Vega SES LLC Solar Project
El Centro, California
Added Parcel (APN 051-390-012)
Preliminary Jurisdictional Waters/Wetlands Delineation Report

Prepared for:
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January 30, 2018

Sign-off Sheet

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Executive Summary

Stantec previously conducted an investigation of jurisdictional waters for the Vega SES LLC Solar Project on the study area including Parcel Numbers (APNs) 051-360-021, 051-360-031, 051-390-004, and 051-390-012. Subsequently, the Client added an additional parcel (APN 051-360-012), to the northwest of the intersection of Drew and Lyons Roads, to the Project and requested that Stantec conduct a supplemental investigation of jurisdictional features for that property, hereto referred to as the Added Parcel. This Jurisdictional Delineation (JD) Report serves as guidance in establishing baseline conditions for resources under the jurisdiction of the U.S. Army Corps of Engineers (USACE), the California Department of Fish and Wildlife (CDFW), and the Los Angeles Regional Water Quality Control Board (RWQCB) for the Added Parcel. Specifically, the purpose of the JD was to determine the location and extent of waters and/or wetlands subject to potential jurisdictional authority within a defined Biological Survey Area (BSA; Added Parcel boundary plus a 150-meter buffer).

The Vega SES LLC Solar Project site is located in southwestern Imperial County, California, approximately 10 miles southwest of the City of El Centro and consists of construction of an approximately 574-acre solar photovoltaic (PV) energy generation facility. The Project also includes construction of an approximately 0.4-mile gen-tie line from the western terminus of the solar facility to the proposed Fern Substation to be constructed northwest of the intersection of Liebert Road and Mandrapa Road. Construction of this substation is not included as part of this project.

Being situated in an agricultural area, the Project site and surrounding areas are traversed by a network of drains, canals, and other irrigation infrastructure administered by the Imperial Irrigation District (IID), much of which constitute potentially jurisdictional features. Primary among these within the Added Parcel BSA are Fig Drain No. 1B and Wormwood Lateral 4. Wormwood Lateral 4 is a concrete-lined canal that borders the eastern and southern boundaries of the Added Parcel; Fig Drain No. 1B is an earthen canal that extends westward from the southwest corner of the Added Parcel within the southwestern portion of the Added Parcel BSA. Both canals ultimately drain to the Salton Sea and likely constitute "waters of the State" and/or "waters of the U.S." Based on the field observations and data collected, approximately 0.54 acres of potential non-wetland "waters of the U.S." and 1.25 acres of "waters of the State" occur within the Added Parcel BSA.

The drainage features within the Added Parcel BSA occur outside of the area of potential impact and are not expected to be impacted by construction or operation of the proposed Project. If impact avoidance is not feasible, then the proposed Project will likely be subject to USACE jurisdiction ("Waters of the U.S.") and California Department of Fish and Wildlife (CDFW) and Regional Water Quality Control Board (RWQCB) jurisdiction ("Waters of the State"). Such impacts would require the procurement of a USACE Section 404 Permit; RWQCB Section 401 Water Quality Certification; and CDFW Section 1602 Lake and Streambed Alteration Agreement.

1.0 INTRODUCTION

1.1 PURPOSE OF THE REPORT

Stantec previously conducted an investigation of jurisdictional waters for the Vega SES LLC Solar Project (Project) on the study area including Parcel Numbers (APNs) 051-360-021, 051-360-031, 051-390-004, and 051-390-012. Subsequently, the Client added an additional parcel (APN 051-360-012), to the northwest of the intersection of Drew and Lyons Roads, to the Project and requested that Stantec conduct a supplemental investigation of jurisdictional features for that property, hereto referred to as the Added Parcel. This Jurisdictional Delineation (JD) Report serves as guidance in establishing baseline conditions for resources under the jurisdiction of the U.S. Army Corps of Engineers (USACE), the California Department of Fish and Wildlife (CDFW), and the Colorado River Basin Regional Water Quality Control Board (RWQCB) for the Added Parcel. Specifically, the purpose of the JD was to determine the location and extent of waters and/or wetlands subject to potential jurisdictional authority within a defined Biological Survey Area (BSA; Added Parcel boundary plus a 150-meter buffer). The Added Parcel BSA measures approximately 183 acres.

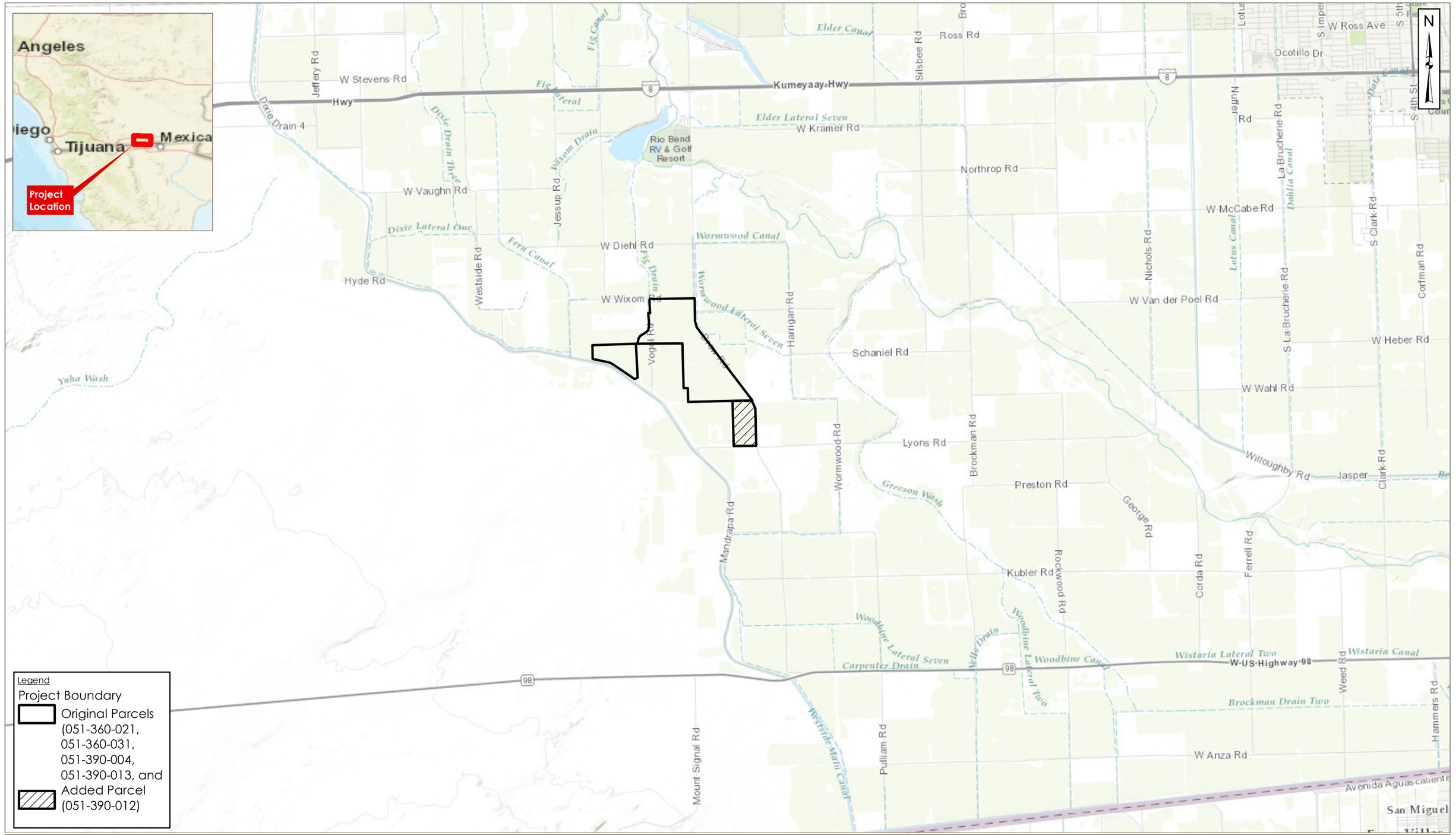
1.2 PROJECT LOCATION

The Project is located within southwestern Imperial County, California, approximately 10 miles southwest of the City of El Centro (Figure 1). It is situated in Township 16 South, Range 12 East of the U.S. Geographical Survey (USGS) Mt. Signal 7.5-minute topographic quadrangle. The Project site consists of two distinct halves, both consisting of currently-farmed agricultural land, generally divided by Vogel Road and/or the Fig Drain. The eastern portion consists of 5 individual parcels, including the Added Parcel, bound to the north by W Wixom Road, to the east by Drew Road, to the west by Vogel Road/Fig Drain/adjacent farmland, and to the south by Lyons Road and/or farmland to the north of Lyons Road. The western portion consists of a single parcel bound to the east by Fig Drain, to the south by Mandrapa Road, and to the north and west by adjacent farmland.

The Added Parcel (APN 051-390-012) is contiguous with the southeastern portion of the original Project area, occurring at the northwest corner of the intersection of Drew and Lyons Roads (Figures 1 and 2). The Project site, including the Added Parcel, consists of currently-farmed agricultural land. The Added Parcel is bounded to the north by farmland, to the east by the Wormwood Lateral 4 canal and Drew Road, to the west by adjacent farmland, and to the south by the Wormwood Lateral 4 canal and Lyons Road.

1.3 PROJECT DESCRIPTION

The Project consists of the proposed construction of a 574-acre solar photovoltaic (PV) energy facility site, and also includes construction of an approximately 0.4-mile gen-tie line from the



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Project Location Map

Figure: **1**

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GEOGRAPHIC INFORMATION SYSTEMS (GIS)

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Biological Study Area Map

Figure: **2**

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GEOGRAPHIC INFORMATION SYSTEMS (GIS)

western terminus of the solar facility to the proposed Fig Substation, to be constructed at the intersection of Liebert Road and Mandrapa Road. The construction of the Fig Substation is not part of the Project.

1.4 LEAD AGENCY NAME AND ADDRESS

County of Imperial
940 West Main Street
El Centro, California 92243

1.5 CONTACT PERSON AND PHONE NUMBER

Jim Minnick
Planning & Development Services Director
801 Main Street
El Centro, California 92243
Phone: (442) 265-1736
Email: jimminnick@co.imperial.ca.us

2.0 EXISTING CONDITIONS

2.1 TOPOGRAPHY AND SURROUNDING LAND USES

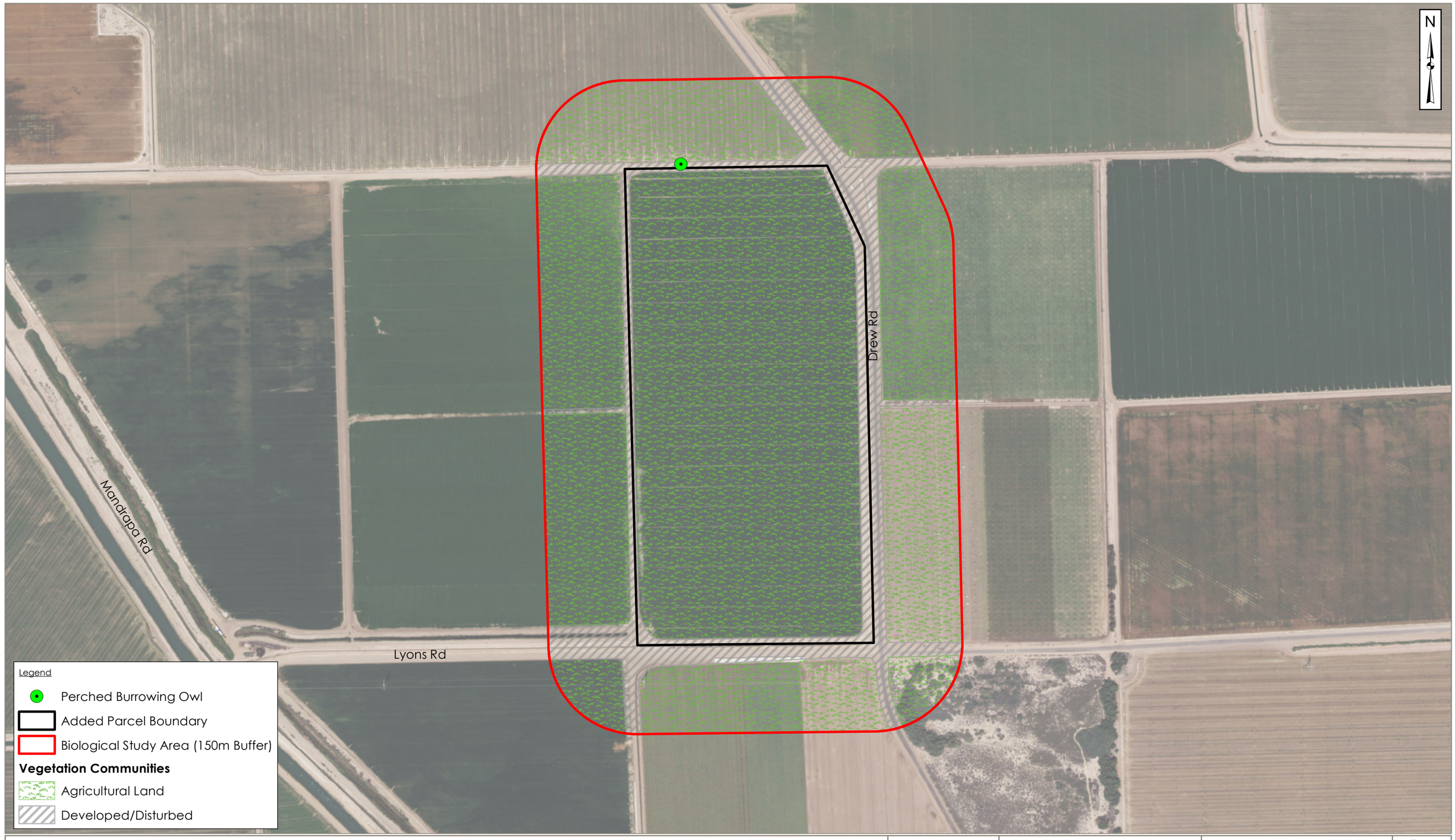
The Project is located in the Yuha Basin of the Colorado Desert. Topography within the Added Parcel BSA is generally flat, with an elevation of approximately -22 feet below mean sea level (msl). The Added Parcel and surrounding lands support active agricultural land use, and contain several unpaved roads, irrigation ditches, and other farming infrastructure.

Lands within the Added Parcel BSA are zoned as Agriculture (Planning and Development Services Department of County of Imperial 2015). Surrounding lands are also zoned as Agriculture.

2.2 VEGETATION

Generally, mapping and description of plant communities follows the MCV II classification system described in the second edition of A Manual of California Vegetation (Sawyer et al. 2009). However, there are no native habitats present within the Added Parcel BSA, and the land cover types listed below are descriptive in nature and not included in that reference. Species scientific and common names correspond to those described in the second edition of The Jepson Manual (Baldwin et al. 2012).

The Added Parcel BSA supports two land cover types: agricultural land and developed/disturbed land. (Figure 3). Descriptions of these land cover types are provided below.



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Vegetation Communities Map

Figure: **3**

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GEOGRAPHIC INFORMATION SYSTEMS (GIS)

Agricultural Land

This land cover type is not described within *A Manual of California Vegetation* (Sawyer, et al. 2009). At the time of survey, this land cover type was observed to contain active and fallow fields, and associated irrigation canals immediately adjacent to the fields.

Approximately 157 acres of agricultural land occurs throughout the Added Parcel BSA.

Developed/Disturbed Land

This land cover type is not described within A Manual of California Vegetation (Sawyer, et al. 2009), but includes developed areas such as roads, residences, and existing solar facilities. These areas are predominantly devoid of vegetation, though do support the sparse growth of ruderal herbaceous scrub, including non-native annual grasses and other weedy species.

Approximately 26 acres of developed/disturbed land occurs throughout the Added Parcel BSA.

2.3 CLIMATE

The region experiences a desert climate characterized by hot, dry summers and warm winters. Average annual temperatures range from 69 degrees Fahrenheit in December to 107 degrees Fahrenheit in July, and average annual precipitation measures 2.87 inches (US Climate Data 2017).

2.4 HYDROLOGY AND GEOMORPHOLOGY

The Added Parcel BSA is underlain by the Colorado River Basin, and is within the Imperial Hydrologic Unit and Brawley Hydrologic Area (SWRCB 2006). Irrigation water is supplied to the agricultural fields within and surrounding the Added Parcel BSA by an engineered system of concrete-lined canals or lateral canals operated and maintained by the IID. These canals typically contain water at all times except during maintenance periods. Water generally flows from south to north through the Added Parcel BSA.

The farm fields within the Added Parcel BSA are graded for flood irrigation. When a field is irrigated, water is allowed to flow from the IID delivery canal to a smaller earthen or concrete-lined ditch (typically referred to as a "head ditch"), which distributes the water evenly across the field. At the opposite, lower elevation side of the field, excess water is collected into another ditch (typically referred to as a "tail ditch") and directed into an IID drain. The ditches present on the Added Parcel BSA are both earthen and concrete-lined, and earthen ditches may be frequently rebuilt when the fields are plowed and disked.

A concrete-lined canal, the Wormwood Lateral 4, borders the eastern and southern boundaries of the Added Parcel and another earthen channel, the Fig Drain No. 1B, extends westward from the southwest corner of the Added Parcel within the southwestern portion of the Added Parcel

BSA. Fig Drain No. 1B contributes flow to the main Fig Drain, which stretches northward and ultimately contributes flows to the New River. The New River flows from Mexico into California, emptying into the Salton Sea. The majority of runoff into the New River comes from agriculture, municipal discharge, and industrial discharge.

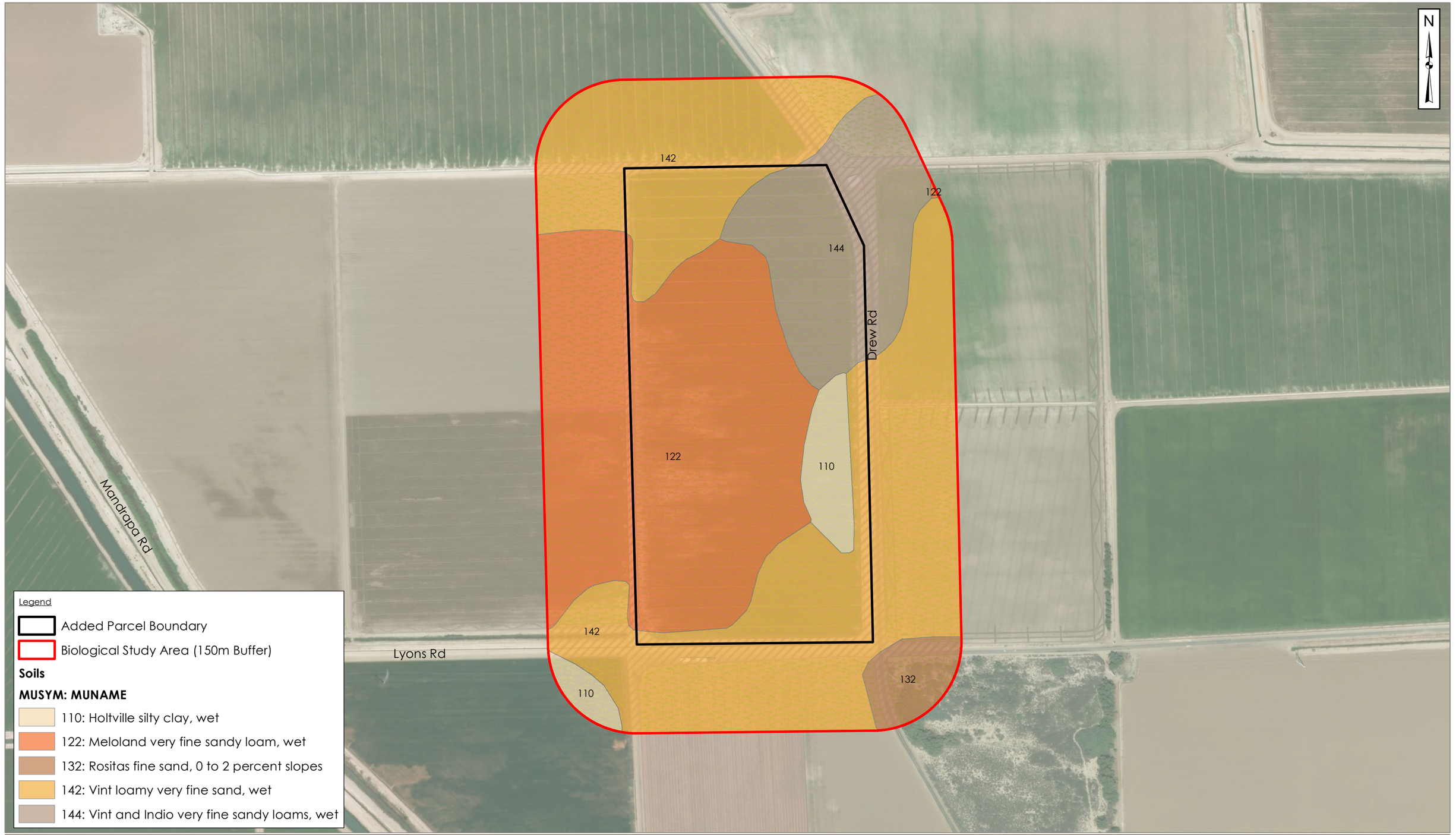
The Wormwood Lateral 4 canal joins Wormwood Lateral 3, which empties into the Westside Main Canal. The Westside Main Canal services agricultural lands along the western side of the Imperial Valley and empties directly into the Salton Sea. Additional IID-administered irrigation drainage features in the region also ultimately flow to the Salton Sea.

2.5 SOILS

Soils within the Added Parcel BSA were dominated by fine sandy to silty clay loam soils. Soil data from the Natural Resources Conservation Service (NRCS) using Web Soil Survey was used to determine potential soil types, including where hydric soils have historically occurred (Figure 4). Soils present within the Added Parcel BSA are not considered to be hydric soils. Characteristics of soils present on the site are summarized in Appendix C. Table 1 below summarizes the soils occurring within the Added Parcel BSA.

Table 1. Soil Units Occurring within the Vega Added Parcel BSA

Map Unit Name	Description	Acres Within BSA	% Total Within BSA
Vint laomy very fine sand, wet	A moderately well-drained soil that occurs on basin floors at elevations between -230 to 250 feet; parent material consists of alluvium derived from mixed sources and/or eolian deposits derived from mixed sources; very low runoff; loamy very fine sand (0-10"), loamy fine sand (10-60")	66.4	43.1
Vint and Indio very fine sandy loams, wet	A moderately well-drained soil that occurs on basin floors at elevations between -230 to 300 feet; parent material consists of alluvium derived from mixed sources and/or eolian deposits derived from mixed sources; very low runoff; very fine sandy loam (0-10"), loamy fine sand (10-40"), silty clay (40-60")	23.4	15.2
Meloland very fine sandy loam, wet	A moderately well-drained soil that occurs on basin floors at elevations between -230 to 200 feet; parent material consists of alluvium derived from mixed sources and/or eolian deposits derived from mixed sources; low runoff; very fine sandy loam (0-12"), stratified loamy fine sand to silt loam (12-26"), clay (26-71")	57.0	37.0
Rositas fine sand, 0 to 2 percent slopes	A somewhat excessively drained soil that occurs on basin floors at elevations between -230 to 350 feet; parent material consists of alluvium derived from mixed sources and/or eolian deposits derived from mixed sources; very low runoff; fine sand (0-9"), sand (9-60")	2.3	1.5



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Soils Map

Figure: **4**

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GEOGRAPHIC INFORMATION SYSTEMS (GIS)

Map Unit Name	Description	Acres Within BSA	% Total Within BSA
Holtville silty clay, wet	A moderately well-drained soil that occurs on basin floors at elevations between -230 to 200 feet; parent material consists of alluvium derived from mixed sources; low runoff; silty clay (0-17"), clay (17-24"), silt loam (24-35"), loamy very fine sand (35-60")	4.9	3.2
	Total	154.0	100

3.0 REGULATORY BACKGROUND

Jurisdictional waters, wetlands, and riparian habitat are regulated by the USACE, RWQCB, and CDFW. The USACE Regulatory Program regulates activities pursuant to Section 404 of the federal Clean Water Act (CWA); the CDFW regulates activities under California Fish and Game Code Sections 1600-1607; the LARWQCB regulates activities under Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act. Refer to Appendix E for additional details on regulatory authorities and background.

4.0 WATERS/WETLANDS DELINEATION

4.1 DELINEATION METHODOLOGY

This section describes the methods employed by Stantec during the survey conducted to determine the extent of potentially jurisdictional wetlands and/or waters that occur within the Added Parcel BSA. Prior to conducting the field assessment, Stantec reviewed current and historic aerial photographs, detailed topographic maps, soil maps of the proposed Project area (NRCS 2017), and local and state hydric soil lists to evaluate the potential active channels and wetland features that occur within the BSA. During the field assessment, vegetation and hydrology were mapped using a Trimble Geo 7X global positioning system (GPS) and drawn on aerial photographs. Field maps were digitized using Global Information Technology (GIS) and total jurisdictional area for each jurisdiction was calculated.

Federal Wetlands/Waters

Jurisdictional non-wetland "waters of the U.S." are delineated based on the limits of the ordinary high water mark (OHWM) as determined by changes in physical and biological features, such as bank erosion, deposited vegetation or debris, and vegetative characteristics. Jurisdictional wetlands are delineated using a routine determination in accordance with the methods outlined in the USACE Wetland Delineation Manual (1987) and the Arid West Supplement (2011) based on three wetland parameters: dominant hydrophytic vegetation, wetland hydrology, and hydric soils. Tables 1 and 2 in Appendix D (Potential Geomorphic and Vegetative Indicators of Ordinary

High Water Marks for the Arid West) provide a list of key physical features for determining the OHWM identified by the arid west manual.

CDFW Jurisdictional Waters

CDFW jurisdiction is delineated to the top of the banks of the channel and/or to the edge of the associated riparian canopy/riparian habitat, whichever is wider. Within the BSA, the CDFW jurisdictional boundary of the IID-administered irrigation canals is wider than the OHWM. Therefore, the total acreage of CDFW jurisdictional waters is greater than the combined acreage of federal jurisdictional waters.

4.1.1 Wetland Vegetation

Vegetation percent cover was estimated for plant species in each of the four strata (tree, sapling/shrub, herb, and woody vine). Plant species in each stratum was ranked based on canopy dominance (USACE 2008). Species that contributed to a cumulative coverage total of at least 50 percent and any species that comprised at least 20 percent of the total coverage for each stratum were recorded on the Field Data Sheets (50/20 rule). Wetland indicator status was assigned to each dominant species using the Region 0 List of Plant Species that Occur in Wetlands: 1996 National Summary (USFWS 1997), Wetland Plants of Specialized Habitats in the Arid West (USACE, 2007), and the Arid West Region of The National Wetland Plant List (USACE, 2012). If greater than 50 percent of the dominant species from all strata were Obligate, Facultative-wetland, or Facultative species, the criteria for wetland vegetation was considered to be met (refer to Appendix D, Table 3).

4.1.2 Wetland Hydrology

The presence of wetland hydrology is assessed by evaluating the presence of primary and secondary hydrology indicators (refer to Appendix D, Tables 4 and 5). These indicators are designed to determine whether an area has a high probability of being inundated or saturated (flooded, ponded, or tidally influenced) long enough during the growing season to develop anaerobic conditions in the surface soil environment, especially in the root zone (USACE, 1987 and 2008b). The Arid West Supplement includes two additional indicator groups that can be utilized during dry conditions or in areas where surface water/saturated soils are not present; these are Group B (evidence of recent inundation) and Group C (evidence of recent soil saturation) (USACE, 2008). The indicators are divided into two categories (primary and secondary indicators) and presence of one primary indicator from any of the groups is considered evidence of wetland hydrology. If only secondary indicators are present, two or more must be observed to conclude presence of wetland hydrology. Indicators are intended to be one-time observations of site conditions representing evidence of wetland hydrology when hydrophytic vegetation and hydric soils are present (USACE, 2008).

4.1.3 Wetland Soils

Soils data from the NRCS was referenced to determine if hydric soils have been previously documented and/or historically occurred in or near the Study Area. Based on this review hydric soils were not expected to occur within the Study Area. Appendix D, Tables 6 and 7, includes a complete list of hydric soils indicators.

4.2 RESULTS

Two types of jurisdictional features were documented within the Added Parcel BSA: USACE non-wetland waters and CDFW State Waters. All the drainage features within the Added Parcel BSA are man-made, constructed entirely within uplands, and used solely for agricultural irrigation. Head and tail ditches are typically dry and convey water only during periodic and infrequent irrigation events. They do not support riparian habitat and, as is the case with many tail ditches, are plowed under and re-created each time a field is replanted. Thus, they would not meet the definition of a Relatively Permanent Water (RPW) and would not be considered federally or state jurisdictional. The larger, IID-administered canals (supply) and drains (drainage), however, generally convey water year-round and ultimately flow into the Salton Sea, which is considered a Traditionally Navigable Water, and would likely be considered federally and state jurisdictional. Representative photographs are provided in Appendix B.

Table 2 summarizes the jurisdictional features present within the BSA and their acreages; Figure 5 depicts their location within the BSA. Appendix A contains the OHWM Data Forms completed during the assessment. According to the NRCS Hydric Soils List (NRCS 2014a and 2014b), there are no mapped hydric soils within the BSA.

Table 2. Acreage of Jurisdictional Waters within the Vega Added Parcel BSA

Feature ID	OHWM (feet)	Top of Bank (feet)	Distance	USACE/RWQCB Waters (acres)	CDFW Jurisdictional Waters (acres)
Wormwood Lateral 4	2 5	6 10	2,605 1,900	0.34	0.8
Fig Drain No. 1B	15	35	560	0.2	0.45
		TOTAL	**5,065**	**0.54**	**1.25**

(a) Non-wetland waters of the U.S. and non-wetland waters of the state overlap; as such, jurisdictional acreages are not additive.

Federal Wetlands

Based on Stantec's professional opinion following an assessment of hydrology, vegetation, and soils, there are no federal wetlands within the Added Parcel BSA. IID irrigation canals and drains do, however, meet the requirements for jurisdictional waters (see below).

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Jurisdictional Resources Map

Figure: **5**

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GEOGRAPHIC INFORMATION SYSTEMS (GIS)

Federal Non-Wetland Waters

Approximately 0.54 acres of the Added Parcel BSA meet the definition of "waters of the United States" as outlined in 33 CFR Part 328. This assessment is based on Stantec's professional opinion following an assessment of hydrology and the limits of the OHWM. Because the potentially jurisdictional features in the Added Parcel BSA are man-made RPWs, the OHW zone was typically delineated using direct measure of OHWM indicators rather than the extent of the active floodplain because irrigation features with controlled flows do not support true active floodplains. Some of the key hydrology indicators (See Tables 1 and 2 in Appendix D for additional information) that were noted during the delineation included:

- D1 – Herbaceous marsh species
- D5 – Perennial herbs, hydromesic clonals
- F15/18 – Upland species

CDFW Waters

Based on Stantec's professional opinion following an assessment of hydrology, presence of bed and bank, and extent of riparian vegetation, approximately 1.25 acres of the Added Parcel BSA meet the definition of CDFW jurisdictional waters as outlined in Sections 1600-1616 of the CDFW Code.

5.0 SUMMARY AND CONCLUSIONS

The Added Parcel BSA supports CDFW jurisdictional waters and USACE nonwetland waters. The IID irrigation drainages listed in Table 2 were actively flowing during the delineation and many supported riparian vegetation. These channels exhibited evidence of hydrology and a discernible OHWM and were mapped as jurisdictional non-wetland "waters of the United States" (0.54 acres). Using a combination of bed/bank delineation and field observations, 1.25 acres of CDFW jurisdictional waters were identified within the Added Parcel BSA.

The conclusions presented above represent Stantec's professional opinion based on our knowledge and experience with the USACE and CDFW, including their regulatory guidance documents and manuals. However, the USACE and CDFW have final authority in determining the status and presence of jurisdictional wetlands/waters and the extent of their boundaries.

6.0 REFERENCES

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APPENDICES

Appendix A OHWM DATA SHEETS

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Vega Solar – Added Parcel
Project Number:
Stream: Wormwood Lateral 4
Investigator(s): RB

Date: 10/23/2017 **Time:**
Town: **State:** CA
Photo begin file#: **Photo end file#:**

Y ☐ / N ☒ Do normal circumstances exist on the site?

Y ☒ / N ☐ Is the site significantly disturbed?

Location Details:
Vega Solar Added Parcel BSA (see report)
Projection: **Datum:**
Coordinates:

Potential anthropogenic influences on the channel system:
Man-made canal; adjacent agricultural activities / unpaved roads

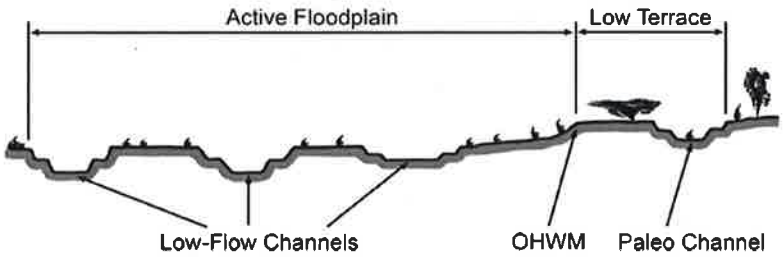
Brief site description:
Concrete-lined V-ditch
OHWM = 2'/5'

Checklist of resources (if available):

- ☒ Aerial photography
  Dates:
- ☐ Topographic maps
- ☐ Geologic maps
- ☐ Vegetation maps
- ☐ Soils maps
- ☐ Rainfall/precipitation maps
- ☒ Existing delineation(s) for site
- ☒ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

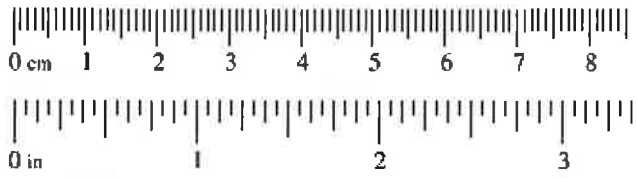


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☒ Mapping on aerial photograph
   - ☒ Digitized on computer
   - ☒ GPS
   - ☐ Other:

Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
2.56	64	Cobble	Gravel
0.157	4	Pebble	
0.079	2.00	Granule	
0.039	1.00	Very coarse sand	
0.020	0.50	Coarse sand	
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	
1/8 0.0025	0.0625	Very fine sand	
1/16 0.0012	0.031	Coarse silt	
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	
1/128 0.00015	0.0039	Very fine silt	
		Clay	Mud



Project ID: Vega (Added Parcel) Cross section ID: Date: 10/23/17 Time:

Cross section drawing:

OHWM

GPS point: see report

Indicators:

- [ ] Change in average sediment texture
- [ ] Change in vegetation species
- [ ] Change in vegetation cover
- [x] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Ag. drain constructed in uplands.

Floodplain unit:

- [ ] Low-Flow Channel
- [ ] Active Floodplain
- [ ] Low Terrace

GPS point: _____

No floodplain

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- [ ] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [ ] Drift and/or debris
- [ ] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Project ID: **Cross section ID:** **Date:** **Time:**

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Vega Solar - Added Parcel
Project Number:
Stream: Fig Drain No. 1B
Investigator(s): RB

Date: 10/23/17 **Time:**
Town: **State:** CA
Photo begin file#: **Photo end file#:**

Y ☐ / N ☒ Do normal circumstances exist on the site?

Y ☒ / N ☐ Is the site significantly disturbed?

Location Details: Vega Solar Added Parcel BSA (see report)
Projection: **Datum:**
Coordinates:

Potential anthropogenic influences on the channel system:
Man-made earthen canal; adjacent agricultural activities/unpaved roads

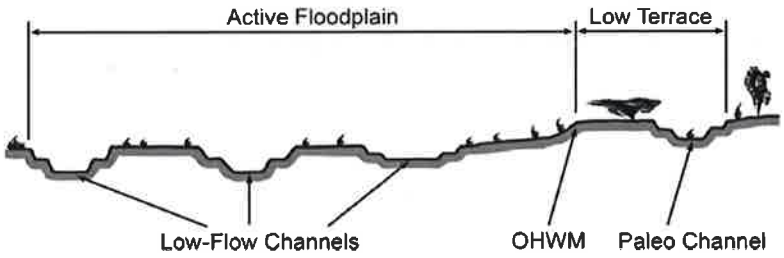
Brief site description:
Earthen V-ditch - lg. ag. drain
OHWM = 15'

Checklist of resources (if available):

- ☒ Aerial photography
  Dates:
- ☐ Topographic maps
- ☐ Geologic maps
- ☐ Vegetation maps
- ☐ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☒ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

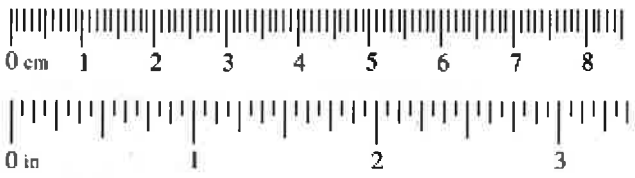


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☒ Mapping on aerial photograph
   - ☒ Digitized on computer
   - ☒ GPS
   - ☐ Other:

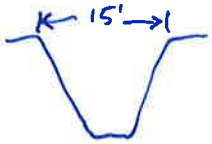
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Vegas → Added Parcel **Cross section ID:** **Date:** 10/23/17 **Time:**

Cross section drawing:



OHWM

GPS point: see report

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☒ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Ag. drain constructed in uplands

Floodplain unit:

☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

No floodplain

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Project ID: **Cross section ID:** **Date:** **Time:**

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Appendix B PHOTOGRAPHIC LOG

STANTEC CONSULTING SERVICES INC.
PHOTOGRAPHIC RECORD

Client: Vega SES LLC	**Job Number:** 185803957
Site Name: Vega SES LLC Solar Project – Added Parcel (APN 051-390-012)	**Photographer:** R. Brown

Photo 1: October 23, 2017

From northeast corner of Added Parcel site, looking south. Note concrete-lined head ditch along the left side of the photograph – a non-jurisdictional drainage.

Photo 2: October 23, 2017

From southeast corner of Added Parcel site, looking north. Note Wormwood Lateral 4 canal – generally carries water year round and would be considered a jurisdictional resource.

STANTEC CONSULTING SERVICES INC. PHOTOGRAPHIC RECORD	
Client: Vega SES LLC	**Job Number:** 185803957
Site Name: Vega SES LLC Solar Project – Added Parcel (APN 051-390-012)	**Photographer:** R. Brown

Photo 3: October 23, 2017

From southeast corner of Added Parcel Site, looking west.

Photo 4: October 23, 2017

From southwest corner of site, looking west toward Fig Drain No. 1B. Note, concrete lined channel in the foreground is a head ditch that periodically conveys flow for irrigation – a non-jurisdictional drainage.

Appendix C HISTORIC SOILS INFORMATION

Imperial County, California, Imperial Valley Area

110—Holtville silty clay, wet

Map Unit Setting

National map unit symbol: h8zj
Elevation: -230 to 200 feet
Mean annual precipitation: 0 to 3 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 300 to 350 days
Farmland classification: Prime farmland if irrigated and drained

Map Unit Composition

Holtville, wet, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Holtville, Wet

Setting

Landform: Basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed sources

Typical profile

H1 - 0 to 17 inches: silty clay
H2 - 17 to 24 inches: clay
H3 - 24 to 35 inches: silt loam
H4 - 35 to 60 inches: loamy very fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 10.0
Available water storage in profile: Moderate (about 7.6 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Glenbar
Percent of map unit: 5 percent
Hydric soil rating: No

Imperial
Percent of map unit: 5 percent
Hydric soil rating: No

Indio
Percent of map unit: 3 percent
Hydric soil rating: No

Vint
Percent of map unit: 2 percent
Hydric soil rating: No

122—Meloland very fine sandy loam, wet

Map Unit Setting
National map unit symbol: h8zx
Elevation: -230 to 200 feet
Mean annual precipitation: 0 to 3 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 300 to 350 days
Farmland classification: Prime farmland if irrigated and drained

Map Unit Composition
Meloland, wet, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Meloland, Wet

Setting
Landform: Basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed and/or eolian deposits derived from mixed

Typical profile
H1 - 0 to 12 inches: very fine sandy loam
H2 - 12 to 26 inches: stratified loamy fine sand to silt loam
H3 - 26 to 71 inches: clay

Properties and qualities
Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches

Natural drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Moderately saline to strongly saline (8.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 13.0
Available water storage in profile: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Imperial

Percent of map unit: 3 percent
Hydric soil rating: No

Indio

Percent of map unit: 3 percent
Hydric soil rating: No

Holtville

Percent of map unit: 3 percent
Hydric soil rating: No

Glenbar

Percent of map unit: 3 percent
Hydric soil rating: No

Vint

Percent of map unit: 3 percent
Hydric soil rating: No

132—Rositas fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: h907
Elevation: -230 to 350 feet
Mean annual precipitation: 0 to 3 inches
Mean annual air temperature: 70 to 75 degrees F
Frost-free period: 300 to 350 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Rositas and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rositas

Setting

Landform: Basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed and/or eolian deposits derived from mixed

Typical profile

H1 - 0 to 9 inches: fine sand
H2 - 9 to 60 inches: sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)
Available water storage in profile: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Niland

Percent of map unit: 4 percent
Hydric soil rating: No

Rositas

Percent of map unit: 4 percent
Hydric soil rating: No

Vint

Percent of map unit: 4 percent
Hydric soil rating: No

Antho

Percent of map unit: 1 percent
Hydric soil rating: No

Holtville
Percent of map unit: 1 percent
Hydric soil rating: No

Superstition
Percent of map unit: 1 percent
Hydric soil rating: No

142—Vint loamy very fine sand, wet

Map Unit Setting
National map unit symbol: h90k
Elevation: -230 to 150 feet
Mean annual precipitation: 0 to 3 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 300 to 350 days
Farmland classification: Prime farmland if irrigated and drained

Map Unit Composition
Vint, wet, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Vint, Wet

Setting
Landform: Basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed and/or eolian deposits derived from mixed

Typical profile
H1 - 0 to 10 inches: loamy very fine sand
H2 - 10 to 60 inches: loamy fine sand

Properties and qualities
Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)

Available water storage in profile: Low (about 5.5 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Indio

Percent of map unit: 5 percent
Hydric soil rating: No

Meloland

Percent of map unit: 5 percent
Hydric soil rating: No

144—Vint and Indio very fine sandy loams, wet

Map Unit Setting

National map unit symbol: h90m
Elevation: -230 to 300 feet
Mean annual precipitation: 0 to 3 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 300 to 350 days
Farmland classification: Prime farmland if irrigated and drained

Map Unit Composition

Vint, wet, and similar soils: 50 percent
Indio, wet, and similar soils: 40 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Vint, Wet

Setting

Landform: Basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed sources and/or eolian deposits derived from mixed sources

Typical profile

H1 - 0 to 10 inches: very fine sandy loam
H2 - 10 to 40 inches: loamy fine sand
H3 - 40 to 60 inches: silty clay

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches

Natural drainage class: Moderately well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 10.0
Available water storage in profile: Moderate (about 6.8 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: B
Hydric soil rating: No

Description of Indio, Wet

Setting

Landform: Basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium and/or eolian deposits derived from mixed

Typical profile

H1 - 0 to 12 inches: very fine sandy loam
H2 - 12 to 40 inches: stratified loamy very fine sand to silt loam
H3 - 40 to 60 inches: silty clay

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 10.0
Available water storage in profile: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Rositas

Percent of map unit: 5 percent
Hydric soil rating: No

Meloland

Percent of map unit: 5 percent
Hydric soil rating: No

Appendix D ARID WEST INDICATOR TABLES

Table 1. Potential Geomorphic Indicators of Ordinary High Water Marks for the Arid West

(A) Below OHW	(B) At OHW	(C) Above OHW
1. In-stream dunes 2. Crested ripples 3. Flaser bedding 4. Harrow marks 5. Gravel sheets to rippled sands 6. Meander bars 7. Sand tongues 8. Muddy point bars 9. Long gravel bars 10. Cobble bars behind obstructions 11. Scour holes downstream of obstructions 12. Obstacle marks 13. Stepped-bed morphology in gravel 14. Narrow berms and levees 15. Streaming lineations 16. Desiccation/mud cracks 17. Armored mud balls 18. Knick Points	1. Valley flat 2. Active floodplain 3. Benches: low, mid, most prominent 4. Highest surface of channel bars 5. Top of point bars 6. Break in bank slope 7. Upper limit of sand-sized particles 8. Change in particle size distribution 9. Staining of rocks 10. Exposed root hairs below intact soil layer 11. Silt deposits 12. Litter (organic debris, small twigs and leaves) 13. Drift (organic debris, larger than twigs)	1. Desert pavement 2. Rock varnish 3. Clast weathering 4. Salt splitting 5. Carbonate etching 6. Depositional topography 7. Caliche rubble 8. Soil development 9. Surface color/tone 10. Drainage development 11. Surface relief 12. Surface rounding

Table 2. Potential Vegetation Indicators of Ordinary High Water Marks for the Arid West

	(D) Below OHW	(E) At OHW	(F) Above OHW
Hydroriparian indicators	1. Herbaceous marsh species 2. Pioneer tree seedlings 3. Sparse, low vegetation 4. Annual herbs, hydromesic ruderals 5. Perennial herbs, hydromesic clonals	1. Annual herbs, hydromesic ruderals 2. Perennial herbs, hydromesic clonals 3. Pioneer tree seedlings 4. Pioneer tree saplings	1. Annual herbs, xeric ruderals 2. Perennial herbs, non-clonal 3. Perennial herbs, clonal and non-clonal co-dominant 4. Mature pioneer trees, no young trees 5. Mature pioneer trees w/upland species 6. Late-successional species
Mesoriparian Indicators	6. Pioneer tree seedlings 7. Sparse, low vegetation 8. Pioneer tree saplings 9. Xeroriparian species	5. Sparse, low vegetation annual herbs, hydromesic 6. ruderals 7. Perennial herbs, hydromesic clonals 8. Pioneer tree seedlings 9. Pioneer tree saplings 10. Xeroriparian species 11. Annual herbs, xeric ruderals	7. Xeroriparian species 8. Annual herbs, xeric ruderals 9. Perennial herbs, non-clonal 10. Perennial herbs, clonal and non-clonal codominent 11. Mature pioneer trees, no young trees 12. Mature pioneer trees, xeric understory 13. Mature pioneer trees w/upland species 14. Late-successional species 15. Upland species
Xeroriparian indicators	10. Sparse, low vegetation 11. Xeroriparian species 12. Annual herbs, xeric ruderals	12. Sparse, low vegetation 13. Xeroriparian species 14. Annual herbs, xeric ruderals	16. Annual herbs, xeric ruderals 17. Mature pioneer trees w/upland species 18. Upland species

Table 3. Summary of Wetland Indicator Status

Category		Probability
Obligate Wetland	OBL	Almost always occur in wetlands (estimated probability >99%)
Facultative Wetland	FACW	Usually occur in wetlands (estimated probability of 67–99%)
Facultative	FAC	Equally likely to occur in wetlands/non-wetlands (estimated probability of 34–66%)
Facultative Upland	FACU	Usually occur in non-wetlands (estimated probability 67–99%)
Obligate Upland	UPL	Almost always occur in non-wetlands (estimated probability >99%)
Non-Indicator	NI	No indicator status has been assigned

Source: Reed, 1988; USFWS, 1997; USACE, 2012.

Table 4. Wetland Hydrology Indicators*

Primary Indicators	Secondary Indicators
Watermarks	Oxidized Rhizospheres Associated with Living Roots
Water-Borne Sediment Deposits	FAC-Neutral Test
Drift Lines	Water-Stained Leaves
Drainage Patterns Within Wetlands	Local Soil Survey Data

*Table adapted from 1987 USACE Manual and Related Guidance Documents.

Table 5. Wetland Hydrology Indicators for the Arid West*

	Primary Indicator (any one indicator is sufficient to make a determination that wetland hydrology is present)	Secondary Indicator (two or more indicators are required to make a determination that wetland hydrology is present)
Group A – Observation of Surface Water or Saturated Soils		
A1 – Surface Water	X	
A2 – High Water Table	X	
A3 – Saturation	X	
Group B – Evidence of Recent Inundation		
B1 – Water Marks	**X** (Non-riverine)	**X** (Riverine)
B2 – Sediment Deposits	**X** (Non-riverine)	**X** (Riverine)
B3 – Drift Deposits	**X** (Non-riverine)	**X** (Riverine)
B6 – Surface Soil Cracks	X	
B7 – Inundation Visible on Aerial Imagery	X	
B9 –Water-Stained Leaves	X	
B10 – Drainage	X	X
B11 – Salt Crust	X	
B12 – Biotic Crust	X	
B13 – Aquatic Invertebrates	X	

Table 5. Wetland Hydrology Indicators for the Arid West*		
	Primary Indicator (any one indicator is sufficient to make a determination that wetland hydrology is present)	**Secondary Indicator (two or more indicators are required to make a determination that wetland hydrology is present)**
Group C – Evidence of Current or Recent Soil Saturation		
C1 – Hydrogen Sulfide Odor	X	
C2 – Dry-Season Water Table		X
C3 – Oxidized Rhizospheres along Living Roots	X	

*Table adapted from Regional Supplement to the USACE of Engineers Wetland Delineation Manual: Arid West Region, Version 2.0.

Table 6. Field Indicators of Hydric Soil Conditions*	
1. Indicators of Historical Hydric Soil Conditions	**2. Indicators of Current Hydric Soil Conditions**
a. Histosols b. Histic epipedons; c. Soil colors (e.g., gleyed or low-chroma colors, soils with bright mottles (Redoximorphic features) and/or depleted soil matrix d. High organic content in surface of sandy soils e. Organic streaking in sandy soils f. Iron and manganese concretions g. Soil listed on county hydric soils list	a. Aquic or peraquic moisture regime (inundation and/or soil saturation for *7 continuous days) b. Reducing soil conditions (inundation and/or soil saturation for *7 continuous days) c. Sulfidic material (rotten egg smell)

*Table adapted from 1987 USACE Manual and Related Guidance Documents.

Table 7. Hydric Soil Indicators for the Arid West*			
Hydric Soil Indicators	**Hydric Soil Indicators**	**Hydric Soil Indicators**	**Hydric Soil Indicators**
A1 – Histosol	S1 – Sandy Mucky Mineral	F1 – Loamy Mucky Mineral	A9 – 1 cm Muck
A2 – Histic Epipedon	S4 – Sandy Gleyed Matrix	F2 – Loamy Gleyed Matrix	A10 – 2 cm Muck
A3 – Black Histic	S5 – Sandy Redox	F3 – Depleted Matrix	F18 – Reduced Verti
A4 – Hydrogen Sulfide	S6 – Stripped Matrix	F6 – Redox Dark Surface	TF2 – Red Parent Material
A5 – Stratified Layers	—	F7 – Depleted Dark Surface	Other (See Section 5 of Regional Supplement, Version 2.0)
A9 – 1 cm Muck	—	F8 – Redox Depressions	—
A11 – Depleted Below Dark Surface	—	F9 – Vernal Pools	—
A12 – Thick Dark Surface	—	—	—

* Table adapted from Regional Supplement to the USACE of Engineers Wetland Delineation Manual: Arid West Region, Version 2.0. ** Indicators of hydrophytic vegetation and wetland hydrology must be present

Appendix E REGULATORY BACKGROUND INFORMATION

Regulatory Background Information

Section 404 of the Clean Water Act (CWA)

Section 404 of the CWA regulates the discharge of dredged material, placement of fill material, or certain types of excavation within "waters of the U.S." (resulting in more than incidental fallback of material) and authorizes the Secretary of the Army, through the Chief of Engineers, to issue permits for such actions. Permits can be issued for individual projects (individual permits) or for general categories of projects (general permits). "Waters of the U.S." are defined by the CWA as "rivers, creeks, streams, and lakes extending to their headwaters and any associated wetlands." Wetlands are defined by the CWA as "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions." The USACE has adopted several revisions to their regulations in order to more clearly define "waters of the U.S." Until the beginning of 2001, "waters of the U.S." included, among other things, isolated wetlands and lakes, intermittent streams, prairie potholes, and other waters that are not part of a tributary system to interstate waters or to navigable "waters of the U.S."

The jurisdictional extent of USACE regulation changed with the 2001 SWANCC (Solid Waste Agency of Northern Cook County) ruling. The U.S. Supreme Court held that the USACE could not apply Section 404 of the CWA to extend their jurisdiction over an isolated quarry pit. The Court ruled that the CWA does not extend Federal regulatory jurisdiction over non-navigable, isolated, intra-state waters. However, the Court made it clear that non-navigable wetlands adjacent to navigable waters are still subject to USACE jurisdiction.

Section 401 of the CWA

Section 401 of the CWA requires that any applicant for a Federal permit for activities that involve a discharge to 'waters of the State,' shall provide the Federal permitting agency a certification from the State in which the discharge is proposed that states that the discharge will comply with the applicable provisions under the Federal Clean Water Act. Therefore, before the USACE will issue a Section 404 permit, applicants must apply for and receive a Section 401 Water Quality Certification from the RWQCB. Applications to the RWQCB must include a complete CEQA document (e.g., Initial Study/Mitigated Negative Declaration).

Section 1602 of the California Fish and Game Code

Section 1602 of the California Fish and Game Code requires any person, State or local governmental agency, or public utility which proposes a project that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake, or use materials from a streambed, or result in the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake, to first notify the CDFW of the proposed project. Notification is generally required for any project that will take place in or in the vicinity of a river, stream, lake, or their tributaries. This includes rivers or streams that flow at least periodically or permanently through a bed or channel with banks that support fish or other aquatic life and watercourses having a surface or subsurface flow that support or have supported riparian vegetation. Based on the notification materials

submitted, the CDFW will determine if the proposed project may impact fish or wildlife resources. If the CDFW determines that a proposed project may substantially adversely affect existing fish or wildlife resources, a Lake or Streambed Alteration Agreement (SAA) will be required. A completed CEQA document must be submitted to CDFW before a SAA will be issued.