

**BIOLOGICAL TECHNICAL REPORT FOR THE  
BRAWLEY SOLAR PROJECT  
IMPERIAL COUNTY, CALIFORNIA**

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**TABLE OF CONTENTS**

	<u>Page</u>
<b>SECTION 1.0 – INTRODUCTION .....</b>	<b>1</b>
1.1 PROJECT BACKGROUND.....	1
1.2 PROJECT LOCATION .....	1
<b>SECTION 2.0 – METHODOLOGY.....</b>	<b>3</b>
2.1 LITERATURE REVIEW.....	3
2.2 SOILS .....	3
2.3 JURISDICTIONAL WATERS.....	3
2.4 BIOLOGICAL RECONNAISSANCE-LEVEL SURVEY .....	3
2.4.1 Vegetation.....	4
2.4.2 Wildlife .....	4
<b>SECTION 3.0 – RESULTS .....</b>	<b>5</b>
3.1 NATURAL COMMUNITY CONSERVATION PLAN & HABITAT CONSERVATION PLAN.....	5
3.2 SOILS .....	5
3.3 JURISDICTIONAL WATERS.....	5
3.4 VEGETATION COMMUNITIES.....	7
3.4.1 Quail Bush Scrub .....	7
3.4.2 Agricultural.....	8
3.4.3 Bare Ground.....	8
3.4.4 Disturbed.....	8
3.4.5 Bush Seepweed Scrub.....	8
3.4.6 Arrow Weed Thickets.....	9
3.4.7 Tamarisk Thickets.....	9
3.5 SENSITIVE SPECIES .....	13
3.5.1 Sensitive Plants .....	14
3.5.2 Sensitive Wildlife.....	17
3.6 GENERAL PLANTS.....	18
3.7 GENERAL WILDLIFE .....	18
<b>SECTION 4.0 – CONCLUSIONS AND RECOMMENDATIONS.....</b>	<b>21</b>
4.1 SENSITIVE PLANTS.....	21
4.2 SENSITIVE WILDLIFE.....	21
4.3 JURISDICTIONAL WATERS.....	21
<b>SECTION 5.0 – REFERENCES .....</b>	<b>23</b>

**LIST OF APPENDICES**

- APPENDIX A – SITE PHOTOGRAPHS**
- APPENDIX B – PLANT SPECIES LIST**
- APPENDIX C – WILDLIFE SPECIES LIST**

**LIST OF TABLES**

	<u>Page</u>
Table 1: Criteria for Evaluating Sensitive Species Potential for Occurrence (PFO).....	14

**LIST OF FIGURES**

	<u>Page</u>
Figure 1: Project Location and Vicinity Map .....	2
Figure 2: NWI Mapped Waters .....	10
Figure 3: Jurisdictional Delineation Map .....	11
Figure 4: Vegetation Communities .....	12
Figure 5: CNDDDB Occurances Map.....	16
Figure 6: Sensitive Species Occurrences Map.....	20

## SECTION 1.0 – INTRODUCTION

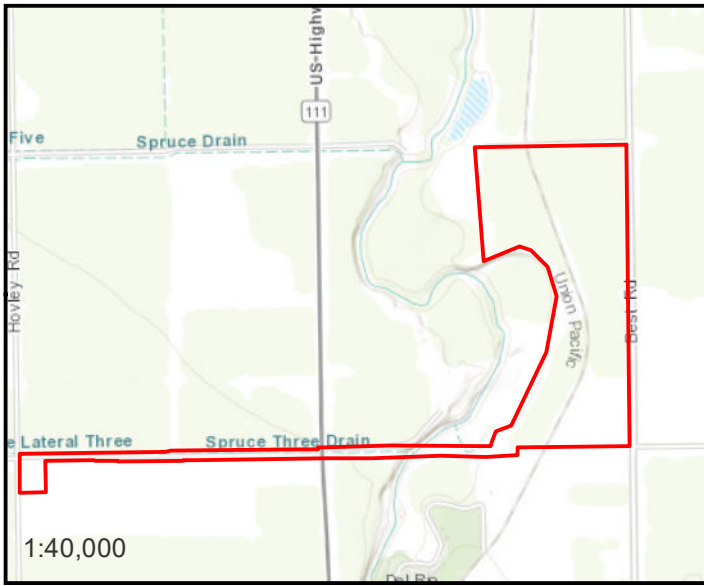
Chambers Group, Inc. (Chambers Group) was retained by ORNI 30, LLC (ORNI) to conduct a literature review and reconnaissance-level survey for the development of the Brawley Solar Project (Project). The survey identified vegetation communities, potential waters of the state and waters of the U.S., wetlands, and potential for the occurrence of sensitive species or habitats that could support sensitive wildlife species. Information contained in this Biological Technical Report is in accordance with accepted scientific and technical standards that are consistent with the requirements of United States Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW).

### 1.1 PROJECT BACKGROUND

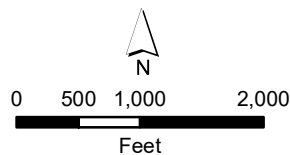
ORNI is proposing to build, operate, and maintain the Brawley Solar Energy Facility, a 40 megawatt (MW)/160 megawatt-hour (MWh) photovoltaic (PV) solar farm and 40 MW/160 MWh battery energy storage system (BESS) on approximately 227 acres in Brawley, Imperial County. Power generated by the Project would be low-voltage direct current (DC) power that would be collected and routed to a series of inverters and their associated pad-mounted transformers. The inverters would convert the DC power generated by the panels to alternating current (AC) power, and the pad-mounted transformers would step up the voltage. The Project would connect to the North Brawley Geothermal Power Plant southwest of the Project site via an approximately 1.8-mile-long aboveground 92 kilovolt (kV) generation tie line (gen-tie line).

### 1.2 PROJECT LOCATION

The Project is located at 5003 Best Avenue, Brawley, California, on six privately owned parcels (Project site). The Project is located within the U.S. Geological Survey (USGS) *Westmorland East*, California, 7.5-minute topographic quadrangle. Currently the Project site contains fallow alfalfa fields. The Project site is bordered by undeveloped agricultural land to the north and east and a mixture of undeveloped agricultural land and dirt lots used for staging activities to the south, and the City of Brawley Wastewater Treatment Plant is located along the western edge of the Project site. The elevation at the Project site is approximately 145 feet below mean sea level (bmsl). Maps of the Project location and Project vicinity are provided in Figure 1.



Survey Area



**Figure 1**  
Brawley Solar Project  
Project Location & Vicinity

## SECTION 2.0 – METHODOLOGY

### 2.1 LITERATURE REVIEW

Prior to performing the field survey, existing documentation relevant to the Project site was reviewed. The most recent records of the California Natural Diversity Database (CNDDDB) managed by CDFW (CDFW 2020), the USFWS Critical Habitat Mapper (USFWS 2020), and the California Native Plant Society's Electronic Inventory (CNPSEI) of Rare and Endangered Vascular Plants of California (CNPS 2020) were reviewed for the following quadrangles containing and surrounding the Project site: *Westmorland East, Niland, Obsidian Butte, Westmorland West, West, Iris, Alamorio, Brawley, and Brawley Northwest*, California, USGS 7.5-minute quadrangles. These databases contain records of reported occurrences of federally or state listed endangered or threatened species, California Species of Concern (SSC), or otherwise sensitive species or habitats that may occur within or in the immediate vicinity of the Project site.

### 2.2 SOILS

Before conducting the survey, soil maps for Imperial County were referenced online to determine the soil types found within the Project site. Soils were determined in accordance with categories set forth by the U.S. Department of Agriculture (USDA) Soil Conservation Service and by referencing the USDA Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA 2020).

### 2.3 JURISDICTIONAL WATERS

A general assessment of jurisdictional waters regulated by the United States Army Corps of Engineers (USACE), California Regional Water Quality Control Board (RWQCB), and CDFW was conducted for the Project site. Pursuant to Section 404 of the Clean Water Act, USACE regulates the discharge of dredged and/or fill material into waters of the United States. The State of California (State) regulates discharge of material into waters of the State pursuant to Section 401 of the Clean Water Act and the California Porter-Cologne Water Quality Control Act (California Water Code, Division 7, §13000 et seq.). Pursuant to Division 2, Chapter 6, Sections 1600-1602 of the California Fish and Game Code, CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake which supports fish or wildlife. The assessment was conducted by a desktop survey through the USGS National Hydrography Dataset for hydrological connectivity.

### 2.4 BIOLOGICAL RECONNAISSANCE-LEVEL SURVEY

Chambers Group biologists Brian Cropper and Genelle Ives conducted the general reconnaissance survey (survey) within the Project site to identify the potential for occurrence of sensitive species, vegetation communities, or habitats that could support sensitive wildlife species. The survey was conducted on foot throughout the Project site between 0830 and 1715 hours on October 22, 2020. Weather conditions during the survey included temperatures ranging from 65 to 73 degrees Fahrenheit, with 80 percent cloud cover and no precipitation. Photographs of the Project site were recorded to document existing conditions (Appendix A).

#### **2.4.1 Vegetation**

All plant species observed within the Project site were recorded. Vegetation communities within the Project site were identified, qualitatively described, and mapped onto a high-resolution imagery aerial photograph. Plant communities were determined in accordance with the *Manual of California Vegetation, Second Edition* (Sawyer et al. 2009). Plant nomenclature follows that of *The Jepson Manual* (Baldwin et al. 2012). A comprehensive list of the plant species observed during the survey is provided in Appendix B.

#### **2.4.2 Wildlife**

All wildlife and wildlife signs observed and detected, including tracks, scat, carcasses, burrows, excavations, and vocalizations, were recorded. Additional survey time was spent in those habitats most likely to be utilized by wildlife (native vegetation, wildlife trails, etc.) or in habitats with the potential to support state and/or federally listed or otherwise sensitive species. Notes were made on the general habitat types, species observed, and the conditions of the Project site. A comprehensive list of the wildlife species observed during the survey is provided in Appendix C.



## SECTION 3.0 – RESULTS

### 3.1 NATURAL COMMUNITY CONSERVATION PLAN & HABITAT CONSERVATION PLAN

The Project site is located within the designated boundaries of the Desert Renewable Energy Natural Community Conservation Plan & Habitat Conservation Plan (NCCP/HCP). However, the Project is not located within or adjacent to an Area of Critical Environmental Concern.

### 3.2 SOILS

According to the results from the USDA NRCS Web Soil Survey (USDA 2020), the Project site is located in the Imperial Valley Area, CA683 part of the soil map. Six soil types are known to occur within and/or adjacent to the site and are described below.

Badland occurs along the western portion of the Project site. The parent material is composed of alluvium. This soil is not rated as hydric, and the runoff class is high.

Imperial Silty Clay complex occurs throughout the Project site. The parent material is clayey alluvium derived from mixed or clayey lacustrine deposits. The available water capacity is classified as moderate (approximately 8.3 inches) with a depth to the water table of more than 80 inches.

Imperial Glenbar Silty Clay Loam occurs along the western portion and eastern edge of the Project site. The parent material is clayey alluvium derived from mixed and/or clayey lacustrine deposits. The available water capacity is moderate (approximately 8.6 inches) with a depth to the water table of more than 80 inches.

Indio-Vent complex occurs in the southern portion of the Project site just east of the New River. The parent material is alluvium derived from mixed and/or eolian deposits. The available water capacity is moderate (approximately 8.5 inches) with a depth to the water table of more than 80 inches.

Meloland Very Fine Sandy Loam occurs along the drainages in the southern portion of the Project site. The parent material is alluvium derived from mixed and/or eolian deposits. The available water capacity is moderate (approximately 7.8 inches) and a low runoff class. The depth to the water table is more than 80 inches.

Vint and Indio Very Fine Sandy Loam occurs along the drainage in the southwest portion of the Project site. The parent material is alluvium derived from mixed sources and/or eolian deposits. The available water capacity is moderate at about 6.8 inches. The depth to the water table is more than 80 inches.

### 3.3 JURISDICTIONAL WATERS

The western portion of the Project site is located within the New River watershed (Hydrologic Unit Code [HUC-10] 1810020411) and within the Federal Emergency Management Agency (FEMA) 100-year flood zone (Figure 2). The New River watershed at the Project site is bordered to the south by Imperial Valley, to the west by the Vallecito Mountains, to the north by the Salton Sea, and to the east by the Chocolate Mountains. The New River is the major water source for the watershed, which drains into the Salton Sea. Along its watercourse, several tributaries, including mostly agricultural drains and canals discharge into the New River. The eastern portion of the Project site is located within the Alamo River watershed (HUC-



10 1810020408) and is within the FEMA 100-year flood zone (Figure 2). The Alamo River is the major water source for the watershed, which also drains into the Salton Sea. The primary tributaries to the Alamo River are agricultural drains and canals. Both rivers are known to be heavily polluted with agricultural and bacterial toxins.

Several jurisdictional and non-jurisdictional features were observed within the Project site. The New River, a National Wetlands Inventory (NWI) mapped blueline, flows through the middle portion of the Project site (Figure 2). In addition, several NWI mapped blueline canals, drains, and ditches owned by Imperial Irrigation District (IID) flow along the borders of the Project site (Figure 2). Locations of the features observed during the field survey are presented in Figure 3.

Feature 1, the IID “Spruce Three Drain,” occurs along the proposed gen-tie line located in the southwest portion of the Project site along Andre Road. The Spruce Three drain is a mapped NWI stream (Riverine Intermittent Stream Bed, Seasonally Flooded, Excavated). The drainage is man-made and receives flow from surface runoff from Andre Road and surrounding agricultural fields. Bank-to-bank measurements ranged from 13 to 80 feet. Ordinary High Water Mark (OHWM) measurements ranged from 6 to 40 feet. The drain flows into the Project site from the west at Hovley Road along the south side of Andre Road, flows east for approximately 0.50 mile and crosses under Andre Road to the north side of the road, and appears to continue to flow eastward until it empties into the New River, which terminates at the Salton Sea. The feature is lined with riparian vegetation dominated by arrow weed (*Pluchea sericea*) a Facultative Wetland (FACW) species, meaning one that usually occurs in wetlands but is also found in non-wetlands (Lichvar et al. 2016).

Feature 2 occurs along the gen-tie line portion of the Project site, on the north side of Andre Road. Feature 2 is a man-made, unvegetated cement-lined ditch. Bank-to-bank measured 10 feet; the OHWM measured 4 feet. The feature flows into the Project site from the west for approximately 0.50 mile, where it appears to connect to the Spruce Three Drain. Feature 2 receives flow from road runoff and agricultural runoff from the surrounding agricultural fields.

Feature 3, the New River, flows through the eastern portion of the gen-tie line. The New River is an NWI mapped blueline wetland riverine system (Riverine Lower Perennial, Unconsolidated Bottom Wetland, Permanently Flooded). Bank-to-bank-measurements ranged from 110 to 170 feet. OHWM measurements ranged from 42 to 107 feet. The river flows south to north from Mexico and terminates in the Salton Sea. Within the Project site, the vegetation along the banks of the river consists completely of tamarisk (*Tamarix* spp.) a Facultative (FAC) species, one that is equally likely to occur in wetlands or non-wetlands (Lichvar et al. 2016).

Feature 4, the IID “Livesly Drain,” occurs east of the New River in the eastern portion of the gen-tie line. The Livesly Drain is a NWI mapped blueline stream. This feature is man-made and receives flow from agricultural runoff. The Livesly Drain flows into the Project site from the east, turns north, and exits into the New River. Bank-to-bank measurements ranged from 20 to 120 feet. The OHWM measurements ranged from 13 to 20 feet. The portion of the drainage within the Project site is composed completely of tamarisk.

Feature 5, the IID “Oakley Canal,” occurs just south of the Livesly Drain. The Oakley Canal is a NWI mapped blueline stream (Riverine Intermittent Stream Bed, Seasonally Flooded, Excavated). Feature 5 is man-made and receives flow from agricultural runoff. The Oakley Canal flows south to north and empties into

the Livesly Canal. Bank-to-bank measurements ranged from 25 feet to 48 feet. OHWM measured 15 feet. The vegetation along the banks of Feature 5 consists primarily of tamarisk.

Feature 6, the IID “Best Canal,” occurs along the eastern border of the Project site on the west side of Best Avenue. The canal is a NWI mapped blueline stream (Riverine Intermittent Stream Bed, Seasonally Flooded, Excavated) that receives flow from agricultural and road run-off. Bank-to-bank the canal measured 15 feet; OHWM measured 5 feet. The canal is unvegetated throughout the Project site and flows south to north, exits the Project site, turns west and eventually empties into the New River.

Feature 7 occurs in the southeast portion of the Project site on the south side of Andre Road along the gen-tie line. Feature 7 consists of two man-made detention ponds with riparian vegetation and are mapped NWI wetlands (Palustrine Unconsolidated Bottom Wetland, Permanently Flooded, Excavated). The vegetation within Feature 7 is dominated by tamarisk and cattail (*Typha* spp.), an Obligate (OBL) species, one that almost always occurs naturally in wetlands (Lichvar et al. 2016). In addition, arrow weed and big saltbush (*Atriplex lentiformis*), also known as quail bush, a FAC species, were observed.

Several man-made unvegetated ditches were observed throughout the Project site. When a field is irrigated, water is allowed to flow through smaller man-made earthen or concrete-lined ditches (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”). The ditches present on the Project site are both earthen and concrete-lined and are frequently rebuilt when the fields are plowed and disked. These ditches occur primarily along the edges of the agricultural fields and across portions of the fields. None of these ditches connect directly to a major feature, and most terminate at small, man-made detention areas. Therefore, these features are not considered jurisdictional under CDFW, RWQCB, or USACE.

The Imperial County Fire Department (ICFD) Fire Prevention Bureau requires two points of emergency access for the Project along the west side of the railroad tracks. The access routes will be approximately 20 feet wide to allow large vehicles, including fire trucks and heavy equipment, access to the site. One access routes may be extended from the main access road located off Best Avenue utilizing an existing access road that crosses over a concrete lined channel and a second access route is proposed to be constructed in the northwest portion of the Project site crossing over a non-jurisdictional irrigation ditch. Vegetation within this feature comprised of quail bush, and non-native Mexican palo verde (*Parkinsonia aculeata*) and tamarisk.

### **3.4 VEGETATION COMMUNITIES**

Nine vegetation communities, Quail Bush Scrub, Agricultural, Bare Ground, Developed, Disturbed, Bush Seepweed Scrub, Arrow Weed Thickets, Ornamental and Tamarisk Thickets were observed within the Project site. A map showing the vegetation communities observed within the Project site is provided in Figure 4, and the communities are described in the following subsections.

#### **3.4.1 Quail Bush Scrub**

Quail bush scrub is dominated by quail bush with scattered bush seepweed (*Sueda nigra*) present in areas where the habitat gently slopes into more alkaline soils. The shrub layer is thick and continuous with a nonexistent herbaceous layer. Stands occur in areas where less alkaline or saline soils are present, favoring clay soils and more consistent topography where water does not accumulate easily (Sawyer et al. 2009).

Plant species observed within the Project site included bush seepweed, big saltbush, and spiny chlorocantha (*Chloracantha spinosa*). Approximately 4.86 acres of Quail Bush Scrub occurs within the Project site survey area.

### **3.4.2 Agricultural**

Large swaths of the Project site consist of plots of agricultural fields that are no longer in use. Bermuda grass (*Cynodon dactylon*) is found in these areas with alfalfa (*Medicago sativa*) seedlings in lower numbers. Agricultural fields are similar to Bare Ground habitat where areas have higher water permeability and higher fossorial rodent habitat potential. Mexican palo verde are planted along the outside of several agriculture fields as wind breaks for agricultural purposes, these areas are therefore considered agricultural habitat. Trees are mature, averaging 15 meters in height and are continuously planted alongside the agricultural fields. Isolated honey mesquite (*Prosopis glandulosa*) shrubs were observed along the northwestern portion of the Project site along the tree line. Other plant species observed within the Project site included alfalfa (*Medicago sativa*), Mexican palo verde, big saltbush, and tamarisk. Approximately 91.96 acres of Agricultural fields occur within the Project site survey area.

### **3.4.3 Bare Ground**

Bare Ground areas are generally devoid of vegetation but do not contain any form of pavement. Bare Ground has higher water permeability and higher fossorial rodent habitat potential. Bare Ground is present throughout the entire Project site, with small patches between agricultural land and long swaths that include dirt access roads that receive very little use. Isolated alfalfa was the only vegetation observed in these areas. Approximately 148.07 acres of Bare Ground occurs within the Project site survey area.

### **3.4.4 Developed**

Developed areas are areas that have been altered by humans and now display man-made structures such as urban areas, houses, paved roads, buildings, parks, and other maintained areas (Gray and Bramlet 1992). Approximately 4.40 acres of Developed area occurs within the Project site survey area.

### **3.4.5 Disturbed**

Disturbed areas generally have altered topography and soils due to man-made reasons, usually pertaining to development or agricultural purposes. Any shrubs in the shrub canopy are isolated, and the herbaceous layer is sparse to intermittent with pockets of advantageous non-native species that spread from a singular location. Species observed included Bermuda grass (*Cynodon dactylon*), Mediterranean schismus (*Schismus barbatus*), and lamb's quarters (*Chenopodium album*). Approximately 6.38 acres of Disturbed areas occur within the Project site survey area.

### **3.4.6 Bush Seepweed Scrub**

Bush seepweed is dominant in the shrub canopy with scattered quail bush present. The shrub layer is intermittent to continuous with an herbaceous layer that is very sparse. Stands occur in gently sloping plains bordering agricultural fields or irrigation ditches and areas with disturbed hydrology due to man-made alteration. Soils are deep and saline or alkaline (Sawyer et al. 2009). Species observed within the Project site included bush seepweed and big saltbush. Approximately 3.52 acres of Bush Seepweed Scrub occurs within the Project site survey area.

### **3.4.7 Arrow Weed Thickets**

The shrub canopy is intermittent to continuous with shrubs reaching 2 to 3 meters in height. Vegetation is dominated by arrow weed and extends along the water feature, occasionally extending over the bank and into the access road. The herbaceous layer is open and intermittent, existing in between stands of cattail and arrow weed. The habitat exists in irrigation ditches consisting of soils that are sandy and loamy where water is permeable. Plant species observed included arrow weed, tamarisk, cattail, big saltbush, saltgrass (*Distichlis spicata*), and salt heliotrope (*Heliotropium curassavicum*). Approximately 6.23 acres of Arrow Weed Thickets occur within the Project site survey area.

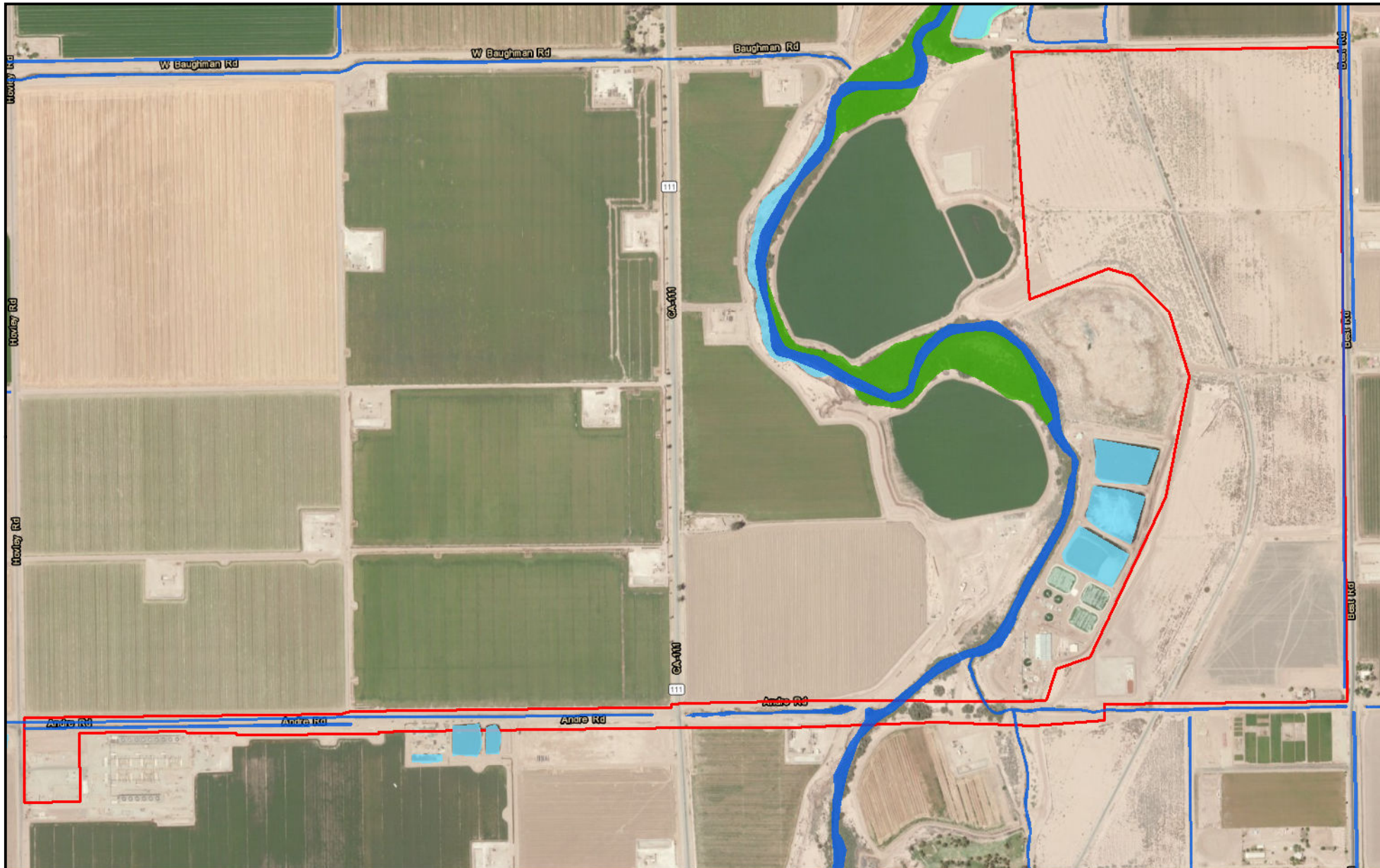
### **3.4.8 Ornamental**

Ornamental Landscaping includes areas where the vegetation is dominated by non-native horticultural plants (Gray and Bramlet 1992). Typically, the species composition consists of introduced trees, shrubs, flowers, and turf grass. Approximately 1.87 acres of Ornamental Landscaping occurs within the Project site survey area.

### **3.4.9 Tamarisk Thickets**

Tamarisk dominates the tree canopy and is thick and continuous. This non-native shrub layer is sparse with isolated quail bush present, while the herbaceous layer contains very little vegetation. Trees average 15 meters in height and exist in irrigation ditches or on the upper banks along water features. Species observed within the Project site included tamarisk and big saltbush. Approximately 5.16 acres of Tamarisk Thickets occur within the Project site survey area.

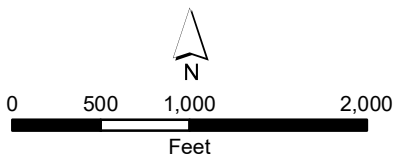




Survey Area

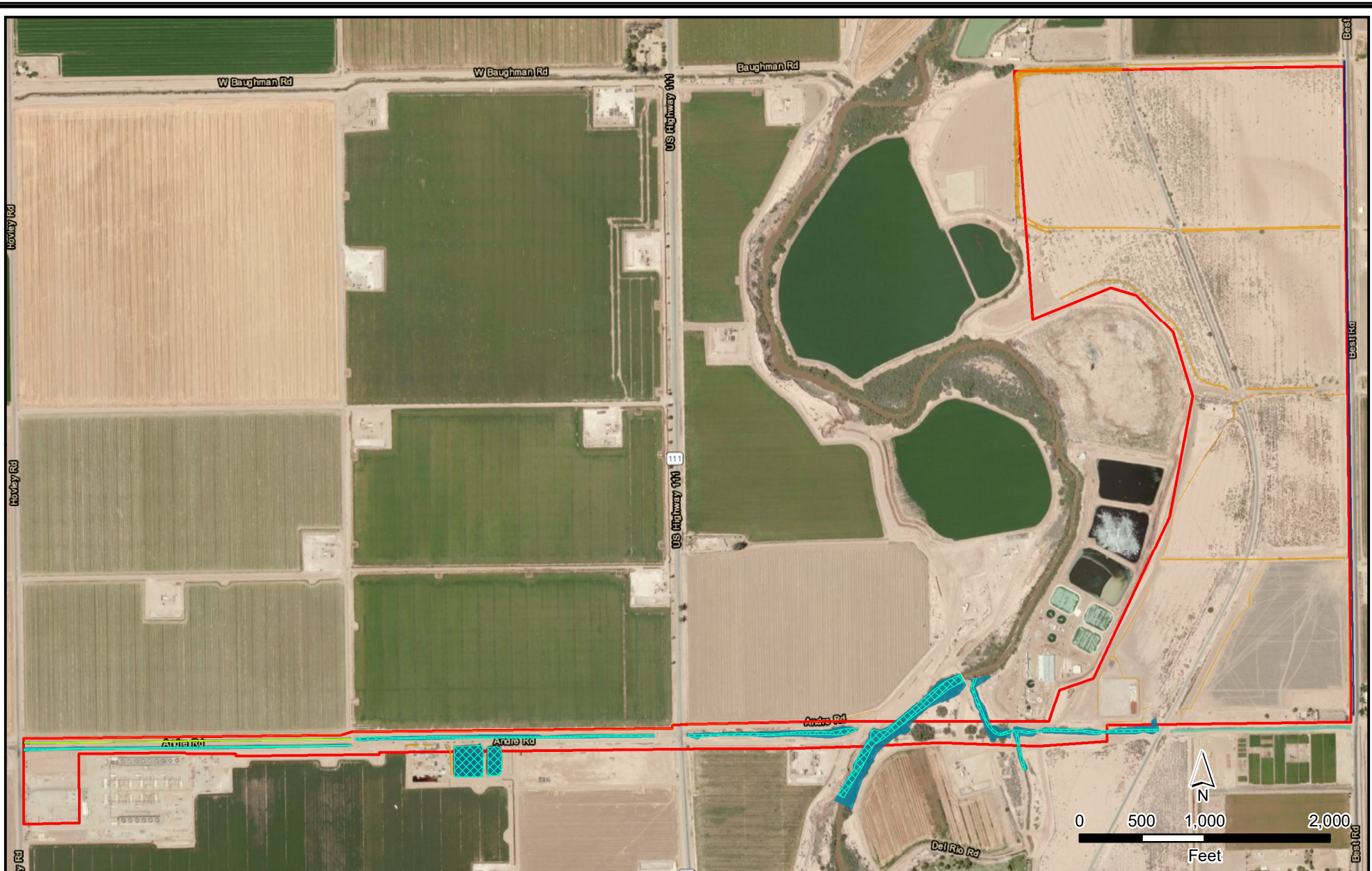
**NWI**

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine



**Figure 2**  
Brawley Solar  
NWI Mapped Waters

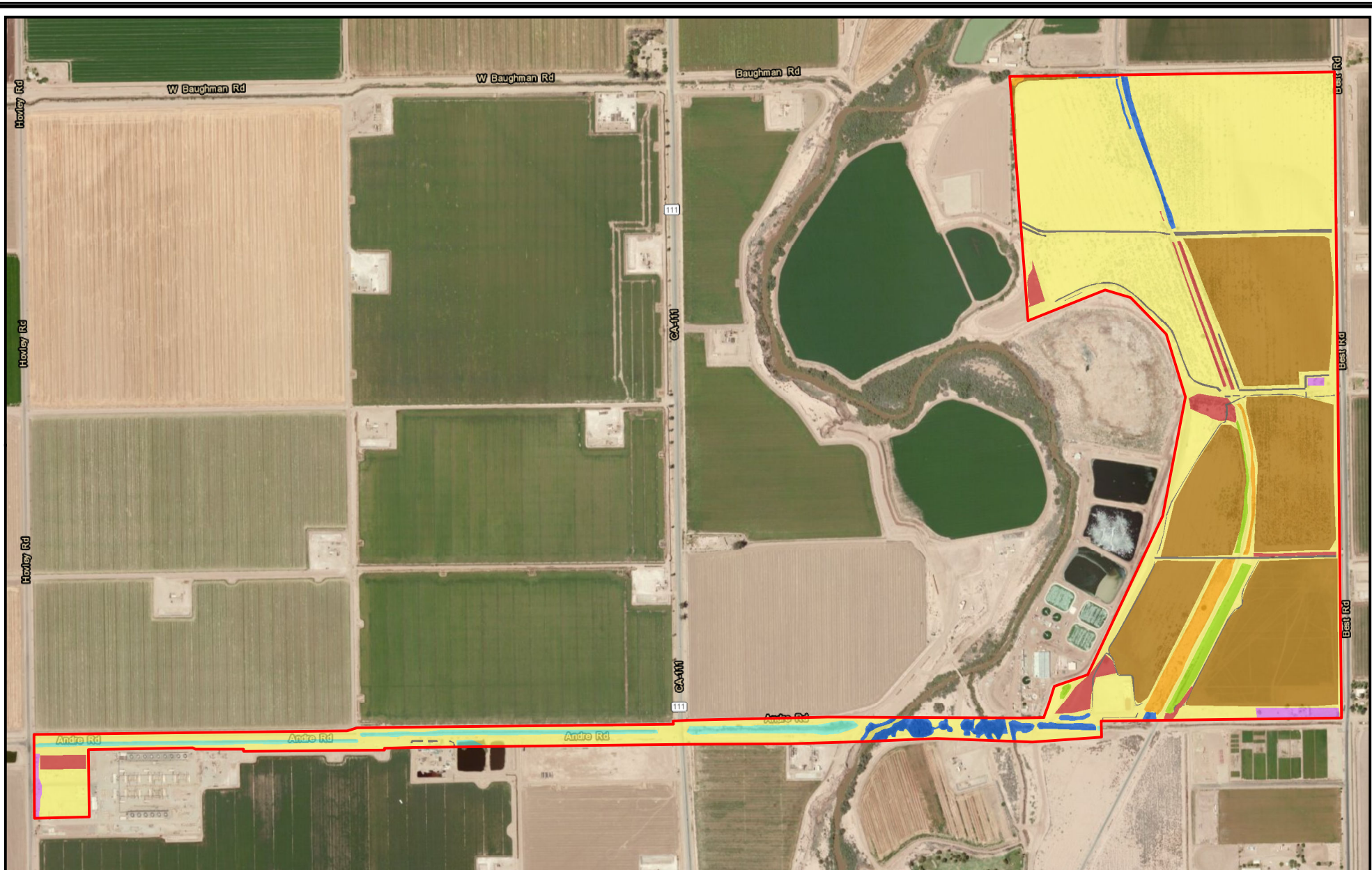




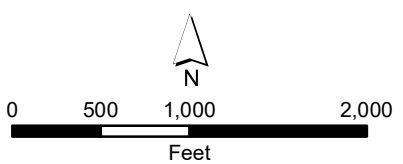
- |  |  |  |
|--|--|--|
| <span style="border: 1px solid red; display: inline-block; width: 20px; height: 10px;"></span> Survey Area                     |  |  |
| <b>CDFW Jurisdictional Features</b>  | <b>USACE/RWQCB Jurisdictional Features</b>   | <b>Non Jurisdictional Features</b>   |
| <span style="display: inline-block; width: 20px; height: 10px; background-color: lightblue;"></span> Wetland                   | <span style="display: inline-block; width: 20px; height: 10px; background-color: lightblue; border: 1px dashed black;"></span> Wetland                 | <span style="display: inline-block; width: 20px; height: 10px; background-color: yellow;"></span> Non-Jurisdictional Ditch |
| <span style="display: inline-block; width: 20px; height: 10px; background-color: darkblue;"></span> Non-Vegetated Drainage     | <span style="display: inline-block; width: 20px; height: 10px; background-color: lightgreen; border: 1px dashed black;"></span> Non-Vegetated Drainage |  |
| <span style="display: inline-block; width: 20px; height: 10px; background-color: lightgreen;"></span> Upland Vegetated Channel |  |  |

**Figure 3**  
Brawley Solar  
Jurisdictional Waters





- Survey Area**
- Survey Area
- Vegetation Communities**
- |   |   |
|---|---|
| <span style="display: inline-block; width: 15px; height: 10px; background-color: #c47a3b; margin-right: 5px;"></span> Agricultural        | <span style="display: inline-block; width: 15px; height: 10px; background-color: #c0392b; margin-right: 5px;"></span> Disturbed         |
| <span style="display: inline-block; width: 15px; height: 10px; background-color: #00b0f0; margin-right: 5px;"></span> Arrow Weed Thicket  | <span style="display: inline-block; width: 15px; height: 10px; background-color: #9b59b6; margin-right: 5px;"></span> Ornamental        |
| <span style="display: inline-block; width: 15px; height: 10px; background-color: #fff9c4; margin-right: 5px;"></span> Bareground          | <span style="display: inline-block; width: 15px; height: 10px; background-color: #f1c40f; margin-right: 5px;"></span> Quail Bush Scrub  |
| <span style="display: inline-block; width: 15px; height: 10px; background-color: #90ee90; margin-right: 5px;"></span> Bush Seepweed Scrub | <span style="display: inline-block; width: 15px; height: 10px; background-color: #3498db; margin-right: 5px;"></span> Tamarisk Thickets |
| <span style="display: inline-block; width: 15px; height: 10px; background-color: #808080; margin-right: 5px;"></span> Developed           |   |



**Figure 4**  
Brawley Solar  
Vegetation Communities



### 3.5 SENSITIVE SPECIES

The following information is a list of abbreviations used to help determine the significance of biological sensitive resources potentially occurring on the Project site.

#### Rare Plant Rank (RPR)

- List 1A = Plants presumed extinct in California
- List 1B = Plants rare and endangered in California and throughout their range
- List 2 = Plants rare, threatened, or endangered in California but more common elsewhere in their range
- List 3 = Plants about which we need more information; a review list
- List 4 = Plants of limited distribution; a watch list

#### RPR Extensions

- 0.1 = Seriously endangered in California (greater than 80 percent of occurrences threatened/high degree and immediacy of threat)
- 0.2 = Fairly endangered in California (20-80 percent occurrences threatened)
- 0.3 = Not very endangered in California (less than 20 percent of occurrences threatened)

#### Federal

- FE = Federally listed; Endangered
- FT = Federally listed; Threatened

#### State

- ST = State listed; Threatened
- SE = State listed; Endangered
- RARE = State-listed; Rare (Listed "Rare" animals have been redesignated as Threatened, but Rare plants have retained the Rare designation.)
- SSC = State Species of Special Concern

The following information was used to determine the significance of biological resources potentially occurring within the Project site. The criteria used to evaluate the potential for sensitive species to occur on the Project site are outlined in Table 1.

**Table 1: Criteria for Evaluating Sensitive Species Potential for Occurrence (PFO)**

PFO	CRITERIA
<b>Absent:</b>	Species is restricted to habitats or environmental conditions that do not occur within the Project site. Additionally, if the survey was conducted within the blooming period of the species and appropriate habitat was observed in the surrounding area but the species was not observed within the Project impact area, it was considered absent.
<b>Low:</b>	Historical records for this species do not exist within the immediate vicinity (approximately 5 miles) of the Project site, and/or habitats or environmental conditions needed to support the species are of poor quality.
<b>Moderate:</b>	Either a historical record exists of the species within the immediate vicinity of the Project site (approximately 3 miles) and marginal habitat exists on the Project site, or the habitat requirements or environmental conditions associated with the species occur within the Project site, but no historical records exist within 5 miles of the Project site.
<b>High:</b>	Both a historical record exists of the species within the Project site or its immediate vicinity (approximately 1 mile), and the habitat requirements and environmental conditions associated with the species occur within the Project site.
<b>Present:</b>	Species was detected within the Project site at the time of the survey.

\* PFO: Potential for Occurrence

### 3.5.1 Sensitive Plants

Factors used to determine the potential for occurrence included the quality of habitat, elevation, and the results of the reconnaissance survey. In addition, the location of prior CNDDDB records of occurrence were used as additional data; but since the CNDDDB is a positive-sighting database, this data was used only in support of the analysis from the previously identified factors.

Current database searches (CDFW 2020; CNPSEI 2020) resulted in a list of five federally and/or state listed threatened and endangered or rare sensitive plant species that may potentially occur within the Project site (Figure 5). After the literature review and the reconnaissance-level survey, it was determined that one species had a Moderate potential to occur; and four of these species are considered Absent from the Project site due to lack of suitable habitat.

The following four plant species are considered **Absent** from the Project site due to lack of suitable habitat:

- gravel milk-vetch (*Astragalus sabulonum*) -2B.2
- Munz’s cholla (*Cylindropuntia munzii*) – 1B.3
- glandular ditaxis (*Ditaxis claryana*) – 2B.2
- Thurber’s pilostyles (*Pilostyles thurberi*) – 4.3

The following species is considered **Low Potential** to be observed in the Project site due to lack of suitable habitat:

- Abram’s spurge (*Euphorbia abramsiana*) – 2B.2

Abram’s spurge is an annual herb in the spurge family that mostly exists in Sonoran or Mojave Desert habitats, favoring sandy flats where water is permeable (Sawyer et al. 2009). Although the habitats

available at the Project site are not typically where this plant would grow, it has the low potential to occur in fields, irrigation ditches, and other disturbed areas that all exist within the Project site. In addition, this species was positively identified less than 2 miles from the Project site. This identification, however, was made before 1940 and the population is presumed to be extirpated due to agricultural and residential development.



### 3.5.2 Sensitive Wildlife

A current database search (CDFW 2020) resulted in a list of 23 federally and/or state listed endangered or threatened, Species of Concern, or otherwise sensitive wildlife species that may potentially occur within the Project site (Figure 5). After a literature review and the assessment of the various habitat types within the Project site, it was determined that 17 sensitive wildlife species were considered absent from the Project site, three species have a low potential to occur, two species have a high potential to occur, and one species was present within the Project site. Factors used to determine potential for occurrence included the quality of habitat and the location of prior CNDDDB records of occurrence.

The following 17 wildlife species are considered **absent** from the Project site due to lack of suitable habitat present on the Project site:

- American badger (*Taxidea taxus*)- SSC
- black skimmer (*Rynchops niger*) – SSC
- California black rail (*Laterallus jamaicensis coturniculus*) – **ST**
- Colorado Desert fringe-toed lizard (*Uma notata*) – SSC
- crissal thrasher (*Toxostoma crissale*) – SSC
- desert pupfish (*Cyprinodon macularius*) – **FE, SE**
- Gila woodpecker (*Melanerpes uropygialis*) – **SE**
- gull-billed tern (*Gelochelidon nilotica*) – SSC
- Le Conte's thrasher (*Toxostoma lecontei*) – SSC
- lowland leopard frog (*Lithobates yavapaiensis*) – SSC
- Palm Springs pocket mouse (*Perognathus longimembris bangsi*) – SSC
- razorback sucker (*Xyrauchen texanus*) – **FE, SE**
- Sonoran Desert toad (*Incilius alvarius*) – SSC
- western snowy plover (*Charadrius alexandrinus nivosus*) – **FE, SSC**
- yellow warbler (*Setophaga petechia*) – SSC
- Yuma hispid cotton rat (*Sigmodon hispidus eremicus*) – SSC
- Yuma Ridgway's rail (*Rallus obsoletus yumanensis*) – **FE, ST**

The analysis of the CNDDDB search and field survey resulted in three species with a **low** potential to occur on the Project site due to low quality habitat and are described below:

- flat-tailed horned lizard (*Phrynosoma mcallii*) – SSC
- short-eared owl (*Asio flammeus*) – SSC
- western yellow bat (*Lasiurus xanthinus*) – SSC

The analysis of the CNDDDB search and field survey resulted in two species with a **high** potential to occur on the Project site. Burrowing owl (*Athene cunicularia*) and Mountain plover (*Charadrius montanus*) have a high potential to occur and are described below:

#### **Burrowing owl- SSC**

The burrowing owl (BUOW) is a California Species of Special Concern. The burrowing owl breeds in open plains from western Canada and the western United States, Mexico through Central America, and into South America to Argentina (Klute et al. 2003). This species inhabits dry, open, native or non-native grasslands, deserts, and other arid environments with low-growing and low-



density vegetation (Ehrlich et al. 1988). It may occupy golf courses, cemeteries, road rights-of way, airstrips, abandoned buildings, irrigation ditches, and vacant lots with holes or cracks suitable for use as burrows (TLMA 2006). Burrowing owls typically use burrows made by mammals such as California ground squirrels (*Otospermophilus beecheyi*), foxes, or badgers (Trulio 1997). When burrows are scarce, the burrowing owl may use man-made structures such as openings beneath cement or asphalt pavement, pipes, culverts, and nest boxes (TLMA 2006). High quality habitat exists within the Project site. In addition, burrowing owl have recently been recorded within 0.14 mile of the Project site. Therefore, this species has a high potential to occur within the Project site.

#### **Mountain plover – SSC**

The mountain plover (wintering) is a California Species of Special Concern and a federally Proposed Threatened Species. This species breeds from the prairie and sagebrush country of north-central Montana, eastern Wyoming, and the area around southeastern Colorado. It winters from central California along the southern border southward to northern Mexico (Udvardy 1977). Common wintering habitats consist of dry, barren ground, smooth dirt fields, agricultural fields, and shortgrass prairies. This species tends to form small flocks in the winter. It is one of the few shorebird species that prefers habitats away from water. The Project site contains suitable habitat of moderate to high quality. In addition, mountain plover have been recorded to occur within 1 mile of the Project site. Therefore, this species has a high potential to occur with the site.

One species, the loggerhead shrike (*Lanius ludovicianus*), was **present** within and directly adjacent to the Project site during the survey. In addition, this species has been recorded to nest within and surrounding the Project site.

#### **Loggerhead shrike – SSC**

The loggerhead shrike (nesting) is a California Species of Special Concern. Habitats may include oak savannas, open chaparral, desert washes, juniper woodlands, Joshua tree woodlands, and other semi-open areas. It can occupy a variety of semi-open habitats with scattered trees, large shrubs, utility poles, and other structures that serve as lookout posts while searching for potential prey. Loggerhead shrikes prefer dense, thorny shrubs and trees, brush piles, and tumbleweeds for nesting (Seattle Audubon Society 2008). During the survey, one individual was observed just outside the northwest boundary of the Project site, and an additional individual was observed within the southwest portion of the Project site (Figure 6). In addition, suitable nesting and foraging habitat is present within and directly adjacent to the Project site.

### **3.6 GENERAL PLANTS**

No sensitive plant species were observed during the survey effort. A complete list of plants observed is provided in Appendix B.

### **3.7 GENERAL WILDLIFE**

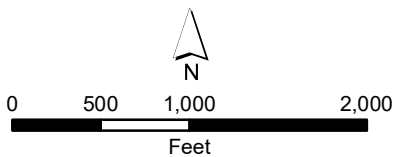
A total of 39 wildlife species were observed during the survey. Wildlife species observed or detected during the survey were characteristic of the existing Project site conditions. One California Species of Special Concern, loggerhead shrike, and two California watch list species, black-tailed gnatcatcher

(*Polioptila melanura*) and ferruginous hawk (*Buteo regalis*) were observed within the Project site. A complete list of wildlife observed is provided in Appendix C.





- Survey Area
- Species Observations**
- ✎ Loggerhead Shrike
- ✎ Northern Harrier



**Figure 6**  
Brawley Solar  
Sensitive Species Observations

## SECTION 4.0 – CONCLUSIONS AND RECOMMENDATIONS

### 4.1 SENSITIVE PLANTS

After the literature review, the assessment of the various habitat types in the Project site, and the reconnaissance survey were conducted, it was determined that 4 sensitive plant species are considered absent from the Project site and 1 special status plant has a low potential to be present.

Abram's spurge has a low potential to occur. However, low quality habitat for this species occurs within the Project site and it has not been recorded within 3 miles of the site in the last 25 years. Therefore, no impacts to these species are anticipated to occur due to Project related activities.

### 4.2 SENSITIVE WILDLIFE

Of the 23 sensitive wildlife species identified in the literature review, it was determined that 17 sensitive wildlife species were considered absent from the Project site. Three species have a low potential to occur, two species have a high potential to occur, and one species was present within the Project site.

Flat-tailed horned lizard, short-eared owl, and western yellow bat have a low potential to occur. However, low quality habitat for these species occurs within the Project site; and none of these species have been recorded within the site within the last 25 years. Therefore, no impacts to these species are anticipated to occur as a result of Project activities.

Burrowing owl and mountain plover are considered to have a high potential to occur within the Project site. Two loggerhead shrikes were observed within the Project site. In order to minimize potential impacts to these species, a pre-construction survey should be conducted no more than 30 days prior to the start of construction activities. If any of these species are observed during the pre-construction survey, CDFW should be notified immediately; and an appropriate avoidance buffer should be established and measures to avoid or minimize impacts to the species should be submitted to CDFW for approval prior to construction. In addition, a biological monitor is recommended to be present during all construction activities occurring within 150 feet of wintering mountain plover or nesting loggerhead shrike and 500 feet of nesting burrowing owl.

### 4.3 JURISDICTIONAL WATERS

Several jurisdictional features were observed within the Project site. However, the project has been designed to avoid impacts to waters of the State and waters of the U.S.

The ICFD Fire Prevention Bureau requires two points of emergency access for the Project, including two separate ingress/egress routes to access the west side of the railroad tracks running north/south through the center of the Project. Three access points will be available to access the Project site including: primary access located in the middle of Best Avenue, a secondary construction access located in the southeast corner, and an emergency access located in the northwest corner. The emergency access route from the northwest portion of the Project site will be designed to cross a non-jurisdictional agricultural ditch. Potential access route options include converting a non-vegetated portion of an open cement culvert to a corrugated metal pipe (CMP) or a closed concrete pipe of similar size and establishing an access road above the pipe. Native quail bush and non-native tamarisk and Mexican palo verde are located within the

irrigation ditch. It is recommended the access routes be constructed in an area that will avoid or minimize impacts to native vegetation found within the irrigation ditch.

No impacts to waters of the State and/or waters of the US are anticipated. However, if impacts to waters of the State and/or waters of the US are unavoidable as the Project designs are finalized, a USACE 404 permit, State 401 certification, and/or State Lake and Streambed Alteration Agreement may be required for Project authorization. If permits are required for Project authorization, mitigation for impacts will be determined through coordination with the agencies during the permit application process. Prior to construction, installation of Best Management Practices should be installed for water quality and erosion control measures to minimize/avoid potential impacts. A biological monitor should be present prior to initiation of ground disturbing activities to demark limit of disturbance boundaries. Flagging and/or staking should be used to clearly define the work area boundaries and avoid impacts to adjacent native communities.

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## APPENDIX A – SITE PHOTOGRAPHS





**APPENDIX A – SITE PHOTOGRAPHS**



Photo 1.  
Photo of the western end of the Spruce Three Drain, non-vegetated, jurisdictional feature which runs parallel with the forested wetland jurisdictional feature just south of it. Photo is facing west.



Photo 2.  
Photo of the eastern end of the Spruce Three Drain, forested shrub wetland, jurisdictional feature. The vegetation community consists of Riparian scrub. Photo facing east.





Photo 3.  
Overview of the New River that cuts diagonally through the Project site. The vegetation community is undisturbed Mediterranean Tamarisk. Photo is facing southeast.



Photo 4.  
Overview of a man-made ditch leading into a culvert just north of the Livesley Drain. The area above the drainage is a disturbed vegetation community of Cattle Spinach. Photo is facing northwest.





Photo 5.  
Overview of the Ornamental Landscaping just north of the Livesley Drain. The vegetation community is agricultural Bermuda grass. There is a man-made ditch surrounding it. Photo is facing north.



Photo 6.  
Overview of the undisturbed scrub/chaparral vegetation community on the south side of the Project site. This area also contains a man-made culvert. Photo is facing northeast.





Photo 7.  
Overview of the southeast corner of the Project site. There is a strip of barren land and above that is the agricultural Bermuda grass. South of the barren land is the Livesley Drain. Photo is facing northeast.



Photo 8.  
Photo of a house as well as the vegetation community of Paloverde and Honey Mesquite in the southeast corner of the Project site. Photo is facing west.





Photo 9.

Photo showing the man-made ditch, in the middle of the Project site, that leads to a culvert. South of the ditch is agricultural Bermuda grass and to the north of the ditch is agricultural Alfalfa. Photo is facing west.



Photo 10.

Photo of the culvert, in the middle of the Project site, that the man-made ditch leads into. Photo is facing east.





Photo 11.  
Overview of the northeast side of the Project site. To the east is bare ground, and to the west is a strip of mainly Mediterranean Tamarisk. A man-made ditch runs through it. Photo is facing north.



Photo 12.  
Photo of a culvert that is in the center of the north side of the Project site. It is surrounded by mainly bare ground with man-made ditches running through. Photo is facing north.





Photo 13.  
Photo showing the southwest corner of the north side of the Project site. There is a culvert and disturbed bare ground. Photo is facing southeast.



Photo 14.  
Overview of the bare ground on the northwest side of the Project site. Photo is facing east.



Photo 15.  
Overview of  
the wetland  
area in the  
northwest  
corner of the  
Project site.  
Photo is facing  
north.



## APPENDIX B – PLANT SPECIES LIST



**APPENDIX B – PLANT SPECIES OBSERVED**

Scientific Name	Common Name
<b>ANGIOSPERMS (EUDICOTS)</b>	
<b>AMARANTHACEAE</b>	<b>AMARANTH FAMILY</b>
<i>Amaranthus</i> sp.	pigweed
<i>Amaranthus biltooides</i>	prostrate pigweed
<i>Suaeda nigra</i>	bush seepweed
<b>ASTERACEAE</b>	<b>SUNFLOWER FAMILY</b>
<i>Chloracantha spinosa</i>	spiny chlorocantha
<i>Pluchea sericea</i>	arrow weed
<b>BORAGINACEAE</b>	<b>BORAGE FAMILY</b>
<i>Heliotropium curassavicum</i>	salt heliotrope
<b>BRASSICACEAE</b>	<b>MUSTARD FAMILY</b>
<i>Brassica tournefortii</i> *	Sahara mustard
<b>CHENOPODIACEAE</b>	<b>GOOSEFOOT FAMILY</b>
<i>Atriplex lentiformis</i>	quail bush
<i>Chenopodium album</i> *	lamb's quarters
<b>FABACEAE</b>	<b>LEGUME FAMILY</b>
<i>Medicago sativa</i>	alfalfa
<i>Parkinsonia aculeata</i>	Mexican palo verde
<i>Prosopis glandulosa</i>	honey mesquite
<b>TAMARICACEAE</b>	<b>TAMARISK FAMILY</b>
<i>Tamarix ramosissima</i> *	Mediterranean tamarisk
<b>ZYGOPHYLLACEAE</b>	<b>CALTROP FAMILY</b>
<i>Larrea tridentata</i>	creosote bush
<b>ANGIOSPERMS (MONOCOTS)</b>	
<b>POACEAE</b>	<b>GRASS FAMILY</b>
<i>Cynodon dactylon</i>	Bermuda grass
<i>Distichlis spicata</i>	saltgrass
<i>Schismus barbatus</i> *	Mediterranean schismus
<b>TYPHACEAE</b>	<b>CATTAIL FAMILY</b>
<i>Typha</i> sp.	cattail

\*Non-Native Species

## **APPENDIX C – WILDLIFE SPECIES LIST**



**APPENDIX C – WILDLIFE SPECIES LIST**

Scientific Name	Common Name
<b>CLASS REPTILIA</b>	<b>REPTILES</b>
<b>PHRYNOSOMATIDAE</b>	<b>ZEBRA-TAILED, EARLESS, FRINGE-TOED, SPINY, TREE, SIDE-BLOTCHED, AND HORNED LIZARDS</b>
<i>Sceloporus occidentalis</i>	western fence lizard
<b>CLASS AVES</b>	<b>BIRDS</b>
<b>PODICIPEDIDAE</b>	<b>GREBES</b>
<i>Aechmophorus clarkii</i>	Clark's grebe
<b>PHALACROCORACIDAE</b>	<b>CORMORANTS</b>
<i>Phalacrocorax auritus</i>	double-crested cormorant
<b>ARDEIDAE</b>	<b>HERONS, BITTERNs</b>
<i>Egretta thula</i>	snowy egret
<b>THRESKIORNITHIDAE</b>	<b>IBISES</b>
<i>Plegadis chihi</i>	white-faced ibis
<b>ANATIDAE</b>	<b>DUCKs, GEESE, SWANS</b>
<i>Anas platyrhynchos</i>	mallard
<b>CATHARTIDAE</b>	<b>NEW WORLD VULTURES</b>
<i>Cathartes aura</i>	turkey vulture
<b>ACCIPITRIDAE</b>	<b>HAWKS, KITES, EAGLES</b>
<i>Buteo jamaicensis</i>	red-tailed hawk
<i>Circus cyaneus</i>	northern harrier
<b>FALCONIDAE</b>	<b>FALCONS</b>
<i>Falco columbarius</i>	merlin
<i>Falco sparverius</i>	American kestrel
<b>ODONTOPHORIDAE</b>	<b>NEW WORLD QUAIL</b>
<i>Callipepla gambelii</i>	Gambel's quail
<b>RALLIDAE</b>	<b>RAILS, GALLINULES, COOTS</b>
<i>Fulica americana</i>	American coot
<b>CHARADRIIDAE</b>	<b>PLOVERS</b>
<i>Charadrius vociferus</i>	killdeer
<b>RECURVIROSTRIDAE</b>	<b>STILTS &amp; AVOCETS</b>
<i>Himantopus mexicanus</i>	black-necked stilt
<b>SCOLOPACIDAE</b>	<b>SANDPIPERS</b>
<i>Calidris minutilla</i>	least sandpiper
<i>Tringa semipalmata</i>	willet
<i>Limnodromus griseus</i>	short-billed dowitcher
<i>Limnodromus scolopaceus</i>	long-billed dowitcher
<b>COLUMBIDAE</b>	<b>PIGEONS &amp; DOVES</b>
<i>Streptopelia decaocto</i>	Eurasian collared-dove
<i>Zenaida macroura</i>	mourning dove



Scientific Name	Common Name
<b>PICIDAE</b>	<b>WOODPECKERS</b>
<i>Colaptes auratus</i>	northern flicker
<b>TYRANNIDAE</b>	<b>TYRANT FLYCATCHERS</b>
<i>Sayornis nigricans</i>	black phoebe
<i>Sayornis saya</i>	Say's phoebe
<i>Pyrocephalus rubinus</i>	vermillion flycatcher
<b>HIRUNDINIDAE</b>	<b>SWALLOWS</b>
<i>Hirundo rustica</i>	barn swallow
<i>Tachycineta thalassina</i>	violet-green swallow
<b>REMIZIDAE</b>	<b>VERDINS</b>
<i>Auriparus flaviceps</i>	verdin
<b>TROGLODYTIDAE</b>	<b>WRENS</b>
<i>Salpinctes obsoletus</i>	rock wren
<i>Troglodytes aedon</i>	house wren
<b>POLIOPTILIDAE</b>	<b>GNATCATCHERS</b>
<i>Polioptila caerulea</i>	blue-gray gnatcatcher
<i>Polioptila melanura</i>	black-tailed gnatcatcher
<b>MIMIDAE</b>	<b>MOCKINGBIRDS, THRASHERS</b>
<i>Mimus polyglottos</i>	northern mockingbird
<b>LANIIDAE</b>	<b>SHRIKES</b>
<i>Lanius ludovicianus</i>	loggerhead shrike
<b>PARULIDAE</b>	<b>WOOD WARBLERS</b>
<i>Setophaga nigrescens</i>	black-throated gray warbler
<i>Geothlypis trichas</i>	common yellowthroat
<b>ICTERIDAE</b>	<b>BLACKBIRDS</b>
<i>Agelaius phoeniceus</i>	red-winged blackbird
<i>Sturnella neglecta</i>	western meadowlark
<i>Quiscalus mexicanus</i>	great-tailed grackle
<b>FRINGILLIDAE</b>	<b>FINCHES</b>
<i>Haemorhous mexicanus</i>	house finch