

FYI - Email sent to Tribes below.

Grant L. Day
Archaeologist
BLM El Centro Field Office
1661 S. 4th Street
El Centro, CA 92243
(760) 337-4473
USDI, Region 8

From: Day, Grant L <gday@blm.gov>
Sent: Wednesday, November 16, 2022 10:11 AM
Cc: Sahagun, Carrie L <csahagun@blm.gov>; Martinez, Mayra Y <mymartinez@blm.gov>
Subject: CA-670-21-003 SMP Gold Corp. -exploratory drilling -eastern Imperial County, CA

Dear Tribes,

The Bureau of Land Management (BLM) El Centro Field Office (ECFO) would like to continue our government-to-government consultation with you pursuant to Section 106 of the National Historic Preservation Act and other relevant laws and regulations regarding the SMP Gold Corp. (SMP) proposed project to conduct exploratory drilling activities in south-eastern Imperial County. The primary purpose of this communication is to inform you that BLM has prepared a joint Environmental Assessment/Mitigated Negative Declaration in coordination with Imperial County for the SMP Gold Corp. Oro Cruz Exploration Project. The BLM has issued the attached press release today, announcing the EA is available for a 30-day public comment period ending Friday, December 16, 2022. The BLM will hold a virtual public meeting on November 30, 2022, the meeting will be informational only. Formal comments on the environmental document must be submitted through the BLM's ePlanning webpage (https://bit.ly/3Ej3tEd). Please see the news release attached for more information and instructions on how to submit your comments.

For additional information or clarification about this this document or this project, or to schedule a government-to-government consultation meeting with the BLM, please contact Grant Day at gday@blm.gov or by phone at (760) 337-4473. If you have any questions or we can provide additional clarification, please do not hesitate to contact us. Thank you for your continuing cooperation with this office.

Sincerely,

Grant Day

Grant L. Day
Archaeologist
BLM El Centro Field Office
1661 S. 4th Street
El Centro, CA 92243
(760) 337-4473
USDI, Region 8

From: Miyamoto, Kate K <kmiyamoto@blm.gov>
Sent: Wednesday, November 16, 2022
To: Miyamoto, Kate K <kmiyamoto@blm.gov>
Subject: News Release: The BLM welcomes public comments on proposed mineral exploration project in Imperial County

News Release

BLM California Desert District Office
Media Contact: Kate Miyamoto, 720-768-6729, kmiyamoto@blm.gov
November 16, 2022

The BLM welcomes public comments on proposed mineral exploration project in Imperial County

EL CENTRO, Calif. - The Bureau of Land Management is seeking public comments on mineral exploration for gold within the Picacho Area of Critical Environmental Concern (ACEC) at the Oro Cruz Pit Area, in the Cargo Muchacho Mountains, Imperial County. The Project would result in minor surface disturbance and measures would be taken to prevent unnecessary or undue degradation during project operations.

The proposed project by SMP Gold Corp. includes constructing permanent and temporary access roads, making existing road improvements, creating helicopter landing pads, installing drill pads, and creating a staging area. The surface disturbance on BLM-managed land from the proposed exploration activities is approximately 20 acres. The project would be completed within a two-year period, which includes the reclamation at each drill site.

Most of the proposed drilling locations will occur within areas that have been previously disturbed by a mining project that concluded in 1996 with reclamation completed in 1999. The

Picacho ACEC encompasses 183,970 acres of BLM-managed public land and contains important cultural resources and historic properties, including the Tumco historic gold mining district. The Picacho ACEC also serves as a critical habitat for the desert tortoise and a movement corridor for wildlife species, including bighorn sheep and mule deer.

The BLM will host a virtual public informational meeting via Zoom on Wednesday, Nov. 30 from 4-5 p.m. PST. Please register in advance at: https://bit.ly/3V05jj2. The informational meeting will provide details on the project and the National Environmental Policy Act process. Written or oral comments made during the meeting will not be considered as formal public comment.

Public input on the proposed project is due by Dec. 16. Public comments may be submitted through ePlanning at: https://bit.ly/3Ej3tEd; by fax at 760-337-4490, Attn: Mayra Martinez; by mail to Bureau of Land Management, Attn: Mayra Martinez, 1661 S 4th St., El Centro, CA 92243; or by email to: mymartinez@blm.gov. Please add "Oro Cruz Exploration Project" in the email subject line.

Environmental documents, maps and other information is on the Oro Cruz Exploration Project ePlanning website: https://bit.ly/3Ej3tEd.

-BLM-

The BLM manages more than 245 million acres of public land located primarily in 12 western states, including Alaska, on behalf of the American people. The BLM also administers 700 million acres of sub-surface mineral estate throughout the nation. Our mission is to sustain the health, diversity, and productivity of America's public lands for the use and enjoyment of present and future generations.

El Centro Field Office, 1661 S 4th Street, El Centro, CA 92243
Follow the BLM on Twitter, Facebook, and Flickr @BLMCA and @BLMCalifornia

Online here: https://www.blm.gov/press-release/blm-welcomes-public-comments-proposed-mineral-exploration-project-imperial-county

Kate Miyamoto
Public Affairs Specialist
California Desert District - Bureau of Land Management
work cell: 760-883-8528

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Attachment 26

BLM
Email(s) with the Jamul Indian Village of California
April 13, 2023

[EXTERNAL] Re: BLM updates on the Oro Cruz mining exploration project, Imperial County

Lisa Cumper <lcumper@jiv-nsn.gov>

Thu 4/13/2023 3:11 PM

To: Sahagun, Carrie L <csahagun@blm.gov>

Cc: epinto@jiv-nsn.gov <epinto@jiv-nsn.gov>;Martinez, Mayra Y <mymartinez@blm.gov>;Robinson, Hannah A <hrobinson@blm.gov>

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Hi Carrie,

We appreciate being kept in the information loop to receive updates for this project. We do however defer to the wishes of a closer tribe for this project.

Thanks,
Lisa

Kindest Regards,

Lisa K. Cumper, THPO
Tribal Historic Preservation Officer
Cultural Resources Manager,

The Jamul Indian Village of California
Secretary, KCRC, Kumeyaay Nation
Secretary, KHPC, Kumeyaay Nation

P.O. Box 612, Jamul CA 91935
desk: 619.669.4855
cell: 619.928.8689
fax: 619.669.4817

email: lcumper@jiv-nsn.gov
web: www.jamulindianvillage.com

The ground on which we stand is sacred ground, it is the blood of our ancestors. Chief Plenty Coups, Crow

This e-mail message including attachments, if any may contain confidential cultural resource location information; distribution should be restricted to those with a need to know. Cultural resources are nonrenewable, and their cultural, scientific, and aesthetic values can be significantly reduced by disturbance. To deter vandalism, artifact collection, and other activities that can damage cultural resources, their locations should be kept confidential. The legal authority to restrict cultural resource information is in the National Historic Preservation Act of 1966, Section 304; the Archaeological Resource Protection Act of 1979, Section 9(a); and California Government Code 6254.10.

On Thu, Apr 13, 2023 at 10:54 AM Sahagun, Carrie L <csahagun@blm.gov> wrote:

> Dear Chairwoman Pinto and Lisa,
> I hope this email finds you well. Please find a ached a copy of our most recent le er to the Tribe regarding the proposed Oro Cruz mining explora on project within Imperial County. The purpose of the le er is to provide an updated summary of iden fica on efforts, the final revised Class III report and the BLM's proposed determina ons of eligibility and findings of effect for a 30-day consulta on period concluding on May 14, 2023. Thank you very much and please let us know if you have any ques ons or would like to schedule a government-to-government mee ng to discuss the project.
> -Carrie

Carrie L. Sahagun
Acting Field Manager
BLM El Centro Field Of ice
1661 S. 4th Street
El Centro, CA 92243
(760) 337-4437
USDI, Region 8
she/her

Attachment 27

BLM
4th Letter to Sixteen Tribes Requesting Continued Section 106 Consultation
April 13, 2023

From:	Sahagun, Carrie L
To:	ahmut@earthlink.net
Cc:	Martinez, Mayra Y; Robinson, Hannah A
Subject:	BLM updates on the Oro Cruz mining exploration project, Imperial County
Date:	Thursday, April 13, 2023 11:23:10 AM
Attachments:	BLM letter to Ah-Mut Pipa_Oro Cruz_4-13-2023.pdf

Dear Preston,

I hope this email finds you well. Please find attached a copy of our most recent letter to you regarding the proposed Oro Cruz mining exploration project within Imperial County. The purpose of the letter is to provide an updated summary of identification efforts, the final revised Class III report and the BLM's proposed determinations of eligibility and findings of effect for a 30-day consultation period concluding on May 14, 2023. Thank you very much.

-Carrie

Carrie L. Sahagun
Acting Field Manager
BLM El Centro Field Office
1661 S. 4th Street
El Centro, CA 92243
(760) 337-4437
USDI, Region 8
she/her

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BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

April 13, 2023

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Preston Arrow-weed
Ah-Mut Pipa Foundation
P. O. Box 160
Bard, CA 92222

Dear Mr. Arrow-weed,

The Bureau of Land Management (BLM) El Centro Field Office (ECFO) would like to continue our consultation with you pursuant to Section 106 of the National Historic Preservation Act and other relevant laws and regulations regarding the SMP Gold Corp. (SMP) proposed project to conduct exploratory drilling activities in south-eastern Imperial County. The purpose of this letter is:

1) Update the BLM's summary of identification efforts,
2) Provide the final revised *Class III Cultural Resource Inventory for Oro Cruz Exploration Project, Imperial County, California* prepared by ASM Affiliates Inc. (ASM) with a summary of changes from the draft report,
3) Provide the Agency's proposed determinations of eligibility and findings of effect for the Project for a 30-day consultation period.

Summary of Identification Efforts

On August 25, 2022, the BLM sent to all Tribes and consulting parties an updated description of the area of potential effects (APE), a summary of the results of the field inventories and a copy of the draft inventory report for a 30-day consultation period[1]. Below is a comprehensive summary update of the status and results of all the identification efforts to date.

Westland Resources, Inc. contracted ASM on behalf of the BLM to conduct a Class III cultural resource inventory to identify cultural resources that are eligible or potentially eligible for listing on the National Register of Historic Places (NRHP). The Class III inventory included a records search at the South Coastal Information Center (SCIC) and an intensive pedestrian survey within the physical effects APE. On September 20 through 24 and October 30 and 31, 2021, archaeologists from ASM completed the Class III field inventory. All survey was conducted with a Native American monitor present.
The results of the records search identified 11 previously recorded cultural resources that

[1] Prior BLM Section 106 consultation letters for the proposed project include those dated March 31, 2021 and August 10, 2021.

intersect the Physical Effects APE, including one prehistoric trail (CA-IMP-1469), the Ruins of Tumco Mining Town (CA-IMP-3297/3300H/3302), a historic cemetery (CA-IMP-3298), the Golden Queen Mine (CA-IMP-11343H), the Crowns Mine (CA-IMP-11344H), and five other unnamed mines (P-13-015600, P-13-015601, P-13-015602, P-13-015656, and P-13-015841). During the inventory, ASM relocated the 11 previously recorded cultural resources, recorded one new prehistoric site (CA-IMP-13336) and several historic mining features within the Physical Effects APE. ASM also completed a visual and auditory affects (VAA) analysis of cultural resources that could be affected by the Project but that were outside the Physical effects APE. Below is a summary description of the resources documented by ASM along with their recommendations. As a result of BLM consultation efforts with the Tribes, a Traditional Cultural Property (TCP) has also been identified encompassing the project area and a summary of that resource is also provided.

CA-IMP-1469

This previously recorded site is a prehistoric trail approximately 740 m long and 30 cm wide, tamped into the desert pavement and divided into two segments by an unnamed wash. The southernmost end of the site occurs within the physical effects APE for the Project. During the pedestrian survey, ASM revisited the southernmost 17 m of the site, which falls within the proposed APE for an existing access road. The 17m portion of the site inspected appeared to be moderately disturbed by off-road vehicle traffic and seasonal/ephemeral sheet wash erosion. No other artifacts or features were identified at this portion of the site. CA-SDI-1469 will be treated as eligible for inclusion on the NRHP and avoided during the drilling project . The potential for adverse effects is low for this site as it is adjacent to an existing road not scheduled for improvements. Additionally, ESA fencing can ensure that mining vehicles do not veer offroad in this section.

CA-IMP-3297/3300/3302

This previously recorded site is the Hedges/Tumco Historical Townsite designated by the California State Department of Parks and Recreation as California Historic Landmark No. 182. The site was initially recorded by Rudolf Miller in 1977. The Hedges/Tumco Historic Townsite ruins include residential areas, two cemeteries, a commercial district, a company district, and many mining-related features. The site was evaluated for the Oro Cruz Plan of Operation of the American Girl Project in 1992 by Burney and Associates through archaeological testing, oral history, geomorphology, aerial photography, and extensive archival research and was recommended as eligible for listing in the NRHP. In 1994, the BLM determined in consultation with the California State Historic Preservation Office (SHPO) that the site was indeed eligible for listing in the NRHP under Criteria (a), (c), and (d). The current Project plan will avoid physically affecting all features identified during the survey associated with CA-IMP-3297/3300/3302, and thus the Project is not likely to have an adverse effect on the NRHP eligible site. Temporary fencing and periodic monitoring may be needed to ensure that those features in close proximity to the proposed access roads are not impacted.

CA-IMP-3298

This previously recorded site is a historic cemetery adjacent to an existing access road designated as Road Segment No. 1 of the Project. CA-IMP-3298 is technically a feature within CA-IMP-3297/3300/3302 and the site boundaries have been updated to include it. While this road segment is planned for improvements, the cemetery is currently fenced. Additionally, ESA fencing can be

placed along this road segment to ensure avoidance during construction. The current Project plans are such that avoidance of this resource is feasible. Thus the Project will not adversely affect this site.

CA-IMP-7915
This previously recorded historic site was recorded as part of the North Baja Gas Pipeline alignment project. The site consists of a wooden pole, H-frame, 161kV transmission line built in 1951 and stretches from a substation in Pilot Knob in Imperial County to Blythe in Riverside County. The line is part of a transmission line system that carries power from the Davis and Parker Dams on the Colorado River to 31 substations. ASM relocated the transmission line during the survey and determined that it only intersects a small section of Road Segment No. 17, and none of the existing poles fall within the Physical Effects APE; therefore these features can be avoided by the currently proposed Project.

CA-IMP-11343
The Golden Queen mine is technically a feature within CA-IMP-3297/3300/3302. In 1994 it was determined by BLM in consultation with SHPO to not be a contributing component to the Hedges/Tumco Historic Townsite due to the poor condition and natural weathering of the features associated with the Queen mine area. This determination occurred before it was recorded in 2010 by J. Kellogg of the BLM Needles office during a survey in association with the California Desert District Abandoned Mine Lands program. In his report, Kellogg recommended it as eligible. The proposed Project component that intersects the site is an existing access road with no plans for improvements. Given that there are no plans to improve this segment of the Physical Effects APE, the Project will likely have no adverse effect on this site.

CA-IMP-11344
This previously recorded site is the Crowns mine which is technically a feature within CA-IMP-3297/3300/3302. Three mining features were identified during the current survey within the boundaries of this site, including an adit, the remains of a shaft, and a prospect. Additionally, one milled lumber feature was identified during the survey with no associated artifacts. These features may correspond to those identified by the BLM as not eligible for listing in the NRHP in the 1994 Oro Cruz Operation of the American Girl Mining Project EIS. For the present project these features will be treated as eligible and avoided. The current Project plans will avoid these features, and thus the Project will not have an adverse effect on the site.

CA-IMP-13336
This newly recorded site consists of four potsherds that include one rim and three body sherds. The ceramic fragments are distributed with a maximum of 2 m between sherds. Ceramics are associated with late prehistory in general, and in the area specifically from AD 700-900, and onwards. No other artifacts or features were identified at the site. The condition of CA-IMP-13336 is good, with minimal disturbance limited to minor silt deposition in the site area due to seasonal water flow. CA-IMP-13336 will be treated as eligible for inclusion on the NRHP and avoided during the drilling project This small site can easily be avoided by placing temporary environmentally sensitive area (ESA) fencing around it during construction.

P-13-15600
This previously recorded resource was documented as a mine consisting of two shafts, an adit,

and a prospect. One of the shafts was reported to have an opening measuring 10 x 10 ft. with a depth of 15 ft., and the site was mapped as spanning an area measuring 43 m across. No associated artifacts were observed during its recordation, and it was noted that the various features appeared to be in the process of collapse. ASM revisited P-13-15600. However, none of the features recorded at the site were found to fall within the Physical Effects APE, which is composed of an access route that intersects with the site's eastern boundary. As the site will be avoided, there will be no adverse effects to historic properties.

P-13-15601
This previously recorded resource was documented as a mine consisting of two shafts, an adit, and a prospect situated on a north-facing slope. The site was associated with a 55-gallon barrel, undiagnostic cans, and glass fragments. ASM revisited a portion of the site during the survey and relocated the previously recorded features within the Physical Effects APE. The site will be treated as NRHP eligible and avoided, so there will be no adverse affects to historic properties.

P-13-15602
This previously recorded resource was documented as a mine consisting of two shafts, a prospect trench, and a prospect pit. The presence of fencing, modern trash, and possible remaining cribbing was noted during the site's recordation. ASM revisited a small portion of P-13-15602 during the current survey, with most of the site found outside the Physical Effects APE to the west. The site will be treated as NRHP eligible and avoided so that there will be no affects to historic properties.

P-13-15656
This previously recorded resource was documented as a mine site composed of a single shaft and adit. The two were connected underground and found with an associated rock waste pile to the west. A small undiagnostic can scatter and piece of sheet metal were noted during the recordation. ASM revisited the very small portion of P-13-15656 that intersected with the proposed Project APE. However, none of the previously recorded features were relocated in that area. A small scatter of metal strands that appear to be the remains of a cable were identified along the eastern site boundary. No other artifacts or features associated with this site were identified within the Physical Effects APE. The site will be treated as NRHP eligible and avoided, there will be no affects to historic properties.

P-13-15841
This previously recorded resource was documented as a mine consisting of two shafts and an adit located on the north end of the Tumco valley. All three features were associated with waste rock piles, and no associated artifacts were identified. One of the shafts, Shaft 1, was noted to have a wire fence, and the adit was reported to have been previously filled in. ASM revisited P-13-15841 during the survey and relocated the sealed adit (Adit 1) and one of the shafts (Shaft 2). In the northern portion of the site, the cut on the slope for the adit was found to be approximately 10 m long and 3 m wide. As the site will be treated as NRHP eligible and avoided, there will be no effects to historic properties.

Finally, six newly recorded historic mine features, P-13-018460, -018461, -018462, -018463, -018464, and 018465, were also recorded during the current survey. They consist of adits and prospects and are all isolated mining features that were likely created sometime between 1953

and 1961 based on historic topographic maps and aerials of the area. All features will be treated as NRHP eligible and avoided for this project.

Archaeological Sites Located within the VAA APE
The VAA APE intersects 37 prehistoric trails, geoglyphs, ceramic scatters, lithic scatters, rock art sites, and isolates that have potential to be deemed sacred or traditionally important by Native American tribes. The use of these sites and locations by Native American tribes may be affected by the Project through temporary visual obstructions and loud noise levels such that the integrity of the "setting" and "feeling" of the sites is disturbed.

Of the 35 proposed potential drill sites, the closest of the prehistoric sites is 630 meters (2,067 feet) away, and the rest are between 950 and 2565 meters (3,117 and 8,415 feet) away. The viewshed analysis and line of site examples indicate that a 40-foot drill rig line against the existing landscape would not create a strong contrast against the backdrop of the existing landscape and would likely not be noticed by the casual viewer. Of 18 selected sites that intersect the potential visual APE the drill rigs would not be likely to have an adverse visual effect on the integrity of the setting or feeling of the selected sites from a distance of 630 meters or greater.

The auditory APE report suggests that drilling noise from the Project would be substantially shielded towards the east and north due to the topography of the Cargo Muchacho Mountains. Most of the sites are far enough away from the Project area, the Physical Effects APE, and the proposed helicopter drill sites that they would fall within the noise level contours of ~40-35 dBa L_{eq} or lower, which would be the equivalent of a suburban residential area at night. Based on the contours provided by Saxelby Acoustics, the proposed Project would not be likely to have an adverse auditory effect on the integrity of the setting or feeling of the 25 selected sites that intersect the VAA APE.

Identified Traditional Cultural Property
The Quechan Indian Tribe has conveyed to the BLM that the Oro Cruz project area is located within and encompassed by a much larger TCP as described in the 1997 cultural report titled, *Where Trails Cross: Cultural Resources Inventory and Evaluation for the Imperial Project, Imperial County, California*. This 1997 report recorded the Quechan elders' discussions of the trails and associated features and the importance of this region to the Quechan Tribe for conducting ceremonies and rituals, storytelling and song cycles, and for resource gathering. To briefly summarize, the preservation of this area is essential to maintain cultural, religious and traditional practices and teaching of future generations of Quechan youth. This 1997 cultural report also defines the Running Man Area of Traditional Cultural Concern (ATCC) located about 9 miles northeast of the Oro Cruz project area. Although a boundary was created to define the Running Man ATCC for management purposes, the report clearly states that an extensive and complex network of trails and associated sites and "potentially other ATCCs and linking trail systems" are running throughout the region.

The physical or tangible cultural resource evidence of this TCP identified within the Project area are the prehistoric trails, geoglyphs, rock art, and numerous other associated sites containing ceramics and lithics primarily located within the VAA APE. The network of prehistoric trails and associated features are tied directly to the Quechan's stories of origin, religious ceremonies, and traditional cultural teachings as are the Cargo Muchacho Mountains themselves. The TCP

extends from this trail network and associated cultural sites to the "mountains, rivers and springs, and includes the plants and animals" living within the region. The Keruk/Xam Kwatsam Trail system is one of the largest known (but not fully recorded or defined) trail systems that runs the length of the Colorado River between the Newberry Mountains in the north to Pilot Knob near the southeastern corner of Imperial County, California. The 1997 report identifies approximate locations for trails significant to the Tribe(s) running on both the East and West sides of the Cargo Muchacho Mountains. The trail on the west side of the Cargo Muchacho Mountains is within the VAA APE for the Oro Cruz Project. The entire system consists of various segments of the trail, several significant mountain ranges and specific peaks, numerous side trails, numerous earth figures/geoglyphs, and thousands of objects such as lithics, cairns, potsherds, and cleared sleeping or camping areas. Quechan elders testified, elaborately, about the importance of these cultural features during the late 1990's proposed mining project (Imperial Gold) located near Indian Pass, approximately 10 miles northeast of the current Oro Cruz Project. The 1997 report states that additional ethnographic information may be required to understand if this trail network should be recorded and NRHP evaluated as one very large all-encompassing TCP or if the individual components / areas / sites of the larger complex should be identified and evaluated separately. Additional work understanding this TCP or complex of TCPs will continue to be conducted by the BLM in consultation with the Tribe.

Class III Cultural Resources Inventory Report

A draft of the Class III cultural resources inventory report titled, *Class III Cultural Resource Inventory for the Oro Cruz Exploration Project, Imperial County, California* (Report), was sent to Tribes and consulting parties August 25, 2022, for review and comments. Based upon the comments and input the BLM received, the following modifications were made to the Report:

1) Archaeological site CA-IMP-13336 was revisited by ASM, the ceramic sherds were analyzed in more detail and the Report was updated with additional characteristics.
2) The TCP identified by the Quechan Indian Tribe was identified and the Class III Inventory report was amended to include a discussion of the TCP in association with the proposed Project as well as the prehistoric archaeological sites within the VAA APE.
3) Archaeological sites identified within the physical APE and the VAA APE were reviewed again to consider the potential effects that the proposed project may have. These sites were also considered as potentially contributing elements of the TCP. Additional protections were added to the project design such as additional physical barriers and increased cultural monitoring.
4) Avoidance of all archaeological sites, regardless of their status has been recommended for this project; fencing and periodic archaeological monitoring have been recommended for sites located near existing and proposed roads and ground disturbing activity areas.

The revised final Report (non-confidential version) has been uploaded to an ASM ftp website and is available for download. You can access the ftp website at the following address:

https://asmaffiliates.filecloudonline.com/url/an4kfzjxhumghxfp

If you would like to request a hard copy of the report please contact Hannah Robinson, BLM Desert District Archaeologist (contact information below).

Agency Proposed Determinations of Eligibility and Findings of Effect

Based on the results of the record search, archaeological inventory, the contractors' recommendations, Section 106 and government-to-government consultations, the BLM staff review of all the information and analysis provided and pursuant to 36 CFR 800.4 and 800.5, the BLM makes the following determinations regarding NRHP eligibility and findings of effect for historic properties:

- CA-IMP-1469 is determined eligible for inclusion in the NRHP under Criterion A and D. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect as the site will be avoided and protected with protective fencing, matting and other management conditions.
- The BLM concurs with and reaffirms the previous determinations that site CA-IMP-3297/3300/3302 is eligible for inclusion in the NRHP under Criterion A, C and D. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect as the site and features within will be avoided and protected with protective fencing where needed and other management conditions.
- The following resources located within the Physical APE CA-IMP-3298, -7915, -11343, -11344, -13336, P-13-15600, -15601, -15602, -15656, -15841, -18460, -18461, -18462, -18463, -18464, -18465 will be treated as eligible for inclusion in the NRHP for project management purposes. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect to these resources with management conditions and protective fencing where needed.
- The 37 cultural resources within the VAA APE, remain formally unevaluated but will be treated as eligible for inclusion in the NRHP for project management purposes and they will be avoided. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect from visual or auditory intrusions.
- The Identified TCP is assumed eligible for inclusion in the NRHP under Criterion A and D. The BLM finds that there will be no adverse effect to this resource. The archaeological resources that may be components of the TCP will be avoided and the auditory and visual impacts created by this Project will be temporary in nature.
- The BLM finds that there will be **no adverse effects to historic properties** from this undertaking.

Consistent with 36 CFR 800.5(b) the BLM will avoid effects to the significant values of the historic properties by requiring the development and implementation of a cultural resources monitoring program for the Project. The monitoring program for the Project will include procedures for cultural resources monitoring, post-review discovery and unanticipated effects to known historic properties. Qualified cultural resources monitor(s) will be on site during Project construction related to the undertaking and tribal monitors will be invited to participate.

Based on the results of the cultural resources studies and project management actions that will be taken to monitor and avoid resources within the APE, the BLM proposes that there will be ***no adverse effects*** to historic properties by the undertaking. We request your review and comment for a 30-day consultation period. Please provide your input by May 14, 2023.

We appreciate your time and attention in reviewing the information provided in this letter. For information or further clarification, or to schedule a meeting with the BLM, please contact Hannah Robinson, BLM District Archaeologist, at hrobinson@blm.gov or by telephone at (435) 253-3706. If you have any questions please do not hesitate to contact us. I am also available at csahagun@blm.gov or by telephone at 760-337-4437. Thank you for your continued cooperation with this office.

Sincerely,

Carrie L. Sahagun
Acting Field Manager

From: Sahagun, Carrie L
To: jchristman@viejas.com; Ernest "Chucka" Pingleton; rteran@viejas-nsn.gov
Cc: Martinez, Mayra Y; Robinson, Hannah A
Subject: BLM updates on the Oro Cruz mining exploration project, Imperial County
Date: Thursday, April 13, 2023 11:19:19 AM
Attachments: BLM letter to Viejas_Oro Cruz_4-13-2023.pdf

Dear Chairman Christman, Ray and Chucka,
I hope this email finds you well. Please find attached a copy of our most recent letter to the Tribe regarding the proposed Oro Cruz mining exploration project within Imperial County. The purpose of the letter is to provide an updated summary of identification efforts, the final revised Class III report and the BLM's proposed determinations of eligibility and findings of effect for a 30-day consultation period concluding on May 14, 2023. Thank you very much and please let us know if you have any questions or would like to schedule a government-to-government meeting to discuss the project.
-Carrie

Carrie L. Sahagun
Acting Field Manager
BLM El Centro Field Office
1661 S. 4th Street
El Centro, CA 92243
(760) 337-4437
USDI, Region 8
she/her

Caution: This email originated from outside of Stantec. Please take extra precaution.
Attention: Ce courriel provient de l'extérieur de Stantec. Veuillez prendre des précautions supplémentaires.
Atención: Este correo electrónico proviene de fuera de Stantec. Por favor, tome precauciones adicionales.

United States Department of the Interior
BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

April 13, 2023

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. John Christman, Chairman
Viejas Band of Kumeyaay Indians
P.O. Box 908
Alpine, CA 91903-0908

Dear Chairman Christman,

The Bureau of Land Management (BLM) El Centro Field Office (ECFO) would like to continue our government-to-government consultation with you pursuant to Section 106 of the National Historic Preservation Act and other relevant laws and regulations regarding the SMP Gold Corp. (SMP) proposed project to conduct exploratory drilling activities in south-eastern Imperial County. The purpose of this letter is:

1) Update the BLM's summary of identification efforts,
2) Provide the final revised *Class III Cultural Resource Inventory for Oro Cruz Exploration Project, Imperial County, California* prepared by ASM Affiliates Inc. (ASM) with a summary of changes from the draft report,
3) Provide the Agency's proposed determinations of eligibility and findings of effect for the Project for a 30-day consultation period.

Summary of Identification Efforts

On August 25, 2022, the BLM sent to all Tribes and consulting parties an updated description of the area of potential effects (APE), a summary of the results of the field inventories and a copy of the draft inventory report for a 30-day consultation period[1]. Below is a comprehensive summary update of the status and results of all the identification efforts to date.

Westland Resources, Inc. contracted ASM on behalf of the BLM to conduct a Class III cultural resource inventory to identify cultural resources that are eligible or potentially eligible for listing on the National Register of Historic Places (NRHP). The Class III inventory included a records search at the South Coastal Information Center (SCIC) and an intensive pedestrian survey within the physical effects APE. On September 20 through 24 and October 30 and 31, 2021, archaeologists from ASM completed the Class III field inventory. All survey was conducted with a Native American monitor present.

[1] Prior BLM Section 106 consultation letters for the proposed project include those dated March 31, 2021 and August 10, 2021.

The results of the records search identified 11 previously recorded cultural resources that intersect the Physical Effects APE, including one prehistoric trail (CA-IMP-1469), the Ruins of Tumco Mining Town (CA-IMP-3297/3300H/3302), a historic cemetery (CA-IMP-3298), the Golden Queen Mine (CA-IMP-11343H), the Crowns Mine (CA-IMP-11344H), and five other unnamed mines (P-13-015600, P-13-015601, P-13-015602, P-13-015656, and P-13-015841). During the inventory, ASM relocated the 11 previously recorded cultural resources, recorded one new prehistoric site (CA-IMP-13336) and several historic mining features within the Physical Effects APE. ASM also completed a visual and auditory affects (VAA) analysis of cultural resources that could be affected by the Project but that were outside the Physical effects APE. Below is a summary description of the resources documented by ASM along with their recommendations. As a result of BLM consultation efforts with the Tribes, a Traditional Cultural Property (TCP) has also been identified encompassing the project area and a summary of that resource is also provided.

CA-IMP-1469

This previously recorded site is a prehistoric trail approximately 740 m long and 30 cm wide, tamped into the desert pavement and divided into two segments by an unnamed wash. The southernmost end of the site occurs within the physical effects APE for the Project. During the pedestrian survey, ASM revisited the southernmost 17 m of the site, which falls within the proposed APE for an existing access road. The 17m portion of the site inspected appeared to be moderately disturbed by off-road vehicle traffic and seasonal/ephemeral sheet wash erosion. No other artifacts or features were identified at this portion of the site. CA-SDI-1469 will be treated as eligible for inclusion on the NRHP and avoided during the drilling project . The potential for adverse effects is low for this site as it is adjacent to an existing road not scheduled for improvements. Additionally, ESA fencing can ensure that mining vehicles do not veer offroad in this section.

CA-IMP-3297/3300/3302

This previously recorded site is the Hedges/Tumco Historical Townsite designated by the California State Department of Parks and Recreation as California Historic Landmark No. 182. The site was initially recorded by Rudolf Miller in 1977. The Hedges/Tumco Historic Townsite ruins include residential areas, two cemeteries, a commercial district, a company district, and many mining-related features. The site was evaluated for the Oro Cruz Plan of Operation of the American Girl Project in 1992 by Burney and Associates through archaeological testing, oral history, geomorphology, aerial photography, and extensive archival research and was recommended as eligible for listing in the NRHP. In 1994, the BLM determined in consultation with the California State Historic Preservation Office (SHPO) that the site was indeed eligible for listing in the NRHP under Criteria (a), (c), and (d). The current Project plan will avoid physically affecting all features identified during the survey associated with CA-IMP-3297/3300/3302, and thus the Project is not likely to have an adverse effect on the NRHP eligible site. Temporary fencing and periodic monitoring may be needed to ensure that those features in close proximity to the proposed access roads are not impacted.

CA-IMP-3298

This previously recorded site is a historic cemetery adjacent to an existing access road designated as Road Segment No. 1 of the Project. CA-IMP-3298 is technically a feature within CA-IMP-3297/3300/3302 and the site boundaries have been updated to include it. While this road segment

is planned for improvements, the cemetery is currently fenced. Additionally, ESA fencing can be placed along this road segment to ensure avoidance during construction. The current Project plans are such that avoidance of this resource is feasible. Thus the Project will not adversely affect this site.

CA-IMP-7915
This previously recorded historic site was recorded as part of the North Baja Gas Pipeline alignment project. The site consists of a wooden pole, H-frame, 161kV transmission line built in 1951 and stretches from a substation in Pilot Knob in Imperial County to Blythe in Riverside County. The line is part of a transmission line system that carries power from the Davis and Parker Dams on the Colorado River to 31 substations. ASM relocated the transmission line during the survey and determined that it only intersects a small section of Road Segment No. 17, and none of the existing poles fall within the Physical Effects APE; therefore these features can be avoided by the currently proposed Project.

CA-IMP-11343
The Golden Queen mine is technically a feature within CA-IMP-3297/3300/3302. In 1994 it was determined by BLM in consultation with SHPO to not be a contributing component to the Hedges/Tumco Historic Townsite due to the poor condition and natural weathering of the features associated with the Queen mine area. This determination occurred before it was recorded in 2010 by J. Kellogg of the BLM Needles office during a survey in association with the California Desert District Abandoned Mine Lands program. In his report, Kellogg recommended it as eligible. The proposed Project component that intersects the site is an existing access road with no plans for improvements. Given that there are no plans to improve this segment of the Physical Effects APE, the Project will likely have no adverse effect on this site.

CA-IMP-11344
This previously recorded site is the Crowns mine which is technically a feature within CA-IMP-3297/3300/3302. Three mining features were identified during the current survey within the boundaries of this site, including an adit, the remains of a shaft, and a prospect. Additionally, one milled lumber feature was identified during the survey with no associated artifacts. These features may correspond to those identified by the BLM as not eligible for listing in the NRHP in the 1994 Oro Cruz Operation of the American Girl Mining Project EIS. For the present project these features will be treated as eligible and avoided. The current Project plans will avoid these features, and thus the Project will not have an adverse effect on the site.

CA-IMP-13336
This newly recorded site consists of four potsherds that include one rim and three body sherds. The ceramic fragments are distributed with a maximum of 2 m between sherds. Ceramics are associated with late prehistory in general, and in the area specifically from AD 700-900, and onwards. No other artifacts or features were identified at the site. The condition of CA-IMP-13336 is good, with minimal disturbance limited to minor silt deposition in the site area due to seasonal water flow. CA-IMP-13336 will be treated as eligible for inclusion on the NRHP and avoided during the drilling project This small site can easily be avoided by placing temporary environmentally sensitive area (ESA) fencing around it during construction.

P-13-15600
This previously recorded resource was documented as a mine consisting of two shafts, an adit, and a prospect. One of the shafts was reported to have an opening measuring 10 x 10 ft. with a depth of 15 ft., and the site was mapped as spanning an area measuring 43 m across. No associated artifacts were observed during its recordation, and it was noted that the various features appeared to be in the process of collapse. ASM revisited P-13-15600. However, none of the features recorded at the site were found to fall within the Physical Effects APE, which is composed of an access route that intersects with the site's eastern boundary. As the site will be avoided, there will be no adverse effects to historic properties.

P-13-15601
This previously recorded resource was documented as a mine consisting of two shafts, an adit, and a prospect situated on a north-facing slope. The site was associated with a 55-gallon barrel, undiagnostic cans, and glass fragments. ASM revisited a portion of the site during the survey and relocated the previously recorded features within the Physical Effects APE. The site will be treated as NRHP eligible and avoided, so there will be no adverse affects to historic properties.

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This previously recorded resource was documented as a mine consisting of two shafts, a prospect trench, and a prospect pit. The presence of fencing, modern trash, and possible remaining cribbing was noted during the site's recordation. ASM revisited a small portion of P-13-15602 during the current survey, with most of the site found outside the Physical Effects APE to the west. The site will be treated as NRHP eligible and avoided so that there will be no affects to historic properties.

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This previously recorded resource was documented as a mine site composed of a single shaft and adit. The two were connected underground and found with an associated rock waste pile to the west. A small undiagnostic can scatter and piece of sheet metal were noted during the recordation. ASM revisited the very small portion of P-13-15656 that intersected with the proposed Project APE. However, none of the previously recorded features were relocated in that area. A small scatter of metal strands that appear to be the remains of a cable were identified along the eastern site boundary. No other artifacts or features associated with this site were identified within the Physical Effects APE. The site will be treated as NRHP eligible and avoided, there will be no affects to historic properties.

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This previously recorded resource was documented as a mine consisting of two shafts and an adit located on the north end of the Tumco valley. All three features were associated with waste rock piles, and no associated artifacts were identified. One of the shafts, Shaft 1, was noted to have a wire fence, and the adit was reported to have been previously filled in. ASM revisited P-13-15841 during the survey and relocated the sealed adit (Adit 1) and one of the shafts (Shaft 2). In the northern portion of the site, the cut on the slope for the adit was found to be approximately 10 m long and 3 m wide. As the site will be treated as NRHP eligible and avoided, there will be no effects to historic properties.

Finally, six newly recorded historic mine features, P-13-018460, -018461, -018462, -018463, -018464, and 018465, were also recorded during the current survey. They consist of adits and prospects and are all isolated mining features that were likely created sometime between 1953 and 1961 based on historic topographic maps and aerials of the area. All features will be treated as NRHP eligible and avoided for this project.

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The VAA APE intersects 37 prehistoric trails, geoglyphs, ceramic scatters, lithic scatters, rock art sites, and isolates that have potential to be deemed sacred or traditionally important by Native American tribes. The use of these sites and locations by Native American tribes may be affected by the Project through temporary visual obstructions and loud noise levels such that the integrity of the "setting" and "feeling" of the sites is disturbed.

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3) Archaeological sites identified within the physical APE and the VAA APE were reviewed again to consider the potential effects that the proposed project may have. These sites were also considered as potentially contributing elements of the TCP. Additional protections were added to the project design such as additional physical barriers and increased cultural monitoring.
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- The BLM concurs with and reaffirms the previous determinations that site CA-IMP-3297/3300/3302 is eligible for inclusion in the NRHP under Criterion A, C and D. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect as the site and features within will be avoided and protected with protective fencing where needed and other management conditions.
- The following resources located within the Physical APE CA-IMP-3298, -7915, -11343, -11344, -13336, P-13-15600, -15601, -15602, -15656, -15841, -18460, -18461, -18462, -18463, -18464, -18465 will be treated as eligible for inclusion in the NRHP for project management purposes. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect to these resources with management conditions and protective fencing where needed.
- The 37 cultural resources within the VAA APE, remain formally unevaluated but will be treated as eligible for inclusion in the NRHP for project management purposes and they will be avoided. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect from visual or auditory intrusions.
- The Identified TCP is assumed eligible for inclusion in the NRHP under Criterion A and D. The BLM finds that there will be no adverse effect to this resource. The archaeological resources that may be components of the TCP will be avoided and the auditory and visual impacts created by this Project will be temporary in nature.
- The BLM finds that there will be **no adverse effects to historic properties** from this undertaking.

Consistent with 36 CFR 800.5(b) the BLM will avoid effects to the significant values of the historic properties by requiring the development and implementation of a cultural resources monitoring program for the Project. The monitoring program for the Project will include procedures for cultural resources monitoring, post-review discovery and unanticipated effects to known historic properties. Qualified cultural resources monitor(s) will be on site during Project construction related to the undertaking and tribal monitors will be invited to participate.

Based on the results of the cultural resources studies and project management actions that will be taken to monitor and avoid resources within the APE, the BLM proposes that there will be ***no***

adverse effects to historic properties by the undertaking. We request your review and comment for a 30-day consultation period. Please provide your input by May 14, 2023.

We appreciate your time and attention in reviewing the information provided in this letter. For information or further clarification, or to schedule a government-to-government consultation meeting with the BLM, please contact Hannah Robinson, BLM District Archaeologist, at hrobinson@blm.gov or by telephone at (435) 253-3706. If you have any questions please do not hesitate to contact us. I am also available at csahagun@blm.gov or by telephone at 760-337-4437. Thank you for your continued cooperation with this office.

Sincerely,

Carrie L. Sahagun
Acting Field Manager

Electronic cc:
Mayra Martinez, Project Manager (mymartinez@blm.gov)
Hannah Robinson, Archaeologist, California Desert District (hrobinson@blm.gov)

From: Sahagun, Carrie L
To: thomas.tortez@torresmartinez-nsn.gov
Cc: Martinez, Mayra Y; Robinson, Hannah A
Subject: BLM updates on the Oro Cruz mining exploration project, Imperial County
Date: Thursday, April 13, 2023 11:16:00 AM
Attachments: BLM letter to Torres-Martinez_Oro Cruz_4-13-2023.pdf

Dear Chairman Tortez,

I hope this email finds you well. Please find attached a copy of our most recent letter to the Tribe regarding the proposed Oro Cruz mining exploration project within Imperial County. The purpose of the letter is to provide an updated summary of identification efforts, the final revised Class III report and the BLM's proposed determinations of eligibility and findings of effect for a 30-day consultation period concluding on May 14, 2023. Thank you very much and please let us know if you have any questions or would like to schedule a government-to-government meeting to discuss the project.

-Carrie

Carrie L. Sahagun
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BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S 4th Street
El Centro CA 92243
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April 13, 2023

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Thomas Tortez, Chairman
Torres-Martinez Desert Cahuilla Indians
P.O. Box 1160
Thermal, CA 92274

Dear Chairman Tortez,

The Bureau of Land Management (BLM) El Centro Field Office (ECFO) would like to continue our government-to-government consultation with you pursuant to Section 106 of the National Historic Preservation Act and other relevant laws and regulations regarding the SMP Gold Corp. (SMP) proposed project to conduct exploratory drilling activities in south-eastern Imperial County. The purpose of this letter is:

1) Update the BLM's summary of identification efforts,
2) Provide the final revised *Class III Cultural Resource Inventory for Oro Cruz Exploration Project, Imperial County, California* prepared by ASM Affiliates Inc. (ASM) with a summary of changes from the draft report,
3) Provide the Agency's proposed determinations of eligibility and findings of effect for the Project for a 30-day consultation period.

Summary of Identification Efforts

On August 25, 2022, the BLM sent to all Tribes and consulting parties an updated description of the area of potential effects (APE), a summary of the results of the field inventories and a copy of the draft inventory report for a 30-day consultation period[1]. Below is a comprehensive summary update of the status and results of all the identification efforts to date.

Westland Resources, Inc. contracted ASM on behalf of the BLM to conduct a Class III cultural resource inventory to identify cultural resources that are eligible or potentially eligible for listing on the National Register of Historic Places (NRHP). The Class III inventory included a records search at the South Coastal Information Center (SCIC) and an intensive pedestrian survey within the physical effects APE. On September 20 through 24 and October 30 and 31, 2021, archaeologists from ASM completed the Class III field inventory. All survey was conducted with a Native American monitor present.

[1] Prior BLM Section 106 consultation letters for the proposed project include those dated March 31, 2021 and August 10, 2021.

The results of the records search identified 11 previously recorded cultural resources that intersect the Physical Effects APE, including one prehistoric trail (CA-IMP-1469), the Ruins of Tumco Mining Town (CA-IMP-3297/3300H/3302), a historic cemetery (CA-IMP-3298), the Golden Queen Mine (CA-IMP-11343H), the Crowns Mine (CA-IMP-11344H), and five other unnamed mines (P-13-015600, P-13-015601, P-13-015602, P-13-015656, and P-13-015841). During the inventory, ASM relocated the 11 previously recorded cultural resources, recorded one new prehistoric site (CA-IMP-13336) and several historic mining features within the Physical Effects APE. ASM also completed a visual and auditory affects (VAA) analysis of cultural resources that could be affected by the Project but that were outside the Physical effects APE. Below is a summary description of the resources documented by ASM along with their recommendations. As a result of BLM consultation efforts with the Tribes, a Traditional Cultural Property (TCP) has also been identified encompassing the project area and a summary of that resource is also provided.

CA-IMP-1469

This previously recorded site is a prehistoric trail approximately 740 m long and 30 cm wide, tamped into the desert pavement and divided into two segments by an unnamed wash. The southernmost end of the site occurs within the physical effects APE for the Project. During the pedestrian survey, ASM revisited the southernmost 17 m of the site, which falls within the proposed APE for an existing access road. The 17m portion of the site inspected appeared to be moderately disturbed by off-road vehicle traffic and seasonal/ephemeral sheet wash erosion. No other artifacts or features were identified at this portion of the site. CA-SDI-1469 will be treated as eligible for inclusion on the NRHP and avoided during the drilling project . The potential for adverse effects is low for this site as it is adjacent to an existing road not scheduled for improvements. Additionally, ESA fencing can ensure that mining vehicles do not veer offroad in this section.

CA-IMP-3297/3300/3302

This previously recorded site is the Hedges/Tumco Historical Townsite designated by the California State Department of Parks and Recreation as California Historic Landmark No. 182. The site was initially recorded by Rudolf Miller in 1977. The Hedges/Tumco Historic Townsite ruins include residential areas, two cemeteries, a commercial district, a company district, and many mining-related features. The site was evaluated for the Oro Cruz Plan of Operation of the American Girl Project in 1992 by Burney and Associates through archaeological testing, oral history, geomorphology, aerial photography, and extensive archival research and was recommended as eligible for listing in the NRHP. In 1994, the BLM determined in consultation with the California State Historic Preservation Office (SHPO) that the site was indeed eligible for listing in the NRHP under Criteria (a), (c), and (d). The current Project plan will avoid physically affecting all features identified during the survey associated with CA-IMP-3297/3300/3302, and thus the Project is not likely to have an adverse effect on the NRHP eligible site. Temporary fencing and periodic monitoring may be needed to ensure that those features in close proximity to the proposed access roads are not impacted.

CA-IMP-3298

This previously recorded site is a historic cemetery adjacent to an existing access road designated as Road Segment No. 1 of the Project. CA-IMP-3298 is technically a feature within CA-IMP-3297/3300/3302 and the site boundaries have been updated to include it. While this road segment

is planned for improvements, the cemetery is currently fenced. Additionally, ESA fencing can be placed along this road segment to ensure avoidance during construction. The current Project plans are such that avoidance of this resource is feasible. Thus the Project will not adversely affect this site.

CA-IMP-7915

This previously recorded historic site was recorded as part of the North Baja Gas Pipeline alignment project. The site consists of a wooden pole, H-frame, 161kV transmission line built in 1951 and stretches from a substation in Pilot Knob in Imperial County to Blythe in Riverside County. The line is part of a transmission line system that carries power from the Davis and Parker Dams on the Colorado River to 31 substations. ASM relocated the transmission line during the survey and determined that it only intersects a small section of Road Segment No. 17, and none of the existing poles fall within the Physical Effects APE; therefore these features can be avoided by the currently proposed Project.

CA-IMP-11343

The Golden Queen mine is technically a feature within CA-IMP-3297/3300/3302. In 1994 it was determined by BLM in consultation with SHPO to not be a contributing component to the Hedges/Tumco Historic Townsite due to the poor condition and natural weathering of the features associated with the Queen mine area. This determination occurred before it was recorded in 2010 by J. Kellogg of the BLM Needles office during a survey in association with the California Desert District Abandoned Mine Lands program. In his report, Kellogg recommended it as eligible. The proposed Project component that intersects the site is an existing access road with no plans for improvements. Given that there are no plans to improve this segment of the Physical Effects APE, the Project will likely have no adverse effect on this site.

CA-IMP-11344

This previously recorded site is the Crowns mine which is technically a feature within CA-IMP-3297/3300/3302. Three mining features were identified during the current survey within the boundaries of this site, including an adit, the remains of a shaft, and a prospect. Additionally, one milled lumber feature was identified during the survey with no associated artifacts. These features may correspond to those identified by the BLM as not eligible for listing in the NRHP in the 1994 Oro Cruz Operation of the American Girl Mining Project EIS. For the present project these features will be treated as eligible and avoided. The current Project plans will avoid these features, and thus the Project will not have an adverse effect on the site.

CA-IMP-13336

This newly recorded site consists of four potsherds that include one rim and three body sherds. The ceramic fragments are distributed with a maximum of 2 m between sherds. Ceramics are associated with late prehistory in general, and in the area specifically from AD 700-900, and onwards. No other artifacts or features were identified at the site. The condition of CA-IMP-13336 is good, with minimal disturbance limited to minor silt deposition in the site area due to seasonal water flow. CA-IMP-13336 will be treated as eligible for inclusion on the NRHP and avoided during the drilling project This small site can easily be avoided by placing temporary environmentally sensitive area (ESA) fencing around it during construction.

P-13-15600
This previously recorded resource was documented as a mine consisting of two shafts, an adit, and a prospect. One of the shafts was reported to have an opening measuring 10 x 10 ft. with a depth of 15 ft., and the site was mapped as spanning an area measuring 43 m across. No associated artifacts were observed during its recordation, and it was noted that the various features appeared to be in the process of collapse. ASM revisited P-13-15600. However, none of the features recorded at the site were found to fall within the Physical Effects APE, which is composed of an access route that intersects with the site's eastern boundary. As the site will be avoided, there will be no adverse effects to historic properties.

P-13-15601
This previously recorded resource was documented as a mine consisting of two shafts, an adit, and a prospect situated on a north-facing slope. The site was associated with a 55-gallon barrel, undiagnostic cans, and glass fragments. ASM revisited a portion of the site during the survey and relocated the previously recorded features within the Physical Effects APE. The site will be treated as NRHP eligible and avoided, so there will be no adverse affects to historic properties.

P-13-15602
This previously recorded resource was documented as a mine consisting of two shafts, a prospect trench, and a prospect pit. The presence of fencing, modern trash, and possible remaining cribbing was noted during the site's recordation. ASM revisited a small portion of P-13-15602 during the current survey, with most of the site found outside the Physical Effects APE to the west. The site will be treated as NRHP eligible and avoided so that there will be no affects to historic properties.

P-13-15656
This previously recorded resource was documented as a mine site composed of a single shaft and adit. The two were connected underground and found with an associated rock waste pile to the west. A small undiagnostic can scatter and piece of sheet metal were noted during the recordation. ASM revisited the very small portion of P-13-15656 that intersected with the proposed Project APE. However, none of the previously recorded features were relocated in that area. A small scatter of metal strands that appear to be the remains of a cable were identified along the eastern site boundary. No other artifacts or features associated with this site were identified within the Physical Effects APE. The site will be treated as NRHP eligible and avoided, there will be no affects to historic properties.

P-13-15841
This previously recorded resource was documented as a mine consisting of two shafts and an adit located on the north end of the Tumco valley. All three features were associated with waste rock piles, and no associated artifacts were identified. One of the shafts, Shaft 1, was noted to have a wire fence, and the adit was reported to have been previously filled in. ASM revisited P-13-15841 during the survey and relocated the sealed adit (Adit 1) and one of the shafts (Shaft 2). In the northern portion of the site, the cut on the slope for the adit was found to be approximately 10 m long and 3 m wide. As the site will be treated as NRHP eligible and avoided, there will be no effects to historic properties.

Finally, six newly recorded historic mine features, P-13-018460, -018461, -018462, -018463, -018464, and 018465, were also recorded during the current survey. They consist of adits and prospects and are all isolated mining features that were likely created sometime between 1953 and 1961 based on historic topographic maps and aerials of the area. All features will be treated as NRHP eligible and avoided for this project.

Archaeological Sites Located within the VAA APE
The VAA APE intersects 37 prehistoric trails, geoglyphs, ceramic scatters, lithic scatters, rock art sites, and isolates that have potential to be deemed sacred or traditionally important by Native American tribes. The use of these sites and locations by Native American tribes may be affected by the Project through temporary visual obstructions and loud noise levels such that the integrity of the "setting" and "feeling" of the sites is disturbed.

Of the 35 proposed potential drill sites, the closest of the prehistoric sites is 630 meters (2,067 feet) away, and the rest are between 950 and 2565 meters (3,117 and 8,415 feet) away. The viewshed analysis and line of site examples indicate that a 40-foot drill rig line against the existing landscape would not create a strong contrast against the backdrop of the existing landscape and would likely not be noticed by the casual viewer. Of 18 selected sites that intersect the potential visual APE the drill rigs would not be likely to have an adverse visual effect on the integrity of the setting or feeling of the selected sites from a distance of 630 meters or greater.

The auditory APE report suggests that drilling noise from the Project would be substantially shielded towards the east and north due to the topography of the Cargo Muchacho Mountains. Most of the sites are far enough away from the Project area, the Physical Effects APE, and the proposed helicopter drill sites that they would fall within the noise level contours of ~40-35 dBa L_{eq} or lower, which would be the equivalent of a suburban residential area at night. Based on the contours provided by Saxelby Acoustics, the proposed Project would not be likely to have an adverse auditory effect on the integrity of the setting or feeling of the 25 selected sites that intersect the VAA APE.

Identified Traditional Cultural Property
The Quechan Indian Tribe has conveyed to the BLM that the Oro Cruz project area is located within and encompassed by a much larger TCP as described in the 1997 cultural report titled, *Where Trails Cross: Cultural Resources Inventory and Evaluation for the Imperial Project, Imperial County, California*. This 1997 report recorded the Quechan elders' discussions of the trails and associated features and the importance of this region to the Quechan Tribe for conducting ceremonies and rituals, storytelling and song cycles, and for resource gathering. To briefly summarize, the preservation of this area is essential to maintain cultural, religious and traditional practices and teaching of future generations of Quechan youth. This 1997 cultural report also defines the Running Man Area of Traditional Cultural Concern (ATCC) located about 9 miles northeast of the Oro Cruz project area. Although a boundary was created to define the Running Man ATCC for management purposes, the report clearly states that an extensive and complex network of trails and associated sites and "potentially other ATCCs and linking trail systems" are running throughout the region.

The physical or tangible cultural resource evidence of this TCP identified within the Project area are the prehistoric trails, geoglyphs, rock art, and numerous other associated sites containing

ceramics and lithics primarily located within the VAA APE. The network of prehistoric trails and associated features are tied directly to the Quechan's stories of origin, religious ceremonies, and traditional cultural teachings as are the Cargo Muchacho Mountains themselves. The TCP extends from this trail network and associated cultural sites to the "mountains, rivers and springs, and includes the plants and animals" living within the region. The Keruk/Xam Kwatsam Trail system is one of the largest known (but not fully recorded or defined) trail systems that runs the length of the Colorado River between the Newberry Mountains in the north to Pilot Knob near the southeastern corner of Imperial County, California. The 1997 report identifies approximate locations for trails significant to the Tribe(s) running on both the East and West sides of the Cargo Muchacho Mountains. The trail on the west side of the Cargo Muchacho Mountains is within the VAA APE for the Oro Cruz Project. The entire system consists of various segments of the trail, several significant mountain ranges and specific peaks, numerous side trails, numerous earth figures/geoglyphs, and thousands of objects such as lithics, cairns, potsherds, and cleared sleeping or camping areas. Quechan elders testified, elaborately, about the importance of these cultural features during the late 1990's proposed mining project (Imperial Gold) located near Indian Pass, approximately 10 miles northeast of the current Oro Cruz Project. The 1997 report states that additional ethnographic information may be required to understand if this trail network should be recorded and NRHP evaluated as one very large all-encompassing TCP or if the individual components / areas / sites of the larger complex should be identified and evaluated separately. Additional work understanding this TCP or complex of TCPs will continue to be conducted by the BLM in consultation with the Tribe.

Class III Cultural Resources Inventory Report

A draft of the Class III cultural resources inventory report titled, *Class III Cultural Resource Inventory for the Oro Cruz Exploration Project, Imperial County, California* (Report), was sent to Tribes and consulting parties August 25, 2022, for review and comments. Based upon the comments and input the BLM received, the following modifications were made to the Report:

1) Archaeological site CA-IMP-13336 was revisited by ASM, the ceramic sherds were analyzed in more detail and the Report was updated with additional characteristics.
2) The TCP identified by the Quechan Indian Tribe was identified and the Class III Inventory report was amended to include a discussion of the TCP in association with the proposed Project as well as the prehistoric archaeological sites within the VAA APE.
3) Archaeological sites identified within the physical APE and the VAA APE were reviewed again to consider the potential effects that the proposed project may have. These sites were also considered as potentially contributing elements of the TCP. Additional protections were added to the project design such as additional physical barriers and increased cultural monitoring.
4) Avoidance of all archaeological sites, regardless of their status has been recommended for this project; fencing and periodic archaeological monitoring have been recommended for sites located near existing and proposed roads and ground disturbing activity areas.

The revised final Report (non-confidential version) has been uploaded to an ASM ftp website and is available for download. You can access the ftp website at the following address:

https://asmaffiliates.filecloudonline.com/url/an4kfzjxhumghxfp

If you would like to request a hardcopy or the confidential appendices, please coordinate with Hannah Robinson, BLM Desert District Archaeologist (contact information below).

Agency Proposed Determinations of Eligibility and Findings of Effect

Based on the results of the record search, archaeological inventory, the contractors' recommendations, Section 106 and government-to-government consultations, the BLM staff review of all the information and analysis provided and pursuant to 36 CFR 800.4 and 800.5, the BLM makes the following determinations regarding NRHP eligibility and findings of effect for historic properties:

- CA-IMP-1469 is determined eligible for inclusion in the NRHP under Criterion A and D. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect as the site will be avoided and protected with protective fencing, matting and other management conditions.
- The BLM concurs with and reaffirms the previous determinations that site CA-IMP-3297/3300/3302 is eligible for inclusion in the NRHP under Criterion A, C and D. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect as the site and features within will be avoided and protected with protective fencing where needed and other management conditions.
- The following resources located within the Physical APE CA-IMP-3298, -7915, -11343, -11344, -13336, P-13-15600, -15601, -15602, -15656, -15841, -18460, -18461, -18462, -18463, -18464, -18465 will be treated as eligible for inclusion in the NRHP for project management purposes. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect to these resources with management conditions and protective fencing where needed.
- The 37 cultural resources within the VAA APE, remain formally unevaluated but will be treated as eligible for inclusion in the NRHP for project management purposes and they will be avoided. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect from visual or auditory intrusions.
- The Identified TCP is assumed eligible for inclusion in the NRHP under Criterion A and D. The BLM finds that there will be no adverse effect to this resource. The archaeological resources that may be components of the TCP will be avoided and the auditory and visual impacts created by this Project will be temporary in nature.
- The BLM finds that there will be **no adverse effects to historic properties** from this undertaking.

Consistent with 36 CFR 800.5(b) the BLM will avoid effects to the significant values of the historic properties by requiring the development and implementation of a cultural resources monitoring program for the Project. The monitoring program for the Project will include procedures for cultural resources monitoring, post-review discovery and unanticipated effects to known historic properties. Qualified cultural resources monitor(s) will be on site during Project construction related to the undertaking and tribal monitors will be invited to participate.

Based on the results of the cultural resources studies and project management actions that will be taken to monitor and avoid resources within the APE, the BLM proposes that there will be ***no***

adverse effects to historic properties by the undertaking. We request your review and comment for a 30-day consultation period. Please provide your input by May 14, 2023.

We appreciate your time and attention in reviewing the information provided in this letter. For information or further clarification, or to schedule a government-to-government consultation meeting with the BLM, please contact Hannah Robinson, BLM District Archaeologist, at hrobinson@blm.gov or by telephone at (435) 253-3706. If you have any questions please do not hesitate to contact us. I am also available at csahagun@blm.gov or by telephone at 760-337-4437. Thank you for your continued cooperation with this office.

Sincerely,

Carrie L. Sahagun
Acting Field Manager

Electronic cc:
Mayra Martinez, Project Manager (mymartinez@blm.gov)
Hannah Robinson, Archaeologist, California Desert District (hrobinson@blm.gov)

From: Sahagun, Carrie L
To: cmartinez@sycuan-nsn.gov
Cc: Martinez, Mayra Y; Robinson, Hannah A
Subject: BLM updates on the Oro Cruz mining exploration project, Imperial County
Date: Thursday, April 13, 2023 11:12:00 AM
Attachments: BLM letter to Sycuan_Oro Cruz_4-13-2023.pdf

Dear Chairman Martinez,

I hope this email finds you well. Please find attached a copy of our most recent letter to the Tribe regarding the proposed Oro Cruz mining exploration project within Imperial County. The purpose of the letter is to provide an updated summary of identification efforts, the final revised Class III report and the BLM's proposed determinations of eligibility and findings of effect for a 30-day consultation period concluding on May 14, 2023. Thank you very much and please let us know if you have any questions or would like to schedule a government-to-government meeting to discuss the project.

-Carrie

Carrie L. Sahagun
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BUREAU OF LAND MANAGEMENT
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www.blm.gov/office/el-centro-field-office

April 13, 2023

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Cody J. Martinez, Chairman
Sycuan Band of Kumeyaay Nation
1 Kwaaypaay Court
El Cajon, CA 92019

Dear Chairman Martinez,

The Bureau of Land Management (BLM) El Centro Field Office (ECFO) would like to continue our government-to-government consultation with you pursuant to Section 106 of the National Historic Preservation Act and other relevant laws and regulations regarding the SMP Gold Corp. (SMP) proposed project to conduct exploratory drilling activities in south-eastern Imperial County. The purpose of this letter is:

1) Update the BLM's summary of identification efforts,
2) Provide the final revised *Class III Cultural Resource Inventory for Oro Cruz Exploration Project, Imperial County, California* prepared by ASM Affiliates Inc. (ASM) with a summary of changes from the draft report,
3) Provide the Agency's proposed determinations of eligibility and findings of effect for the Project for a 30-day consultation period.

Summary of Identification Efforts

On August 25, 2022, the BLM sent to all Tribes and consulting parties an updated description of the area of potential effects (APE), a summary of the results of the field inventories and a copy of the draft inventory report for a 30-day consultation period[1]. Below is a comprehensive summary update of the status and results of all the identification efforts to date.

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[1] Prior BLM Section 106 consultation letters for the proposed project include those dated March 31, 2021 and August 10, 2021.

The results of the records search identified 11 previously recorded cultural resources that intersect the Physical Effects APE, including one prehistoric trail (CA-IMP-1469), the Ruins of Tumco Mining Town (CA-IMP-3297/3300H/3302), a historic cemetery (CA-IMP-3298), the Golden Queen Mine (CA-IMP-11343H), the Crowns Mine (CA-IMP-11344H), and five other unnamed mines (P-13-015600, P-13-015601, P-13-015602, P-13-015656, and P-13-015841). During the inventory, ASM relocated the 11 previously recorded cultural resources, recorded one new prehistoric site (CA-IMP-13336) and several historic mining features within the Physical Effects APE. ASM also completed a visual and auditory affects (VAA) analysis of cultural resources that could be affected by the Project but that were outside the Physical effects APE. Below is a summary description of the resources documented by ASM along with their recommendations. As a result of BLM consultation efforts with the Tribes, a Traditional Cultural Property (TCP) has also been identified encompassing the project area and a summary of that resource is also provided.

CA-IMP-1469

This previously recorded site is a prehistoric trail approximately 740 m long and 30 cm wide, tamped into the desert pavement and divided into two segments by an unnamed wash. The southernmost end of the site occurs within the physical effects APE for the Project. During the pedestrian survey, ASM revisited the southernmost 17 m of the site, which falls within the proposed APE for an existing access road. The 17m portion of the site inspected appeared to be moderately disturbed by off-road vehicle traffic and seasonal/ephemeral sheet wash erosion. No other artifacts or features were identified at this portion of the site. CA-SDI-1469 will be treated as eligible for inclusion on the NRHP and avoided during the drilling project . The potential for adverse effects is low for this site as it is adjacent to an existing road not scheduled for improvements. Additionally, ESA fencing can ensure that mining vehicles do not veer offroad in this section.

CA-IMP-3297/3300/3302

This previously recorded site is the Hedges/Tumco Historical Townsite designated by the California State Department of Parks and Recreation as California Historic Landmark No. 182. The site was initially recorded by Rudolf Miller in 1977. The Hedges/Tumco Historic Townsite ruins include residential areas, two cemeteries, a commercial district, a company district, and many mining-related features. The site was evaluated for the Oro Cruz Plan of Operation of the American Girl Project in 1992 by Burney and Associates through archaeological testing, oral history, geomorphology, aerial photography, and extensive archival research and was recommended as eligible for listing in the NRHP. In 1994, the BLM determined in consultation with the California State Historic Preservation Office (SHPO) that the site was indeed eligible for listing in the NRHP under Criteria (a), (c), and (d). The current Project plan will avoid physically affecting all features identified during the survey associated with CA-IMP-3297/3300/3302, and thus the Project is not likely to have an adverse effect on the NRHP eligible site. Temporary fencing and periodic monitoring may be needed to ensure that those features in close proximity to the proposed access roads are not impacted.

CA-IMP-3298

This previously recorded site is a historic cemetery adjacent to an existing access road designated as Road Segment No. 1 of the Project. CA-IMP-3298 is technically a feature within CA-IMP-3297/3300/3302 and the site boundaries have been updated to include it. While this road segment

is planned for improvements, the cemetery is currently fenced. Additionally, ESA fencing can be placed along this road segment to ensure avoidance during construction. The current Project plans are such that avoidance of this resource is feasible. Thus the Project will not adversely affect this site.

CA-IMP-7915
This previously recorded historic site was recorded as part of the North Baja Gas Pipeline alignment project. The site consists of a wooden pole, H-frame, 161kV transmission line built in 1951 and stretches from a substation in Pilot Knob in Imperial County to Blythe in Riverside County. The line is part of a transmission line system that carries power from the Davis and Parker Dams on the Colorado River to 31 substations. ASM relocated the transmission line during the survey and determined that it only intersects a small section of Road Segment No. 17, and none of the existing poles fall within the Physical Effects APE; therefore these features can be avoided by the currently proposed Project.

CA-IMP-11343
The Golden Queen mine is technically a feature within CA-IMP-3297/3300/3302. In 1994 it was determined by BLM in consultation with SHPO to not be a contributing component to the Hedges/Tumco Historic Townsite due to the poor condition and natural weathering of the features associated with the Queen mine area. This determination occurred before it was recorded in 2010 by J. Kellogg of the BLM Needles office during a survey in association with the California Desert District Abandoned Mine Lands program. In his report, Kellogg recommended it as eligible. The proposed Project component that intersects the site is an existing access road with no plans for improvements. Given that there are no plans to improve this segment of the Physical Effects APE, the Project will likely have no adverse effect on this site.

CA-IMP-11344
This previously recorded site is the Crowns mine which is technically a feature within CA-IMP-3297/3300/3302. Three mining features were identified during the current survey within the boundaries of this site, including an adit, the remains of a shaft, and a prospect. Additionally, one milled lumber feature was identified during the survey with no associated artifacts. These features may correspond to those identified by the BLM as not eligible for listing in the NRHP in the 1994 Oro Cruz Operation of the American Girl Mining Project EIS. For the present project these features will be treated as eligible and avoided. The current Project plans will avoid these features, and thus the Project will not have an adverse effect on the site.

CA-IMP-13336
This newly recorded site consists of four potsherds that include one rim and three body sherds. The ceramic fragments are distributed with a maximum of 2 m between sherds. Ceramics are associated with late prehistory in general, and in the area specifically from AD 700-900, and onwards. No other artifacts or features were identified at the site. The condition of CA-IMP-13336 is good, with minimal disturbance limited to minor silt deposition in the site area due to seasonal water flow. CA-IMP-13336 will be treated as eligible for inclusion on the NRHP and avoided during the drilling project This small site can easily be avoided by placing temporary environmentally sensitive area (ESA) fencing around it during construction.

P-13-15600
This previously recorded resource was documented as a mine consisting of two shafts, an adit, and a prospect. One of the shafts was reported to have an opening measuring 10 x 10 ft. with a depth of 15 ft., and the site was mapped as spanning an area measuring 43 m across. No associated artifacts were observed during its recordation, and it was noted that the various features appeared to be in the process of collapse. ASM revisited P-13-15600. However, none of the features recorded at the site were found to fall within the Physical Effects APE, which is composed of an access route that intersects with the site's eastern boundary. As the site will be avoided, there will be no adverse effects to historic properties.

P-13-15601
This previously recorded resource was documented as a mine consisting of two shafts, an adit, and a prospect situated on a north-facing slope. The site was associated with a 55-gallon barrel, undiagnostic cans, and glass fragments. ASM revisited a portion of the site during the survey and relocated the previously recorded features within the Physical Effects APE. The site will be treated as NRHP eligible and avoided, so there will be no adverse affects to historic properties.

P-13-15602
This previously recorded resource was documented as a mine consisting of two shafts, a prospect trench, and a prospect pit. The presence of fencing, modern trash, and possible remaining cribbing was noted during the site's recordation. ASM revisited a small portion of P-13-15602 during the current survey, with most of the site found outside the Physical Effects APE to the west. The site will be treated as NRHP eligible and avoided so that there will be no affects to historic properties.

P-13-15656
This previously recorded resource was documented as a mine site composed of a single shaft and adit. The two were connected underground and found with an associated rock waste pile to the west. A small undiagnostic can scatter and piece of sheet metal were noted during the recordation. ASM revisited the very small portion of P-13-15656 that intersected with the proposed Project APE. However, none of the previously recorded features were relocated in that area. A small scatter of metal strands that appear to be the remains of a cable were identified along the eastern site boundary. No other artifacts or features associated with this site were identified within the Physical Effects APE. The site will be treated as NRHP eligible and avoided, there will be no affects to historic properties.

P-13-15841
This previously recorded resource was documented as a mine consisting of two shafts and an adit located on the north end of the Tumco valley. All three features were associated with waste rock piles, and no associated artifacts were identified. One of the shafts, Shaft 1, was noted to have a wire fence, and the adit was reported to have been previously filled in. ASM revisited P-13-15841 during the survey and relocated the sealed adit (Adit 1) and one of the shafts (Shaft 2). In the northern portion of the site, the cut on the slope for the adit was found to be approximately 10 m long and 3 m wide. As the site will be treated as NRHP eligible and avoided, there will be no effects to historic properties.

Finally, six newly recorded historic mine features, P-13-018460, -018461, -018462, -018463, -018464, and 018465, were also recorded during the current survey. They consist of adits and prospects and are all isolated mining features that were likely created sometime between 1953 and 1961 based on historic topographic maps and aerials of the area. All features will be treated as NRHP eligible and avoided for this project.

Archaeological Sites Located within the VAA APE

The VAA APE intersects 37 prehistoric trails, geoglyphs, ceramic scatters, lithic scatters, rock art sites, and isolates that have potential to be deemed sacred or traditionally important by Native American tribes. The use of these sites and locations by Native American tribes may be affected by the Project through temporary visual obstructions and loud noise levels such that the integrity of the "setting" and "feeling" of the sites is disturbed.

Of the 35 proposed potential drill sites, the closest of the prehistoric sites is 630 meters (2,067 feet) away, and the rest are between 950 and 2565 meters (3,117 and 8,415 feet) away. The viewshed analysis and line of site examples indicate that a 40-foot drill rig line against the existing landscape would not create a strong contrast against the backdrop of the existing landscape and would likely not be noticed by the casual viewer. Of 18 selected sites that intersect the potential visual APE the drill rigs would not be likely to have an adverse visual effect on the integrity of the setting or feeling of the selected sites from a distance of 630 meters or greater.

The auditory APE report suggests that drilling noise from the Project would be substantially shielded towards the east and north due to the topography of the Cargo Muchacho Mountains. Most of the sites are far enough away from the Project area, the Physical Effects APE, and the proposed helicopter drill sites that they would fall within the noise level contours of ~40-35 dBa L_{eq} or lower, which would be the equivalent of a suburban residential area at night. Based on the contours provided by Saxelby Acoustics, the proposed Project would not be likely to have an adverse auditory effect on the integrity of the setting or feeling of the 25 selected sites that intersect the VAA APE.

Identified Traditional Cultural Property

The Quechan Indian Tribe has conveyed to the BLM that the Oro Cruz project area is located within and encompassed by a much larger TCP as described in the 1997 cultural report titled, *Where Trails Cross: Cultural Resources Inventory and Evaluation for the Imperial Project, Imperial County, California*. This 1997 report recorded the Quechan elders' discussions of the trails and associated features and the importance of this region to the Quechan Tribe for conducting ceremonies and rituals, storytelling and song cycles, and for resource gathering. To briefly summarize, the preservation of this area is essential to maintain cultural, religious and traditional practices and teaching of future generations of Quechan youth. This 1997 cultural report also defines the Running Man Area of Traditional Cultural Concern (ATCC) located about 9 miles northeast of the Oro Cruz project area. Although a boundary was created to define the Running Man ATCC for management purposes, the report clearly states that an extensive and complex network of trails and associated sites and "potentially other ATCCs and linking trail systems" are running throughout the region.

The physical or tangible cultural resource evidence of this TCP identified within the Project area are the prehistoric trails, geoglyphs, rock art, and numerous other associated sites containing

ceramics and lithics primarily located within the VAA APE. The network of prehistoric trails and associated features are tied directly to the Quechan's stories of origin, religious ceremonies, and traditional cultural teachings as are the Cargo Muchacho Mountains themselves. The TCP extends from this trail network and associated cultural sites to the "mountains, rivers and springs, and includes the plants and animals" living within the region. The Keruk/Xam Kwatsam Trail system is one of the largest known (but not fully recorded or defined) trail systems that runs the length of the Colorado River between the Newberry Mountains in the north to Pilot Knob near the southeastern corner of Imperial County, California. The 1997 report identifies approximate locations for trails significant to the Tribe(s) running on both the East and West sides of the Cargo Muchacho Mountains. The trail on the west side of the Cargo Muchacho Mountains is within the VAA APE for the Oro Cruz Project. The entire system consists of various segments of the trail, several significant mountain ranges and specific peaks, numerous side trails, numerous earth figures/geoglyphs, and thousands of objects such as lithics, cairns, potsherds, and cleared sleeping or camping areas. Quechan elders testified, elaborately, about the importance of these cultural features during the late 1990's proposed mining project (Imperial Gold) located near Indian Pass, approximately 10 miles northeast of the current Oro Cruz Project. The 1997 report states that additional ethnographic information may be required to understand if this trail network should be recorded and NRHP evaluated as one very large all-encompassing TCP or if the individual components / areas / sites of the larger complex should be identified and evaluated separately. Additional work understanding this TCP or complex of TCPs will continue to be conducted by the BLM in consultation with the Tribe.

Class III Cultural Resources Inventory Report

A draft of the Class III cultural resources inventory report titled, *Class III Cultural Resource Inventory for the Oro Cruz Exploration Project, Imperial County, California* (Report), was sent to Tribes and consulting parties August 25, 2022, for review and comments. Based upon the comments and input the BLM received, the following modifications were made to the Report:

1) Archaeological site CA-IMP-13336 was revisited by ASM, the ceramic sherds were analyzed in more detail and the Report was updated with additional characteristics.
2) The TCP identified by the Quechan Indian Tribe was identified and the Class III Inventory report was amended to include a discussion of the TCP in association with the proposed Project as well as the prehistoric archaeological sites within the VAA APE.
3) Archaeological sites identified within the physical APE and the VAA APE were reviewed again to consider the potential effects that the proposed project may have. These sites were also considered as potentially contributing elements of the TCP. Additional protections were added to the project design such as additional physical barriers and increased cultural monitoring.
4) Avoidance of all archaeological sites, regardless of their status has been recommended for this project; fencing and periodic archaeological monitoring have been recommended for sites located near existing and proposed roads and ground disturbing activity areas.

The revised final Report (non-confidential version) has been uploaded to an ASM ftp website and is available for download. You can access the ftp website at the following address:

https://asmaffiliates.filecloudonline.com/url/an4kfzjxhumghxfp

If you would like to request a hardcopy or the confidential appendices, please coordinate with Hannah Robinson, BLM Desert District Archaeologist (contact information below).

Agency Proposed Determinations of Eligibility and Findings of Effect

Based on the results of the record search, archaeological inventory, the contractors' recommendations, Section 106 and government-to-government consultations, the BLM staff review of all the information and analysis provided and pursuant to 36 CFR 800.4 and 800.5, the BLM makes the following determinations regarding NRHP eligibility and findings of effect for historic properties:

- CA-IMP-1469 is determined eligible for inclusion in the NRHP under Criterion A and D. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect as the site will be avoided and protected with protective fencing, matting and other management conditions.
- The BLM concurs with and reaffirms the previous determinations that site CA-IMP-3297/3300/3302 is eligible for inclusion in the NRHP under Criterion A, C and D. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect as the site and features within will be avoided and protected with protective fencing where needed and other management conditions.
- The following resources located within the Physical APE CA-IMP-3298, -7915, -11343, -11344, -13336, P-13-15600, -15601, -15602, -15656, -15841, -18460, -18461, -18462, -18463, -18464, -18465 will be treated as eligible for inclusion in the NRHP for project management purposes. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect to these resources with management conditions and protective fencing where needed.
- The 37 cultural resources within the VAA APE, remain formally unevaluated but will be treated as eligible for inclusion in the NRHP for project management purposes and they will be avoided. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect from visual or auditory intrusions.
- The Identified TCP is assumed eligible for inclusion in the NRHP under Criterion A and D. The BLM finds that there will be no adverse effect to this resource. The archaeological resources that may be components of the TCP will be avoided and the auditory and visual impacts created by this Project will be temporary in nature.
- The BLM finds that there will be **no adverse effects to historic properties** from this undertaking.

Consistent with 36 CFR 800.5(b) the BLM will avoid effects to the significant values of the historic properties by requiring the development and implementation of a cultural resources monitoring program for the Project. The monitoring program for the Project will include procedures for cultural resources monitoring, post-review discovery and unanticipated effects to known historic properties. Qualified cultural resources monitor(s) will be on site during Project construction related to the undertaking and tribal monitors will be invited to participate.

Based on the results of the cultural resources studies and project management actions that will be taken to monitor and avoid resources within the APE, the BLM proposes that there will be ***no***

adverse effects to historic properties by the undertaking. We request your review and comment for a 30-day consultation period. Please provide your input by May 14, 2023.

We appreciate your time and attention in reviewing the information provided in this letter. For information or further clarification, or to schedule a government-to-government consultation meeting with the BLM, please contact Hannah Robinson, BLM District Archaeologist, at hrobinson@blm.gov or by telephone at (435) 253-3706. If you have any questions please do not hesitate to contact us. I am also available at csahagun@blm.gov or by telephone at 760-337-4437. Thank you for your continued cooperation with this office.

Sincerely,

Carrie L. Sahagun
Acting Field Manager

Electronic cc:
Mayra Martinez, Project Manager (mymartinez@blm.gov)
Hannah Robinson, Archaeologist, California Desert District (hrobinson@blm.gov)

From: Sahagun, Carrie L
To: dorisc@sanpasqualtribe.org; THPO@sanpasqualtribe.org
Cc: Martinez, Mayra Y; Robinson, Hannah A
Subject: BLM updates on the Oro Cruz mining exploration project, Imperial County
Date: Thursday, April 13, 2023 11:09:37 AM
Attachments: BLM letter to San Pasqual_Oro Cruz_4-13-2023.pdf

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Dear Tribal leaders,

I hope this email finds you well. Please find attached a copy of our most recent letter to the Tribe regarding the proposed Oro Cruz mining exploration project within Imperial County. The purpose of the letter is to provide an updated summary of identification efforts, the final revised Class III report and the BLM's proposed determinations of eligibility and findings of effect for a 30-day consultation period concluding on May 14, 2023. Thank you very much and please let us know if you have any questions or would like to schedule a government-to-government meeting to discuss the project.

-Carrie

Carrie L. Sahagun
Acting Field Manager
BLM El Centro Field Office
1661 S. 4th Street
El Centro, CA 92243
(760) 337-4437
USDI, Region 8
she/her

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United States Department of the Interior
BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

April 13, 2023

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Stephen Cope, Chairman
San Pasqual Band of Diegueño Indians
P.O. Box 365
Valley Center, CA 92082

Dear Chairman Cope,

The Bureau of Land Management (BLM) El Centro Field Office (ECFO) would like to continue our government-to-government consultation with you pursuant to Section 106 of the National Historic Preservation Act and other relevant laws and regulations regarding the SMP Gold Corp. (SMP) proposed project to conduct exploratory drilling activities in south-eastern Imperial County. The purpose of this letter is:

1) Update the BLM's summary of identification efforts,
2) Provide the final revised *Class III Cultural Resource Inventory for Oro Cruz Exploration Project, Imperial County, California* prepared by ASM Affiliates Inc. (ASM) with a summary of changes from the draft report,
3) Provide the Agency's proposed determinations of eligibility and findings of effect for the Project for a 30-day consultation period.

Summary of Identification Efforts

On August 25, 2022, the BLM sent to all Tribes and consulting parties an updated description of the area of potential effects (APE), a summary of the results of the field inventories and a copy of the draft inventory report for a 30-day consultation period[1]. Below is a comprehensive summary update of the status and results of all the identification efforts to date.

Westland Resources, Inc. contracted ASM on behalf of the BLM to conduct a Class III cultural resource inventory to identify cultural resources that are eligible or potentially eligible for listing on the National Register of Historic Places (NRHP). The Class III inventory included a records search at the South Coastal Information Center (SCIC) and an intensive pedestrian survey within the physical effects APE. On September 20 through 24 and October 30 and 31, 2021, archaeologists from ASM completed the Class III field inventory. All survey was conducted with a Native American monitor present.

[1] Prior BLM Section 106 consultation letters for the proposed project include those dated March 31, 2021 and August 10, 2021.

The results of the records search identified 11 previously recorded cultural resources that intersect the Physical Effects APE, including one prehistoric trail (CA-IMP-1469), the Ruins of Tumco Mining Town (CA-IMP-3297/3300H/3302), a historic cemetery (CA-IMP-3298), the Golden Queen Mine (CA-IMP-11343H), the Crowns Mine (CA-IMP-11344H), and five other unnamed mines (P-13-015600, P-13-015601, P-13-015602, P-13-015656, and P-13-015841). During the inventory, ASM relocated the 11 previously recorded cultural resources, recorded one new prehistoric site (CA-IMP-13336) and several historic mining features within the Physical Effects APE. ASM also completed a visual and auditory affects (VAA) analysis of cultural resources that could be affected by the Project but that were outside the Physical effects APE. Below is a summary description of the resources documented by ASM along with their recommendations. As a result of BLM consultation efforts with the Tribes, a Traditional Cultural Property (TCP) has also been identified encompassing the project area and a summary of that resource is also provided.

CA-IMP-1469

This previously recorded site is a prehistoric trail approximately 740 m long and 30 cm wide, tamped into the desert pavement and divided into two segments by an unnamed wash. The southernmost end of the site occurs within the physical effects APE for the Project. During the pedestrian survey, ASM revisited the southernmost 17 m of the site, which falls within the proposed APE for an existing access road. The 17m portion of the site inspected appeared to be moderately disturbed by off-road vehicle traffic and seasonal/ephemeral sheet wash erosion. No other artifacts or features were identified at this portion of the site. CA-SDI-1469 will be treated as eligible for inclusion on the NRHP and avoided during the drilling project . The potential for adverse effects is low for this site as it is adjacent to an existing road not scheduled for improvements. Additionally, ESA fencing can ensure that mining vehicles do not veer offroad in this section.

CA-IMP-3297/3300/3302

This previously recorded site is the Hedges/Tumco Historical Townsite designated by the California State Department of Parks and Recreation as California Historic Landmark No. 182. The site was initially recorded by Rudolf Miller in 1977. The Hedges/Tumco Historic Townsite ruins include residential areas, two cemeteries, a commercial district, a company district, and many mining-related features. The site was evaluated for the Oro Cruz Plan of Operation of the American Girl Project in 1992 by Burney and Associates through archaeological testing, oral history, geomorphology, aerial photography, and extensive archival research and was recommended as eligible for listing in the NRHP. In 1994, the BLM determined in consultation with the California State Historic Preservation Office (SHPO) that the site was indeed eligible for listing in the NRHP under Criteria (a), (c), and (d). The current Project plan will avoid physically affecting all features identified during the survey associated with CA-IMP-3297/3300/3302, and thus the Project is not likely to have an adverse effect on the NRHP eligible site. Temporary fencing and periodic monitoring may be needed to ensure that those features in close proximity to the proposed access roads are not impacted.

CA-IMP-3298

This previously recorded site is a historic cemetery adjacent to an existing access road designated as Road Segment No. 1 of the Project. CA-IMP-3298 is technically a feature within CA-IMP-3297/3300/3302 and the site boundaries have been updated to include it. While this road segment

is planned for improvements, the cemetery is currently fenced. Additionally, ESA fencing can be placed along this road segment to ensure avoidance during construction. The current Project plans are such that avoidance of this resource is feasible. Thus the Project will not adversely affect this site.

CA-IMP-7915
This previously recorded historic site was recorded as part of the North Baja Gas Pipeline alignment project. The site consists of a wooden pole, H-frame, 161kV transmission line built in 1951 and stretches from a substation in Pilot Knob in Imperial County to Blythe in Riverside County. The line is part of a transmission line system that carries power from the Davis and Parker Dams on the Colorado River to 31 substations. ASM relocated the transmission line during the survey and determined that it only intersects a small section of Road Segment No. 17, and none of the existing poles fall within the Physical Effects APE; therefore these features can be avoided by the currently proposed Project.

CA-IMP-11343
The Golden Queen mine is technically a feature within CA-IMP-3297/3300/3302. In 1994 it was determined by BLM in consultation with SHPO to not be a contributing component to the Hedges/Tumco Historic Townsite due to the poor condition and natural weathering of the features associated with the Queen mine area. This determination occurred before it was recorded in 2010 by J. Kellogg of the BLM Needles office during a survey in association with the California Desert District Abandoned Mine Lands program. In his report, Kellogg recommended it as eligible. The proposed Project component that intersects the site is an existing access road with no plans for improvements. Given that there are no plans to improve this segment of the Physical Effects APE, the Project will likely have no adverse effect on this site.

CA-IMP-11344
This previously recorded site is the Crowns mine which is technically a feature within CA-IMP-3297/3300/3302. Three mining features were identified during the current survey within the boundaries of this site, including an adit, the remains of a shaft, and a prospect. Additionally, one milled lumber feature was identified during the survey with no associated artifacts. These features may correspond to those identified by the BLM as not eligible for listing in the NRHP in the 1994 Oro Cruz Operation of the American Girl Mining Project EIS. For the present project these features will be treated as eligible and avoided. The current Project plans will avoid these features, and thus the Project will not have an adverse effect on the site.

CA-IMP-13336
This newly recorded site consists of four potsherds that include one rim and three body sherds. The ceramic fragments are distributed with a maximum of 2 m between sherds. Ceramics are associated with late prehistory in general, and in the area specifically from AD 700-900, and onwards. No other artifacts or features were identified at the site. The condition of CA-IMP-13336 is good, with minimal disturbance limited to minor silt deposition in the site area due to seasonal water flow. CA-IMP-13336 will be treated as eligible for inclusion on the NRHP and avoided during the drilling project This small site can easily be avoided by placing temporary environmentally sensitive area (ESA) fencing around it during construction.

P-13-15600
This previously recorded resource was documented as a mine consisting of two shafts, an adit, and a prospect. One of the shafts was reported to have an opening measuring 10 x 10 ft. with a depth of 15 ft., and the site was mapped as spanning an area measuring 43 m across. No associated artifacts were observed during its recordation, and it was noted that the various features appeared to be in the process of collapse. ASM revisited P-13-15600. However, none of the features recorded at the site were found to fall within the Physical Effects APE, which is composed of an access route that intersects with the site's eastern boundary. As the site will be avoided, there will be no adverse effects to historic properties.

P-13-15601
This previously recorded resource was documented as a mine consisting of two shafts, an adit, and a prospect situated on a north-facing slope. The site was associated with a 55-gallon barrel, undiagnostic cans, and glass fragments. ASM revisited a portion of the site during the survey and relocated the previously recorded features within the Physical Effects APE. The site will be treated as NRHP eligible and avoided, so there will be no adverse affects to historic properties.

P-13-15602
This previously recorded resource was documented as a mine consisting of two shafts, a prospect trench, and a prospect pit. The presence of fencing, modern trash, and possible remaining cribbing was noted during the site's recordation. ASM revisited a small portion of P-13-15602 during the current survey, with most of the site found outside the Physical Effects APE to the west. The site will be treated as NRHP eligible and avoided so that there will be no affects to historic properties.

P-13-15656
This previously recorded resource was documented as a mine site composed of a single shaft and adit. The two were connected underground and found with an associated rock waste pile to the west. A small undiagnostic can scatter and piece of sheet metal were noted during the recordation. ASM revisited the very small portion of P-13-15656 that intersected with the proposed Project APE. However, none of the previously recorded features were relocated in that area. A small scatter of metal strands that appear to be the remains of a cable were identified along the eastern site boundary. No other artifacts or features associated with this site were identified within the Physical Effects APE. The site will be treated as NRHP eligible and avoided, there will be no affects to historic properties.

P-13-15841
This previously recorded resource was documented as a mine consisting of two shafts and an adit located on the north end of the Tumco valley. All three features were associated with waste rock piles, and no associated artifacts were identified. One of the shafts, Shaft 1, was noted to have a wire fence, and the adit was reported to have been previously filled in. ASM revisited P-13-15841 during the survey and relocated the sealed adit (Adit 1) and one of the shafts (Shaft 2). In the northern portion of the site, the cut on the slope for the adit was found to be approximately 10 m long and 3 m wide. As the site will be treated as NRHP eligible and avoided, there will be no effects to historic properties.

Finally, six newly recorded historic mine features, P-13-018460, -018461, -018462, -018463, -018464, and 018465, were also recorded during the current survey. They consist of adits and prospects and are all isolated mining features that were likely created sometime between 1953 and 1961 based on historic topographic maps and aerials of the area. All features will be treated as NRHP eligible and avoided for this project.

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The VAA APE intersects 37 prehistoric trails, geoglyphs, ceramic scatters, lithic scatters, rock art sites, and isolates that have potential to be deemed sacred or traditionally important by Native American tribes. The use of these sites and locations by Native American tribes may be affected by the Project through temporary visual obstructions and loud noise levels such that the integrity of the "setting" and "feeling" of the sites is disturbed.

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The auditory APE report suggests that drilling noise from the Project would be substantially shielded towards the east and north due to the topography of the Cargo Muchacho Mountains. Most of the sites are far enough away from the Project area, the Physical Effects APE, and the proposed helicopter drill sites that they would fall within the noise level contours of ~40-35 dBa L_{eq} or lower, which would be the equivalent of a suburban residential area at night. Based on the contours provided by Saxelby Acoustics, the proposed Project would not be likely to have an adverse auditory effect on the integrity of the setting or feeling of the 25 selected sites that intersect the VAA APE.

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The Quechan Indian Tribe has conveyed to the BLM that the Oro Cruz project area is located within and encompassed by a much larger TCP as described in the 1997 cultural report titled, *Where Trails Cross: Cultural Resources Inventory and Evaluation for the Imperial Project, Imperial County, California*. This 1997 report recorded the Quechan elders' discussions of the trails and associated features and the importance of this region to the Quechan Tribe for conducting ceremonies and rituals, storytelling and song cycles, and for resource gathering. To briefly summarize, the preservation of this area is essential to maintain cultural, religious and traditional practices and teaching of future generations of Quechan youth. This 1997 cultural report also defines the Running Man Area of Traditional Cultural Concern (ATCC) located about 9 miles northeast of the Oro Cruz project area. Although a boundary was created to define the Running Man ATCC for management purposes, the report clearly states that an extensive and complex network of trails and associated sites and "potentially other ATCCs and linking trail systems" are running throughout the region.

The physical or tangible cultural resource evidence of this TCP identified within the Project area are the prehistoric trails, geoglyphs, rock art, and numerous other associated sites containing

ceramics and lithics primarily located within the VAA APE. The network of prehistoric trails and associated features are tied directly to the Quechan's stories of origin, religious ceremonies, and traditional cultural teachings as are the Cargo Muchacho Mountains themselves. The TCP extends from this trail network and associated cultural sites to the "mountains, rivers and springs, and includes the plants and animals" living within the region. The Keruk/Xam Kwatsam Trail system is one of the largest known (but not fully recorded or defined) trail systems that runs the length of the Colorado River between the Newberry Mountains in the north to Pilot Knob near the southeastern corner of Imperial County, California. The 1997 report identifies approximate locations for trails significant to the Tribe(s) running on both the East and West sides of the Cargo Muchacho Mountains. The trail on the west side of the Cargo Muchacho Mountains is within the VAA APE for the Oro Cruz Project. The entire system consists of various segments of the trail, several significant mountain ranges and specific peaks, numerous side trails, numerous earth figures/geoglyphs, and thousands of objects such as lithics, cairns, potsherds, and cleared sleeping or camping areas. Quechan elders testified, elaborately, about the importance of these cultural features during the late 1990's proposed mining project (Imperial Gold) located near Indian Pass, approximately 10 miles northeast of the current Oro Cruz Project. The 1997 report states that additional ethnographic information may be required to understand if this trail network should be recorded and NRHP evaluated as one very large all-encompassing TCP or if the individual components / areas / sites of the larger complex should be identified and evaluated separately. Additional work understanding this TCP or complex of TCPs will continue to be conducted by the BLM in consultation with the Tribe.

Class III Cultural Resources Inventory Report

A draft of the Class III cultural resources inventory report titled, *Class III Cultural Resource Inventory for the Oro Cruz Exploration Project, Imperial County, California* (Report), was sent to Tribes and consulting parties August 25, 2022, for review and comments. Based upon the comments and input the BLM received, the following modifications were made to the Report:

1) Archaeological site CA-IMP-13336 was revisited by ASM, the ceramic sherds were analyzed in more detail and the Report was updated with additional characteristics.
2) The TCP identified by the Quechan Indian Tribe was identified and the Class III Inventory report was amended to include a discussion of the TCP in association with the proposed Project as well as the prehistoric archaeological sites within the VAA APE.
3) Archaeological sites identified within the physical APE and the VAA APE were reviewed again to consider the potential effects that the proposed project may have. These sites were also considered as potentially contributing elements of the TCP. Additional protections were added to the project design such as additional physical barriers and increased cultural monitoring.
4) Avoidance of all archaeological sites, regardless of their status has been recommended for this project; fencing and periodic archaeological monitoring have been recommended for sites located near existing and proposed roads and ground disturbing activity areas.

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Agency Proposed Determinations of Eligibility and Findings of Effect

Based on the results of the record search, archaeological inventory, the contractors' recommendations, Section 106 and government-to-government consultations, the BLM staff review of all the information and analysis provided and pursuant to 36 CFR 800.4 and 800.5, the BLM makes the following determinations regarding NRHP eligibility and findings of effect for historic properties:

- CA-IMP-1469 is determined eligible for inclusion in the NRHP under Criterion A and D. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect as the site will be avoided and protected with protective fencing, matting and other management conditions.
- The BLM concurs with and reaffirms the previous determinations that site CA-IMP-3297/3300/3302 is eligible for inclusion in the NRHP under Criterion A, C and D. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect as the site and features within will be avoided and protected with protective fencing where needed and other management conditions.
- The following resources located within the Physical APE CA-IMP-3298, -7915, -11343, -11344, -13336, P-13-15600, -15601, -15602, -15656, -15841, -18460, -18461, -18462, -18463, -18464, -18465 will be treated as eligible for inclusion in the NRHP for project management purposes. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect to these resources with management conditions and protective fencing where needed.
- The 37 cultural resources within the VAA APE, remain formally unevaluated but will be treated as eligible for inclusion in the NRHP for project management purposes and they will be avoided. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect from visual or auditory intrusions.
- The Identified TCP is assumed eligible for inclusion in the NRHP under Criterion A and D. The BLM finds that there will be no adverse effect to this resource. The archaeological resources that may be components of the TCP will be avoided and the auditory and visual impacts created by this Project will be temporary in nature.
- The BLM finds that there will be **no adverse effects to historic properties** from this undertaking.

Consistent with 36 CFR 800.5(b) the BLM will avoid effects to the significant values of the historic properties by requiring the development and implementation of a cultural resources monitoring program for the Project. The monitoring program for the Project will include procedures for cultural resources monitoring, post-review discovery and unanticipated effects to known historic properties. Qualified cultural resources monitor(s) will be on site during Project construction related to the undertaking and tribal monitors will be invited to participate.

Based on the results of the cultural resources studies and project management actions that will be taken to monitor and avoid resources within the APE, the BLM proposes that there will be ***no***

adverse effects to historic properties by the undertaking. We request your review and comment for a 30-day consultation period. Please provide your input by May 14, 2023.

We appreciate your time and attention in reviewing the information provided in this letter. For information or further clarification, or to schedule a government-to-government consultation meeting with the BLM, please contact Hannah Robinson, BLM District Archaeologist, at hrobinson@blm.gov or by telephone at (435) 253-3706. If you have any questions please do not hesitate to contact us. I am also available at csahagun@blm.gov or by telephone at 760-337-4437. Thank you for your continued cooperation with this office.

Sincerely,

Carrie L. Sahagun
Acting Field Manager

Electronic cc:
Mayra Martinez, Project Manager (mymartinez@blm.gov)
Hannah Robinson, Archaeologist, California Desert District (hrobinson@blm.gov)

From: Sahagun, Carrie L
To: mgbomi@mesagrandeband-nsn.gov
Cc: Martinez, Mayra Y; Robinson, Hannah A
Subject: BLM updates on the Oro Cruz mining exploration project, Imperial County
Date: Thursday, April 13, 2023 11:06:46 AM
Attachments: BLM letter to Mesa Grande_Oro Cruz_4-13-2023.pdf

Dear Tribal leaders,

I hope this email finds you well. Please find attached a copy of our most recent letter to the Tribe regarding the proposed Oro Cruz mining exploration project within Imperial County. The purpose of the letter is to provide an updated summary of identification efforts, the final revised Class III report and the BLM's proposed determinations of eligibility and findings of effect for a 30-day consultation period concluding on May 14, 2023. Thank you very much and please let us know if you have any questions or would like to schedule a government-to-government meeting to discuss the project.

-Carrie

Carrie L. Sahagun
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BLM El Centro Field Office
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BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

April 13, 2023

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Ms. Theresa Hernandez, Chairperson
Mesa Grande Band of Mission Indians
P.O. Box 270
Santa Ysabel, CA 92070

Dear Chairperson Hernandez,

The Bureau of Land Management (BLM) El Centro Field Office (ECFO) would like to continue our government-to-government consultation with you pursuant to Section 106 of the National Historic Preservation Act and other relevant laws and regulations regarding the SMP Gold Corp. (SMP) proposed project to conduct exploratory drilling activities in south-eastern Imperial County. The purpose of this letter is:

1) Update the BLM's summary of identification efforts,
2) Provide the final revised *Class III Cultural Resource Inventory for Oro Cruz Exploration Project, Imperial County, California* prepared by ASM Affiliates Inc. (ASM) with a summary of changes from the draft report,
3) Provide the Agency's proposed determinations of eligibility and findings of effect for the Project for a 30-day consultation period.

Summary of Identification Efforts

On August 25, 2022, the BLM sent to all Tribes and consulting parties an updated description of the area of potential effects (APE), a summary of the results of the field inventories and a copy of the draft inventory report for a 30-day consultation period[1]. Below is a comprehensive summary update of the status and results of all the identification efforts to date.

Westland Resources, Inc. contracted ASM on behalf of the BLM to conduct a Class III cultural resource inventory to identify cultural resources that are eligible or potentially eligible for listing on the National Register of Historic Places (NRHP). The Class III inventory included a records search at the South Coastal Information Center (SCIC) and an intensive pedestrian survey within the physical effects APE. On September 20 through 24 and October 30 and 31, 2021, archaeologists from ASM completed the Class III field inventory. All survey was conducted with a Native American monitor present.

[1] Prior BLM Section 106 consultation letters for the proposed project include those dated March 31, 2021 and August 10, 2021.

The results of the records search identified 11 previously recorded cultural resources that intersect the Physical Effects APE, including one prehistoric trail (CA-IMP-1469), the Ruins of Tumco Mining Town (CA-IMP-3297/3300H/3302), a historic cemetery (CA-IMP-3298), the Golden Queen Mine (CA-IMP-11343H), the Crowns Mine (CA-IMP-11344H), and five other unnamed mines (P-13-015600, P-13-015601, P-13-015602, P-13-015656, and P-13-015841). During the inventory, ASM relocated the 11 previously recorded cultural resources, recorded one new prehistoric site (CA-IMP-13336) and several historic mining features within the Physical Effects APE. ASM also completed a visual and auditory affects (VAA) analysis of cultural resources that could be affected by the Project but that were outside the Physical effects APE. Below is a summary description of the resources documented by ASM along with their recommendations. As a result of BLM consultation efforts with the Tribes, a Traditional Cultural Property (TCP) has also been identified encompassing the project area and a summary of that resource is also provided.

CA-IMP-1469

This previously recorded site is a prehistoric trail approximately 740 m long and 30 cm wide, tamped into the desert pavement and divided into two segments by an unnamed wash. The southernmost end of the site occurs within the physical effects APE for the Project. During the pedestrian survey, ASM revisited the southernmost 17 m of the site, which falls within the proposed APE for an existing access road. The 17m portion of the site inspected appeared to be moderately disturbed by off-road vehicle traffic and seasonal/ephemeral sheet wash erosion. No other artifacts or features were identified at this portion of the site. CA-SDI-1469 will be treated as eligible for inclusion on the NRHP and avoided during the drilling project . The potential for adverse effects is low for this site as it is adjacent to an existing road not scheduled for improvements. Additionally, ESA fencing can ensure that mining vehicles do not veer offroad in this section.

CA-IMP-3297/3300/3302

This previously recorded site is the Hedges/Tumco Historical Townsite designated by the California State Department of Parks and Recreation as California Historic Landmark No. 182. The site was initially recorded by Rudolf Miller in 1977. The Hedges/Tumco Historic Townsite ruins include residential areas, two cemeteries, a commercial district, a company district, and many mining-related features. The site was evaluated for the Oro Cruz Plan of Operation of the American Girl Project in 1992 by Burney and Associates through archaeological testing, oral history, geomorphology, aerial photography, and extensive archival research and was recommended as eligible for listing in the NRHP. In 1994, the BLM determined in consultation with the California State Historic Preservation Office (SHPO) that the site was indeed eligible for listing in the NRHP under Criteria (a), (c), and (d). The current Project plan will avoid physically affecting all features identified during the survey associated with CA-IMP-3297/3300/3302, and thus the Project is not likely to have an adverse effect on the NRHP eligible site. Temporary fencing and periodic monitoring may be needed to ensure that those features in close proximity to the proposed access roads are not impacted.

CA-IMP-3298

This previously recorded site is a historic cemetery adjacent to an existing access road designated as Road Segment No. 1 of the Project. CA-IMP-3298 is technically a feature within CA-IMP-3297/3300/3302 and the site boundaries have been updated to include it. While this road segment

is planned for improvements, the cemetery is currently fenced. Additionally, ESA fencing can be placed along this road segment to ensure avoidance during construction. The current Project plans are such that avoidance of this resource is feasible. Thus the Project will not adversely affect this site.

CA-IMP-7915
This previously recorded historic site was recorded as part of the North Baja Gas Pipeline alignment project. The site consists of a wooden pole, H-frame, 161kV transmission line built in 1951 and stretches from a substation in Pilot Knob in Imperial County to Blythe in Riverside County. The line is part of a transmission line system that carries power from the Davis and Parker Dams on the Colorado River to 31 substations. ASM relocated the transmission line during the survey and determined that it only intersects a small section of Road Segment No. 17, and none of the existing poles fall within the Physical Effects APE; therefore these features can be avoided by the currently proposed Project.

CA-IMP-11343
The Golden Queen mine is technically a feature within CA-IMP-3297/3300/3302. In 1994 it was determined by BLM in consultation with SHPO to not be a contributing component to the Hedges/Tumco Historic Townsite due to the poor condition and natural weathering of the features associated with the Queen mine area. This determination occurred before it was recorded in 2010 by J. Kellogg of the BLM Needles office during a survey in association with the California Desert District Abandoned Mine Lands program. In his report, Kellogg recommended it as eligible. The proposed Project component that intersects the site is an existing access road with no plans for improvements. Given that there are no plans to improve this segment of the Physical Effects APE, the Project will likely have no adverse effect on this site.

CA-IMP-11344
This previously recorded site is the Crowns mine which is technically a feature within CA-IMP-3297/3300/3302. Three mining features were identified during the current survey within the boundaries of this site, including an adit, the remains of a shaft, and a prospect. Additionally, one milled lumber feature was identified during the survey with no associated artifacts. These features may correspond to those identified by the BLM as not eligible for listing in the NRHP in the 1994 Oro Cruz Operation of the American Girl Mining Project EIS. For the present project these features will be treated as eligible and avoided. The current Project plans will avoid these features, and thus the Project will not have an adverse effect on the site.

CA-IMP-13336
This newly recorded site consists of four potsherds that include one rim and three body sherds. The ceramic fragments are distributed with a maximum of 2 m between sherds. Ceramics are associated with late prehistory in general, and in the area specifically from AD 700-900, and onwards. No other artifacts or features were identified at the site. The condition of CA-IMP-13336 is good, with minimal disturbance limited to minor silt deposition in the site area due to seasonal water flow. CA-IMP-13336 will be treated as eligible for inclusion on the NRHP and avoided during the drilling project This small site can easily be avoided by placing temporary environmentally sensitive area (ESA) fencing around it during construction.

P-13-15600
This previously recorded resource was documented as a mine consisting of two shafts, an adit, and a prospect. One of the shafts was reported to have an opening measuring 10 x 10 ft. with a depth of 15 ft., and the site was mapped as spanning an area measuring 43 m across. No associated artifacts were observed during its recordation, and it was noted that the various features appeared to be in the process of collapse. ASM revisited P-13-15600. However, none of the features recorded at the site were found to fall within the Physical Effects APE, which is composed of an access route that intersects with the site's eastern boundary. As the site will be avoided, there will be no adverse effects to historic properties.

P-13-15601
This previously recorded resource was documented as a mine consisting of two shafts, an adit, and a prospect situated on a north-facing slope. The site was associated with a 55-gallon barrel, undiagnostic cans, and glass fragments. ASM revisited a portion of the site during the survey and relocated the previously recorded features within the Physical Effects APE. The site will be treated as NRHP eligible and avoided, so there will be no adverse affects to historic properties.

P-13-15602
This previously recorded resource was documented as a mine consisting of two shafts, a prospect trench, and a prospect pit. The presence of fencing, modern trash, and possible remaining cribbing was noted during the site's recordation. ASM revisited a small portion of P-13-15602 during the current survey, with most of the site found outside the Physical Effects APE to the west. The site will be treated as NRHP eligible and avoided so that there will be no affects to historic properties.

P-13-15656
This previously recorded resource was documented as a mine site composed of a single shaft and adit. The two were connected underground and found with an associated rock waste pile to the west. A small undiagnostic can scatter and piece of sheet metal were noted during the recordation. ASM revisited the very small portion of P-13-15656 that intersected with the proposed Project APE. However, none of the previously recorded features were relocated in that area. A small scatter of metal strands that appear to be the remains of a cable were identified along the eastern site boundary. No other artifacts or features associated with this site were identified within the Physical Effects APE. The site will be treated as NRHP eligible and avoided, there will be no affects to historic properties.

P-13-15841
This previously recorded resource was documented as a mine consisting of two shafts and an adit located on the north end of the Tumco valley. All three features were associated with waste rock piles, and no associated artifacts were identified. One of the shafts, Shaft 1, was noted to have a wire fence, and the adit was reported to have been previously filled in. ASM revisited P-13-15841 during the survey and relocated the sealed adit (Adit 1) and one of the shafts (Shaft 2). In the northern portion of the site, the cut on the slope for the adit was found to be approximately 10 m long and 3 m wide. As the site will be treated as NRHP eligible and avoided, there will be no effects to historic properties.

Finally, six newly recorded historic mine features, P-13-018460, -018461, -018462, -018463, -018464, and 018465, were also recorded during the current survey. They consist of adits and prospects and are all isolated mining features that were likely created sometime between 1953 and 1961 based on historic topographic maps and aerials of the area. All features will be treated as NRHP eligible and avoided for this project.

Archaeological Sites Located within the VAA APE
The VAA APE intersects 37 prehistoric trails, geoglyphs, ceramic scatters, lithic scatters, rock art sites, and isolates that have potential to be deemed sacred or traditionally important by Native American tribes. The use of these sites and locations by Native American tribes may be affected by the Project through temporary visual obstructions and loud noise levels such that the integrity of the "setting" and "feeling" of the sites is disturbed.

Of the 35 proposed potential drill sites, the closest of the prehistoric sites is 630 meters (2,067 feet) away, and the rest are between 950 and 2565 meters (3,117 and 8,415 feet) away. The viewshed analysis and line of site examples indicate that a 40-foot drill rig line against the existing landscape would not create a strong contrast against the backdrop of the existing landscape and would likely not be noticed by the casual viewer. Of 18 selected sites that intersect the potential visual APE the drill rigs would not be likely to have an adverse visual effect on the integrity of the setting or feeling of the selected sites from a distance of 630 meters or greater.

The auditory APE report suggests that drilling noise from the Project would be substantially shielded towards the east and north due to the topography of the Cargo Muchacho Mountains. Most of the sites are far enough away from the Project area, the Physical Effects APE, and the proposed helicopter drill sites that they would fall within the noise level contours of ~40-35 dBa L_{eq} or lower, which would be the equivalent of a suburban residential area at night. Based on the contours provided by Saxelby Acoustics, the proposed Project would not be likely to have an adverse auditory effect on the integrity of the setting or feeling of the 25 selected sites that intersect the VAA APE.

Identified Traditional Cultural Property
The Quechan Indian Tribe has conveyed to the BLM that the Oro Cruz project area is located within and encompassed by a much larger TCP as described in the 1997 cultural report titled, *Where Trails Cross: Cultural Resources Inventory and Evaluation for the Imperial Project, Imperial County, California*. This 1997 report recorded the Quechan elders' discussions of the trails and associated features and the importance of this region to the Quechan Tribe for conducting ceremonies and rituals, storytelling and song cycles, and for resource gathering. To briefly summarize, the preservation of this area is essential to maintain cultural, religious and traditional practices and teaching of future generations of Quechan youth. This 1997 cultural report also defines the Running Man Area of Traditional Cultural Concern (ATCC) located about 9 miles northeast of the Oro Cruz project area. Although a boundary was created to define the Running Man ATCC for management purposes, the report clearly states that an extensive and complex network of trails and associated sites and "potentially other ATCCs and linking trail systems" are running throughout the region.

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2) The TCP identified by the Quechan Indian Tribe was identified and the Class III Inventory report was amended to include a discussion of the TCP in association with the proposed Project as well as the prehistoric archaeological sites within the VAA APE.
3) Archaeological sites identified within the physical APE and the VAA APE were reviewed again to consider the potential effects that the proposed project may have. These sites were also considered as potentially contributing elements of the TCP. Additional protections were added to the project design such as additional physical barriers and increased cultural monitoring.
4) Avoidance of all archaeological sites, regardless of their status has been recommended for this project; fencing and periodic archaeological monitoring have been recommended for sites located near existing and proposed roads and ground disturbing activity areas.

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- The BLM finds that there will be **no adverse effects to historic properties** from this undertaking.

Consistent with 36 CFR 800.5(b) the BLM will avoid effects to the significant values of the historic properties by requiring the development and implementation of a cultural resources monitoring program for the Project. The monitoring program for the Project will include procedures for cultural resources monitoring, post-review discovery and unanticipated effects to known historic properties. Qualified cultural resources monitor(s) will be on site during Project construction related to the undertaking and tribal monitors will be invited to participate.

Based on the results of the cultural resources studies and project management actions that will be taken to monitor and avoid resources within the APE, the BLM proposes that there will be ***no***

adverse effects to historic properties by the undertaking. We request your review and comment for a 30-day consultation period. Please provide your input by May 14, 2023.

We appreciate your time and attention in reviewing the information provided in this letter. For information or further clarification, or to schedule a government-to-government consultation meeting with the BLM, please contact Hannah Robinson, BLM District Archaeologist, at hrobinson@blm.gov or by telephone at (435) 253-3706. If you have any questions please do not hesitate to contact us. I am also available at csahagun@blm.gov or by telephone at 760-337-4437. Thank you for your continued cooperation with this office.

Sincerely,

Carrie L. Sahagun
Acting Field Manager

Electronic cc:
Mayra Martinez, Project Manager (mymartinez@blm.gov)
Hannah Robinson, Archaeologist, California Desert District (hrobinson@blm.gov)

From: Sahagun, Carrie L
To: Angela Elliott Santos; Lisa Haws; Johnny EagleSpirit
Cc: Martinez, Mayra Y; Robinson, Hannah A
Subject: BLM updates on the Oro Cruz mining exploration project, Imperial County
Date: Thursday, April 13, 2023 11:04:58 AM
Attachments: BLM letter to Manzanita_Oro Cruz_4-13-2023.pdf

Dear Chairwoman Elliot Santos, Johnny and Lisa,
I hope this email finds you well. Please find attached a copy of our most recent letter to the Tribe regarding the proposed Oro Cruz mining exploration project within Imperial County. The purpose of the letter is to provide an updated summary of identification efforts, the final revised Class III report and the BLM's proposed determinations of eligibility and findings of effect for a 30-day consultation period concluding on May 14, 2023. Thank you very much and please let us know if you have any questions or would like to schedule a government-to-government meeting to discuss the project.
-Carrie

Carrie L. Sahagun
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United States Department of the Interior
BUREAU OF LAND MANAGEMENT
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April 13, 2023

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Ms. Angela Elliott Santos, Chairwoman
Manzanita Band of Kumeyaay Indians
P.O. Box 1302
Boulevard, CA 91905

Dear Chairwoman Elliott Santos,

The Bureau of Land Management (BLM) El Centro Field Office (ECFO) would like to continue our government-to-government consultation with you pursuant to Section 106 of the National Historic Preservation Act and other relevant laws and regulations regarding the SMP Gold Corp. (SMP) proposed project to conduct exploratory drilling activities in south-eastern Imperial County. The purpose of this letter is:

1) Update the BLM's summary of identification efforts,
2) Provide the final revised *Class III Cultural Resource Inventory for Oro Cruz Exploration Project, Imperial County, California* prepared by ASM Affiliates Inc. (ASM) with a summary of changes from the draft report,
3) Provide the Agency's proposed determinations of eligibility and findings of effect for the Project for a 30-day consultation period.

Summary of Identification Efforts

On August 25, 2022, the BLM sent to all Tribes and consulting parties an updated description of the area of potential effects (APE), a summary of the results of the field inventories and a copy of the draft inventory report for a 30-day consultation period[1]. Below is a comprehensive summary update of the status and results of all the identification efforts to date.

Westland Resources, Inc. contracted ASM on behalf of the BLM to conduct a Class III cultural resource inventory to identify cultural resources that are eligible or potentially eligible for listing on the National Register of Historic Places (NRHP). The Class III inventory included a records search at the South Coastal Information Center (SCIC) and an intensive pedestrian survey within the physical effects APE. On September 20 through 24 and October 30 and 31, 2021, archaeologists from ASM completed the Class III field inventory. All survey was conducted with a Native American monitor present.

[1] Prior BLM Section 106 consultation letters for the proposed project include those dated March 31, 2021 and August 10, 2021.

The results of the records search identified 11 previously recorded cultural resources that intersect the Physical Effects APE, including one prehistoric trail (CA-IMP-1469), the Ruins of Tumco Mining Town (CA-IMP-3297/3300H/3302), a historic cemetery (CA-IMP-3298), the Golden Queen Mine (CA-IMP-11343H), the Crowns Mine (CA-IMP-11344H), and five other unnamed mines (P-13-015600, P-13-015601, P-13-015602, P-13-015656, and P-13-015841). During the inventory, ASM relocated the 11 previously recorded cultural resources, recorded one new prehistoric site (CA-IMP-13336) and several historic mining features within the Physical Effects APE. ASM also completed a visual and auditory affects (VAA) analysis of cultural resources that could be affected by the Project but that were outside the Physical effects APE. Below is a summary description of the resources documented by ASM along with their recommendations. As a result of BLM consultation efforts with the Tribes, a Traditional Cultural Property (TCP) has also been identified encompassing the project area and a summary of that resource is also provided.

CA-IMP-1469

This previously recorded site is a prehistoric trail approximately 740 m long and 30 cm wide, tamped into the desert pavement and divided into two segments by an unnamed wash. The southernmost end of the site occurs within the physical effects APE for the Project. During the pedestrian survey, ASM revisited the southernmost 17 m of the site, which falls within the proposed APE for an existing access road. The 17m portion of the site inspected appeared to be moderately disturbed by off-road vehicle traffic and seasonal/ephemeral sheet wash erosion. No other artifacts or features were identified at this portion of the site. CA-SDI-1469 will be treated as eligible for inclusion on the NRHP and avoided during the drilling project . The potential for adverse effects is low for this site as it is adjacent to an existing road not scheduled for improvements. Additionally, ESA fencing can ensure that mining vehicles do not veer offroad in this section.

CA-IMP-3297/3300/3302

This previously recorded site is the Hedges/Tumco Historical Townsite designated by the California State Department of Parks and Recreation as California Historic Landmark No. 182. The site was initially recorded by Rudolf Miller in 1977. The Hedges/Tumco Historic Townsite ruins include residential areas, two cemeteries, a commercial district, a company district, and many mining-related features. The site was evaluated for the Oro Cruz Plan of Operation of the American Girl Project in 1992 by Burney and Associates through archaeological testing, oral history, geomorphology, aerial photography, and extensive archival research and was recommended as eligible for listing in the NRHP. In 1994, the BLM determined in consultation with the California State Historic Preservation Office (SHPO) that the site was indeed eligible for listing in the NRHP under Criteria (a), (c), and (d). The current Project plan will avoid physically affecting all features identified during the survey associated with CA-IMP-3297/3300/3302, and thus the Project is not likely to have an adverse effect on the NRHP eligible site. Temporary fencing and periodic monitoring may be needed to ensure that those features in close proximity to the proposed access roads are not impacted.

CA-IMP-3298

This previously recorded site is a historic cemetery adjacent to an existing access road designated as Road Segment No. 1 of the Project. CA-IMP-3298 is technically a feature within CA-IMP-3297/3300/3302 and the site boundaries have been updated to include it. While this road segment

is planned for improvements, the cemetery is currently fenced. Additionally, ESA fencing can be placed along this road segment to ensure avoidance during construction. The current Project plans are such that avoidance of this resource is feasible. Thus the Project will not adversely affect this site.

CA-IMP-7915

This previously recorded historic site was recorded as part of the North Baja Gas Pipeline alignment project. The site consists of a wooden pole, H-frame, 161kV transmission line built in 1951 and stretches from a substation in Pilot Knob in Imperial County to Blythe in Riverside County. The line is part of a transmission line system that carries power from the Davis and Parker Dams on the Colorado River to 31 substations. ASM relocated the transmission line during the survey and determined that it only intersects a small section of Road Segment No. 17, and none of the existing poles fall within the Physical Effects APE; therefore these features can be avoided by the currently proposed Project.

CA-IMP-11343

The Golden Queen mine is technically a feature within CA-IMP-3297/3300/3302. In 1994 it was determined by BLM in consultation with SHPO to not be a contributing component to the Hedges/Tumco Historic Townsite due to the poor condition and natural weathering of the features associated with the Queen mine area. This determination occurred before it was recorded in 2010 by J. Kellogg of the BLM Needles office during a survey in association with the California Desert District Abandoned Mine Lands program. In his report, Kellogg recommended it as eligible. The proposed Project component that intersects the site is an existing access road with no plans for improvements. Given that there are no plans to improve this segment of the Physical Effects APE, the Project will likely have no adverse effect on this site.

CA-IMP-11344

This previously recorded site is the Crowns mine which is technically a feature within CA-IMP-3297/3300/3302. Three mining features were identified during the current survey within the boundaries of this site, including an adit, the remains of a shaft, and a prospect. Additionally, one milled lumber feature was identified during the survey with no associated artifacts. These features may correspond to those identified by the BLM as not eligible for listing in the NRHP in the 1994 Oro Cruz Operation of the American Girl Mining Project EIS. For the present project these features will be treated as eligible and avoided. The current Project plans will avoid these features, and thus the Project will not have an adverse effect on the site.

CA-IMP-13336

This newly recorded site consists of four potsherds that include one rim and three body sherds. The ceramic fragments are distributed with a maximum of 2 m between sherds. Ceramics are associated with late prehistory in general, and in the area specifically from AD 700-900, and onwards. No other artifacts or features were identified at the site. The condition of CA-IMP-13336 is good, with minimal disturbance limited to minor silt deposition in the site area due to seasonal water flow. CA-IMP-13336 will be treated as eligible for inclusion on the NRHP and avoided during the drilling project This small site can easily be avoided by placing temporary environmentally sensitive area (ESA) fencing around it during construction.

P-13-15600
This previously recorded resource was documented as a mine consisting of two shafts, an adit, and a prospect. One of the shafts was reported to have an opening measuring 10 x 10 ft. with a depth of 15 ft., and the site was mapped as spanning an area measuring 43 m across. No associated artifacts were observed during its recordation, and it was noted that the various features appeared to be in the process of collapse. ASM revisited P-13-15600. However, none of the features recorded at the site were found to fall within the Physical Effects APE, which is composed of an access route that intersects with the site's eastern boundary. As the site will be avoided, there will be no adverse effects to historic properties.

P-13-15601
This previously recorded resource was documented as a mine consisting of two shafts, an adit, and a prospect situated on a north-facing slope. The site was associated with a 55-gallon barrel, undiagnostic cans, and glass fragments. ASM revisited a portion of the site during the survey and relocated the previously recorded features within the Physical Effects APE. The site will be treated as NRHP eligible and avoided, so there will be no adverse affects to historic properties.

P-13-15602
This previously recorded resource was documented as a mine consisting of two shafts, a prospect trench, and a prospect pit. The presence of fencing, modern trash, and possible remaining cribbing was noted during the site's recordation. ASM revisited a small portion of P-13-15602 during the current survey, with most of the site found outside the Physical Effects APE to the west. The site will be treated as NRHP eligible and avoided so that there will be no affects to historic properties.

P-13-15656
This previously recorded resource was documented as a mine site composed of a single shaft and adit. The two were connected underground and found with an associated rock waste pile to the west. A small undiagnostic can scatter and piece of sheet metal were noted during the recordation. ASM revisited the very small portion of P-13-15656 that intersected with the proposed Project APE. However, none of the previously recorded features were relocated in that area. A small scatter of metal strands that appear to be the remains of a cable were identified along the eastern site boundary. No other artifacts or features associated with this site were identified within the Physical Effects APE. The site will be treated as NRHP eligible and avoided, there will be no affects to historic properties.

P-13-15841
This previously recorded resource was documented as a mine consisting of two shafts and an adit located on the north end of the Tumco valley. All three features were associated with waste rock piles, and no associated artifacts were identified. One of the shafts, Shaft 1, was noted to have a wire fence, and the adit was reported to have been previously filled in. ASM revisited P-13-15841 during the survey and relocated the sealed adit (Adit 1) and one of the shafts (Shaft 2). In the northern portion of the site, the cut on the slope for the adit was found to be approximately 10 m long and 3 m wide. As the site will be treated as NRHP eligible and avoided, there will be no effects to historic properties.

Finally, six newly recorded historic mine features, P-13-018460, -018461, -018462, -018463, -018464, and 018465, were also recorded during the current survey. They consist of adits and prospects and are all isolated mining features that were likely created sometime between 1953 and 1961 based on historic topographic maps and aerials of the area. All features will be treated as NRHP eligible and avoided for this project.

Archaeological Sites Located within the VAA APE
The VAA APE intersects 37 prehistoric trails, geoglyphs, ceramic scatters, lithic scatters, rock art sites, and isolates that have potential to be deemed sacred or traditionally important by Native American tribes. The use of these sites and locations by Native American tribes may be affected by the Project through temporary visual obstructions and loud noise levels such that the integrity of the "setting" and "feeling" of the sites is disturbed.

Of the 35 proposed potential drill sites, the closest of the prehistoric sites is 630 meters (2,067 feet) away, and the rest are between 950 and 2565 meters (3,117 and 8,415 feet) away. The viewshed analysis and line of site examples indicate that a 40-foot drill rig line against the existing landscape would not create a strong contrast against the backdrop of the existing landscape and would likely not be noticed by the casual viewer. Of 18 selected sites that intersect the potential visual APE the drill rigs would not be likely to have an adverse visual effect on the integrity of the setting or feeling of the selected sites from a distance of 630 meters or greater.

The auditory APE report suggests that drilling noise from the Project would be substantially shielded towards the east and north due to the topography of the Cargo Muchacho Mountains. Most of the sites are far enough away from the Project area, the Physical Effects APE, and the proposed helicopter drill sites that they would fall within the noise level contours of ~40-35 dBa L_{eq} or lower, which would be the equivalent of a suburban residential area at night. Based on the contours provided by Saxelby Acoustics, the proposed Project would not be likely to have an adverse auditory effect on the integrity of the setting or feeling of the 25 selected sites that intersect the VAA APE.

Identified Traditional Cultural Property
The Quechan Indian Tribe has conveyed to the BLM that the Oro Cruz project area is located within and encompassed by a much larger TCP as described in the 1997 cultural report titled, *Where Trails Cross: Cultural Resources Inventory and Evaluation for the Imperial Project, Imperial County, California*. This 1997 report recorded the Quechan elders' discussions of the trails and associated features and the importance of this region to the Quechan Tribe for conducting ceremonies and rituals, storytelling and song cycles, and for resource gathering. To briefly summarize, the preservation of this area is essential to maintain cultural, religious and traditional practices and teaching of future generations of Quechan youth. This 1997 cultural report also defines the Running Man Area of Traditional Cultural Concern (ATCC) located about 9 miles northeast of the Oro Cruz project area. Although a boundary was created to define the Running Man ATCC for management purposes, the report clearly states that an extensive and complex network of trails and associated sites and "potentially other ATCCs and linking trail systems" are running throughout the region.

The physical or tangible cultural resource evidence of this TCP identified within the Project area are the prehistoric trails, geoglyphs, rock art, and numerous other associated sites containing

ceramics and lithics primarily located within the VAA APE. The network of prehistoric trails and associated features are tied directly to the Quechan's stories of origin, religious ceremonies, and traditional cultural teachings as are the Cargo Muchacho Mountains themselves. The TCP extends from this trail network and associated cultural sites to the "mountains, rivers and springs, and includes the plants and animals" living within the region. The Keruk/Xam Kwatsam Trail system is one of the largest known (but not fully recorded or defined) trail systems that runs the length of the Colorado River between the Newberry Mountains in the north to Pilot Knob near the southeastern corner of Imperial County, California. The 1997 report identifies approximate locations for trails significant to the Tribe(s) running on both the East and West sides of the Cargo Muchacho Mountains. The trail on the west side of the Cargo Muchacho Mountains is within the VAA APE for the Oro Cruz Project. The entire system consists of various segments of the trail, several significant mountain ranges and specific peaks, numerous side trails, numerous earth figures/geoglyphs, and thousands of objects such as lithics, cairns, potsherds, and cleared sleeping or camping areas. Quechan elders testified, elaborately, about the importance of these cultural features during the late 1990's proposed mining project (Imperial Gold) located near Indian Pass, approximately 10 miles northeast of the current Oro Cruz Project. The 1997 report states that additional ethnographic information may be required to understand if this trail network should be recorded and NRHP evaluated as one very large all-encompassing TCP or if the individual components / areas / sites of the larger complex should be identified and evaluated separately. Additional work understanding this TCP or complex of TCPs will continue to be conducted by the BLM in consultation with the Tribe.

Class III Cultural Resources Inventory Report

A draft of the Class III cultural resources inventory report titled, *Class III Cultural Resource Inventory for the Oro Cruz Exploration Project, Imperial County, California* (Report), was sent to Tribes and consulting parties August 25, 2022, for review and comments. Based upon the comments and input the BLM received, the following modifications were made to the Report:

1) Archaeological site CA-IMP-13336 was revisited by ASM, the ceramic sherds were analyzed in more detail and the Report was updated with additional characteristics.
2) The TCP identified by the Quechan Indian Tribe was identified and the Class III Inventory report was amended to include a discussion of the TCP in association with the proposed Project as well as the prehistoric archaeological sites within the VAA APE.
3) Archaeological sites identified within the physical APE and the VAA APE were reviewed again to consider the potential effects that the proposed project may have. These sites were also considered as potentially contributing elements of the TCP. Additional protections were added to the project design such as additional physical barriers and increased cultural monitoring.
4) Avoidance of all archaeological sites, regardless of their status has been recommended for this project; fencing and periodic archaeological monitoring have been recommended for sites located near existing and proposed roads and ground disturbing activity areas.

The revised final Report (non-confidential version) has been uploaded to an ASM ftp website and is available for download. You can access the ftp website at the following address:

https://asmaffiliates.filecloudonline.com/url/an4kfzjxhumghxfp

If you would like to request a hardcopy or the confidential appendices, please coordinate with Hannah Robinson, BLM Desert District Archaeologist (contact information below).

Agency Proposed Determinations of Eligibility and Findings of Effect

Based on the results of the record search, archaeological inventory, the contractors' recommendations, Section 106 and government-to-government consultations, the BLM staff review of all the information and analysis provided and pursuant to 36 CFR 800.4 and 800.5, the BLM makes the following determinations regarding NRHP eligibility and findings of effect for historic properties:

- CA-IMP-1469 is determined eligible for inclusion in the NRHP under Criterion A and D. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect as the site will be avoided and protected with protective fencing, matting and other management conditions.
- The BLM concurs with and reaffirms the previous determinations that site CA-IMP-3297/3300/3302 is eligible for inclusion in the NRHP under Criterion A, C and D. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect as the site and features within will be avoided and protected with protective fencing where needed and other management conditions.
- The following resources located within the Physical APE CA-IMP-3298, -7915, -11343, -11344, -13336, P-13-15600, -15601, -15602, -15656, -15841, -18460, -18461, -18462, -18463, -18464, -18465 will be treated as eligible for inclusion in the NRHP for project management purposes. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect to these resources with management conditions and protective fencing where needed.
- The 37 cultural resources within the VAA APE, remain formally unevaluated but will be treated as eligible for inclusion in the NRHP for project management purposes and they will be avoided. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect from visual or auditory intrusions.
- The Identified TCP is assumed eligible for inclusion in the NRHP under Criterion A and D. The BLM finds that there will be no adverse effect to this resource. The archaeological resources that may be components of the TCP will be avoided and the auditory and visual impacts created by this Project will be temporary in nature.
- The BLM finds that there will be **no adverse effects to historic properties** from this undertaking.

Consistent with 36 CFR 800.5(b) the BLM will avoid effects to the significant values of the historic properties by requiring the development and implementation of a cultural resources monitoring program for the Project. The monitoring program for the Project will include procedures for cultural resources monitoring, post-review discovery and unanticipated effects to known historic properties. Qualified cultural resources monitor(s) will be on site during Project construction related to the undertaking and tribal monitors will be invited to participate.

Based on the results of the cultural resources studies and project management actions that will be taken to monitor and avoid resources within the APE, the BLM proposes that there will be ***no***

adverse effects to historic properties by the undertaking. We request your review and comment for a 30-day consultation period. Please provide your input by May 14, 2023.

We appreciate your time and attention in reviewing the information provided in this letter. For information or further clarification, or to schedule a government-to-government consultation meeting with the BLM, please contact Hannah Robinson, BLM District Archaeologist, at hrobinson@blm.gov or by telephone at (435) 253-3706. If you have any questions please do not hesitate to contact us. I am also available at csahagun@blm.gov or by telephone at 760-337-4437. Thank you for your continued cooperation with this office.

Sincerely,

Carrie L. Sahagun
Acting Field Manager

Electronic cc:
Mayra Martinez, Project Manager (mymartinez@blm.gov)
Hannah Robinson, Archaeologist, California Desert District (hrobinson@blm.gov)

From: Sahagun, Carrie L
To: Gwendolyn Parada; Gwendolyn Parada; Stephen Rochester
Cc: Martinez, Mayra Y; Robinson, Hannah A
Subject: BLM updates on the Oro Cruz mining exploration project, Imperial County
Date: Thursday, April 13, 2023 11:00:42 AM
Attachments: BLM letter to La Posta_Oro Cruz_4-13-2023.pdf

Dear Chairwoman Parada and Stephen,
I hope this email finds you well. Please find attached a copy of our most recent letter to the Tribe regarding the proposed Oro Cruz mining exploration project within Imperial County. The purpose of the letter is to provide an updated summary of identification efforts, the final revised Class III report and the BLM's proposed determinations of eligibility and findings of effect for a 30-day consultation period concluding on May 14, 2023. Thank you very much and please let us know if you have any questions or would like to schedule a government-to-government meeting to discuss the project.
-Carrie

Carrie L. Sahagun
Acting Field Manager
BLM El Centro Field Office
1661 S. 4th Street
El Centro, CA 92243
(760) 337-4437
USDI, Region 8
she/her

Caution: This email originated from outside of Stantec. Please take extra precaution.
Attention: Ce courriel provient de l'extérieur de Stantec. Veuillez prendre des précautions supplémentaires.
Atención: Este correo electrónico proviene de fuera de Stantec. Por favor, tome precauciones adicionales.

United States Department of the Interior
BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

April 13, 2023

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Ms. Gwendolyn Parada, Chairperson
La Posta Band of Kumeyaay Indians
8 Crestwood Rd.
Boulevard, CA 91905

Dear Chairperson Parada,

The Bureau of Land Management (BLM) El Centro Field Office (ECFO) would like to continue our government-to-government consultation with you pursuant to Section 106 of the National Historic Preservation Act and other relevant laws and regulations regarding the SMP Gold Corp. (SMP) proposed project to conduct exploratory drilling activities in south-eastern Imperial County. The purpose of this letter is:

1) Update the BLM's summary of identification efforts,
2) Provide the final revised *Class III Cultural Resource Inventory for Oro Cruz Exploration Project, Imperial County, California* prepared by ASM Affiliates Inc. (ASM) with a summary of changes from the draft report,
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is planned for improvements, the cemetery is currently fenced. Additionally, ESA fencing can be placed along this road segment to ensure avoidance during construction. The current Project plans are such that avoidance of this resource is feasible. Thus the Project will not adversely affect this site.

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This previously recorded resource was documented as a mine site composed of a single shaft and adit. The two were connected underground and found with an associated rock waste pile to the west. A small undiagnostic can scatter and piece of sheet metal were noted during the recordation. ASM revisited the very small portion of P-13-15656 that intersected with the proposed Project APE. However, none of the previously recorded features were relocated in that area. A small scatter of metal strands that appear to be the remains of a cable were identified along the eastern site boundary. No other artifacts or features associated with this site were identified within the Physical Effects APE. The site will be treated as NRHP eligible and avoided, there will be no affects to historic properties.

P-13-15841
This previously recorded resource was documented as a mine consisting of two shafts and an adit located on the north end of the Tumco valley. All three features were associated with waste rock piles, and no associated artifacts were identified. One of the shafts, Shaft 1, was noted to have a wire fence, and the adit was reported to have been previously filled in. ASM revisited P-13-15841 during the survey and relocated the sealed adit (Adit 1) and one of the shafts (Shaft 2). In the northern portion of the site, the cut on the slope for the adit was found to be approximately 10 m long and 3 m wide. As the site will be treated as NRHP eligible and avoided, there will be no effects to historic properties.

Finally, six newly recorded historic mine features, P-13-018460, -018461, -018462, -018463, -018464, and 018465, were also recorded during the current survey. They consist of adits and prospects and are all isolated mining features that were likely created sometime between 1953 and 1961 based on historic topographic maps and aerials of the area. All features will be treated as NRHP eligible and avoided for this project.

Archaeological Sites Located within the VAA APE

The VAA APE intersects 37 prehistoric trails, geoglyphs, ceramic scatters, lithic scatters, rock art sites, and isolates that have potential to be deemed sacred or traditionally important by Native American tribes. The use of these sites and locations by Native American tribes may be affected by the Project through temporary visual obstructions and loud noise levels such that the integrity of the "setting" and "feeling" of the sites is disturbed.

Of the 35 proposed potential drill sites, the closest of the prehistoric sites is 630 meters (2,067 feet) away, and the rest are between 950 and 2565 meters (3,117 and 8,415 feet) away. The viewshed analysis and line of site examples indicate that a 40-foot drill rig line against the existing landscape would not create a strong contrast against the backdrop of the existing landscape and would likely not be noticed by the casual viewer. Of 18 selected sites that intersect the potential visual APE the drill rigs would not be likely to have an adverse visual effect on the integrity of the setting or feeling of the selected sites from a distance of 630 meters or greater.

The auditory APE report suggests that drilling noise from the Project would be substantially shielded towards the east and north due to the topography of the Cargo Muchacho Mountains. Most of the sites are far enough away from the Project area, the Physical Effects APE, and the proposed helicopter drill sites that they would fall within the noise level contours of ~40-35 dBa L_{eq} or lower, which would be the equivalent of a suburban residential area at night. Based on the contours provided by Saxelby Acoustics, the proposed Project would not be likely to have an adverse auditory effect on the integrity of the setting or feeling of the 25 selected sites that intersect the VAA APE.

Identified Traditional Cultural Property

The Quechan Indian Tribe has conveyed to the BLM that the Oro Cruz project area is located within and encompassed by a much larger TCP as described in the 1997 cultural report titled, *Where Trails Cross: Cultural Resources Inventory and Evaluation for the Imperial Project, Imperial County, California.* This 1997 report recorded the Quechan elders' discussions of the trails and associated features and the importance of this region to the Quechan Tribe for conducting ceremonies and rituals, storytelling and song cycles, and for resource gathering. To briefly summarize, the preservation of this area is essential to maintain cultural, religious and traditional practices and teaching of future generations of Quechan youth. This 1997 cultural report also defines the Running Man Area of Traditional Cultural Concern (ATCC) located about 9 miles northeast of the Oro Cruz project area. Although a boundary was created to define the Running Man ATCC for management purposes, the report clearly states that an extensive and complex network of trails and associated sites and "potentially other ATCCs and linking trail systems" are running throughout the region.

The physical or tangible cultural resource evidence of this TCP identified within the Project area are the prehistoric trails, geoglyphs, rock art, and numerous other associated sites containing

ceramics and lithics primarily located within the VAA APE. The network of prehistoric trails and associated features are tied directly to the Quechan's stories of origin, religious ceremonies, and traditional cultural teachings as are the Cargo Muchacho Mountains themselves. The TCP extends from this trail network and associated cultural sites to the "mountains, rivers and springs, and includes the plants and animals" living within the region. The Keruk/Xam Kwatsam Trail system is one of the largest known (but not fully recorded or defined) trail systems that runs the length of the Colorado River between the Newberry Mountains in the north to Pilot Knob near the southeastern corner of Imperial County, California. The 1997 report identifies approximate locations for trails significant to the Tribe(s) running on both the East and West sides of the Cargo Muchacho Mountains. The trail on the west side of the Cargo Muchacho Mountains is within the VAA APE for the Oro Cruz Project. The entire system consists of various segments of the trail, several significant mountain ranges and specific peaks, numerous side trails, numerous earth figures/geoglyphs, and thousands of objects such as lithics, cairns, potsherds, and cleared sleeping or camping areas. Quechan elders testified, elaborately, about the importance of these cultural features during the late 1990's proposed mining project (Imperial Gold) located near Indian Pass, approximately 10 miles northeast of the current Oro Cruz Project. The 1997 report states that additional ethnographic information may be required to understand if this trail network should be recorded and NRHP evaluated as one very large all-encompassing TCP or if the individual components / areas / sites of the larger complex should be identified and evaluated separately. Additional work understanding this TCP or complex of TCPs will continue to be conducted by the BLM in consultation with the Tribe.

Class III Cultural Resources Inventory Report

A draft of the Class III cultural resources inventory report titled, *Class III Cultural Resource Inventory for the Oro Cruz Exploration Project, Imperial County, California* (Report), was sent to Tribes and consulting parties August 25, 2022, for review and comments. Based upon the comments and input the BLM received, the following modifications were made to the Report:

1) Archaeological site CA-IMP-13336 was revisited by ASM, the ceramic sherds were analyzed in more detail and the Report was updated with additional characteristics.
2) The TCP identified by the Quechan Indian Tribe was identified and the Class III Inventory report was amended to include a discussion of the TCP in association with the proposed Project as well as the prehistoric archaeological sites within the VAA APE.
3) Archaeological sites identified within the physical APE and the VAA APE were reviewed again to consider the potential effects that the proposed project may have. These sites were also considered as potentially contributing elements of the TCP. Additional protections were added to the project design such as additional physical barriers and increased cultural monitoring.
4) Avoidance of all archaeological sites, regardless of their status has been recommended for this project; fencing and periodic archaeological monitoring have been recommended for sites located near existing and proposed roads and ground disturbing activity areas.

The revised final Report (non-confidential version) has been uploaded to an ASM ftp website and is available for download. You can access the ftp website at the following address:

https://asmaffiliates.filecloudonline.com/url/an4kfzjxhumghxfp

If you would like to request a hardcopy or the confidential appendices, please coordinate with Hannah Robinson, BLM Desert District Archaeologist (contact information below).

Agency Proposed Determinations of Eligibility and Findings of Effect

Based on the results of the record search, archaeological inventory, the contractors' recommendations, Section 106 and government-to-government consultations, the BLM staff review of all the information and analysis provided and pursuant to 36 CFR 800.4 and 800.5, the BLM makes the following determinations regarding NRHP eligibility and findings of effect for historic properties:

- CA-IMP-1469 is determined eligible for inclusion in the NRHP under Criterion A and D. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect as the site will be avoided and protected with protective fencing, matting and other management conditions.
- The BLM concurs with and reaffirms the previous determinations that site CA-IMP-3297/3300/3302 is eligible for inclusion in the NRHP under Criterion A, C and D. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect as the site and features within will be avoided and protected with protective fencing where needed and other management conditions.
- The following resources located within the Physical APE CA-IMP-3298, -7915, -11343, -11344, -13336, P-13-15600, -15601, -15602, -15656, -15841, -18460, -18461, -18462, -18463, -18464, -18465 will be treated as eligible for inclusion in the NRHP for project management purposes. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect to these resources with management conditions and protective fencing where needed.
- The 37 cultural resources within the VAA APE, remain formally unevaluated but will be treated as eligible for inclusion in the NRHP for project management purposes and they will be avoided. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect from visual or auditory intrusions.
- The Identified TCP is assumed eligible for inclusion in the NRHP under Criterion A and D. The BLM finds that there will be no adverse effect to this resource. The archaeological resources that may be components of the TCP will be avoided and the auditory and visual impacts created by this Project will be temporary in nature.
- The BLM finds that there will be **no adverse effects to historic properties** from this undertaking.

Consistent with 36 CFR 800.5(b) the BLM will avoid effects to the significant values of the historic properties by requiring the development and implementation of a cultural resources monitoring program for the Project. The monitoring program for the Project will include procedures for cultural resources monitoring, post-review discovery and unanticipated effects to known historic properties. Qualified cultural resources monitor(s) will be on site during Project construction related to the undertaking and tribal monitors will be invited to participate.

Based on the results of the cultural resources studies and project management actions that will be taken to monitor and avoid resources within the APE, the BLM proposes that there will be ***no***

adverse effects to historic properties by the undertaking. We request your review and comment for a 30-day consultation period. Please provide your input by May 14, 2023.

We appreciate your time and attention in reviewing the information provided in this letter. For information or further clarification, or to schedule a government-to-government consultation meeting with the BLM, please contact Hannah Robinson, BLM District Archaeologist, at hrobinson@blm.gov or by telephone at (435) 253-3706. If you have any questions please do not hesitate to contact us. I am also available at csahagun@blm.gov or by telephone at 760-337-4437. Thank you for your continued cooperation with this office.

Sincerely,

Carrie L. Sahagun
Acting Field Manager

Electronic cc:
Mayra Martinez, Project Manager (mymartinez@blm.gov)
Hannah Robinson, Archaeologist, California Desert District (hrobinson@blm.gov)

From: Sahagun, Carrie L
Cc: Martinez, Mayra Y; Robinson, Hannah A
Subject: BLM updates on the Oro Cruz mining exploration project, Imperial County
Date: Thursday, April 13, 2023 10:58:14 AM
Attachments: BLM letter to Kwaaymii_Oro Cruz_4-13-2023.pdf

Dear Courtney,
I hope this email finds you well. Please find attached a copy of our most recent letter to Carmen regarding the proposed Oro Cruz mining exploration project within Imperial County. The purpose of the letter is to provide an updated summary of identification efforts, the final revised Class III report and the BLM's proposed determinations of eligibility and findings of effect for a 30-day consultation period concluding on May 14, 2023. Thank you very much.
-Carrie

Carrie L. Sahagun
Acting Field Manager
BLM El Centro Field Office
1661 S. 4th Street
El Centro, CA 92243
(760) 337-4437
USDI, Region 8
she/her

Caution: This email originated from outside of Stantec. Please take extra precaution.
Attention: Ce courriel provient de l'extérieur de Stantec. Veuillez prendre des précautions supplémentaires.
Atención: Este correo electrónico proviene de fuera de Stantec. Por favor, tome precauciones adicionales.

United States Department of the Interior
BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

April 13, 2023

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Ms. Carmen Lucas
Kwaaymii Laguna Band of Indians
P.O. Box 775
Pine Valley, CA 91962

Dear Ms. Lucas,

The Bureau of Land Management (BLM) El Centro Field Office (ECFO) would like to continue our consultation with you pursuant to Section 106 of the National Historic Preservation Act and other relevant laws and regulations regarding the SMP Gold Corp. (SMP) proposed project to conduct exploratory drilling activities in south-eastern Imperial County. The purpose of this letter is:

1) Update the BLM's summary of identification efforts,
2) Provide the final revised *Class III Cultural Resource Inventory for Oro Cruz Exploration Project, Imperial County, California* prepared by ASM Affiliates Inc. (ASM) with a summary of changes from the draft report,
3) Provide the Agency's proposed determinations of eligibility and findings of effect for the Project for a 30-day consultation period.

Summary of Identification Efforts

On August 25, 2022, the BLM sent to all Tribes and consulting parties an updated description of the area of potential effects (APE), a summary of the results of the field inventories and a copy of the draft inventory report for a 30-day consultation period[1]. Below is a comprehensive summary update of the status and results of all the identification efforts to date.

Westland Resources, Inc. contracted ASM on behalf of the BLM to conduct a Class III cultural resource inventory to identify cultural resources that are eligible or potentially eligible for listing on the National Register of Historic Places (NRHP). The Class III inventory included a records search at the South Coastal Information Center (SCIC) and an intensive pedestrian survey within the physical effects APE. On September 20 through 24 and October 30 and 31, 2021, archaeologists from ASM completed the Class III field inventory. All survey was conducted with a Native American monitor present.
The results of the records search identified 11 previously recorded cultural resources that

[1] Prior BLM Section 106 consultation letters for the proposed project include those dated March 31, 2021 and August 10, 2021.

intersect the Physical Effects APE, including one prehistoric trail (CA-IMP-1469), the Ruins of Tumco Mining Town (CA-IMP-3297/3300H/3302), a historic cemetery (CA-IMP-3298), the Golden Queen Mine (CA-IMP-11343H), the Crowns Mine (CA-IMP-11344H), and five other unnamed mines (P-13-015600, P-13-015601, P-13-015602, P-13-015656, and P-13-015841). During the inventory, ASM relocated the 11 previously recorded cultural resources, recorded one new prehistoric site (CA-IMP-13336) and several historic mining features within the Physical Effects APE. ASM also completed a visual and auditory affects (VAA) analysis of cultural resources that could be affected by the Project but that were outside the Physical effects APE. Below is a summary description of the resources documented by ASM along with their recommendations. As a result of BLM consultation efforts with the Tribes, a Traditional Cultural Property (TCP) has also been identified encompassing the project area and a summary of that resource is also provided.

CA-IMP-1469

This previously recorded site is a prehistoric trail approximately 740 m long and 30 cm wide, tamped into the desert pavement and divided into two segments by an unnamed wash. The southernmost end of the site occurs within the physical effects APE for the Project. During the pedestrian survey, ASM revisited the southernmost 17 m of the site, which falls within the proposed APE for an existing access road. The 17m portion of the site inspected appeared to be moderately disturbed by off-road vehicle traffic and seasonal/ephemeral sheet wash erosion. No other artifacts or features were identified at this portion of the site. CA-SDI-1469 will be treated as eligible for inclusion on the NRHP and avoided during the drilling project . The potential for adverse effects is low for this site as it is adjacent to an existing road not scheduled for improvements. Additionally, ESA fencing can ensure that mining vehicles do not veer offroad in this section.

CA-IMP-3297/3300/3302

This previously recorded site is the Hedges/Tumco Historical Townsite designated by the California State Department of Parks and Recreation as California Historic Landmark No. 182. The site was initially recorded by Rudolf Miller in 1977. The Hedges/Tumco Historic Townsite ruins include residential areas, two cemeteries, a commercial district, a company district, and many mining-related features. The site was evaluated for the Oro Cruz Plan of Operation of the American Girl Project in 1992 by Burney and Associates through archaeological testing, oral history, geomorphology, aerial photography, and extensive archival research and was recommended as eligible for listing in the NRHP. In 1994, the BLM determined in consultation with the California State Historic Preservation Office (SHPO) that the site was indeed eligible for listing in the NRHP under Criteria (a), (c), and (d). The current Project plan will avoid physically affecting all features identified during the survey associated with CA-IMP-3297/3300/3302, and thus the Project is not likely to have an adverse effect on the NRHP eligible site. Temporary fencing and periodic monitoring may be needed to ensure that those features in close proximity to the proposed access roads are not impacted.

CA-IMP-3298

This previously recorded site is a historic cemetery adjacent to an existing access road designated as Road Segment No. 1 of the Project. CA-IMP-3298 is technically a feature within CA-IMP-3297/3300/3302 and the site boundaries have been updated to include it. While this road segment is planned for improvements, the cemetery is currently fenced. Additionally, ESA fencing can be

placed along this road segment to ensure avoidance during construction. The current Project plans are such that avoidance of this resource is feasible. Thus the Project will not adversely affect this site.

CA-IMP-7915
This previously recorded historic site was recorded as part of the North Baja Gas Pipeline alignment project. The site consists of a wooden pole, H-frame, 161kV transmission line built in 1951 and stretches from a substation in Pilot Knob in Imperial County to Blythe in Riverside County. The line is part of a transmission line system that carries power from the Davis and Parker Dams on the Colorado River to 31 substations. ASM relocated the transmission line during the survey and determined that it only intersects a small section of Road Segment No. 17, and none of the existing poles fall within the Physical Effects APE; therefore these features can be avoided by the currently proposed Project.

CA-IMP-11343
The Golden Queen mine is technically a feature within CA-IMP-3297/3300/3302. In 1994 it was determined by BLM in consultation with SHPO to not be a contributing component to the Hedges/Tumco Historic Townsite due to the poor condition and natural weathering of the features associated with the Queen mine area. This determination occurred before it was recorded in 2010 by J. Kellogg of the BLM Needles office during a survey in association with the California Desert District Abandoned Mine Lands program. In his report, Kellogg recommended it as eligible. The proposed Project component that intersects the site is an existing access road with no plans for improvements. Given that there are no plans to improve this segment of the Physical Effects APE, the Project will likely have no adverse effect on this site.

CA-IMP-11344
This previously recorded site is the Crowns mine which is technically a feature within CA-IMP-3297/3300/3302. Three mining features were identified during the current survey within the boundaries of this site, including an adit, the remains of a shaft, and a prospect. Additionally, one milled lumber feature was identified during the survey with no associated artifacts. These features may correspond to those identified by the BLM as not eligible for listing in the NRHP in the 1994 Oro Cruz Operation of the American Girl Mining Project EIS. For the present project these features will be treated as eligible and avoided. The current Project plans will avoid these features, and thus the Project will not have an adverse effect on the site.

CA-IMP-13336
This newly recorded site consists of four potsherds that include one rim and three body sherds. The ceramic fragments are distributed with a maximum of 2 m between sherds. Ceramics are associated with late prehistory in general, and in the area specifically from AD 700-900, and onwards. No other artifacts or features were identified at the site. The condition of CA-IMP-13336 is good, with minimal disturbance limited to minor silt deposition in the site area due to seasonal water flow. CA-IMP-13336 will be treated as eligible for inclusion on the NRHP and avoided during the drilling project This small site can easily be avoided by placing temporary environmentally sensitive area (ESA) fencing around it during construction.

P-13-15600
This previously recorded resource was documented as a mine consisting of two shafts, an adit,

and a prospect. One of the shafts was reported to have an opening measuring 10 x 10 ft. with a depth of 15 ft., and the site was mapped as spanning an area measuring 43 m across. No associated artifacts were observed during its recordation, and it was noted that the various features appeared to be in the process of collapse. ASM revisited P-13-15600. However, none of the features recorded at the site were found to fall within the Physical Effects APE, which is composed of an access route that intersects with the site's eastern boundary. As the site will be avoided, there will be no adverse effects to historic properties.

P-13-15601
This previously recorded resource was documented as a mine consisting of two shafts, an adit, and a prospect situated on a north-facing slope. The site was associated with a 55-gallon barrel, undiagnostic cans, and glass fragments. ASM revisited a portion of the site during the survey and relocated the previously recorded features within the Physical Effects APE. The site will be treated as NRHP eligible and avoided, so there will be no adverse affects to historic properties.

P-13-15602
This previously recorded resource was documented as a mine consisting of two shafts, a prospect trench, and a prospect pit. The presence of fencing, modern trash, and possible remaining cribbing was noted during the site's recordation. ASM revisited a small portion of P-13-15602 during the current survey, with most of the site found outside the Physical Effects APE to the west. The site will be treated as NRHP eligible and avoided so that there will be no affects to historic properties.

P-13-15656
This previously recorded resource was documented as a mine site composed of a single shaft and adit. The two were connected underground and found with an associated rock waste pile to the west. A small undiagnostic can scatter and piece of sheet metal were noted during the recordation. ASM revisited the very small portion of P-13-15656 that intersected with the proposed Project APE. However, none of the previously recorded features were relocated in that area. A small scatter of metal strands that appear to be the remains of a cable were identified along the eastern site boundary. No other artifacts or features associated with this site were identified within the Physical Effects APE. The site will be treated as NRHP eligible and avoided, there will be no affects to historic properties.

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4) Avoidance of all archaeological sites, regardless of their status has been recommended for this project; fencing and periodic archaeological monitoring have been recommended for sites located near existing and proposed roads and ground disturbing activity areas.

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Consistent with 36 CFR 800.5(b) the BLM will avoid effects to the significant values of the historic properties by requiring the development and implementation of a cultural resources monitoring program for the Project. The monitoring program for the Project will include procedures for cultural resources monitoring, post-review discovery and unanticipated effects to known historic properties. Qualified cultural resources monitor(s) will be on site during Project construction related to the undertaking and tribal monitors will be invited to participate.

Based on the results of the cultural resources studies and project management actions that will be taken to monitor and avoid resources within the APE, the BLM proposes that there will be ***no adverse effects*** to historic properties by the undertaking. We request your review and comment for a 30-day consultation period. Please provide your input by May 14, 2023.

We appreciate your time and attention in reviewing the information provided in this letter. For information or further clarification, or to schedule a meeting with the BLM, please contact Hannah Robinson, BLM District Archaeologist, at hrobinson@blm.gov or by telephone at (435)

253-3706. If you have any questions please do not hesitate to contact us. I am also available at csahagun@blm.gov or by telephone at 760-337-4437. Thank you for your continued cooperation with this office.

Sincerely,

Carrie L. Sahagun
Acting Field Manager

Enclosure: Class III Cultural Resource Inventory for the Oro Cruz Exploration Project, Imperial County, California (Report), 2023

From: Sahagun, Carrie L
To: epinto@jiv-nsn.gov; Lisa Cumper
Cc: Martinez, Mayra Y; Robinson, Hannah A
Subject: BLM updates on the Oro Cruz mining exploration project, Imperial County
Date: Thursday, April 13, 2023 10:54:55 AM
Attachments: BLM letter to Jamul_Oro Cruz_4-13-2023.pdf

Dear Chairwoman Pinto and Lisa,
I hope this email finds you well. Please find attached a copy of our most recent letter to the Tribe regarding the proposed Oro Cruz mining exploration project within Imperial County. The purpose of the letter is to provide an updated summary of identification efforts, the final revised Class III report and the BLM's proposed determinations of eligibility and findings of effect for a 30-day consultation period concluding on May 14, 2023. Thank you very much and please let us know if you have any questions or would like to schedule a government-to-government meeting to discuss the project.
-Carrie

Carrie L. Sahagun
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BLM El Centro Field Office
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USDI, Region 8
she/her

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United States Department of the Interior
BUREAU OF LAND MANAGEMENT
El Centro Field Office
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El Centro CA 92243
www.blm.gov/office/el-centro-field-office

April 13, 2023

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Ms. Erica Pinto, Chairwoman
Jamul Indian Village
P.O. Box 612
Jamul, CA 91935

Dear Chairwoman Pinto,

The Bureau of Land Management (BLM) El Centro Field Office (ECFO) would like to continue our government-to-government consultation with you pursuant to Section 106 of the National Historic Preservation Act and other relevant laws and regulations regarding the SMP Gold Corp. (SMP) proposed project to conduct exploratory drilling activities in south-eastern Imperial County. The purpose of this letter is:

1) Update the BLM's summary of identification efforts,
2) Provide the final revised *Class III Cultural Resource Inventory for Oro Cruz Exploration Project, Imperial County, California* prepared by ASM Affiliates Inc. (ASM) with a summary of changes from the draft report,
3) Provide the Agency's proposed determinations of eligibility and findings of effect for the Project for a 30-day consultation period.

Summary of Identification Efforts

On August 25, 2022, the BLM sent to all Tribes and consulting parties an updated description of the area of potential effects (APE), a summary of the results of the field inventories and a copy of the draft inventory report for a 30-day consultation period[1]. Below is a comprehensive summary update of the status and results of all the identification efforts to date.

Westland Resources, Inc. contracted ASM on behalf of the BLM to conduct a Class III cultural resource inventory to identify cultural resources that are eligible or potentially eligible for listing on the National Register of Historic Places (NRHP). The Class III inventory included a records search at the South Coastal Information Center (SCIC) and an intensive pedestrian survey within the physical effects APE. On September 20 through 24 and October 30 and 31, 2021, archaeologists from ASM completed the Class III field inventory. All survey was conducted with a Native American monitor present.

[1] Prior BLM Section 106 consultation letters for the proposed project include those dated March 31, 2021 and August 10, 2021.

The results of the records search identified 11 previously recorded cultural resources that intersect the Physical Effects APE, including one prehistoric trail (CA-IMP-1469), the Ruins of Tumco Mining Town (CA-IMP-3297/3300H/3302), a historic cemetery (CA-IMP-3298), the Golden Queen Mine (CA-IMP-11343H), the Crowns Mine (CA-IMP-11344H), and five other unnamed mines (P-13-015600, P-13-015601, P-13-015602, P-13-015656, and P-13-015841). During the inventory, ASM relocated the 11 previously recorded cultural resources, recorded one new prehistoric site (CA-IMP-13336) and several historic mining features within the Physical Effects APE. ASM also completed a visual and auditory affects (VAA) analysis of cultural resources that could be affected by the Project but that were outside the Physical effects APE. Below is a summary description of the resources documented by ASM along with their recommendations. As a result of BLM consultation efforts with the Tribes, a Traditional Cultural Property (TCP) has also been identified encompassing the project area and a summary of that resource is also provided.

CA-IMP-1469

This previously recorded site is a prehistoric trail approximately 740 m long and 30 cm wide, tamped into the desert pavement and divided into two segments by an unnamed wash. The southernmost end of the site occurs within the physical effects APE for the Project. During the pedestrian survey, ASM revisited the southernmost 17 m of the site, which falls within the proposed APE for an existing access road. The 17m portion of the site inspected appeared to be moderately disturbed by off-road vehicle traffic and seasonal/ephemeral sheet wash erosion. No other artifacts or features were identified at this portion of the site. CA-SDI-1469 will be treated as eligible for inclusion on the NRHP and avoided during the drilling project . The potential for adverse effects is low for this site as it is adjacent to an existing road not scheduled for improvements. Additionally, ESA fencing can ensure that mining vehicles do not veer offroad in this section.

CA-IMP-3297/3300/3302

This previously recorded site is the Hedges/Tumco Historical Townsite designated by the California State Department of Parks and Recreation as California Historic Landmark No. 182. The site was initially recorded by Rudolf Miller in 1977. The Hedges/Tumco Historic Townsite ruins include residential areas, two cemeteries, a commercial district, a company district, and many mining-related features. The site was evaluated for the Oro Cruz Plan of Operation of the American Girl Project in 1992 by Burney and Associates through archaeological testing, oral history, geomorphology, aerial photography, and extensive archival research and was recommended as eligible for listing in the NRHP. In 1994, the BLM determined in consultation with the California State Historic Preservation Office (SHPO) that the site was indeed eligible for listing in the NRHP under Criteria (a), (c), and (d). The current Project plan will avoid physically affecting all features identified during the survey associated with CA-IMP-3297/3300/3302, and thus the Project is not likely to have an adverse effect on the NRHP eligible site. Temporary fencing and periodic monitoring may be needed to ensure that those features in close proximity to the proposed access roads are not impacted.

CA-IMP-3298

This previously recorded site is a historic cemetery adjacent to an existing access road designated as Road Segment No. 1 of the Project. CA-IMP-3298 is technically a feature within CA-IMP-3297/3300/3302 and the site boundaries have been updated to include it. While this road segment

is planned for improvements, the cemetery is currently fenced. Additionally, ESA fencing can be placed along this road segment to ensure avoidance during construction. The current Project plans are such that avoidance of this resource is feasible. Thus the Project will not adversely affect this site.

CA-IMP-7915
This previously recorded historic site was recorded as part of the North Baja Gas Pipeline alignment project. The site consists of a wooden pole, H-frame, 161kV transmission line built in 1951 and stretches from a substation in Pilot Knob in Imperial County to Blythe in Riverside County. The line is part of a transmission line system that carries power from the Davis and Parker Dams on the Colorado River to 31 substations. ASM relocated the transmission line during the survey and determined that it only intersects a small section of Road Segment No. 17, and none of the existing poles fall within the Physical Effects APE; therefore these features can be avoided by the currently proposed Project.

CA-IMP-11343
The Golden Queen mine is technically a feature within CA-IMP-3297/3300/3302. In 1994 it was determined by BLM in consultation with SHPO to not be a contributing component to the Hedges/Tumco Historic Townsite due to the poor condition and natural weathering of the features associated with the Queen mine area. This determination occurred before it was recorded in 2010 by J. Kellogg of the BLM Needles office during a survey in association with the California Desert District Abandoned Mine Lands program. In his report, Kellogg recommended it as eligible. The proposed Project component that intersects the site is an existing access road with no plans for improvements. Given that there are no plans to improve this segment of the Physical Effects APE, the Project will likely have no adverse effect on this site.

CA-IMP-11344
This previously recorded site is the Crowns mine which is technically a feature within CA-IMP-3297/3300/3302. Three mining features were identified during the current survey within the boundaries of this site, including an adit, the remains of a shaft, and a prospect. Additionally, one milled lumber feature was identified during the survey with no associated artifacts. These features may correspond to those identified by the BLM as not eligible for listing in the NRHP in the 1994 Oro Cruz Operation of the American Girl Mining Project EIS. For the present project these features will be treated as eligible and avoided. The current Project plans will avoid these features, and thus the Project will not have an adverse effect on the site.

CA-IMP-13336
This newly recorded site consists of four potsherds that include one rim and three body sherds. The ceramic fragments are distributed with a maximum of 2 m between sherds. Ceramics are associated with late prehistory in general, and in the area specifically from AD 700-900, and onwards. No other artifacts or features were identified at the site. The condition of CA-IMP-13336 is good, with minimal disturbance limited to minor silt deposition in the site area due to seasonal water flow. CA-IMP-13336 will be treated as eligible for inclusion on the NRHP and avoided during the drilling project This small site can easily be avoided by placing temporary environmentally sensitive area (ESA) fencing around it during construction.

P-13-15600
This previously recorded resource was documented as a mine consisting of two shafts, an adit, and a prospect. One of the shafts was reported to have an opening measuring 10 x 10 ft. with a depth of 15 ft., and the site was mapped as spanning an area measuring 43 m across. No associated artifacts were observed during its recordation, and it was noted that the various features appeared to be in the process of collapse. ASM revisited P-13-15600. However, none of the features recorded at the site were found to fall within the Physical Effects APE, which is composed of an access route that intersects with the site's eastern boundary. As the site will be avoided, there will be no adverse effects to historic properties.

P-13-15601
This previously recorded resource was documented as a mine consisting of two shafts, an adit, and a prospect situated on a north-facing slope. The site was associated with a 55-gallon barrel, undiagnostic cans, and glass fragments. ASM revisited a portion of the site during the survey and relocated the previously recorded features within the Physical Effects APE. The site will be treated as NRHP eligible and avoided, so there will be no adverse affects to historic properties.

P-13-15602
This previously recorded resource was documented as a mine consisting of two shafts, a prospect trench, and a prospect pit. The presence of fencing, modern trash, and possible remaining cribbing was noted during the site's recordation. ASM revisited a small portion of P-13-15602 during the current survey, with most of the site found outside the Physical Effects APE to the west. The site will be treated as NRHP eligible and avoided so that there will be no affects to historic properties.

P-13-15656
This previously recorded resource was documented as a mine site composed of a single shaft and adit. The two were connected underground and found with an associated rock waste pile to the west. A small undiagnostic can scatter and piece of sheet metal were noted during the recordation. ASM revisited the very small portion of P-13-15656 that intersected with the proposed Project APE. However, none of the previously recorded features were relocated in that area. A small scatter of metal strands that appear to be the remains of a cable were identified along the eastern site boundary. No other artifacts or features associated with this site were identified within the Physical Effects APE. The site will be treated as NRHP eligible and avoided, there will be no affects to historic properties.

P-13-15841
This previously recorded resource was documented as a mine consisting of two shafts and an adit located on the north end of the Tumco valley. All three features were associated with waste rock piles, and no associated artifacts were identified. One of the shafts, Shaft 1, was noted to have a wire fence, and the adit was reported to have been previously filled in. ASM revisited P-13-15841 during the survey and relocated the sealed adit (Adit 1) and one of the shafts (Shaft 2). In the northern portion of the site, the cut on the slope for the adit was found to be approximately 10 m long and 3 m wide. As the site will be treated as NRHP eligible and avoided, there will be no effects to historic properties.

Finally, six newly recorded historic mine features, P-13-018460, -018461, -018462, -018463, -018464, and 018465, were also recorded during the current survey. They consist of adits and prospects and are all isolated mining features that were likely created sometime between 1953 and 1961 based on historic topographic maps and aerials of the area. All features will be treated as NRHP eligible and avoided for this project.

Archaeological Sites Located within the VAA APE

The VAA APE intersects 37 prehistoric trails, geoglyphs, ceramic scatters, lithic scatters, rock art sites, and isolates that have potential to be deemed sacred or traditionally important by Native American tribes. The use of these sites and locations by Native American tribes may be affected by the Project through temporary visual obstructions and loud noise levels such that the integrity of the "setting" and "feeling" of the sites is disturbed.

Of the 35 proposed potential drill sites, the closest of the prehistoric sites is 630 meters (2,067 feet) away, and the rest are between 950 and 2565 meters (3,117 and 8,415 feet) away. The viewshed analysis and line of site examples indicate that a 40-foot drill rig line against the existing landscape would not create a strong contrast against the backdrop of the existing landscape and would likely not be noticed by the casual viewer. Of 18 selected sites that intersect the potential visual APE the drill rigs would not be likely to have an adverse visual effect on the integrity of the setting or feeling of the selected sites from a distance of 630 meters or greater.

The auditory APE report suggests that drilling noise from the Project would be substantially shielded towards the east and north due to the topography of the Cargo Muchacho Mountains. Most of the sites are far enough away from the Project area, the Physical Effects APE, and the proposed helicopter drill sites that they would fall within the noise level contours of ~40-35 dBa L_{eq} or lower, which would be the equivalent of a suburban residential area at night. Based on the contours provided by Saxelby Acoustics, the proposed Project would not be likely to have an adverse auditory effect on the integrity of the setting or feeling of the 25 selected sites that intersect the VAA APE.

Identified Traditional Cultural Property

The Quechan Indian Tribe has conveyed to the BLM that the Oro Cruz project area is located within and encompassed by a much larger TCP as described in the 1997 cultural report titled, *Where Trails Cross: Cultural Resources Inventory and Evaluation for the Imperial Project, Imperial County, California*. This 1997 report recorded the Quechan elders' discussions of the trails and associated features and the importance of this region to the Quechan Tribe for conducting ceremonies and rituals, storytelling and song cycles, and for resource gathering. To briefly summarize, the preservation of this area is essential to maintain cultural, religious and traditional practices and teaching of future generations of Quechan youth. This 1997 cultural report also defines the Running Man Area of Traditional Cultural Concern (ATCC) located about 9 miles northeast of the Oro Cruz project area. Although a boundary was created to define the Running Man ATCC for management purposes, the report clearly states that an extensive and complex network of trails and associated sites and "potentially other ATCCs and linking trail systems" are running throughout the region.

The physical or tangible cultural resource evidence of this TCP identified within the Project area are the prehistoric trails, geoglyphs, rock art, and numerous other associated sites containing

ceramics and lithics primarily located within the VAA APE. The network of prehistoric trails and associated features are tied directly to the Quechan's stories of origin, religious ceremonies, and traditional cultural teachings as are the Cargo Muchacho Mountains themselves. The TCP extends from this trail network and associated cultural sites to the "mountains, rivers and springs, and includes the plants and animals" living within the region. The Keruk/Xam Kwatsam Trail system is one of the largest known (but not fully recorded or defined) trail systems that runs the length of the Colorado River between the Newberry Mountains in the north to Pilot Knob near the southeastern corner of Imperial County, California. The 1997 report identifies approximate locations for trails significant to the Tribe(s) running on both the East and West sides of the Cargo Muchacho Mountains. The trail on the west side of the Cargo Muchacho Mountains is within the VAA APE for the Oro Cruz Project. The entire system consists of various segments of the trail, several significant mountain ranges and specific peaks, numerous side trails, numerous earth figures/geoglyphs, and thousands of objects such as lithics, cairns, potsherds, and cleared sleeping or camping areas. Quechan elders testified, elaborately, about the importance of these cultural features during the late 1990's proposed mining project (Imperial Gold) located near Indian Pass, approximately 10 miles northeast of the current Oro Cruz Project. The 1997 report states that additional ethnographic information may be required to understand if this trail network should be recorded and NRHP evaluated as one very large all-encompassing TCP or if the individual components / areas / sites of the larger complex should be identified and evaluated separately. Additional work understanding this TCP or complex of TCPs will continue to be conducted by the BLM in consultation with the Tribe.

Class III Cultural Resources Inventory Report

A draft of the Class III cultural resources inventory report titled, *Class III Cultural Resource Inventory for the Oro Cruz Exploration Project, Imperial County, California* (Report), was sent to Tribes and consulting parties August 25, 2022, for review and comments. Based upon the comments and input the BLM received, the following modifications were made to the Report:

1) Archaeological site CA-IMP-13336 was revisited by ASM, the ceramic sherds were analyzed in more detail and the Report was updated with additional characteristics.
2) The TCP identified by the Quechan Indian Tribe was identified and the Class III Inventory report was amended to include a discussion of the TCP in association with the proposed Project as well as the prehistoric archaeological sites within the VAA APE.
3) Archaeological sites identified within the physical APE and the VAA APE were reviewed again to consider the potential effects that the proposed project may have. These sites were also considered as potentially contributing elements of the TCP. Additional protections were added to the project design such as additional physical barriers and increased cultural monitoring.
4) Avoidance of all archaeological sites, regardless of their status has been recommended for this project; fencing and periodic archaeological monitoring have been recommended for sites located near existing and proposed roads and ground disturbing activity areas.

The revised final Report (non-confidential version) has been uploaded to an ASM ftp website and is available for download. You can access the ftp website at the following address:

https://asmaffiliates.filecloudonline.com/url/an4kfzjxhumghxfp

If you would like to request a hardcopy or the confidential appendices, please coordinate with Hannah Robinson, BLM Desert District Archaeologist (contact information below).

Agency Proposed Determinations of Eligibility and Findings of Effect

Based on the results of the record search, archaeological inventory, the contractors' recommendations, Section 106 and government-to-government consultations, the BLM staff review of all the information and analysis provided and pursuant to 36 CFR 800.4 and 800.5, the BLM makes the following determinations regarding NRHP eligibility and findings of effect for historic properties:

- CA-IMP-1469 is determined eligible for inclusion in the NRHP under Criterion A and D. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect as the site will be avoided and protected with protective fencing, matting and other management conditions.
- The BLM concurs with and reaffirms the previous determinations that site CA-IMP-3297/3300/3302 is eligible for inclusion in the NRHP under Criterion A, C and D. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect as the site and features within will be avoided and protected with protective fencing where needed and other management conditions.
- The following resources located within the Physical APE CA-IMP-3298, -7915, -11343, -11344, -13336, P-13-15600, -15601, -15602, -15656, -15841, -18460, -18461, -18462, -18463, -18464, -18465 will be treated as eligible for inclusion in the NRHP for project management purposes. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect to these resources with management conditions and protective fencing where needed.
- The 37 cultural resources within the VAA APE, remain formally unevaluated but will be treated as eligible for inclusion in the NRHP for project management purposes and they will be avoided. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect from visual or auditory intrusions.
- The Identified TCP is assumed eligible for inclusion in the NRHP under Criterion A and D. The BLM finds that there will be no adverse effect to this resource. The archaeological resources that may be components of the TCP will be avoided and the auditory and visual impacts created by this Project will be temporary in nature.
- The BLM finds that there will be **no adverse effects to historic properties** from this undertaking.

Consistent with 36 CFR 800.5(b) the BLM will avoid effects to the significant values of the historic properties by requiring the development and implementation of a cultural resources monitoring program for the Project. The monitoring program for the Project will include procedures for cultural resources monitoring, post-review discovery and unanticipated effects to known historic properties. Qualified cultural resources monitor(s) will be on site during Project construction related to the undertaking and tribal monitors will be invited to participate.

Based on the results of the cultural resources studies and project management actions that will be taken to monitor and avoid resources within the APE, the BLM proposes that there will be ***no***

adverse effects to historic properties by the undertaking. We request your review and comment for a 30-day consultation period. Please provide your input by May 14, 2023.

We appreciate your time and attention in reviewing the information provided in this letter. For information or further clarification, or to schedule a government-to-government consultation meeting with the BLM, please contact Hannah Robinson, BLM District Archaeologist, at hrobinson@blm.gov or by telephone at (435) 253-3706. If you have any questions please do not hesitate to contact us. I am also available at csahagun@blm.gov or by telephone at 760-337-4437. Thank you for your continued cooperation with this office.

Sincerely,

Carrie L. Sahagun
Acting Field Manager

Electronic cc:
Mayra Martinez, Project Manager (mymartinez@blm.gov)
Hannah Robinson, Archaeologist, California Desert District (hrobinson@blm.gov)

From:	Sahagun, Carrie L
To:	executivesecretary@quechantribe.com; Jordan D. Joaquin, President; Jill McCormick; scottmanfred@yahoo.com
Cc:	Martinez, Mayra Y; Robinson, Hannah A; Herbst, George A; LaPlante, Jay P
Subject:	BLM updates on the Oro Cruz mining exploration project, Imperial County
Date:	Thursday, April 13, 2023 10:48:57 AM
Attachments:	BLM Letter to Quechan_Oro Cruz_4-13-2023.pdf

Dear President Joaquin, Manfred and Jill,

I hope this email finds you well. Please find attached a copy of our most recent letter to the Tribe regarding the proposed Oro Cruz mining exploration project within Imperial County. The purpose of the letter is to provide an updated summary of identification efforts, the final revised Class III report and the BLM's proposed determinations of eligibility and findings of effect for a 30-day consultation period concluding on May 14, 2023. Thank you very much and please let us know if you have any questions or would like to schedule a government-to-government meeting to discuss the project. Currently we have a meeting scheduled on April 28, 2023 with the Historic Preservation Officer.

-Carrie

Carrie L. Sahagun
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BLM El Centro Field Office
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United States Department of the Interior
BUREAU OF LAND MANAGEMENT
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www.blm.gov/office/el-centro-field-office

April 13, 2023

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Jordan D. Joaquin, President
Fort Yuma Quechan Indian Tribe
P.O. Box 1899
Yuma, AZ 85366-1899

Dear President Joaquin,

The Bureau of Land Management (BLM) El Centro Field Office (ECFO) would like to continue our government-to-government consultation with you pursuant to Section 106 of the National Historic Preservation Act and other relevant laws and regulations regarding the SMP Gold Corp. (SMP) proposed project to conduct exploratory drilling activities in south-eastern Imperial County. The purpose of this letter is:

1) Update the BLM's summary of identification efforts,
2) Provide the final revised *Class III Cultural Resource Inventory for Oro Cruz Exploration Project, Imperial County, California* prepared by ASM Affiliates Inc. (ASM) with a summary of changes from the draft report,
3) Provide the Agency's proposed determinations of eligibility and findings of effect for the Project for a 30-day consultation period.

Summary of Identification Efforts

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[1] Prior BLM Section 106 consultation letters for the proposed project include those dated March 31, 2021 and August 10, 2021.

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This previously recorded site is a prehistoric trail approximately 740 m long and 30 cm wide, tamped into the desert pavement and divided into two segments by an unnamed wash. The southernmost end of the site occurs within the physical effects APE for the Project. During the pedestrian survey, ASM revisited the southernmost 17 m of the site, which falls within the proposed APE for an existing access road. The 17m portion of the site inspected appeared to be moderately disturbed by off-road vehicle traffic and seasonal/ephemeral sheet wash erosion. No other artifacts or features were identified at this portion of the site. CA-SDI-1469 will be treated as eligible for inclusion on the NRHP and avoided during the drilling project . The potential for adverse effects is low for this site as it is adjacent to an existing road not scheduled for improvements. Additionally, ESA fencing can ensure that mining vehicles do not veer offroad in this section.

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CA-IMP-3298

This previously recorded site is a historic cemetery adjacent to an existing access road designated as Road Segment No. 1 of the Project. CA-IMP-3298 is technically a feature within CA-IMP-3297/3300/3302 and the site boundaries have been updated to include it. While this road segment

is planned for improvements, the cemetery is currently fenced. Additionally, ESA fencing can be placed along this road segment to ensure avoidance during construction. The current Project plans are such that avoidance of this resource is feasible. Thus the Project will not adversely affect this site.

CA-IMP-7915

This previously recorded historic site was recorded as part of the North Baja Gas Pipeline alignment project. The site consists of a wooden pole, H-frame, 161kV transmission line built in 1951 and stretches from a substation in Pilot Knob in Imperial County to Blythe in Riverside County. The line is part of a transmission line system that carries power from the Davis and Parker Dams on the Colorado River to 31 substations. ASM relocated the transmission line during the survey and determined that it only intersects a small section of Road Segment No. 17, and none of the existing poles fall within the Physical Effects APE; therefore these features can be avoided by the currently proposed Project.

CA-IMP-11343

The Golden Queen mine is technically a feature within CA-IMP-3297/3300/3302. In 1994 it was determined by BLM in consultation with SHPO to not be a contributing component to the Hedges/Tumco Historic Townsite due to the poor condition and natural weathering of the features associated with the Queen mine area. This determination occurred before it was recorded in 2010 by J. Kellogg of the BLM Needles office during a survey in association with the California Desert District Abandoned Mine Lands program. In his report, Kellogg recommended it as eligible. The proposed Project component that intersects the site is an existing access road with no plans for improvements. Given that there are no plans to improve this segment of the Physical Effects APE, the Project will likely have no adverse effect on this site.

CA-IMP-11344

This previously recorded site is the Crowns mine which is technically a feature within CA-IMP-3297/3300/3302. Three mining features were identified during the current survey within the boundaries of this site, including an adit, the remains of a shaft, and a prospect. Additionally, one milled lumber feature was identified during the survey with no associated artifacts. These features may correspond to those identified by the BLM as not eligible for listing in the NRHP in the 1994 Oro Cruz Operation of the American Girl Mining Project EIS. For the present project these features will be treated as eligible and avoided. The current Project plans will avoid these features, and thus the Project will not have an adverse effect on the site.

CA-IMP-13336

This newly recorded site consists of four potsherds that include one rim and three body sherds. The ceramic fragments are distributed with a maximum of 2 m between sherds. Ceramics are associated with late prehistory in general, and in the area specifically from AD 700-900, and onwards. No other artifacts or features were identified at the site. The condition of CA-IMP-13336 is good, with minimal disturbance limited to minor silt deposition in the site area due to seasonal water flow. CA-IMP-13336 will be treated as eligible for inclusion on the NRHP and avoided during the drilling project This small site can easily be avoided by placing temporary environmentally sensitive area (ESA) fencing around it during construction.

P-13-15600
This previously recorded resource was documented as a mine consisting of two shafts, an adit, and a prospect. One of the shafts was reported to have an opening measuring 10 x 10 ft. with a depth of 15 ft., and the site was mapped as spanning an area measuring 43 m across. No associated artifacts were observed during its recordation, and it was noted that the various features appeared to be in the process of collapse. ASM revisited P-13-15600. However, none of the features recorded at the site were found to fall within the Physical Effects APE, which is composed of an access route that intersects with the site's eastern boundary. As the site will be avoided, there will be no adverse effects to historic properties.

P-13-15601
This previously recorded resource was documented as a mine consisting of two shafts, an adit, and a prospect situated on a north-facing slope. The site was associated with a 55-gallon barrel, undiagnostic cans, and glass fragments. ASM revisited a portion of the site during the survey and relocated the previously recorded features within the Physical Effects APE. The site will be treated as NRHP eligible and avoided, so there will be no adverse affects to historic properties.

P-13-15602
This previously recorded resource was documented as a mine consisting of two shafts, a prospect trench, and a prospect pit. The presence of fencing, modern trash, and possible remaining cribbing was noted during the site's recordation. ASM revisited a small portion of P-13-15602 during the current survey, with most of the site found outside the Physical Effects APE to the west. The site will be treated as NRHP eligible and avoided so that there will be no affects to historic properties.

P-13-15656
This previously recorded resource was documented as a mine site composed of a single shaft and adit. The two were connected underground and found with an associated rock waste pile to the west. A small undiagnostic can scatter and piece of sheet metal were noted during the recordation. ASM revisited the very small portion of P-13-15656 that intersected with the proposed Project APE. However, none of the previously recorded features were relocated in that area. A small scatter of metal strands that appear to be the remains of a cable were identified along the eastern site boundary. No other artifacts or features associated with this site were identified within the Physical Effects APE. The site will be treated as NRHP eligible and avoided, there will be no affects to historic properties.

P-13-15841
This previously recorded resource was documented as a mine consisting of two shafts and an adit located on the north end of the Tumco valley. All three features were associated with waste rock piles, and no associated artifacts were identified. One of the shafts, Shaft 1, was noted to have a wire fence, and the adit was reported to have been previously filled in. ASM revisited P-13-15841 during the survey and relocated the sealed adit (Adit 1) and one of the shafts (Shaft 2). In the northern portion of the site, the cut on the slope for the adit was found to be approximately 10 m long and 3 m wide. As the site will be treated as NRHP eligible and avoided, there will be no effects to historic properties.

Finally, six newly recorded historic mine features, P-13-018460, -018461, -018462, -018463, -018464, and 018465, were also recorded during the current survey. They consist of adits and prospects and are all isolated mining features that were likely created sometime between 1953 and 1961 based on historic topographic maps and aerials of the area. All features will be treated as NRHP eligible and avoided for this project.

Archaeological Sites Located within the VAA APE
The VAA APE intersects 37 prehistoric trails, geoglyphs, ceramic scatters, lithic scatters, rock art sites, and isolates that have potential to be deemed sacred or traditionally important by Native American tribes. The use of these sites and locations by Native American tribes may be affected by the Project through temporary visual obstructions and loud noise levels such that the integrity of the "setting" and "feeling" of the sites is disturbed.

Of the 35 proposed potential drill sites, the closest of the prehistoric sites is 630 meters (2,067 feet) away, and the rest are between 950 and 2565 meters (3,117 and 8,415 feet) away. The viewshed analysis and line of site examples indicate that a 40-foot drill rig line against the existing landscape would not create a strong contrast against the backdrop of the existing landscape and would likely not be noticed by the casual viewer. Of 18 selected sites that intersect the potential visual APE the drill rigs would not be likely to have an adverse visual effect on the integrity of the setting or feeling of the selected sites from a distance of 630 meters or greater.

The auditory APE report suggests that drilling noise from the Project would be substantially shielded towards the east and north due to the topography of the Cargo Muchacho Mountains. Most of the sites are far enough away from the Project area, the Physical Effects APE, and the proposed helicopter drill sites that they would fall within the noise level contours of ~40-35 dBa L_{eq} or lower, which would be the equivalent of a suburban residential area at night. Based on the contours provided by Saxelby Acoustics, the proposed Project would not be likely to have an adverse auditory effect on the integrity of the setting or feeling of the 25 selected sites that intersect the VAA APE.

Identified Traditional Cultural Property
Through our various government-to-government, Culture Committee and Section 106 meetings with the BLM, your Tribe has conveyed to the BLM that the Oro Cruz project area is located within and encompassed by a much larger TCP as described in the 1997 cultural report titled, *Where Trails Cross: Cultural Resources Inventory and Evaluation for the Imperial Project, Imperial County, California*. This 1997 report recorded the Quechan elders' discussions of the trails and associated features and the importance of this region to the Quechan Tribe for conducting ceremonies and rituals, storytelling and song cycles, and for resource gathering. To briefly summarize, the preservation of this area is essential to maintain cultural, religious and traditional practices and teaching of future generations of Quechan youth. This 1997 cultural report also defines the Running Man Area of Traditional Cultural Concern (ATCC) located about 9 miles northeast of the Oro Cruz project area. Although a boundary was created to define the Running Man ATCC for management purposes, the report clearly states that an extensive and complex network of trails and associated sites and "potentially other ATCCs and linking trail systems" are running throughout the region.

The physical or tangible cultural resource evidence of this TCP identified within the Project area are the prehistoric trails, geoglyphs, rock art, and numerous other associated sites containing ceramics and lithics primarily located within the VAA APE. The network of prehistoric trails and associated features are tied directly to the Quechan's stories of origin, religious ceremonies, and traditional cultural teachings as are the Cargo Muchacho Mountains themselves. The TCP extends from this trail network and associated cultural sites to the "mountains, rivers and springs, and includes the plants and animals" living within the region. The Keruk/Xam Kwatsam Trail system is one of the largest known (but not fully recorded or defined) trail systems that runs the length of the Colorado River between the Newberry Mountains in the north to Pilot Knob near the southeastern corner of Imperial County, California. The 1997 report identifies approximate locations for trails significant to the Tribe(s) running on both the East and West sides of the Cargo Muchacho Mountains. The trail on the west side of the Cargo Muchacho Mountains is within the VAA APE for the Oro Cruz Project. The entire system consists of various segments of the trail, several significant mountain ranges and specific peaks, numerous side trails, numerous earth figures/geoglyphs, and thousands of objects such as lithics, cairns, potsherds, and cleared sleeping or camping areas. Quechan elders testified, elaborately, about the importance of these cultural features during the late 1990's proposed mining project (Imperial Gold) located near Indian Pass, approximately 10 miles northeast of the current Oro Cruz Project. The 1997 report states that additional ethnographic information may be required to understand if this trail network should be recorded and NRHP evaluated as one very large all-encompassing TCP or if the individual components / areas / sites of the larger complex should be identified and evaluated separately. Additional work understanding this TCP or complex of TCPs will continue to be conducted by the BLM in consultation with the Tribe.

Class III Cultural Resources Inventory Report

A draft of the Class III cultural resources inventory report titled, *Class III Cultural Resource Inventory for the Oro Cruz Exploration Project, Imperial County, California* (Report), was sent to Tribes and consulting parties on August 25, 2022, for review and comments. Based upon the comments and input the BLM received, the following modifications were made to the Report:

1) Archaeological site CA-IMP-13336 was revisited by ASM, the ceramic sherds were analyzed in more detail and the Report was updated with additional characteristics.
2) The TCP identified by the Quechan Indian Tribe was identified and the Class III Inventory report was amended to include a discussion of the TCP in association with the proposed Project as well as the prehistoric archaeological sites within the VAA APE.
3) Archaeological sites identified within the physical APE and the VAA APE were reviewed again to consider the potential effects that the proposed project may have. These sites were also considered as potentially contributing elements of the TCP. Additional protections were added to the project design such as additional physical barriers and increased cultural monitoring.
4) Avoidance of all archaeological sites, regardless of their status has been recommended for this project; fencing and periodic archaeological monitoring have been recommended for sites located near existing and proposed roads and ground disturbing activity areas.

The revised final Report (non-confidential version) has been uploaded to an ASM ftp website and is available for download. You can access the ftp website at the following address:

https://asmaffiliates.filecloudonline.com/url/an4kfzjxhumghxfp

A full version hard copy is being provided to Ms. Jill McCormick, Quechan Historic Preservation Officer.

Agency Proposed Determinations of Eligibility and Findings of Effect

Based on the results of the record search, archaeological inventory, the contractors' recommendations, Section 106 and government-to-government consultations, the BLM staff review of all the information and analysis provided and pursuant to 36 CFR 800.4 and 800.5, the BLM makes the following determinations regarding NRHP eligibility and findings of effect for historic properties:

- CA-IMP-1469 is determined eligible for inclusion in the NRHP under Criterion A and D. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect as the site will be avoided and protected with protective fencing, matting and other management conditions.
- The BLM concurs with and reaffirms the previous determinations that site CA-IMP-3297/3300/3302 is eligible for inclusion in the NRHP under Criterion A, C and D. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect as the site and features within will be avoided and protected with protective fencing where needed and other management conditions.
- The following resources located within the Physical APE CA-IMP-3298, -7915, -11343, -11344, -13336, P-13-15600, -15601, -15602, -15656, -15841, -18460, -18461, -18462, -18463, -18464, -18465 will be treated as eligible for inclusion in the NRHP for project management purposes. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect to these resources with management conditions and protective fencing where needed.
- The 37 cultural resources within the VAA APE, remain formally unevaluated but will be treated as eligible for inclusion in the NRHP for project management purposes and they will be avoided. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect from visual or auditory intrusions.
- The Identified TCP is assumed eligible for inclusion in the NRHP under Criterion A and D. The BLM finds that there will be no adverse effect to this resource. The archaeological resources that may be components of the TCP will be avoided and the auditory and visual impacts created by this Project will be temporary in nature.
- The BLM finds that there will be **no adverse effects to historic properties** from this undertaking.

Consistent with 36 CFR 800.5(b) the BLM will avoid effects to the significant values of the historic properties by requiring the development and implementation of a cultural resources monitoring program for the Project. The monitoring program for the Project will include procedures for cultural resources monitoring, post-review discovery and unanticipated effects to known historic properties. Qualified cultural resources monitor(s) will be on site during Project construction related to the undertaking and tribal monitors will be invited to participate.

Based on the results of the cultural resources studies and project management actions that will be taken to monitor and avoid resources within the APE, the BLM proposes that there will be ***no adverse effects*** to historic properties by the undertaking. We request your review and comment for a 30-day consultation period. Please provide us with your input by May 14, 2023.

We appreciate your time and attention in reviewing the information provided in this letter. For information or further clarification, or to schedule a government-to-government consultation meeting with the BLM, please contact Hannah Robinson, BLM District Archaeologist, at hrobinson@blm.gov or by telephone at (435) 253-3706. If you have any questions please do not hesitate to contact us. I am also available at csahagun@blm.gov or by telephone at 760-337-4437. Thank you for your continued cooperation with this office.

Sincerely,

Carrie L. Sahagun
Acting Field Manager

Electronic cc:
Mayra Martinez, Project Manager (mymartinez@blm.gov)
Hannah Robinson, Archaeologist, California Desert District (hrobinson@blm.gov)
George Herbst, Archaeologist, CA State Office (gherbst@blm.gov)
Jay LaPlante, Tribal Liaison, CA State Office (jlaplante@blm.gov)

From: Sahagun, Carrie L
To: Bernice Paipa
Cc: Martinez, Mayra Y; Robinson, Hannah A
Subject: BLM updates on the Oro Cruz mining exploration project, Imperial County
Date: Thursday, April 13, 2023 10:35:12 AM
Attachments: BLM letter to Iipay_Oro Cruz_4-13-2023.pdf

Dear Chairwoman Paipa,

I hope this email finds you well. Please find attached a copy of our most recent letter to the Tribe regarding the proposed Oro Cruz mining exploration project within Imperial County. The purpose of the letter is to provide an updated summary of identification efforts, the final revised Class III report and the BLM's proposed determinations of eligibility and findings of effect for a 30-day consultation period concluding on May 14, 2023. Thank you very much and please let us know if you have any questions or would like to schedule a government-to-government meeting to discuss the project.

-Carrie

Carrie L. Sahagun
Acting Field Manager
BLM El Centro Field Office
1661 S. 4th Street
El Centro, CA 92243
(760) 337-4437
USDI, Region 8
she/her

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United States Department of the Interior
BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

April 13, 2023

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Ms. Bernice Paipa, Chairwoman
Iipay Nation of Santa Ysabel
P.O. Box 130
Santa Ysabel, CA 92070

Dear Chairwoman Paipa,

The Bureau of Land Management (BLM) El Centro Field Office (ECFO) would like to continue our government-to-government consultation with you pursuant to Section 106 of the National Historic Preservation Act and other relevant laws and regulations regarding the SMP Gold Corp. (SMP) proposed project to conduct exploratory drilling activities in south-eastern Imperial County. The purpose of this letter is:

1) Update the BLM's summary of identification efforts,
2) Provide the final revised *Class III Cultural Resource Inventory for Oro Cruz Exploration Project, Imperial County, California* prepared by ASM Affiliates Inc. (ASM) with a summary of changes from the draft report,
3) Provide the Agency's proposed determinations of eligibility and findings of effect for the Project for a 30-day consultation period.

Summary of Identification Efforts

On August 25, 2022, the BLM sent to all Tribes and consulting parties an updated description of the area of potential effects (APE), a summary of the results of the field inventories and a copy of the draft inventory report for a 30-day consultation period[1]. Below is a comprehensive summary update of the status and results of all the identification efforts to date.

Westland Resources, Inc. contracted ASM on behalf of the BLM to conduct a Class III cultural resource inventory to identify cultural resources that are eligible or potentially eligible for listing on the National Register of Historic Places (NRHP). The Class III inventory included a records search at the South Coastal Information Center (SCIC) and an intensive pedestrian survey within the physical effects APE. On September 20 through 24 and October 30 and 31, 2021, archaeologists from ASM completed the Class III field inventory. All survey was conducted with a Native American monitor present.

[1] Prior BLM Section 106 consultation letters for the proposed project include those dated March 31, 2021 and August 10, 2021.

The results of the records search identified 11 previously recorded cultural resources that intersect the Physical Effects APE, including one prehistoric trail (CA-IMP-1469), the Ruins of Tumco Mining Town (CA-IMP-3297/3300H/3302), a historic cemetery (CA-IMP-3298), the Golden Queen Mine (CA-IMP-11343H), the Crowns Mine (CA-IMP-11344H), and five other unnamed mines (P-13-015600, P-13-015601, P-13-015602, P-13-015656, and P-13-015841). During the inventory, ASM relocated the 11 previously recorded cultural resources, recorded one new prehistoric site (CA-IMP-13336) and several historic mining features within the Physical Effects APE. ASM also completed a visual and auditory affects (VAA) analysis of cultural resources that could be affected by the Project but that were outside the Physical effects APE. Below is a summary description of the resources documented by ASM along with their recommendations. As a result of BLM consultation efforts with the Tribes, a Traditional Cultural Property (TCP) has also been identified encompassing the project area and a summary of that resource is also provided.

CA-IMP-1469

This previously recorded site is a prehistoric trail approximately 740 m long and 30 cm wide, tamped into the desert pavement and divided into two segments by an unnamed wash. The southernmost end of the site occurs within the physical effects APE for the Project. During the pedestrian survey, ASM revisited the southernmost 17 m of the site, which falls within the proposed APE for an existing access road. The 17m portion of the site inspected appeared to be moderately disturbed by off-road vehicle traffic and seasonal/ephemeral sheet wash erosion. No other artifacts or features were identified at this portion of the site. CA-SDI-1469 will be treated as eligible for inclusion on the NRHP and avoided during the drilling project . The potential for adverse effects is low for this site as it is adjacent to an existing road not scheduled for improvements. Additionally, ESA fencing can ensure that mining vehicles do not veer offroad in this section.

CA-IMP-3297/3300/3302

This previously recorded site is the Hedges/Tumco Historical Townsite designated by the California State Department of Parks and Recreation as California Historic Landmark No. 182. The site was initially recorded by Rudolf Miller in 1977. The Hedges/Tumco Historic Townsite ruins include residential areas, two cemeteries, a commercial district, a company district, and many mining-related features. The site was evaluated for the Oro Cruz Plan of Operation of the American Girl Project in 1992 by Burney and Associates through archaeological testing, oral history, geomorphology, aerial photography, and extensive archival research and was recommended as eligible for listing in the NRHP. In 1994, the BLM determined in consultation with the California State Historic Preservation Office (SHPO) that the site was indeed eligible for listing in the NRHP under Criteria (a), (c), and (d). The current Project plan will avoid physically affecting all features identified during the survey associated with CA-IMP-3297/3300/3302, and thus the Project is not likely to have an adverse effect on the NRHP eligible site. Temporary fencing and periodic monitoring may be needed to ensure that those features in close proximity to the proposed access roads are not impacted.

CA-IMP-3298

This previously recorded site is a historic cemetery adjacent to an existing access road designated as Road Segment No. 1 of the Project. CA-IMP-3298 is technically a feature within CA-IMP-3297/3300/3302 and the site boundaries have been updated to include it. While this road segment

is planned for improvements, the cemetery is currently fenced. Additionally, ESA fencing can be placed along this road segment to ensure avoidance during construction. The current Project plans are such that avoidance of this resource is feasible. Thus the Project will not adversely affect this site.

CA-IMP-7915
This previously recorded historic site was recorded as part of the North Baja Gas Pipeline alignment project. The site consists of a wooden pole, H-frame, 161kV transmission line built in 1951 and stretches from a substation in Pilot Knob in Imperial County to Blythe in Riverside County. The line is part of a transmission line system that carries power from the Davis and Parker Dams on the Colorado River to 31 substations. ASM relocated the transmission line during the survey and determined that it only intersects a small section of Road Segment No. 17, and none of the existing poles fall within the Physical Effects APE; therefore these features can be avoided by the currently proposed Project.

CA-IMP-11343
The Golden Queen mine is technically a feature within CA-IMP-3297/3300/3302. In 1994 it was determined by BLM in consultation with SHPO to not be a contributing component to the Hedges/Tumco Historic Townsite due to the poor condition and natural weathering of the features associated with the Queen mine area. This determination occurred before it was recorded in 2010 by J. Kellogg of the BLM Needles office during a survey in association with the California Desert District Abandoned Mine Lands program. In his report, Kellogg recommended it as eligible. The proposed Project component that intersects the site is an existing access road with no plans for improvements. Given that there are no plans to improve this segment of the Physical Effects APE, the Project will likely have no adverse effect on this site.

CA-IMP-11344
This previously recorded site is the Crowns mine which is technically a feature within CA-IMP-3297/3300/3302. Three mining features were identified during the current survey within the boundaries of this site, including an adit, the remains of a shaft, and a prospect. Additionally, one milled lumber feature was identified during the survey with no associated artifacts. These features may correspond to those identified by the BLM as not eligible for listing in the NRHP in the 1994 Oro Cruz Operation of the American Girl Mining Project EIS. For the present project these features will be treated as eligible and avoided. The current Project plans will avoid these features, and thus the Project will not have an adverse effect on the site.

CA-IMP-13336
This newly recorded site consists of four potsherds that include one rim and three body sherds. The ceramic fragments are distributed with a maximum of 2 m between sherds. Ceramics are associated with late prehistory in general, and in the area specifically from AD 700-900, and onwards. No other artifacts or features were identified at the site. The condition of CA-IMP-13336 is good, with minimal disturbance limited to minor silt deposition in the site area due to seasonal water flow. CA-IMP-13336 will be treated as eligible for inclusion on the NRHP and avoided during the drilling project This small site can easily be avoided by placing temporary environmentally sensitive area (ESA) fencing around it during construction.

P-13-15600
This previously recorded resource was documented as a mine consisting of two shafts, an adit, and a prospect. One of the shafts was reported to have an opening measuring 10 x 10 ft. with a depth of 15 ft., and the site was mapped as spanning an area measuring 43 m across. No associated artifacts were observed during its recordation, and it was noted that the various features appeared to be in the process of collapse. ASM revisited P-13-15600. However, none of the features recorded at the site were found to fall within the Physical Effects APE, which is composed of an access route that intersects with the site's eastern boundary. As the site will be avoided, there will be no adverse effects to historic properties.

P-13-15601
This previously recorded resource was documented as a mine consisting of two shafts, an adit, and a prospect situated on a north-facing slope. The site was associated with a 55-gallon barrel, undiagnostic cans, and glass fragments. ASM revisited a portion of the site during the survey and relocated the previously recorded features within the Physical Effects APE. The site will be treated as NRHP eligible and avoided, so there will be no adverse affects to historic properties.

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This previously recorded resource was documented as a mine consisting of two shafts, a prospect trench, and a prospect pit. The presence of fencing, modern trash, and possible remaining cribbing was noted during the site's recordation. ASM revisited a small portion of P-13-15602 during the current survey, with most of the site found outside the Physical Effects APE to the west. The site will be treated as NRHP eligible and avoided so that there will be no affects to historic properties.

P-13-15656
This previously recorded resource was documented as a mine site composed of a single shaft and adit. The two were connected underground and found with an associated rock waste pile to the west. A small undiagnostic can scatter and piece of sheet metal were noted during the recordation. ASM revisited the very small portion of P-13-15656 that intersected with the proposed Project APE. However, none of the previously recorded features were relocated in that area. A small scatter of metal strands that appear to be the remains of a cable were identified along the eastern site boundary. No other artifacts or features associated with this site were identified within the Physical Effects APE. The site will be treated as NRHP eligible and avoided, there will be no affects to historic properties.

P-13-15841
This previously recorded resource was documented as a mine consisting of two shafts and an adit located on the north end of the Tumco valley. All three features were associated with waste rock piles, and no associated artifacts were identified. One of the shafts, Shaft 1, was noted to have a wire fence, and the adit was reported to have been previously filled in. ASM revisited P-13-15841 during the survey and relocated the sealed adit (Adit 1) and one of the shafts (Shaft 2). In the northern portion of the site, the cut on the slope for the adit was found to be approximately 10 m long and 3 m wide. As the site will be treated as NRHP eligible and avoided, there will be no effects to historic properties.

Finally, six newly recorded historic mine features, P-13-018460, -018461, -018462, -018463, -018464, and 018465, were also recorded during the current survey. They consist of adits and prospects and are all isolated mining features that were likely created sometime between 1953 and 1961 based on historic topographic maps and aerials of the area. All features will be treated as NRHP eligible and avoided for this project.

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The VAA APE intersects 37 prehistoric trails, geoglyphs, ceramic scatters, lithic scatters, rock art sites, and isolates that have potential to be deemed sacred or traditionally important by Native American tribes. The use of these sites and locations by Native American tribes may be affected by the Project through temporary visual obstructions and loud noise levels such that the integrity of the "setting" and "feeling" of the sites is disturbed.

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The auditory APE report suggests that drilling noise from the Project would be substantially shielded towards the east and north due to the topography of the Cargo Muchacho Mountains. Most of the sites are far enough away from the Project area, the Physical Effects APE, and the proposed helicopter drill sites that they would fall within the noise level contours of ~40-35 dBa L_{eq} or lower, which would be the equivalent of a suburban residential area at night. Based on the contours provided by Saxelby Acoustics, the proposed Project would not be likely to have an adverse auditory effect on the integrity of the setting or feeling of the 25 selected sites that intersect the VAA APE.

Identified Traditional Cultural Property
The Quechan Indian Tribe has conveyed to the BLM that the Oro Cruz project area is located within and encompassed by a much larger TCP as described in the 1997 cultural report titled, *Where Trails Cross: Cultural Resources Inventory and Evaluation for the Imperial Project, Imperial County, California*. This 1997 report recorded the Quechan elders' discussions of the trails and associated features and the importance of this region to the Quechan Tribe for conducting ceremonies and rituals, storytelling and song cycles, and for resource gathering. To briefly summarize, the preservation of this area is essential to maintain cultural, religious and traditional practices and teaching of future generations of Quechan youth. This 1997 cultural report also defines the Running Man Area of Traditional Cultural Concern (ATCC) located about 9 miles northeast of the Oro Cruz project area. Although a boundary was created to define the Running Man ATCC for management purposes, the report clearly states that an extensive and complex network of trails and associated sites and "potentially other ATCCs and linking trail systems" are running throughout the region.

The physical or tangible cultural resource evidence of this TCP identified within the Project area are the prehistoric trails, geoglyphs, rock art, and numerous other associated sites containing

ceramics and lithics primarily located within the VAA APE. The network of prehistoric trails and associated features are tied directly to the Quechan's stories of origin, religious ceremonies, and traditional cultural teachings as are the Cargo Muchacho Mountains themselves. The TCP extends from this trail network and associated cultural sites to the "mountains, rivers and springs, and includes the plants and animals" living within the region. The Keruk/Xam Kwatsam Trail system is one of the largest known (but not fully recorded or defined) trail systems that runs the length of the Colorado River between the Newberry Mountains in the north to Pilot Knob near the southeastern corner of Imperial County, California. The 1997 report identifies approximate locations for trails significant to the Tribe(s) running on both the East and West sides of the Cargo Muchacho Mountains. The trail on the west side of the Cargo Muchacho Mountains is within the VAA APE for the Oro Cruz Project. The entire system consists of various segments of the trail, several significant mountain ranges and specific peaks, numerous side trails, numerous earth figures/geoglyphs, and thousands of objects such as lithics, cairns, potsherds, and cleared sleeping or camping areas. Quechan elders testified, elaborately, about the importance of these cultural features during the late 1990's proposed mining project (Imperial Gold) located near Indian Pass, approximately 10 miles northeast of the current Oro Cruz Project. The 1997 report states that additional ethnographic information may be required to understand if this trail network should be recorded and NRHP evaluated as one very large all-encompassing TCP or if the individual components / areas / sites of the larger complex should be identified and evaluated separately. Additional work understanding this TCP or complex of TCPs will continue to be conducted by the BLM in consultation with the Tribe.

Class III Cultural Resources Inventory Report

A draft of the Class III cultural resources inventory report titled, *Class III Cultural Resource Inventory for the Oro Cruz Exploration Project, Imperial County, California* (Report), was sent to Tribes and consulting parties August 25, 2022, for review and comments. Based upon the comments and input the BLM received, the following modifications were made to the Report:

1) Archaeological site CA-IMP-13336 was revisited by ASM, the ceramic sherds were analyzed in more detail and the Report was updated with additional characteristics.
2) The TCP identified by the Quechan Indian Tribe was identified and the Class III Inventory report was amended to include a discussion of the TCP in association with the proposed Project as well as the prehistoric archaeological sites within the VAA APE.
3) Archaeological sites identified within the physical APE and the VAA APE were reviewed again to consider the potential effects that the proposed project may have. These sites were also considered as potentially contributing elements of the TCP. Additional protections were added to the project design such as additional physical barriers and increased cultural monitoring.
4) Avoidance of all archaeological sites, regardless of their status has been recommended for this project; fencing and periodic archaeological monitoring have been recommended for sites located near existing and proposed roads and ground disturbing activity areas.

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Agency Proposed Determinations of Eligibility and Findings of Effect

Based on the results of the record search, archaeological inventory, the contractors' recommendations, Section 106 and government-to-government consultations, the BLM staff review of all the information and analysis provided and pursuant to 36 CFR 800.4 and 800.5, the BLM makes the following determinations regarding NRHP eligibility and findings of effect for historic properties:

- CA-IMP-1469 is determined eligible for inclusion in the NRHP under Criterion A and D. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect as the site will be avoided and protected with protective fencing, matting and other management conditions.
- The BLM concurs with and reaffirms the previous determinations that site CA-IMP-3297/3300/3302 is eligible for inclusion in the NRHP under Criterion A, C and D. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect as the site and features within will be avoided and protected with protective fencing where needed and other management conditions.
- The following resources located within the Physical APE CA-IMP-3298, -7915, -11343, -11344, -13336, P-13-15600, -15601, -15602, -15656, -15841, -18460, -18461, -18462, -18463, -18464, -18465 will be treated as eligible for inclusion in the NRHP for project management purposes. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect to these resources with management conditions and protective fencing where needed.
- The 37 cultural resources within the VAA APE, remain formally unevaluated but will be treated as eligible for inclusion in the NRHP for project management purposes and they will be avoided. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect from visual or auditory intrusions.
- The Identified TCP is assumed eligible for inclusion in the NRHP under Criterion A and D. The BLM finds that there will be no adverse effect to this resource. The archaeological resources that may be components of the TCP will be avoided and the auditory and visual impacts created by this Project will be temporary in nature.
- The BLM finds that there will be **no adverse effects to historic properties** from this undertaking.

Consistent with 36 CFR 800.5(b) the BLM will avoid effects to the significant values of the historic properties by requiring the development and implementation of a cultural resources monitoring program for the Project. The monitoring program for the Project will include procedures for cultural resources monitoring, post-review discovery and unanticipated effects to known historic properties. Qualified cultural resources monitor(s) will be on site during Project construction related to the undertaking and tribal monitors will be invited to participate.

Based on the results of the cultural resources studies and project management actions that will be taken to monitor and avoid resources within the APE, the BLM proposes that there will be ***no***

adverse effects to historic properties by the undertaking. We request your review and comment for a 30-day consultation period. Please provide your input by May 14, 2023.

We appreciate your time and attention in reviewing the information provided in this letter. For information or further clarification, or to schedule a government-to-government consultation meeting with the BLM, please contact Hannah Robinson, BLM District Archaeologist, at hrobinson@blm.gov or by telephone at (435) 253-3706. If you have any questions please do not hesitate to contact us. I am also available at csahagun@blm.gov or by telephone at 760-337-4437. Thank you for your continued cooperation with this office.

Sincerely,

Carrie L. Sahagun
Acting Field Manager

Electronic cc:
Mayra Martinez, Project Manager (mymartinez@blm.gov)
Hannah Robinson, Archaeologist, California Desert District (hrobinson@blm.gov)

From: Sahagun, Carrie L
To: Robert Pinto; Michael Garcia; "Willie Micklin"
Cc: Martinez, Mayra Y; Robinson, Hannah A
Subject: BLM updates on the Oro Cruz mining exploration project, Imperial County
Date: Thursday, April 13, 2023 10:33:08 AM
Attachments: BLM letter to Ewiiaapaayp_Oro Cruz_4-13-2023.pdf

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Dear Tribal leaders,

I hope this email finds you well. Please find attached a copy of our most recent letter to the Tribe regarding the proposed Oro Cruz mining exploration project within Imperial County. The purpose of the letter is to provide an updated summary of identification efforts, the final revised Class III report and the BLM's proposed determinations of eligibility and findings of effect for a 30-day consultation period concluding on May 14, 2023. Thank you very much and please let us know if you have any questions or would like to schedule a government-to-government meeting to discuss the project.

-Carrie

Carrie L. Sahagun
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BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

April 13, 2023

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Robert Pinto, Sr., Chairman
Ewiiaapaayp Band of Kumeyaay Indians
4054 Willows Road
Alpine, CA 91901

Dear Chairman Pinto,

The Bureau of Land Management (BLM) El Centro Field Office (ECFO) would like to continue our government-to-government consultation with you pursuant to Section 106 of the National Historic Preservation Act and other relevant laws and regulations regarding the SMP Gold Corp. (SMP) proposed project to conduct exploratory drilling activities in south-eastern Imperial County. The purpose of this letter is:

1) Update the BLM's summary of identification efforts,
2) Provide the final revised *Class III Cultural Resource Inventory for Oro Cruz Exploration Project, Imperial County, California* prepared by ASM Affiliates Inc. (ASM) with a summary of changes from the draft report,
3) Provide the Agency's proposed determinations of eligibility and findings of effect for the Project for a 30-day consultation period.

Summary of Identification Efforts

On August 25, 2022, the BLM sent to all Tribes and consulting parties an updated description of the area of potential effects (APE), a summary of the results of the field inventories and a copy of the draft inventory report for a 30-day consultation period[1]. Below is a comprehensive summary update of the status and results of all the identification efforts to date.

Westland Resources, Inc. contracted ASM on behalf of the BLM to conduct a Class III cultural resource inventory to identify cultural resources that are eligible or potentially eligible for listing on the National Register of Historic Places (NRHP). The Class III inventory included a records search at the South Coastal Information Center (SCIC) and an intensive pedestrian survey within the physical effects APE. On September 20 through 24 and October 30 and 31, 2021, archaeologists from ASM completed the Class III field inventory. All survey was conducted with a Native American monitor present.

[1] Prior BLM Section 106 consultation letters for the proposed project include those dated March 31, 2021 and August 10, 2021.

The results of the records search identified 11 previously recorded cultural resources that intersect the Physical Effects APE, including one prehistoric trail (CA-IMP-1469), the Ruins of Tumco Mining Town (CA-IMP-3297/3300H/3302), a historic cemetery (CA-IMP-3298), the Golden Queen Mine (CA-IMP-11343H), the Crowns Mine (CA-IMP-11344H), and five other unnamed mines (P-13-015600, P-13-015601, P-13-015602, P-13-015656, and P-13-015841). During the inventory, ASM relocated the 11 previously recorded cultural resources, recorded one new prehistoric site (CA-IMP-13336) and several historic mining features within the Physical Effects APE. ASM also completed a visual and auditory affects (VAA) analysis of cultural resources that could be affected by the Project but that were outside the Physical effects APE. Below is a summary description of the resources documented by ASM along with their recommendations. As a result of BLM consultation efforts with the Tribes, a Traditional Cultural Property (TCP) has also been identified encompassing the project area and a summary of that resource is also provided.

CA-IMP-1469

This previously recorded site is a prehistoric trail approximately 740 m long and 30 cm wide, tamped into the desert pavement and divided into two segments by an unnamed wash. The southernmost end of the site occurs within the physical effects APE for the Project. During the pedestrian survey, ASM revisited the southernmost 17 m of the site, which falls within the proposed APE for an existing access road. The 17m portion of the site inspected appeared to be moderately disturbed by off-road vehicle traffic and seasonal/ephemeral sheet wash erosion. No other artifacts or features were identified at this portion of the site. CA-SDI-1469 will be treated as eligible for inclusion on the NRHP and avoided during the drilling project . The potential for adverse effects is low for this site as it is adjacent to an existing road not scheduled for improvements. Additionally, ESA fencing can ensure that mining vehicles do not veer offroad in this section.

CA-IMP-3297/3300/3302

This previously recorded site is the Hedges/Tumco Historical Townsite designated by the California State Department of Parks and Recreation as California Historic Landmark No. 182. The site was initially recorded by Rudolf Miller in 1977. The Hedges/Tumco Historic Townsite ruins include residential areas, two cemeteries, a commercial district, a company district, and many mining-related features. The site was evaluated for the Oro Cruz Plan of Operation of the American Girl Project in 1992 by Burney and Associates through archaeological testing, oral history, geomorphology, aerial photography, and extensive archival research and was recommended as eligible for listing in the NRHP. In 1994, the BLM determined in consultation with the California State Historic Preservation Office (SHPO) that the site was indeed eligible for listing in the NRHP under Criteria (a), (c), and (d). The current Project plan will avoid physically affecting all features identified during the survey associated with CA-IMP-3297/3300/3302, and thus the Project is not likely to have an adverse effect on the NRHP eligible site. Temporary fencing and periodic monitoring may be needed to ensure that those features in close proximity to the proposed access roads are not impacted.

CA-IMP-3298

This previously recorded site is a historic cemetery adjacent to an existing access road designated as Road Segment No. 1 of the Project. CA-IMP-3298 is technically a feature within CA-IMP-3297/3300/3302 and the site boundaries have been updated to include it. While this road segment

is planned for improvements, the cemetery is currently fenced. Additionally, ESA fencing can be placed along this road segment to ensure avoidance during construction. The current Project plans are such that avoidance of this resource is feasible. Thus the Project will not adversely affect this site.

CA-IMP-7915
This previously recorded historic site was recorded as part of the North Baja Gas Pipeline alignment project. The site consists of a wooden pole, H-frame, 161kV transmission line built in 1951 and stretches from a substation in Pilot Knob in Imperial County to Blythe in Riverside County. The line is part of a transmission line system that carries power from the Davis and Parker Dams on the Colorado River to 31 substations. ASM relocated the transmission line during the survey and determined that it only intersects a small section of Road Segment No. 17, and none of the existing poles fall within the Physical Effects APE; therefore these features can be avoided by the currently proposed Project.

CA-IMP-11343
The Golden Queen mine is technically a feature within CA-IMP-3297/3300/3302. In 1994 it was determined by BLM in consultation with SHPO to not be a contributing component to the Hedges/Tumco Historic Townsite due to the poor condition and natural weathering of the features associated with the Queen mine area. This determination occurred before it was recorded in 2010 by J. Kellogg of the BLM Needles office during a survey in association with the California Desert District Abandoned Mine Lands program. In his report, Kellogg recommended it as eligible. The proposed Project component that intersects the site is an existing access road with no plans for improvements. Given that there are no plans to improve this segment of the Physical Effects APE, the Project will likely have no adverse effect on this site.

CA-IMP-11344
This previously recorded site is the Crowns mine which is technically a feature within CA-IMP-3297/3300/3302. Three mining features were identified during the current survey within the boundaries of this site, including an adit, the remains of a shaft, and a prospect. Additionally, one milled lumber feature was identified during the survey with no associated artifacts. These features may correspond to those identified by the BLM as not eligible for listing in the NRHP in the 1994 Oro Cruz Operation of the American Girl Mining Project EIS. For the present project these features will be treated as eligible and avoided. The current Project plans will avoid these features, and thus the Project will not have an adverse effect on the site.

CA-IMP-13336
This newly recorded site consists of four potsherds that include one rim and three body sherds. The ceramic fragments are distributed with a maximum of 2 m between sherds. Ceramics are associated with late prehistory in general, and in the area specifically from AD 700-900, and onwards. No other artifacts or features were identified at the site. The condition of CA-IMP-13336 is good, with minimal disturbance limited to minor silt deposition in the site area due to seasonal water flow. CA-IMP-13336 will be treated as eligible for inclusion on the NRHP and avoided during the drilling project This small site can easily be avoided by placing temporary environmentally sensitive area (ESA) fencing around it during construction.

P-13-15600
This previously recorded resource was documented as a mine consisting of two shafts, an adit, and a prospect. One of the shafts was reported to have an opening measuring 10 x 10 ft. with a depth of 15 ft., and the site was mapped as spanning an area measuring 43 m across. No associated artifacts were observed during its recordation, and it was noted that the various features appeared to be in the process of collapse. ASM revisited P-13-15600. However, none of the features recorded at the site were found to fall within the Physical Effects APE, which is composed of an access route that intersects with the site's eastern boundary. As the site will be avoided, there will be no adverse effects to historic properties.

P-13-15601
This previously recorded resource was documented as a mine consisting of two shafts, an adit, and a prospect situated on a north-facing slope. The site was associated with a 55-gallon barrel, undiagnostic cans, and glass fragments. ASM revisited a portion of the site during the survey and relocated the previously recorded features within the Physical Effects APE. The site will be treated as NRHP eligible and avoided, so there will be no adverse affects to historic properties.

P-13-15602
This previously recorded resource was documented as a mine consisting of two shafts, a prospect trench, and a prospect pit. The presence of fencing, modern trash, and possible remaining cribbing was noted during the site's recordation. ASM revisited a small portion of P-13-15602 during the current survey, with most of the site found outside the Physical Effects APE to the west. The site will be treated as NRHP eligible and avoided so that there will be no affects to historic properties.

P-13-15656
This previously recorded resource was documented as a mine site composed of a single shaft and adit. The two were connected underground and found with an associated rock waste pile to the west. A small undiagnostic can scatter and piece of sheet metal were noted during the recordation. ASM revisited the very small portion of P-13-15656 that intersected with the proposed Project APE. However, none of the previously recorded features were relocated in that area. A small scatter of metal strands that appear to be the remains of a cable were identified along the eastern site boundary. No other artifacts or features associated with this site were identified within the Physical Effects APE. The site will be treated as NRHP eligible and avoided, there will be no affects to historic properties.

P-13-15841
This previously recorded resource was documented as a mine consisting of two shafts and an adit located on the north end of the Tumco valley. All three features were associated with waste rock piles, and no associated artifacts were identified. One of the shafts, Shaft 1, was noted to have a wire fence, and the adit was reported to have been previously filled in. ASM revisited P-13-15841 during the survey and relocated the sealed adit (Adit 1) and one of the shafts (Shaft 2). In the northern portion of the site, the cut on the slope for the adit was found to be approximately 10 m long and 3 m wide. As the site will be treated as NRHP eligible and avoided, there will be no effects to historic properties.

Finally, six newly recorded historic mine features, P-13-018460, -018461, -018462, -018463, -018464, and 018465, were also recorded during the current survey. They consist of adits and prospects and are all isolated mining features that were likely created sometime between 1953 and 1961 based on historic topographic maps and aerials of the area. All features will be treated as NRHP eligible and avoided for this project.

Archaeological Sites Located within the VAA APE

The VAA APE intersects 37 prehistoric trails, geoglyphs, ceramic scatters, lithic scatters, rock art sites, and isolates that have potential to be deemed sacred or traditionally important by Native American tribes. The use of these sites and locations by Native American tribes may be affected by the Project through temporary visual obstructions and loud noise levels such that the integrity of the "setting" and "feeling" of the sites is disturbed.

Of the 35 proposed potential drill sites, the closest of the prehistoric sites is 630 meters (2,067 feet) away, and the rest are between 950 and 2565 meters (3,117 and 8,415 feet) away. The viewshed analysis and line of site examples indicate that a 40-foot drill rig line against the existing landscape would not create a strong contrast against the backdrop of the existing landscape and would likely not be noticed by the casual viewer. Of 18 selected sites that intersect the potential visual APE the drill rigs would not be likely to have an adverse visual effect on the integrity of the setting or feeling of the selected sites from a distance of 630 meters or greater.

The auditory APE report suggests that drilling noise from the Project would be substantially shielded towards the east and north due to the topography of the Cargo Muchacho Mountains. Most of the sites are far enough away from the Project area, the Physical Effects APE, and the proposed helicopter drill sites that they would fall within the noise level contours of ~40-35 dBa L_{eq} or lower, which would be the equivalent of a suburban residential area at night. Based on the contours provided by Saxelby Acoustics, the proposed Project would not be likely to have an adverse auditory effect on the integrity of the setting or feeling of the 25 selected sites that intersect the VAA APE.

Identified Traditional Cultural Property

The Quechan Indian Tribe has conveyed to the BLM that the Oro Cruz project area is located within and encompassed by a much larger TCP as described in the 1997 cultural report titled, *Where Trails Cross: Cultural Resources Inventory and Evaluation for the Imperial Project, Imperial County, California*. This 1997 report recorded the Quechan elders' discussions of the trails and associated features and the importance of this region to the Quechan Tribe for conducting ceremonies and rituals, storytelling and song cycles, and for resource gathering. To briefly summarize, the preservation of this area is essential to maintain cultural, religious and traditional practices and teaching of future generations of Quechan youth. This 1997 cultural report also defines the Running Man Area of Traditional Cultural Concern (ATCC) located about 9 miles northeast of the Oro Cruz project area. Although a boundary was created to define the Running Man ATCC for management purposes, the report clearly states that an extensive and complex network of trails and associated sites and "potentially other ATCCs and linking trail systems" are running throughout the region.

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3) Archaeological sites identified within the physical APE and the VAA APE were reviewed again to consider the potential effects that the proposed project may have. These sites were also considered as potentially contributing elements of the TCP. Additional protections were added to the project design such as additional physical barriers and increased cultural monitoring.
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Consistent with 36 CFR 800.5(b) the BLM will avoid effects to the significant values of the historic properties by requiring the development and implementation of a cultural resources monitoring program for the Project. The monitoring program for the Project will include procedures for cultural resources monitoring, post-review discovery and unanticipated effects to known historic properties. Qualified cultural resources monitor(s) will be on site during Project construction related to the undertaking and tribal monitors will be invited to participate.

Based on the results of the cultural resources studies and project management actions that will be taken to monitor and avoid resources within the APE, the BLM proposes that there will be ***no***

adverse effects to historic properties by the undertaking. We request your review and comment for a 30-day consultation period. Please provide your input by May 14, 2023.

We appreciate your time and attention in reviewing the information provided in this letter. For information or further clarification, or to schedule a government-to-government consultation meeting with the BLM, please contact Hannah Robinson, BLM District Archaeologist, at hrobinson@blm.gov or by telephone at (435) 253-3706. If you have any questions please do not hesitate to contact us. I am also available at csahagun@blm.gov or by telephone at 760-337-4437. Thank you for your continued cooperation with this office.

Sincerely,

Carrie L. Sahagun
Acting Field Manager

Electronic cc:
Mayra Martinez, Project Manager (mymartinez@blm.gov)
Hannah Robinson, Archaeologist, California Desert District (hrobinson@blm.gov)

From: Sahagun, Carrie L
To: Tribal Chair - Sherry Cordova, Chairwoman
Cc: Martinez, Mayra Y; Robinson, Hannah A
Subject: BLM updates on the Oro Cruz mining exploration project, Imperial County
Date: Thursday, April 13, 2023 10:21:54 AM
Attachments: BLM letter to Cocopah_Oro Cruz_4-13-2023.pdf

Dear Chairwoman Cordova,

I hope this email finds you well. Please find attached a copy of our most recent letter to the Tribe regarding the proposed Oro Cruz mining exploration project within Imperial County. The purpose of the letter is to provide an updated summary of identification efforts, the final revised Class III report and the BLM's proposed determinations of eligibility and findings of effect for a 30-day consultation period concluding on May 14, 2023. Thank you very much and please let us know if you have any questions or would like to schedule a government-to-government meeting to discuss the project.

-Carrie

Carrie L. Sahagun
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April 13, 2023

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Ms. Sherry Cordova, Chairperson
Cocopah Indian Tribe
14515 S. Veterans Dr.
Somerton, AZ 85350

Dear Chairperson Cordova,

The Bureau of Land Management (BLM) El Centro Field Office (ECFO) would like to continue our government-to-government consultation with you pursuant to Section 106 of the National Historic Preservation Act and other relevant laws and regulations regarding the SMP Gold Corp. (SMP) proposed project to conduct exploratory drilling activities in south-eastern Imperial County. The purpose of this letter is:

1) Update the BLM's summary of identification efforts,
2) Provide the final revised *Class III Cultural Resource Inventory for Oro Cruz Exploration Project, Imperial County, California* prepared by ASM Affiliates Inc. (ASM) with a summary of changes from the draft report,
3) Provide the Agency's proposed determinations of eligibility and findings of effect for the Project for a 30-day consultation period.

Summary of Identification Efforts

On August 25, 2022, the BLM sent to all Tribes and consulting parties an updated description of the area of potential effects (APE), a summary of the results of the field inventories and a copy of the draft inventory report for a 30-day consultation period[1]. Below is a comprehensive summary update of the status and results of all the identification efforts to date.

Westland Resources, Inc. contracted ASM on behalf of the BLM to conduct a Class III cultural resource inventory to identify cultural resources that are eligible or potentially eligible for listing on the National Register of Historic Places (NRHP). The Class III inventory included a records search at the South Coastal Information Center (SCIC) and an intensive pedestrian survey within the physical effects APE. On September 20 through 24 and October 30 and 31, 2021, archaeologists from ASM completed the Class III field inventory. All survey was conducted with a Native American monitor present.

[1] Prior BLM Section 106 consultation letters for the proposed project include those dated March 31, 2021 and August 10, 2021.

The results of the records search identified 11 previously recorded cultural resources that intersect the Physical Effects APE, including one prehistoric trail (CA-IMP-1469), the Ruins of Tumco Mining Town (CA-IMP-3297/3300H/3302), a historic cemetery (CA-IMP-3298), the Golden Queen Mine (CA-IMP-11343H), the Crowns Mine (CA-IMP-11344H), and five other unnamed mines (P-13-015600, P-13-015601, P-13-015602, P-13-015656, and P-13-015841). During the inventory, ASM relocated the 11 previously recorded cultural resources, recorded one new prehistoric site (CA-IMP-13336) and several historic mining features within the Physical Effects APE. ASM also completed a visual and auditory affects (VAA) analysis of cultural resources that could be affected by the Project but that were outside the Physical effects APE. Below is a summary description of the resources documented by ASM along with their recommendations. As a result of BLM consultation efforts with the Tribes, a Traditional Cultural Property (TCP) has also been identified encompassing the project area and a summary of that resource is also provided.

CA-IMP-1469

This previously recorded site is a prehistoric trail approximately 740 m long and 30 cm wide, tamped into the desert pavement and divided into two segments by an unnamed wash. The southernmost end of the site occurs within the physical effects APE for the Project. During the pedestrian survey, ASM revisited the southernmost 17 m of the site, which falls within the proposed APE for an existing access road. The 17m portion of the site inspected appeared to be moderately disturbed by off-road vehicle traffic and seasonal/ephemeral sheet wash erosion. No other artifacts or features were identified at this portion of the site. CA-SDI-1469 will be treated as eligible for inclusion on the NRHP and avoided during the drilling project . The potential for adverse effects is low for this site as it is adjacent to an existing road not scheduled for improvements. Additionally, ESA fencing can ensure that mining vehicles do not veer offroad in this section.

CA-IMP-3297/3300/3302

This previously recorded site is the Hedges/Tumco Historical Townsite designated by the California State Department of Parks and Recreation as California Historic Landmark No. 182. The site was initially recorded by Rudolf Miller in 1977. The Hedges/Tumco Historic Townsite ruins include residential areas, two cemeteries, a commercial district, a company district, and many mining-related features. The site was evaluated for the Oro Cruz Plan of Operation of the American Girl Project in 1992 by Burney and Associates through archaeological testing, oral history, geomorphology, aerial photography, and extensive archival research and was recommended as eligible for listing in the NRHP. In 1994, the BLM determined in consultation with the California State Historic Preservation Office (SHPO) that the site was indeed eligible for listing in the NRHP under Criteria (a), (c), and (d). The current Project plan will avoid physically affecting all features identified during the survey associated with CA-IMP-3297/3300/3302, and thus the Project is not likely to have an adverse effect on the NRHP eligible site. Temporary fencing and periodic monitoring may be needed to ensure that those features in close proximity to the proposed access roads are not impacted.

CA-IMP-3298

This previously recorded site is a historic cemetery adjacent to an existing access road designated as Road Segment No. 1 of the Project. CA-IMP-3298 is technically a feature within CA-IMP-3297/3300/3302 and the site boundaries have been updated to include it. While this road segment

is planned for improvements, the cemetery is currently fenced. Additionally, ESA fencing can be placed along this road segment to ensure avoidance during construction. The current Project plans are such that avoidance of this resource is feasible. Thus the Project will not adversely affect this site.

CA-IMP-7915
This previously recorded historic site was recorded as part of the North Baja Gas Pipeline alignment project. The site consists of a wooden pole, H-frame, 161kV transmission line built in 1951 and stretches from a substation in Pilot Knob in Imperial County to Blythe in Riverside County. The line is part of a transmission line system that carries power from the Davis and Parker Dams on the Colorado River to 31 substations. ASM relocated the transmission line during the survey and determined that it only intersects a small section of Road Segment No. 17, and none of the existing poles fall within the Physical Effects APE; therefore these features can be avoided by the currently proposed Project.

CA-IMP-11343
The Golden Queen mine is technically a feature within CA-IMP-3297/3300/3302. In 1994 it was determined by BLM in consultation with SHPO to not be a contributing component to the Hedges/Tumco Historic Townsite due to the poor condition and natural weathering of the features associated with the Queen mine area. This determination occurred before it was recorded in 2010 by J. Kellogg of the BLM Needles office during a survey in association with the California Desert District Abandoned Mine Lands program. In his report, Kellogg recommended it as eligible. The proposed Project component that intersects the site is an existing access road with no plans for improvements. Given that there are no plans to improve this segment of the Physical Effects APE, the Project will likely have no adverse effect on this site.

CA-IMP-11344
This previously recorded site is the Crowns mine which is technically a feature within CA-IMP-3297/3300/3302. Three mining features were identified during the current survey within the boundaries of this site, including an adit, the remains of a shaft, and a prospect. Additionally, one milled lumber feature was identified during the survey with no associated artifacts. These features may correspond to those identified by the BLM as not eligible for listing in the NRHP in the 1994 Oro Cruz Operation of the American Girl Mining Project EIS. For the present project these features will be treated as eligible and avoided. The current Project plans will avoid these features, and thus the Project will not have an adverse effect on the site.

CA-IMP-13336
This newly recorded site consists of four potsherds that include one rim and three body sherds. The ceramic fragments are distributed with a maximum of 2 m between sherds. Ceramics are associated with late prehistory in general, and in the area specifically from AD 700-900, and onwards. No other artifacts or features were identified at the site. The condition of CA-IMP-13336 is good, with minimal disturbance limited to minor silt deposition in the site area due to seasonal water flow. CA-IMP-13336 will be treated as eligible for inclusion on the NRHP and avoided during the drilling project This small site can easily be avoided by placing temporary environmentally sensitive area (ESA) fencing around it during construction.

P-13-15600
This previously recorded resource was documented as a mine consisting of two shafts, an adit, and a prospect. One of the shafts was reported to have an opening measuring 10 x 10 ft. with a depth of 15 ft., and the site was mapped as spanning an area measuring 43 m across. No associated artifacts were observed during its recordation, and it was noted that the various features appeared to be in the process of collapse. ASM revisited P-13-15600. However, none of the features recorded at the site were found to fall within the Physical Effects APE, which is composed of an access route that intersects with the site's eastern boundary. As the site will be avoided, there will be no adverse effects to historic properties.

P-13-15601
This previously recorded resource was documented as a mine consisting of two shafts, an adit, and a prospect situated on a north-facing slope. The site was associated with a 55-gallon barrel, undiagnostic cans, and glass fragments. ASM revisited a portion of the site during the survey and relocated the previously recorded features within the Physical Effects APE. The site will be treated as NRHP eligible and avoided, so there will be no adverse affects to historic properties.

P-13-15602
This previously recorded resource was documented as a mine consisting of two shafts, a prospect trench, and a prospect pit. The presence of fencing, modern trash, and possible remaining cribbing was noted during the site's recordation. ASM revisited a small portion of P-13-15602 during the current survey, with most of the site found outside the Physical Effects APE to the west. The site will be treated as NRHP eligible and avoided so that there will be no affects to historic properties.

P-13-15656
This previously recorded resource was documented as a mine site composed of a single shaft and adit. The two were connected underground and found with an associated rock waste pile to the west. A small undiagnostic can scatter and piece of sheet metal were noted during the recordation. ASM revisited the very small portion of P-13-15656 that intersected with the proposed Project APE. However, none of the previously recorded features were relocated in that area. A small scatter of metal strands that appear to be the remains of a cable were identified along the eastern site boundary. No other artifacts or features associated with this site were identified within the Physical Effects APE. The site will be treated as NRHP eligible and avoided, there will be no affects to historic properties.

P-13-15841
This previously recorded resource was documented as a mine consisting of two shafts and an adit located on the north end of the Tumco valley. All three features were associated with waste rock piles, and no associated artifacts were identified. One of the shafts, Shaft 1, was noted to have a wire fence, and the adit was reported to have been previously filled in. ASM revisited P-13-15841 during the survey and relocated the sealed adit (Adit 1) and one of the shafts (Shaft 2). In the northern portion of the site, the cut on the slope for the adit was found to be approximately 10 m long and 3 m wide. As the site will be treated as NRHP eligible and avoided, there will be no effects to historic properties.

Finally, six newly recorded historic mine features, P-13-018460, -018461, -018462, -018463, -018464, and 018465, were also recorded during the current survey. They consist of adits and prospects and are all isolated mining features that were likely created sometime between 1953 and 1961 based on historic topographic maps and aerials of the area. All features will be treated as NRHP eligible and avoided for this project.

Archaeological Sites Located within the VAA APE

The VAA APE intersects 37 prehistoric trails, geoglyphs, ceramic scatters, lithic scatters, rock art sites, and isolates that have potential to be deemed sacred or traditionally important by Native American tribes. The use of these sites and locations by Native American tribes may be affected by the Project through temporary visual obstructions and loud noise levels such that the integrity of the "setting" and "feeling" of the sites is disturbed.

Of the 35 proposed potential drill sites, the closest of the prehistoric sites is 630 meters (2,067 feet) away, and the rest are between 950 and 2565 meters (3,117 and 8,415 feet) away. The viewshed analysis and line of site examples indicate that a 40-foot drill rig line against the existing landscape would not create a strong contrast against the backdrop of the existing landscape and would likely not be noticed by the casual viewer. Of 18 selected sites that intersect the potential visual APE the drill rigs would not be likely to have an adverse visual effect on the integrity of the setting or feeling of the selected sites from a distance of 630 meters or greater.

The auditory APE report suggests that drilling noise from the Project would be substantially shielded towards the east and north due to the topography of the Cargo Muchacho Mountains. Most of the sites are far enough away from the Project area, the Physical Effects APE, and the proposed helicopter drill sites that they would fall within the noise level contours of ~40-35 dBa L_{eq} or lower, which would be the equivalent of a suburban residential area at night. Based on the contours provided by Saxelby Acoustics, the proposed Project would not be likely to have an adverse auditory effect on the integrity of the setting or feeling of the 25 selected sites that intersect the VAA APE.

Identified Traditional Cultural Property

The Quechan Indian Tribe has conveyed to the BLM that the Oro Cruz project area is located within and encompassed by a much larger TCP as described in the 1997 cultural report titled, *Where Trails Cross: Cultural Resources Inventory and Evaluation for the Imperial Project, Imperial County, California.* This 1997 report recorded the Quechan elders' discussions of the trails and associated features and the importance of this region to the Quechan Tribe for conducting ceremonies and rituals, storytelling and song cycles, and for resource gathering. To briefly summarize, the preservation of this area is essential to maintain cultural, religious and traditional practices and teaching of future generations of Quechan youth. This 1997 cultural report also defines the Running Man Area of Traditional Cultural Concern (ATCC) located about 9 miles northeast of the Oro Cruz project area. Although a boundary was created to define the Running Man ATCC for management purposes, the report clearly states that an extensive and complex network of trails and associated sites and "potentially other ATCCs and linking trail systems" are running throughout the region.

The physical or tangible cultural resource evidence of this TCP identified within the Project area are the prehistoric trails, geoglyphs, rock art, and numerous other associated sites containing

ceramics and lithics primarily located within the VAA APE. The network of prehistoric trails and associated features are tied directly to the Quechan's stories of origin, religious ceremonies, and traditional cultural teachings as are the Cargo Muchacho Mountains themselves. The TCP extends from this trail network and associated cultural sites to the "mountains, rivers and springs, and includes the plants and animals" living within the region. The Keruk/Xam Kwatsam Trail system is one of the largest known (but not fully recorded or defined) trail systems that runs the length of the Colorado River between the Newberry Mountains in the north to Pilot Knob near the southeastern corner of Imperial County, California. The 1997 report identifies approximate locations for trails significant to the Tribe(s) running on both the East and West sides of the Cargo Muchacho Mountains. The trail on the west side of the Cargo Muchacho Mountains is within the VAA APE for the Oro Cruz Project. The entire system consists of various segments of the trail, several significant mountain ranges and specific peaks, numerous side trails, numerous earth figures/geoglyphs, and thousands of objects such as lithics, cairns, potsherds, and cleared sleeping or camping areas. Quechan elders testified, elaborately, about the importance of these cultural features during the late 1990's proposed mining project (Imperial Gold) located near Indian Pass, approximately 10 miles northeast of the current Oro Cruz Project. The 1997 report states that additional ethnographic information may be required to understand if this trail network should be recorded and NRHP evaluated as one very large all-encompassing TCP or if the individual components / areas / sites of the larger complex should be identified and evaluated separately. Additional work understanding this TCP or complex of TCPs will continue to be conducted by the BLM in consultation with the Tribe.

Class III Cultural Resources Inventory Report

A draft of the Class III cultural resources inventory report titled, *Class III Cultural Resource Inventory for the Oro Cruz Exploration Project, Imperial County, California* (Report), was sent to Tribes and consulting parties August 25, 2022, for review and comments. Based upon the comments and input the BLM received, the following modifications were made to the Report:

1) Archaeological site CA-IMP-13336 was revisited by ASM, the ceramic sherds were analyzed in more detail and the Report was updated with additional characteristics.
2) The TCP identified by the Quechan Indian Tribe was identified and the Class III Inventory report was amended to include a discussion of the TCP in association with the proposed Project as well as the prehistoric archaeological sites within the VAA APE.
3) Archaeological sites identified within the physical APE and the VAA APE were reviewed again to consider the potential effects that the proposed project may have. These sites were also considered as potentially contributing elements of the TCP. Additional protections were added to the project design such as additional physical barriers and increased cultural monitoring.
4) Avoidance of all archaeological sites, regardless of their status has been recommended for this project; fencing and periodic archaeological monitoring have been recommended for sites located near existing and proposed roads and ground disturbing activity areas.

The revised final Report (non-confidential version) has been uploaded to an ASM ftp website and is available for download. You can access the ftp website at the following address:

https://asmaffiliates.filecloudonline.com/url/an4kfzjxhumghxfp

If you would like to request a hardcopy or the confidential appendices, please coordinate with Hannah Robinson, BLM Desert District Archaeologist (contact information below).

Agency Proposed Determinations of Eligibility and Findings of Effect

Based on the results of the record search, archaeological inventory, the contractors' recommendations, Section 106 and government-to-government consultations, the BLM staff review of all the information and analysis provided and pursuant to 36 CFR 800.4 and 800.5, the BLM makes the following determinations regarding NRHP eligibility and findings of effect for historic properties:

- CA-IMP-1469 is determined eligible for inclusion in the NRHP under Criterion A and D. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect as the site will be avoided and protected with protective fencing, matting and other management conditions.
- The BLM concurs with and reaffirms the previous determinations that site CA-IMP-3297/3300/3302 is eligible for inclusion in the NRHP under Criterion A, C and D. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect as the site and features within will be avoided and protected with protective fencing where needed and other management conditions.
- The following resources located within the Physical APE CA-IMP-3298, -7915, -11343, -11344, -13336, P-13-15600, -15601, -15602, -15656, -15841, -18460, -18461, -18462, -18463, -18464, -18465 will be treated as eligible for inclusion in the NRHP for project management purposes. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect to these resources with management conditions and protective fencing where needed.
- The 37 cultural resources within the VAA APE, remain formally unevaluated but will be treated as eligible for inclusion in the NRHP for project management purposes and they will be avoided. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect from visual or auditory intrusions.
- The Identified TCP is assumed eligible for inclusion in the NRHP under Criterion A and D. The BLM finds that there will be no adverse effect to this resource. The archaeological resources that may be components of the TCP will be avoided and the auditory and visual impacts created by this Project will be temporary in nature.
- The BLM finds that there will be **no adverse effects to historic properties** from this undertaking.

Consistent with 36 CFR 800.5(b) the BLM will avoid effects to the significant values of the historic properties by requiring the development and implementation of a cultural resources monitoring program for the Project. The monitoring program for the Project will include procedures for cultural resources monitoring, post-review discovery and unanticipated effects to known historic properties. Qualified cultural resources monitor(s) will be on site during Project construction related to the undertaking and tribal monitors will be invited to participate.

Based on the results of the cultural resources studies and project management actions that will be taken to monitor and avoid resources within the APE, the BLM proposes that there will be ***no***

adverse effects to historic properties by the undertaking. We request your review and comment for a 30-day consultation period. Please provide your input by May 14, 2023.

We appreciate your time and attention in reviewing the information provided in this letter. For information or further clarification, or to schedule a government-to-government consultation meeting with the BLM, please contact Hannah Robinson, BLM District Archaeologist, at hrobinson@blm.gov or by telephone at (435) 253-3706. If you have any questions please do not hesitate to contact us. I am also available at csahagun@blm.gov or by telephone at 760-337-4437. Thank you for your continued cooperation with this office.

Sincerely,

Carrie L. Sahagun
Acting Field Manager

Electronic cc:
Mayra Martinez, Project Manager (mymartinez@blm.gov)
Hannah Robinson, Archaeologist, California Desert District (hrobinson@blm.gov)

From: Sahagun, Carrie L
To: counciloffice@barona-nsn.gov
Cc: Martinez, Mayra Y; Robinson, Hannah A
Subject: BLM updates on the Oro Cruz mining exploration project, Imperial County
Date: Thursday, April 13, 2023 10:18:20 AM
Attachments: BLM letter to Barona_Oro Cruz_4-13-2023.pdf

Dear Tribal leaders,

I hope this email finds you well. Please find attached a copy of our most recent letter to the Tribe regarding the proposed Oro Cruz mining exploration project within Imperial County. The purpose of the letter is to provide an updated summary of identification efforts, the final revised Class III report and the BLM's proposed determinations of eligibility and findings of effect for a 30-day consultation period concluding on May 14, 2023. Thank you very much and please let us know if you have any questions or would like to schedule a government-to-government meeting to discuss the project.

-Carrie

Carrie L. Sahagun
Acting Field Manager
BLM El Centro Field Office
1661 S. 4th Street
El Centro, CA 92243
(760) 337-4437
USDI, Region 8
she/her

Caution: This email originated from outside of Stantec. Please take extra precaution.
Attention: Ce courriel provient de l'extérieur de Stantec. Veuillez prendre des précautions supplémentaires.
Atención: Este correo electrónico proviene de fuera de Stantec. Por favor, tome precauciones adicionales.

United States Department of the Interior
BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

April 13, 2023

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Raymond Welch, Chairman
Barona Band of Mission Indians
1095 Barona Road
Lakeside, CA 92040

Dear Chairman Welch,

The Bureau of Land Management (BLM) El Centro Field Office (ECFO) would like to continue our government-to-government consultation with you pursuant to Section 106 of the National Historic Preservation Act and other relevant laws and regulations regarding the SMP Gold Corp. (SMP) proposed project to conduct exploratory drilling activities in south-eastern Imperial County. The purpose of this letter is:

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This previously recorded resource was documented as a mine site composed of a single shaft and adit. The two were connected underground and found with an associated rock waste pile to the west. A small undiagnostic can scatter and piece of sheet metal were noted during the recordation. ASM revisited the very small portion of P-13-15656 that intersected with the proposed Project APE. However, none of the previously recorded features were relocated in that area. A small scatter of metal strands that appear to be the remains of a cable were identified along the eastern site boundary. No other artifacts or features associated with this site were identified within the Physical Effects APE. The site will be treated as NRHP eligible and avoided, there will be no affects to historic properties.

P-13-15841
This previously recorded resource was documented as a mine consisting of two shafts and an adit located on the north end of the Tumco valley. All three features were associated with waste rock piles, and no associated artifacts were identified. One of the shafts, Shaft 1, was noted to have a wire fence, and the adit was reported to have been previously filled in. ASM revisited P-13-15841 during the survey and relocated the sealed adit (Adit 1) and one of the shafts (Shaft 2). In the northern portion of the site, the cut on the slope for the adit was found to be approximately 10 m long and 3 m wide. As the site will be treated as NRHP eligible and avoided, there will be no effects to historic properties.

Finally, six newly recorded historic mine features, P-13-018460, -018461, -018462, -018463, -018464, and 018465, were also recorded during the current survey. They consist of adits and prospects and are all isolated mining features that were likely created sometime between 1953 and 1961 based on historic topographic maps and aerials of the area. All features will be treated as NRHP eligible and avoided for this project.

Archaeological Sites Located within the VAA APE

The VAA APE intersects 37 prehistoric trails, geoglyphs, ceramic scatters, lithic scatters, rock art sites, and isolates that have potential to be deemed sacred or traditionally important by Native American tribes. The use of these sites and locations by Native American tribes may be affected by the Project through temporary visual obstructions and loud noise levels such that the integrity of the "setting" and "feeling" of the sites is disturbed.

Of the 35 proposed potential drill sites, the closest of the prehistoric sites is 630 meters (2,067 feet) away, and the rest are between 950 and 2565 meters (3,117 and 8,415 feet) away. The viewshed analysis and line of site examples indicate that a 40-foot drill rig line against the existing landscape would not create a strong contrast against the backdrop of the existing landscape and would likely not be noticed by the casual viewer. Of 18 selected sites that intersect the potential visual APE the drill rigs would not be likely to have an adverse visual effect on the integrity of the setting or feeling of the selected sites from a distance of 630 meters or greater.

The auditory APE report suggests that drilling noise from the Project would be substantially shielded towards the east and north due to the topography of the Cargo Muchacho Mountains. Most of the sites are far enough away from the Project area, the Physical Effects APE, and the proposed helicopter drill sites that they would fall within the noise level contours of ~40-35 dBa L_{eq} or lower, which would be the equivalent of a suburban residential area at night. Based on the contours provided by Saxelby Acoustics, the proposed Project would not be likely to have an adverse auditory effect on the integrity of the setting or feeling of the 25 selected sites that intersect the VAA APE.

Identified Traditional Cultural Property

The Quechan Indian Tribe has conveyed to the BLM that the Oro Cruz project area is located within and encompassed by a much larger TCP as described in the 1997 cultural report titled, *Where Trails Cross: Cultural Resources Inventory and Evaluation for the Imperial Project, Imperial County, California*. This 1997 report recorded the Quechan elders' discussions of the trails and associated features and the importance of this region to the Quechan Tribe for conducting ceremonies and rituals, storytelling and song cycles, and for resource gathering. To briefly summarize, the preservation of this area is essential to maintain cultural, religious and traditional practices and teaching of future generations of Quechan youth. This 1997 cultural report also defines the Running Man Area of Traditional Cultural Concern (ATCC) located about 9 miles northeast of the Oro Cruz project area. Although a boundary was created to define the Running Man ATCC for management purposes, the report clearly states that an extensive and complex network of trails and associated sites and "potentially other ATCCs and linking trail systems" are running throughout the region.

The physical or tangible cultural resource evidence of this TCP identified within the Project area are the prehistoric trails, geoglyphs, rock art, and numerous other associated sites containing

ceramics and lithics primarily located within the VAA APE. The network of prehistoric trails and associated features are tied directly to the Quechan's stories of origin, religious ceremonies, and traditional cultural teachings as are the Cargo Muchacho Mountains themselves. The TCP extends from this trail network and associated cultural sites to the "mountains, rivers and springs, and includes the plants and animals" living within the region. The Keruk/Xam Kwatsam Trail system is one of the largest known (but not fully recorded or defined) trail systems that runs the length of the Colorado River between the Newberry Mountains in the north to Pilot Knob near the southeastern corner of Imperial County, California. The 1997 report identifies approximate locations for trails significant to the Tribe(s) running on both the East and West sides of the Cargo Muchacho Mountains. The trail on the west side of the Cargo Muchacho Mountains is within the VAA APE for the Oro Cruz Project. The entire system consists of various segments of the trail, several significant mountain ranges and specific peaks, numerous side trails, numerous earth figures/geoglyphs, and thousands of objects such as lithics, cairns, potsherds, and cleared sleeping or camping areas. Quechan elders testified, elaborately, about the importance of these cultural features during the late 1990's proposed mining project (Imperial Gold) located near Indian Pass, approximately 10 miles northeast of the current Oro Cruz Project. The 1997 report states that additional ethnographic information may be required to understand if this trail network should be recorded and NRHP evaluated as one very large all-encompassing TCP or if the individual components / areas / sites of the larger complex should be identified and evaluated separately. Additional work understanding this TCP or complex of TCPs will continue to be conducted by the BLM in consultation with the Tribe.

Class III Cultural Resources Inventory Report

A draft of the Class III cultural resources inventory report titled, *Class III Cultural Resource Inventory for the Oro Cruz Exploration Project, Imperial County, California* (Report), was sent to Tribes and consulting parties August 25, 2022, for review and comments. Based upon the comments and input the BLM received, the following modifications were made to the Report:

1) Archaeological site CA-IMP-13336 was revisited by ASM, the ceramic sherds were analyzed in more detail and the Report was updated with additional characteristics.
2) The TCP identified by the Quechan Indian Tribe was identified and the Class III Inventory report was amended to include a discussion of the TCP in association with the proposed Project as well as the prehistoric archaeological sites within the VAA APE.
3) Archaeological sites identified within the physical APE and the VAA APE were reviewed again to consider the potential effects that the proposed project may have. These sites were also considered as potentially contributing elements of the TCP. Additional protections were added to the project design such as additional physical barriers and increased cultural monitoring.
4) Avoidance of all archaeological sites, regardless of their status has been recommended for this project; fencing and periodic archaeological monitoring have been recommended for sites located near existing and proposed roads and ground disturbing activity areas.

The revised final Report (non-confidential version) has been uploaded to an ASM ftp website and is available for download. You can access the ftp website at the following address:

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If you would like to request a hardcopy or the confidential appendices, please coordinate with Hannah Robinson, BLM Desert District Archaeologist (contact information below).

Agency Proposed Determinations of Eligibility and Findings of Effect

Based on the results of the record search, archaeological inventory, the contractors' recommendations, Section 106 and government-to-government consultations, the BLM staff review of all the information and analysis provided and pursuant to 36 CFR 800.4 and 800.5, the BLM makes the following determinations regarding NRHP eligibility and findings of effect for historic properties:

- CA-IMP-1469 is determined eligible for inclusion in the NRHP under Criterion A and D. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect as the site will be avoided and protected with protective fencing, matting and other management conditions.
- The BLM concurs with and reaffirms the previous determinations that site CA-IMP-3297/3300/3302 is eligible for inclusion in the NRHP under Criterion A, C and D. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect as the site and features within will be avoided and protected with protective fencing where needed and other management conditions.
- The following resources located within the Physical APE CA-IMP-3298, -7915, -11343, -11344, -13336, P-13-15600, -15601, -15602, -15656, -15841, -18460, -18461, -18462, -18463, -18464, -18465 will be treated as eligible for inclusion in the NRHP for project management purposes. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect to these resources with management conditions and protective fencing where needed.
- The 37 cultural resources within the VAA APE, remain formally unevaluated but will be treated as eligible for inclusion in the NRHP for project management purposes and they will be avoided. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect from visual or auditory intrusions.
- The Identified TCP is assumed eligible for inclusion in the NRHP under Criterion A and D. The BLM finds that there will be no adverse effect to this resource. The archaeological resources that may be components of the TCP will be avoided and the auditory and visual impacts created by this Project will be temporary in nature.
- The BLM finds that there will be **no adverse effects to historic properties** from this undertaking.

Consistent with 36 CFR 800.5(b) the BLM will avoid effects to the significant values of the historic properties by requiring the development and implementation of a cultural resources monitoring program for the Project. The monitoring program for the Project will include procedures for cultural resources monitoring, post-review discovery and unanticipated effects to known historic properties. Qualified cultural resources monitor(s) will be on site during Project construction related to the undertaking and tribal monitors will be invited to participate.

Based on the results of the cultural resources studies and project management actions that will be taken to monitor and avoid resources within the APE, the BLM proposes that there will be ***no***

adverse effects to historic properties by the undertaking. We request your review and comment for a 30-day consultation period. Please provide your input by May 14, 2023.

We appreciate your time and attention in reviewing the information provided in this letter. For information or further clarification, or to schedule a government-to-government consultation meeting with the BLM, please contact Hannah Robinson, BLM District Archaeologist, at hrobinson@blm.gov or by telephone at (435) 253-3706. If you have any questions please do not hesitate to contact us. I am also available at csahagun@blm.gov or by telephone at 760-337-4437. Thank you for your continued cooperation with this office.

Sincerely,

Carrie L. Sahagun
Acting Field Manager

Electronic cc:
Mayra Martinez, Project Manager (mymartinez@blm.gov)
Hannah Robinson, Archaeologist, California Desert District (hrobinson@blm.gov)

From: Sahagun, Carrie L
To: rgoff@campo-nsn.gov; jmesa@campo-nsn.gov
Cc: Martinez, Mayra Y; Robinson, Hannah A
Subject: BLM updates on the Oro Cruz mining exploration project, Imperial County
Date: Thursday, April 13, 2023 10:20:26 AM
Attachments: BLM letter to Campo_Oro Cruz_4-13-2023.pdf

Dear Tribal leaders,

I hope this email finds you well. Please find attached a copy of our most recent letter to the Tribe regarding the proposed Oro Cruz mining exploration project within Imperial County. The purpose of the letter is to provide an updated summary of identification efforts, the final revised Class III report and the BLM's proposed determinations of eligibility and findings of effect for a 30-day consultation period concluding on May 14, 2023. Thank you very much and please let us know if you have any questions or would like to schedule a government-to-government meeting to discuss the project.

-Carrie

Carrie L. Sahagun
Acting Field Manager
BLM El Centro Field Office
1661 S. 4th Street
El Centro, CA 92243
(760) 337-4437
USDI, Region 8
she/her

Caution: This email originated from outside of Stantec. Please take extra precaution.
Attention: Ce courriel provient de l'extérieur de Stantec. Veuillez prendre des précautions supplémentaires.
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United States Department of the Interior
BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

April 13, 2023

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Ralph Goff, Chairman
Campo Band of Mission Indians
36190 Church Road, Suite 1
Campo, CA 91906

Dear Chairman Goff,

The Bureau of Land Management (BLM) El Centro Field Office (ECFO) would like to continue our government-to-government consultation with you pursuant to Section 106 of the National Historic Preservation Act and other relevant laws and regulations regarding the SMP Gold Corp. (SMP) proposed project to conduct exploratory drilling activities in south-eastern Imperial County. The purpose of this letter is:

1) Update the BLM's summary of identification efforts,
2) Provide the final revised *Class III Cultural Resource Inventory for Oro Cruz Exploration Project, Imperial County, California* prepared by ASM Affiliates Inc. (ASM) with a summary of changes from the draft report,
3) Provide the Agency's proposed determinations of eligibility and findings of effect for the Project for a 30-day consultation period.

Summary of Identification Efforts

On August 25, 2022, the BLM sent to all Tribes and consulting parties an updated description of the area of potential effects (APE), a summary of the results of the field inventories and a copy of the draft inventory report for a 30-day consultation period[1]. Below is a comprehensive summary update of the status and results of all the identification efforts to date.

Westland Resources, Inc. contracted ASM on behalf of the BLM to conduct a Class III cultural resource inventory to identify cultural resources that are eligible or potentially eligible for listing on the National Register of Historic Places (NRHP). The Class III inventory included a records search at the South Coastal Information Center (SCIC) and an intensive pedestrian survey within the physical effects APE. On September 20 through 24 and October 30 and 31, 2021, archaeologists from ASM completed the Class III field inventory. All survey was conducted with a Native American monitor present.

[1] Prior BLM Section 106 consultation letters for the proposed project include those dated March 31, 2021 and August 10, 2021.

The results of the records search identified 11 previously recorded cultural resources that intersect the Physical Effects APE, including one prehistoric trail (CA-IMP-1469), the Ruins of Tumco Mining Town (CA-IMP-3297/3300H/3302), a historic cemetery (CA-IMP-3298), the Golden Queen Mine (CA-IMP-11343H), the Crowns Mine (CA-IMP-11344H), and five other unnamed mines (P-13-015600, P-13-015601, P-13-015602, P-13-015656, and P-13-015841). During the inventory, ASM relocated the 11 previously recorded cultural resources, recorded one new prehistoric site (CA-IMP-13336) and several historic mining features within the Physical Effects APE. ASM also completed a visual and auditory affects (VAA) analysis of cultural resources that could be affected by the Project but that were outside the Physical effects APE. Below is a summary description of the resources documented by ASM along with their recommendations. As a result of BLM consultation efforts with the Tribes, a Traditional Cultural Property (TCP) has also been identified encompassing the project area and a summary of that resource is also provided.

CA-IMP-1469

This previously recorded site is a prehistoric trail approximately 740 m long and 30 cm wide, tamped into the desert pavement and divided into two segments by an unnamed wash. The southernmost end of the site occurs within the physical effects APE for the Project. During the pedestrian survey, ASM revisited the southernmost 17 m of the site, which falls within the proposed APE for an existing access road. The 17m portion of the site inspected appeared to be moderately disturbed by off-road vehicle traffic and seasonal/ephemeral sheet wash erosion. No other artifacts or features were identified at this portion of the site. CA-SDI-1469 will be treated as eligible for inclusion on the NRHP and avoided during the drilling project . The potential for adverse effects is low for this site as it is adjacent to an existing road not scheduled for improvements. Additionally, ESA fencing can ensure that mining vehicles do not veer offroad in this section.

CA-IMP-3297/3300/3302

This previously recorded site is the Hedges/Tumco Historical Townsite designated by the California State Department of Parks and Recreation as California Historic Landmark No. 182. The site was initially recorded by Rudolf Miller in 1977. The Hedges/Tumco Historic Townsite ruins include residential areas, two cemeteries, a commercial district, a company district, and many mining-related features. The site was evaluated for the Oro Cruz Plan of Operation of the American Girl Project in 1992 by Burney and Associates through archaeological testing, oral history, geomorphology, aerial photography, and extensive archival research and was recommended as eligible for listing in the NRHP. In 1994, the BLM determined in consultation with the California State Historic Preservation Office (SHPO) that the site was indeed eligible for listing in the NRHP under Criteria (a), (c), and (d). The current Project plan will avoid physically affecting all features identified during the survey associated with CA-IMP-3297/3300/3302, and thus the Project is not likely to have an adverse effect on the NRHP eligible site. Temporary fencing and periodic monitoring may be needed to ensure that those features in close proximity to the proposed access roads are not impacted.

CA-IMP-3298

This previously recorded site is a historic cemetery adjacent to an existing access road designated as Road Segment No. 1 of the Project. CA-IMP-3298 is technically a feature within CA-IMP-3297/3300/3302 and the site boundaries have been updated to include it. While this road segment

is planned for improvements, the cemetery is currently fenced. Additionally, ESA fencing can be placed along this road segment to ensure avoidance during construction. The current Project plans are such that avoidance of this resource is feasible. Thus the Project will not adversely affect this site.

CA-IMP-7915
This previously recorded historic site was recorded as part of the North Baja Gas Pipeline alignment project. The site consists of a wooden pole, H-frame, 161kV transmission line built in 1951 and stretches from a substation in Pilot Knob in Imperial County to Blythe in Riverside County. The line is part of a transmission line system that carries power from the Davis and Parker Dams on the Colorado River to 31 substations. ASM relocated the transmission line during the survey and determined that it only intersects a small section of Road Segment No. 17, and none of the existing poles fall within the Physical Effects APE; therefore these features can be avoided by the currently proposed Project.

CA-IMP-11343
The Golden Queen mine is technically a feature within CA-IMP-3297/3300/3302. In 1994 it was determined by BLM in consultation with SHPO to not be a contributing component to the Hedges/Tumco Historic Townsite due to the poor condition and natural weathering of the features associated with the Queen mine area. This determination occurred before it was recorded in 2010 by J. Kellogg of the BLM Needles office during a survey in association with the California Desert District Abandoned Mine Lands program. In his report, Kellogg recommended it as eligible. The proposed Project component that intersects the site is an existing access road with no plans for improvements. Given that there are no plans to improve this segment of the Physical Effects APE, the Project will likely have no adverse effect on this site.

CA-IMP-11344
This previously recorded site is the Crowns mine which is technically a feature within CA-IMP-3297/3300/3302. Three mining features were identified during the current survey within the boundaries of this site, including an adit, the remains of a shaft, and a prospect. Additionally, one milled lumber feature was identified during the survey with no associated artifacts. These features may correspond to those identified by the BLM as not eligible for listing in the NRHP in the 1994 Oro Cruz Operation of the American Girl Mining Project EIS. For the present project these features will be treated as eligible and avoided. The current Project plans will avoid these features, and thus the Project will not have an adverse effect on the site.

CA-IMP-13336
This newly recorded site consists of four potsherds that include one rim and three body sherds. The ceramic fragments are distributed with a maximum of 2 m between sherds. Ceramics are associated with late prehistory in general, and in the area specifically from AD 700-900, and onwards. No other artifacts or features were identified at the site. The condition of CA-IMP-13336 is good, with minimal disturbance limited to minor silt deposition in the site area due to seasonal water flow. CA-IMP-13336 will be treated as eligible for inclusion on the NRHP and avoided during the drilling project This small site can easily be avoided by placing temporary environmentally sensitive area (ESA) fencing around it during construction.

P-13-15600
This previously recorded resource was documented as a mine consisting of two shafts, an adit, and a prospect. One of the shafts was reported to have an opening measuring 10 x 10 ft. with a depth of 15 ft., and the site was mapped as spanning an area measuring 43 m across. No associated artifacts were observed during its recordation, and it was noted that the various features appeared to be in the process of collapse. ASM revisited P-13-15600. However, none of the features recorded at the site were found to fall within the Physical Effects APE, which is composed of an access route that intersects with the site's eastern boundary. As the site will be avoided, there will be no adverse effects to historic properties.

P-13-15601
This previously recorded resource was documented as a mine consisting of two shafts, an adit, and a prospect situated on a north-facing slope. The site was associated with a 55-gallon barrel, undiagnostic cans, and glass fragments. ASM revisited a portion of the site during the survey and relocated the previously recorded features within the Physical Effects APE. The site will be treated as NRHP eligible and avoided, so there will be no adverse affects to historic properties.

P-13-15602
This previously recorded resource was documented as a mine consisting of two shafts, a prospect trench, and a prospect pit. The presence of fencing, modern trash, and possible remaining cribbing was noted during the site's recordation. ASM revisited a small portion of P-13-15602 during the current survey, with most of the site found outside the Physical Effects APE to the west. The site will be treated as NRHP eligible and avoided so that there will be no affects to historic properties.

P-13-15656
This previously recorded resource was documented as a mine site composed of a single shaft and adit. The two were connected underground and found with an associated rock waste pile to the west. A small undiagnostic can scatter and piece of sheet metal were noted during the recordation. ASM revisited the very small portion of P-13-15656 that intersected with the proposed Project APE. However, none of the previously recorded features were relocated in that area. A small scatter of metal strands that appear to be the remains of a cable were identified along the eastern site boundary. No other artifacts or features associated with this site were identified within the Physical Effects APE. The site will be treated as NRHP eligible and avoided, there will be no affects to historic properties.

P-13-15841
This previously recorded resource was documented as a mine consisting of two shafts and an adit located on the north end of the Tumco valley. All three features were associated with waste rock piles, and no associated artifacts were identified. One of the shafts, Shaft 1, was noted to have a wire fence, and the adit was reported to have been previously filled in. ASM revisited P-13-15841 during the survey and relocated the sealed adit (Adit 1) and one of the shafts (Shaft 2). In the northern portion of the site, the cut on the slope for the adit was found to be approximately 10 m long and 3 m wide. As the site will be treated as NRHP eligible and avoided, there will be no effects to historic properties.

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3) Archaeological sites identified within the physical APE and the VAA APE were reviewed again to consider the potential effects that the proposed project may have. These sites were also considered as potentially contributing elements of the TCP. Additional protections were added to the project design such as additional physical barriers and increased cultural monitoring.
4) Avoidance of all archaeological sites, regardless of their status has been recommended for this project; fencing and periodic archaeological monitoring have been recommended for sites located near existing and proposed roads and ground disturbing activity areas.

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- The BLM concurs with and reaffirms the previous determinations that site CA-IMP-3297/3300/3302 is eligible for inclusion in the NRHP under Criterion A, C and D. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect as the site and features within will be avoided and protected with protective fencing where needed and other management conditions.
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- The Identified TCP is assumed eligible for inclusion in the NRHP under Criterion A and D. The BLM finds that there will be no adverse effect to this resource. The archaeological resources that may be components of the TCP will be avoided and the auditory and visual impacts created by this Project will be temporary in nature.
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Consistent with 36 CFR 800.5(b) the BLM will avoid effects to the significant values of the historic properties by requiring the development and implementation of a cultural resources monitoring program for the Project. The monitoring program for the Project will include procedures for cultural resources monitoring, post-review discovery and unanticipated effects to known historic properties. Qualified cultural resources monitor(s) will be on site during Project construction related to the undertaking and tribal monitors will be invited to participate.

Based on the results of the cultural resources studies and project management actions that will be taken to monitor and avoid resources within the APE, the BLM proposes that there will be ***no***

adverse effects to historic properties by the undertaking. We request your review and comment for a 30-day consultation period. Please provide your input by May 14, 2023.

We appreciate your time and attention in reviewing the information provided in this letter. For information or further clarification, or to schedule a government-to-government consultation meeting with the BLM, please contact Hannah Robinson, BLM District Archaeologist, at hrobinson@blm.gov or by telephone at (435) 253-3706. If you have any questions please do not hesitate to contact us. I am also available at csahagun@blm.gov or by telephone at 760-337-4437. Thank you for your continued cooperation with this office.

Sincerely,

Carrie L. Sahagun
Acting Field Manager

Electronic cc:
Mayra Martinez, Project Manager (mymartinez@blm.gov)
Hannah Robinson, Archaeologist, California Desert District (hrobinson@blm.gov)

From: Sahagun, Carrie L
To: Robinson, Hannah A; Martinez, Mayra Y
Cc: Hockaday, Shelby
Subject: Fw: BLM updates on the Oro Cruz mining exploration project, Imperial County
Date: Thursday, April 13, 2023 10:26:01 AM
Attachments: BLM letter to CRIT_Oro Cruz_4-13-2023.pdf

Forgot to copy you on this email.

Carrie L. Sahagun
Acting Field Manager
BLM El Centro Field Office
1661 S. 4th Street
El Centro, CA 92243
(760) 337-4437
USDI, Region 8
she/her

From: Sahagun, Carrie L
Sent: Thursday, April 13, 2023 10:24 AM
To: Tashina Harper Executive Assistant <tashina.harper@crit-nsn.gov>; critthpo@crit-nsn.gov <critthpo@crit-nsn.gov>
Subject: BLM updates on the Oro Cruz mining exploration project, Imperial County

Dear Tribal leaders,
I hope this email finds you well. Please find attached a copy of our most recent letter to the Tribe regarding the proposed Oro Cruz mining exploration project within Imperial County. The purpose of the letter is to provide an updated summary of identification efforts, the final revised Class III report and the BLM's proposed determinations of eligibility and findings of effect for a 30-day consultation period concluding on May 14, 2023. Thank you very much and please let us know if you have any questions or would like to schedule a government-to-government meeting to discuss the project.
-Carrie

Carrie L. Sahagun
Acting Field Manager
BLM El Centro Field Office
1661 S. 4th Street
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USDI, Region 8
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Caution: This email originated from outside of Stantec. Please take extra precaution.
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United States Department of the Interior
BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 S. 4th Street
El Centro CA 92243
www.blm.gov/office/el-centro-field-office

April 13, 2023

In Reply Refer To:
CACA-059124/ CR CA-670-21-003/8100(P)
CA670.25

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Ms. Amelia Flores, Chairwoman
Colorado River Indian Tribes
26600 Mohave Rd.
Parker, AZ 85344

Dear Chairwoman Flores,

The Bureau of Land Management (BLM) El Centro Field Office (ECFO) would like to continue our government-to-government consultation with you pursuant to Section 106 of the National Historic Preservation Act and other relevant laws and regulations regarding the SMP Gold Corp. (SMP) proposed project to conduct exploratory drilling activities in south-eastern Imperial County. The purpose of this letter is:

1) Update the BLM's summary of identification efforts,
2) Provide the final revised *Class III Cultural Resource Inventory for Oro Cruz Exploration Project, Imperial County, California* prepared by ASM Affiliates Inc. (ASM) with a summary of changes from the draft report,
3) Provide the Agency's proposed determinations of eligibility and findings of effect for the Project for a 30-day consultation period.

Summary of Identification Efforts

On August 25, 2022, the BLM sent to all Tribes and consulting parties an updated description of the area of potential effects (APE), a summary of the results of the field inventories and a copy of the draft inventory report for a 30-day consultation period[1]. Below is a comprehensive summary update of the status and results of all the identification efforts to date.

Westland Resources, Inc. contracted ASM on behalf of the BLM to conduct a Class III cultural resource inventory to identify cultural resources that are eligible or potentially eligible for listing on the National Register of Historic Places (NRHP). The Class III inventory included a records search at the South Coastal Information Center (SCIC) and an intensive pedestrian survey within the physical effects APE. On September 20 through 24 and October 30 and 31, 2021, archaeologists from ASM completed the Class III field inventory. All survey was conducted with a Native American monitor present.

[1] Prior BLM Section 106 consultation letters for the proposed project include those dated March 31, 2021 and August 10, 2021.

The results of the records search identified 11 previously recorded cultural resources that intersect the Physical Effects APE, including one prehistoric trail (CA-IMP-1469), the Ruins of Tumco Mining Town (CA-IMP-3297/3300H/3302), a historic cemetery (CA-IMP-3298), the Golden Queen Mine (CA-IMP-11343H), the Crowns Mine (CA-IMP-11344H), and five other unnamed mines (P-13-015600, P-13-015601, P-13-015602, P-13-015656, and P-13-015841). During the inventory, ASM relocated the 11 previously recorded cultural resources, recorded one new prehistoric site (CA-IMP-13336) and several historic mining features within the Physical Effects APE. ASM also completed a visual and auditory affects (VAA) analysis of cultural resources that could be affected by the Project but that were outside the Physical effects APE. Below is a summary description of the resources documented by ASM along with their recommendations. As a result of BLM consultation efforts with the Tribes, a Traditional Cultural Property (TCP) has also been identified encompassing the project area and a summary of that resource is also provided.

CA-IMP-1469

This previously recorded site is a prehistoric trail approximately 740 m long and 30 cm wide, tamped into the desert pavement and divided into two segments by an unnamed wash. The southernmost end of the site occurs within the physical effects APE for the Project. During the pedestrian survey, ASM revisited the southernmost 17 m of the site, which falls within the proposed APE for an existing access road. The 17m portion of the site inspected appeared to be moderately disturbed by off-road vehicle traffic and seasonal/ephemeral sheet wash erosion. No other artifacts or features were identified at this portion of the site. CA-SDI-1469 will be treated as eligible for inclusion on the NRHP and avoided during the drilling project . The potential for adverse effects is low for this site as it is adjacent to an existing road not scheduled for improvements. Additionally, ESA fencing can ensure that mining vehicles do not veer offroad in this section.

CA-IMP-3297/3300/3302

This previously recorded site is the Hedges/Tumco Historical Townsite designated by the California State Department of Parks and Recreation as California Historic Landmark No. 182. The site was initially recorded by Rudolf Miller in 1977. The Hedges/Tumco Historic Townsite ruins include residential areas, two cemeteries, a commercial district, a company district, and many mining-related features. The site was evaluated for the Oro Cruz Plan of Operation of the American Girl Project in 1992 by Burney and Associates through archaeological testing, oral history, geomorphology, aerial photography, and extensive archival research and was recommended as eligible for listing in the NRHP. In 1994, the BLM determined in consultation with the California State Historic Preservation Office (SHPO) that the site was indeed eligible for listing in the NRHP under Criteria (a), (c), and (d). The current Project plan will avoid physically affecting all features identified during the survey associated with CA-IMP-3297/3300/3302, and thus the Project is not likely to have an adverse effect on the NRHP eligible site. Temporary fencing and periodic monitoring may be needed to ensure that those features in close proximity to the proposed access roads are not impacted.

CA-IMP-3298

This previously recorded site is a historic cemetery adjacent to an existing access road designated as Road Segment No. 1 of the Project. CA-IMP-3298 is technically a feature within CA-IMP-3297/3300/3302 and the site boundaries have been updated to include it. While this road segment

is planned for improvements, the cemetery is currently fenced. Additionally, ESA fencing can be placed along this road segment to ensure avoidance during construction. The current Project plans are such that avoidance of this resource is feasible. Thus the Project will not adversely affect this site.

CA-IMP-7915
This previously recorded historic site was recorded as part of the North Baja Gas Pipeline alignment project. The site consists of a wooden pole, H-frame, 161kV transmission line built in 1951 and stretches from a substation in Pilot Knob in Imperial County to Blythe in Riverside County. The line is part of a transmission line system that carries power from the Davis and Parker Dams on the Colorado River to 31 substations. ASM relocated the transmission line during the survey and determined that it only intersects a small section of Road Segment No. 17, and none of the existing poles fall within the Physical Effects APE; therefore these features can be avoided by the currently proposed Project.

CA-IMP-11343
The Golden Queen mine is technically a feature within CA-IMP-3297/3300/3302. In 1994 it was determined by BLM in consultation with SHPO to not be a contributing component to the Hedges/Tumco Historic Townsite due to the poor condition and natural weathering of the features associated with the Queen mine area. This determination occurred before it was recorded in 2010 by J. Kellogg of the BLM Needles office during a survey in association with the California Desert District Abandoned Mine Lands program. In his report, Kellogg recommended it as eligible. The proposed Project component that intersects the site is an existing access road with no plans for improvements. Given that there are no plans to improve this segment of the Physical Effects APE, the Project will likely have no adverse effect on this site.

CA-IMP-11344
This previously recorded site is the Crowns mine which is technically a feature within CA-IMP-3297/3300/3302. Three mining features were identified during the current survey within the boundaries of this site, including an adit, the remains of a shaft, and a prospect. Additionally, one milled lumber feature was identified during the survey with no associated artifacts. These features may correspond to those identified by the BLM as not eligible for listing in the NRHP in the 1994 Oro Cruz Operation of the American Girl Mining Project EIS. For the present project these features will be treated as eligible and avoided. The current Project plans will avoid these features, and thus the Project will not have an adverse effect on the site.

CA-IMP-13336
This newly recorded site consists of four potsherds that include one rim and three body sherds. The ceramic fragments are distributed with a maximum of 2 m between sherds. Ceramics are associated with late prehistory in general, and in the area specifically from AD 700-900, and onwards. No other artifacts or features were identified at the site. The condition of CA-IMP-13336 is good, with minimal disturbance limited to minor silt deposition in the site area due to seasonal water flow. CA-IMP-13336 will be treated as eligible for inclusion on the NRHP and avoided during the drilling project This small site can easily be avoided by placing temporary environmentally sensitive area (ESA) fencing around it during construction.

P-13-15600
This previously recorded resource was documented as a mine consisting of two shafts, an adit, and a prospect. One of the shafts was reported to have an opening measuring 10 x 10 ft. with a depth of 15 ft., and the site was mapped as spanning an area measuring 43 m across. No associated artifacts were observed during its recordation, and it was noted that the various features appeared to be in the process of collapse. ASM revisited P-13-15600. However, none of the features recorded at the site were found to fall within the Physical Effects APE, which is composed of an access route that intersects with the site's eastern boundary. As the site will be avoided, there will be no adverse effects to historic properties.

P-13-15601
This previously recorded resource was documented as a mine consisting of two shafts, an adit, and a prospect situated on a north-facing slope. The site was associated with a 55-gallon barrel, undiagnostic cans, and glass fragments. ASM revisited a portion of the site during the survey and relocated the previously recorded features within the Physical Effects APE. The site will be treated as NRHP eligible and avoided, so there will be no adverse affects to historic properties.

P-13-15602
This previously recorded resource was documented as a mine consisting of two shafts, a prospect trench, and a prospect pit. The presence of fencing, modern trash, and possible remaining cribbing was noted during the site's recordation. ASM revisited a small portion of P-13-15602 during the current survey, with most of the site found outside the Physical Effects APE to the west. The site will be treated as NRHP eligible and avoided so that there will be no affects to historic properties.

P-13-15656
This previously recorded resource was documented as a mine site composed of a single shaft and adit. The two were connected underground and found with an associated rock waste pile to the west. A small undiagnostic can scatter and piece of sheet metal were noted during the recordation. ASM revisited the very small portion of P-13-15656 that intersected with the proposed Project APE. However, none of the previously recorded features were relocated in that area. A small scatter of metal strands that appear to be the remains of a cable were identified along the eastern site boundary. No other artifacts or features associated with this site were identified within the Physical Effects APE. The site will be treated as NRHP eligible and avoided, there will be no affects to historic properties.

P-13-15841
This previously recorded resource was documented as a mine consisting of two shafts and an adit located on the north end of the Tumco valley. All three features were associated with waste rock piles, and no associated artifacts were identified. One of the shafts, Shaft 1, was noted to have a wire fence, and the adit was reported to have been previously filled in. ASM revisited P-13-15841 during the survey and relocated the sealed adit (Adit 1) and one of the shafts (Shaft 2). In the northern portion of the site, the cut on the slope for the adit was found to be approximately 10 m long and 3 m wide. As the site will be treated as NRHP eligible and avoided, there will be no effects to historic properties.

Finally, six newly recorded historic mine features, P-13-018460, -018461, -018462, -018463, -018464, and 018465, were also recorded during the current survey. They consist of adits and prospects and are all isolated mining features that were likely created sometime between 1953 and 1961 based on historic topographic maps and aerials of the area. All features will be treated as NRHP eligible and avoided for this project.

Archaeological Sites Located within the VAA APE

The VAA APE intersects 37 prehistoric trails, geoglyphs, ceramic scatters, lithic scatters, rock art sites, and isolates that have potential to be deemed sacred or traditionally important by Native American tribes. The use of these sites and locations by Native American tribes may be affected by the Project through temporary visual obstructions and loud noise levels such that the integrity of the "setting" and "feeling" of the sites is disturbed.

Of the 35 proposed potential drill sites, the closest of the prehistoric sites is 630 meters (2,067 feet) away, and the rest are between 950 and 2565 meters (3,117 and 8,415 feet) away. The viewshed analysis and line of site examples indicate that a 40-foot drill rig line against the existing landscape would not create a strong contrast against the backdrop of the existing landscape and would likely not be noticed by the casual viewer. Of 18 selected sites that intersect the potential visual APE the drill rigs would not be likely to have an adverse visual effect on the integrity of the setting or feeling of the selected sites from a distance of 630 meters or greater.

The auditory APE report suggests that drilling noise from the Project would be substantially shielded towards the east and north due to the topography of the Cargo Muchacho Mountains. Most of the sites are far enough away from the Project area, the Physical Effects APE, and the proposed helicopter drill sites that they would fall within the noise level contours of ~40-35 dBa L_{eq} or lower, which would be the equivalent of a suburban residential area at night. Based on the contours provided by Saxelby Acoustics, the proposed Project would not be likely to have an adverse auditory effect on the integrity of the setting or feeling of the 25 selected sites that intersect the VAA APE.

Identified Traditional Cultural Property

The Quechan Indian Tribe has conveyed to the BLM that the Oro Cruz project area is located within and encompassed by a much larger TCP as described in the 1997 cultural report titled, *Where Trails Cross: Cultural Resources Inventory and Evaluation for the Imperial Project, Imperial County, California*. This 1997 report recorded the Quechan elders' discussions of the trails and associated features and the importance of this region to the Quechan Tribe for conducting ceremonies and rituals, storytelling and song cycles, and for resource gathering. To briefly summarize, the preservation of this area is essential to maintain cultural, religious and traditional practices and teaching of future generations of Quechan youth. This 1997 cultural report also defines the Running Man Area of Traditional Cultural Concern (ATCC) located about 9 miles northeast of the Oro Cruz project area. Although a boundary was created to define the Running Man ATCC for management purposes, the report clearly states that an extensive and complex network of trails and associated sites and "potentially other ATCCs and linking trail systems" are running throughout the region.

The physical or tangible cultural resource evidence of this TCP identified within the Project area are the prehistoric trails, geoglyphs, rock art, and numerous other associated sites containing

ceramics and lithics primarily located within the VAA APE. The network of prehistoric trails and associated features are tied directly to the Quechan's stories of origin, religious ceremonies, and traditional cultural teachings as are the Cargo Muchacho Mountains themselves. The TCP extends from this trail network and associated cultural sites to the "mountains, rivers and springs, and includes the plants and animals" living within the region. The Keruk/Xam Kwatsam Trail system is one of the largest known (but not fully recorded or defined) trail systems that runs the length of the Colorado River between the Newberry Mountains in the north to Pilot Knob near the southeastern corner of Imperial County, California. The 1997 report identifies approximate locations for trails significant to the Tribe(s) running on both the East and West sides of the Cargo Muchacho Mountains. The trail on the west side of the Cargo Muchacho Mountains is within the VAA APE for the Oro Cruz Project. The entire system consists of various segments of the trail, several significant mountain ranges and specific peaks, numerous side trails, numerous earth figures/geoglyphs, and thousands of objects such as lithics, cairns, potsherds, and cleared sleeping or camping areas. Quechan elders testified, elaborately, about the importance of these cultural features during the late 1990's proposed mining project (Imperial Gold) located near Indian Pass, approximately 10 miles northeast of the current Oro Cruz Project. The 1997 report states that additional ethnographic information may be required to understand if this trail network should be recorded and NRHP evaluated as one very large all-encompassing TCP or if the individual components / areas / sites of the larger complex should be identified and evaluated separately. Additional work understanding this TCP or complex of TCPs will continue to be conducted by the BLM in consultation with the Tribe.

Class III Cultural Resources Inventory Report

A draft of the Class III cultural resources inventory report titled, *Class III Cultural Resource Inventory for the Oro Cruz Exploration Project, Imperial County, California* (Report), was sent to Tribes and consulting parties August 25, 2022, for review and comments. Based upon the comments and input the BLM received, the following modifications were made to the Report:

1) Archaeological site CA-IMP-13336 was revisited by ASM, the ceramic sherds were analyzed in more detail and the Report was updated with additional characteristics.
2) The TCP identified by the Quechan Indian Tribe was identified and the Class III Inventory report was amended to include a discussion of the TCP in association with the proposed Project as well as the prehistoric archaeological sites within the VAA APE.
3) Archaeological sites identified within the physical APE and the VAA APE were reviewed again to consider the potential effects that the proposed project may have. These sites were also considered as potentially contributing elements of the TCP. Additional protections were added to the project design such as additional physical barriers and increased cultural monitoring.
4) Avoidance of all archaeological sites, regardless of their status has been recommended for this project; fencing and periodic archaeological monitoring have been recommended for sites located near existing and proposed roads and ground disturbing activity areas.

The revised final Report (non-confidential version) has been uploaded to an ASM ftp website and is available for download. You can access the ftp website at the following address:

https://asmaffiliates.filecloudonline.com/url/an4kfzjxhumghxfp

If you would like to request a hardcopy or the confidential appendices, please coordinate with Hannah Robinson, BLM Desert District Archaeologist (contact information below).

Agency Proposed Determinations of Eligibility and Findings of Effect

Based on the results of the record search, archaeological inventory, the contractors' recommendations, Section 106 and government-to-government consultations, the BLM staff review of all the information and analysis provided and pursuant to 36 CFR 800.4 and 800.5, the BLM makes the following determinations regarding NRHP eligibility and findings of effect for historic properties:

- CA-IMP-1469 is determined eligible for inclusion in the NRHP under Criterion A and D. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect as the site will be avoided and protected with protective fencing, matting and other management conditions.
- The BLM concurs with and reaffirms the previous determinations that site CA-IMP-3297/3300/3302 is eligible for inclusion in the NRHP under Criterion A, C and D. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect as the site and features within will be avoided and protected with protective fencing where needed and other management conditions.
- The following resources located within the Physical APE CA-IMP-3298, -7915, -11343, -11344, -13336, P-13-15600, -15601, -15602, -15656, -15841, -18460, -18461, -18462, -18463, -18464, -18465 will be treated as eligible for inclusion in the NRHP for project management purposes. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect to these resources with management conditions and protective fencing where needed.
- The 37 cultural resources within the VAA APE, remain formally unevaluated but will be treated as eligible for inclusion in the NRHP for project management purposes and they will be avoided. The BLM concurs with ASM's recommendations and finds that there will be no adverse effect from visual or auditory intrusions.
- The Identified TCP is assumed eligible for inclusion in the NRHP under Criterion A and D. The BLM finds that there will be no adverse effect to this resource. The archaeological resources that may be components of the TCP will be avoided and the auditory and visual impacts created by this Project will be temporary in nature.
- The BLM finds that there will be **no adverse effects to historic properties** from this undertaking.

Consistent with 36 CFR 800.5(b) the BLM will avoid effects to the significant values of the historic properties by requiring the development and implementation of a cultural resources monitoring program for the Project. The monitoring program for the Project will include procedures for cultural resources monitoring, post-review discovery and unanticipated effects to known historic properties. Qualified cultural resources monitor(s) will be on site during Project construction related to the undertaking and tribal monitors will be invited to participate.

Based on the results of the cultural resources studies and project management actions that will be taken to monitor and avoid resources within the APE, the BLM proposes that there will be ***no***

adverse effects to historic properties by the undertaking. We request your review and comment for a 30-day consultation period. Please provide your input by May 14, 2023.

We appreciate your time and attention in reviewing the information provided in this letter. For information or further clarification, or to schedule a government-to-government consultation meeting with the BLM, please contact Hannah Robinson, BLM District Archaeologist, at hrobinson@blm.gov or by telephone at (435) 253-3706. If you have any questions please do not hesitate to contact us. I am also available at csahagun@blm.gov or by telephone at 760-337-4437. Thank you for your continued cooperation with this office.

Sincerely,

Carrie L. Sahagun
Acting Field Manager

Electronic cc:
Mayra Martinez, Project Manager (mymartinez@blm.gov)
Hannah Robinson, Archaeologist, California Desert District (hrobinson@blm.gov)

Attachment 28

BLM
Letter from the State Historic Preservation Officer (SHPO)
June 28, 2023

State of California • Natural Resources Agency
Gavin Newsom, *Governor*

DEPARTMENT OF PARKS AND RECREATION
OFFICE OF HISTORIC PRESERVATION
Armando Quintero, *Director*

Julianne Polanco, State Historic Preservation Officer
1725 23rd Street, Suite 100, Sacramento, CA 95816-7100
Telephone: (916) 445-7000 FAX: (916) 445-7053
calshpo.ohp@parks.ca.gov www.ohp.parks.ca.gov

June 28, 2023

VIA EMAIL

In reply refer to: BLM_2021_0416_001

Mr. Neil Hamada
Acting Field Manager
Bureau of Land Management
El Centro Field Office
1661 S. 4th Street
El Centro, CA 92243

RE: SMP Oro Cruz Mining Exploration Project

Dear Mr. Hamada,

The State Historic Preservation Officer (SHPO) received your consultation letter dated May 18, 2023, pursuant to Section 106 of the National Historic Preservation Act of 1966 (54 U.S.C. § 300101), as amended, and its implementing regulation found at 36 CFR § 800.

The Bureau of Land Management El Centro Field Office (BLM) is continuing its Section 106 consultation for the undertaking referenced above which would approve a mining Exploration Plan of Operations submitted by SMP Gold Corp. to conduct exploratory drilling on public lands (Project) in south-eastern Imperial County. The undertaking would permit SMP Gold Corp. to conduct new exploration at the existing Oro Cruz mine site within seven drill areas across an area of approximately 279 acres, with approximately only 21 acres proposed for actual construction impacts. While existing roads would be utilized, approximately 2.0 miles of existing roads would need improvements. In addition, the following new construction would occur:

- one new 12-foot-wide temporary exploration drilling access road 6.2 miles long,
- 8 helicopter landing pads,
- 65 drill pads to support exploration in the seven drill areas,
- one new permanent 15-foot-wide access road 1.8 miles long,
- 2.8-acre staging area for access to the Oro Cruz Portal on BLM lands to house a 1,300-gallon diesel fuel tank and fueling station, two diesel-powered generators (125kW or equivalent), two portable compressors, parking for access to the underground mine, and laydown areas for exploration drilling.

Once exploration activities are completed (12-24 months), disturbed areas would be restored within 5 years of Project implementation.

The project area is located within the Picacho Area of Critical Environmental Concern and more specifically, the Cargo Muchacho Mountains, an area that BLM characterized in its April 16, 2021, letter as being heavily disturbed by prior mining. Proposed exploration activities will take place in the Hedges/Tumco historic mining district which was previously determined eligible for listing in the NRHP. The Area of Potential Effects (APE) was consulted on in previous correspondence; it consists of areas to account for ground disturbing activities such as access roads, fencing, drill pads, helicopter landing pads, and staging areas as well as areas to consider visual, auditory, and atmospheric effects from drilling and exploratory activities.

BLM required Class III inventory to identify historic properties within the APE. The results of those historic property identification efforts were provided in the inventory report titled, *Class III Cultural Resource Inventory for the Oro Cruz Exploration Project, Imperial County, California* (ASM Affiliates, April 2023). Eleven previously recorded resources and six newly recorded resources are present within the APE in areas proposed for exploration activities, while thirty-seven additional resources are present in the area analyzed for visual, auditory, and atmospheric effects.

One previously recorded resource, the Hedges/Tumco Historical Townsite (CA-IMP-3297/3300/3302) received SHPO concurrence in 1994 for the determination that it is eligible for inclusion in the National Register of Historic Places (NRHP) under Criteria A, C, and D. Effects to this historic property are able to be avoided through project design.

Previously recorded resources that are also able to be avoided will be assumed eligible for inclusion in the NRHP and treated as such for the purposes of this undertaking. These include:

- CA-IMP-1469, a trail dating to the precontact period;
- CA-IMP-3298, a historic cemetery;
- CA-IMP-7915, a transmission line built in 1951;
- CA-IMP-11343, the Golden Queen mine;
- CA-IMP-11344, the Crowns mine;
- CA-IMP-13336, a ceramic potsherd scatter;
- P-12-15600, a mine consisting of two shafts, an adit, and a prospect;
- P-13-15601, a mine consisting of two shafts, an adit, and a prospect;
- P-13-15602, a mine consisting of two shafts, a prospect trench and a prospect pit;
- P-13-15656, a mine site consisting of a single shaft and adit;
- P-13-15841, a mine site consisting of two shafts, and an adit;

The following newly recorded historic mining features will also be avoided by the Project and thus will also be treated as eligible for inclusion in the NRHP:

- P-13-018460
- P-13-018461
- P-13-018462
- P-13-018463
- P-13-018464
- P-13-018465

Thirty-seven known archaeological sites consisting of precontact trails, geoglyphs, ceramic and lithic scatters, rock art sites, and isolated artifacts are known to be present within an area surrounding the Project site that may be affected by temporary visual and noise intrusions such that the integrity of setting and feeling might be affected. Viewshed and auditory effects analysis concluded that the temporary introduction of visual and auditory elements would not constitute an adverse effect to historic properties. The analyses conclude that the Project would not create a strong visual contrast against the backdrop of the landscape, or the nearest resource located approximately 600-meters away, further the temporary noise levels introduced by the Project would be similar to a suburban residential area at night (approximately 40-35 dBa or lower).

BLM has conducted or offered formal government-to-government consultation on the proposed project since March 31, 2021, with the following Indian tribes:

- Barona Band of Mission Indians
- Campo Band of Mission Indians
- Cocopah Indian tribe
- Colorado River Indian tribes
- Ewiiaapaayp Band of Kumeyaay Indians
- Manzanita Band of Kumeyaay Indians
- Mesa Grande Band of Mission Indians
- Quechan Indian tribe
- San Pasqual Band of Digueño Indians
- Sycuan Band of Kumeraay Nation
- Torres-Martinez Desert Cahuilla Indians
- Viejas Band of Kumeyaay Indians

During consultation, the Quechan Indian Tribe conveyed to BLM that the project area is located within a much larger Traditional Cultural Property (TCP) and that within the Project APE, there are trails, geoglyphs, rock art, ceramic and lithic sites that are associated with significant mountains, rivers and springs, plants and animals in the larger area.

For the purposes of this undertaking BLM will treat the TCP as eligible for inclusion in the NRHP under Criterion A and D. BLM determined that due to the avoidance of resources that would contribute to the TCP, protection measures for wildlife and plants, and the temporary and minimal nature of any visual and auditory effects, the TCP will not be adversely affected by the undertaking.

Following review of the submitted supporting documentation, pursuant to 36 CFR § 800.5(b), I do not object to a finding of no adverse effects to historic properties. Please consider that in the event of a post-review discovery or Project redesign, BLM might have additional responsibilities pursuant to 36 CFR 800. If you have any questions or concerns, please contact Senior State Archaeologist Brendon Greenaway at Brendon.Greenaway@parks.ca.gov.

Sincerely,

Julianne Polanco
State Historic Preservation Officer

Attachment 29

BLM
Email(s) to Previously Notified Tribes Regarding Decision Record/Monitoring and Discovery Plan
September 1, 2023

Oro Cruz mining exploration project update

Sahagun, Carrie L

Fri 9/1/2023 1:15 PM

Cc:Whyte, Jennifer D <jwhyte@blm.gov>;Martinez, Mayra Y <mymartinez@blm.gov>;Rodriguez Sanchez, Christian M <crodriguezsanchez@blm.gov>;Robinson, Hannah A <hrobinson@blm.gov>

Bcc:Michael Abraham <michaelabraham@co.imperial.ca.us>;Dale Wallster <dale@mulgravian.com>;Hockaday, Shelby <shelby.hockaday@stantec.com>;Del Fortner <delfortner.df@gmail.com>;Greenaway, Brendon@Parks <brendon.greenaway@parks.ca.gov>;counciloffice@barona-nsn.gov <counciloffice@barona-nsn.gov>;rgoff@campo-nsn.gov <rgoff@campo-nsn.gov>;Johnathan Mesa <jmesa@campo-nsn.gov>;executivesecretary@quechantribe.com <executivesecretary@quechantribe.com>;scottmanfred@yahoo.com <scottmanfred@yahoo.com>;tribaladministrator@quechantribe.com <tribaladministrator@quechantribe.com>;Tribal Chair - Sherry Cordova, Chairwoman <cocotcsec@cocopah.com>;critthpo@crit-nsn.gov <critthpo@crit-nsn.gov>;Robert Pinto <rpinto@leaningrock.net>;culturalcomittee@quechantribe.com <culturalcomittee@quechantribe.com>;'Willie Micklin' <ceo@ebki-nsn.gov>;Bernice Paipa <bpaipa@iipaynation-nsn.gov>;Lisa Cumper <lcumper@jiv-nsn.gov>;Erica M. Pinto <epinto@jiv-nsn.gov>;Michael Garcia <michaelg@leaningrock.net>

1 attachments (162 KB)

Oro Cruz Decision News Release.pdf;

Dear Tribal Leaders and Sec on 106 Consul ng par es,
I wanted to let you know that the BLM has published its Decision Record, signed Finding of No Significant Impact and revised joint Environmental Assessment/Mi gated Nega ve Declara on in coordina on with Imperial County for the SMP Gold Corp. Oro Cruz Explora on Project. Please see the a ached news release for more informa on. This office will send out formal le ers regarding this topic as well as ini ate consulta on on a Monitoring and Discovery Plan for the project so please keep an eye out for that in the next week or two. Thank you very much.

Carrie L. Sahagun
Associate Field Manager
BLM El Centro Field Of ice
1661 S. 4th Street
El Centro, CA 92243
(760) 337-4437
USDI, Region 8
she/her

Attachment 30

BLM
Email(s) to Previously Notified Tribes Regarding Fina Updates to NEPA/CEQA Document
September 1, 2023

Fw: Oro Cruz mining exploration project update

Sahagun, Carrie L

Fri 9/1/2023 1:18 PM

To:culturalcommittee@quechantribe.com <culturalcommittee@quechantribe.com>

1 attachments (162 KB)

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