

**FINAL**

**Biological Technical Report  
for the  
Campo Verde Solar Project**

Prepared for:

First Solar

Prepared by:

Heritage Environmental Consultants



July 2012

# TABLE OF CONTENTS

<b>1.0</b>	<b>Introduction.....</b>	<b>1-4</b>
1.1	<i>Project Description.....</i>	1-4
1.1.1	Solar Energy Facility Site .....	1-4
1.1.2	Proposed Gen-Tie .....	1-2
1.1.3	Survey Area .....	1-4
1.2	<i>Regulatory Environment.....</i>	1-5
1.2.1	Federal .....	1-5
1.2.2	State.....	1-7
<b>2.0</b>	<b>Survey Methods .....</b>	<b>2-1</b>
2.1	<i>Field Surveys .....</i>	2-1
2.1.1	General Biological Survey .....	2-1
2.1.2	Focused Rare Plant Survey.....	2-1
2.1.3	Focused Burrowing Owl Surveys .....	2-2
2.1.4	Avian Use Surveys.....	2-3
2.1.5	Jurisdictional Delineation .....	2-4
2.2	<i>Literature Review .....</i>	2-4
<b>3.0</b>	<b>Existing Conditions.....</b>	<b>3-1</b>
3.1	<i>Campo Verde Solar Energy Facility Site .....</i>	3-1
3.1.1	Topography, Soils and Drainage.....	3-1
3.1.2	General Vegetation .....	3-2
3.1.3	General Wildlife.....	3-6
3.1.4	Sensitive Biological Resources .....	3-8
3.2	<i>Gen-tie Line Alternatives .....</i>	3-25
3.2.1	Soils and Topography .....	3-25
3.2.2	General Vegetation .....	3-26
3.2.3	Special Status Plant Species.....	3-28
3.2.4	Alternative Descriptions - Vegetation .....	3-41
3.2.5	General Wildlife.....	3-43
3.2.6	Special Status Wildlife Species .....	3-44
3.2.7	Alternative Descriptions - Wildlife .....	3-49
3.2.8	Riparian Habitat or Sensitive Natural Communities.....	3-51
3.2.9	Jurisdictional Waters.....	3-51
3.2.10	Habitat Connectivity and Wildlife Corridors .....	3-52
3.2.11	California Desert Conservation Area.....	3-53
<b>4.0</b>	<b>Environmental Consequences .....</b>	<b>4-1</b>
4.1	<i>Campo Verde Solar Energy Facility Site .....</i>	4-4
4.1.1	Impact to Special Status Species.....	4-4
4.1.2	Impact to Riparian Habitat or Special Status Communities.....	4-12
4.1.3	Impact to Jurisdictional Waters.....	4-12
4.1.4	Impact to Wildlife Movement and Nursery Sites .....	4-13
4.2	<i>Gen-tie Line Alternatives .....</i>	4-13
4.2.1	Impact to Special Status and Priority Plant Species .....	4-13
4.2.2	Impact to Special Status Wildlife Species.....	4-15
4.2.1	Impact to Riparian Habitat or Special Status Natural Communities.....	4-26

4.2.2 Impact to Jurisdictional Waters..... 4-27

4.2.3 Impact to Wildlife Movement and Nursery Sites..... 4-27

4.2.4 Impact to California Desert Conservation Area..... 4-27

**5.0 Recommended Mitigation ..... 5-1**

**6.0 Cumulative Effects ..... 6-1**

**7.0 References Cited ..... 7-1**

**Tables**

Table 1 – Privately Owned Parcels – Solar Energy Facility Site ..... 1-2

Table 2 – Proposed Impacts for the Campo Verde Solar Project ..... 1-4

Table 3 – Vegetation Communities/Land Cover Types Within The Campo Verde Solar Energy Facility Survey Area ..... 3-3

Table 4 – Agricultural Crop History for 2005-2009 in the Imperial Valley..... 3-18

Table 5 – Special Status Plant Species Potentially Occurring in the Gen-tie Survey Area..... 3-33

Table 6 - Vegetation Communities/Land Cover Types ..... 3-41

Proposed Gen-Tie ..... 3-41

Table 7 - Vegetation Communities/Land Cover Types ..... 3-42

Alternative Gen-Tie Across BLM Land ..... 3-42

Table 8 - Vegetation Communities/Land Cover Types ..... 3-42

Private Land Gen-Tie Alternative..... 3-42

Table 9 – Proposed Impacts to Vegetation Communities by Alternative/Project Component... 4-2

Table 10 – Approved and/or Proposed Projects In Imperial Valley Under BLM Jurisdiction .... 6-2

Table 11 – Approved and/or Proposed Projects In Imperial Valley Under Imperial County Jurisdiction..... 6-9

**Attachments**

- Attachment 1 – Figures
- 1: Project Location
  - 2: Proposed Project
  - 3: Survey Area
  - 4: Potential SWFL and YCR Habitat
  - 5: BUOW Occurrences
  - 6: Vegetation Mapbook
  - 7: ACOE/CDFG Potentially Jurisdictional Waters Mapbook
  - 8: ACOE/CDFG Potentially Impacted Jurisdictional Waters
- Attachment 2: Plant Species Observed in the Campo Verde Survey Area
- Attachment 3: Wildlife Species Observed in the Campo Verde Survey Area

## Appendices

---

- Appendix 1: Burrowing Owl Survey Report
- Appendix 2: Jurisdictional Waters Report
- Appendix 3: Avian Survey Report
- Appendix 4: Mountain Plover Survey Report
- Appendix 5: Rare Plant Survey Report



---

# 1.0 INTRODUCTION

---

The Campo Verde Solar Project (Project) is a proposed solar photovoltaic (PV) energy-generating facility located in Imperial County approximately 7 miles southwest of the community of El Centro, California (**Attachment 1: Figure 1**).

The Project is being developed to sell its electricity and all renewable and environmental attributes to an electric utility purchaser under a long-term contract to help meet California RPS goals. The applicant has a long-term Power Purchase Agreement (PPA) with San Diego Gas and Electric (SDG&E) to purchase output from the Project.

The Project Site is south of I-8, west of Drew Road, and northeast of the Westside Main Canal. **Attachment 1: Figure 2** shows the boundary of the Site and the included parcels which total approximately 1,990 acres. These private lands are currently used for agriculture.

## 1.1 Project Description

### 1.1.1 Solar Energy Facility Site

The Campo Verde Solar Project would consist of two component parts: the Solar Energy Facility Site and the Gen-tie Line. The Solar Energy Facility Site would be approximately 1,990 acres and would use First Solar PV modules that are generally non-reflective and convert sunlight into direct current (DC) electricity. The DC output of multiple rows of PV modules is collected through one or more combiner boxes and directed to an inverter that converts the DC electricity to alternating current (AC) electricity. From the inverter, the generated energy flows to a transformer where it is stepped up to distribution level voltage (approximately 34.5 kV). Multiple transformers are connected in parallel via 34.5 kV lines to the Project substation, where the power will be stepped up to 230 kV. This substation will be located at the southern end of the properties adjacent to Liebert Road. At the Project substation, the Solar Energy Facility will interconnect to the grid via a new line constructed from this location to the Imperial Valley Substation approximately 0.8 to 1.00 miles to the south. In addition, the Project may interconnect temporarily to the IID S-Line that traverses the site.

The Campo Verde Solar Project will utilize First Solar's thin-film PV modules in order to produce clean, renewable energy. The PV panels will be mounted either on fixed-tilt supports or on single-axis trackers. If mounted on fixed tilt structures, the panels would be arranged into east-west oriented rows throughout the site with panels mounted facing south at angle that optimizes the amount of direct sunlight hitting the panels. Using single-axis horizontal trackers, the panels will be oriented in north-south rows with the panels moving to track the sun as it moves across the sky during the day. The trackers include low voltage electric drive motors, controller equipment, backup power supply, and anemometer towers.

The Project's overall annual availability is expected to be in the range of 99 percent of daylight hours. **Table 1** lists the Assessor Parcel Numbers (APNs) for the Solar Energy Facility.

Table 1 – Privately Owned Parcels – Solar Energy Facility Site

Assessor's Parcel Number	Acreage	Zoning
051-270-037-000	57.19 acres	A-2-R
051-270-047-000	81.16 acres	A-2-R
051-290-038-000	13.88 acres	A-2-R
051-270-027-000	120.86 acres	A-2-R
051-300-030-000	221.88 acres	A-2-R
051-300-029-000	119.91 acres	A-2-R, A-2
051-300-025-000	164.86 acres	A-2-R
051-330-015-000	119.18 acres	A-2-R, A-3
051-330-020-000	40.0 acres	A-2-R
051-330-005-000	80.0 acres	A-3
051-350-005-000	28.8 acres	A-3
051-330-019-000	101.90 acres	A-2-R, A-3
051-350-014-000	184.00 acres	A-3
051-360-018-000	1.80 acres	A-3
051-360-001-000	57.06 acres	A-2-R
051-360-002-000	23.16 acres	A-2-R
051-360-003-000	32.03 acres	A-2-R
051-360-004-000	55.0 acres	A-2-R
051-360-032-000	203.72 acres	A-2-R, A-2
051-310-060-000	0.82 acres	A-2-R
051-310-040-000	92.23 acres	A-2
051-310-059-000	31.96 acres	A-2-R
051-310-057-000	25.27 acres	A-2-R
051-310-056-000	80.65 acres	A-2-R
051-310-049-000	9.97 acres	A-2-R
051-310-050-000	42.42 acres	A-2-R
051-310-058-000	0.90 acres	A-2-R
051-270-037-000	57.19 acres	A-2-R
051-270-047-000	81.16 acres	A-3
051-290-038-000	13.88 acres	A-2-R
<b>Total</b>	<b>1,990.61</b>	

### 1.1.2 Proposed Gen-Tie

The Solar Energy Facility will be interconnected to the regional transmission system via a 230kV double-circuit transmission line from the Solar Energy Facility to the Imperial Valley Substation. The Proposed Gen-Tie would originate at the Project substation/switchyard at the southern end of the Solar Energy Facility site and would go across BLM land for about 0.9 miles BLM to the Imperial Valley Substation. The Gen-Tie is located entirely within a BLM-designated utility corridor. Proposed impacts for this alternative are shown in **Table 2**.

## 1.2 Alternatives

The project considered several Gen-Tie alternatives to provide the needed interconnection to the Imperial Valley Substation. In addition to the Proposed Gen-Tie, route alternatives were developed to minimize impacts by co-locating with existing linear facilities. Proposed impacts for this alternative are shown in **Table 2**.

### 1.2.1 Alternative Gen-Tie Across BLM Land

The Alternative Gen-Tie across BLM Land would parallel the existing IID S-line and associated access road. The existing road would be used to provide access for this gen-tie and the existing line would not be affected by it. After it leaves the Solar Energy Facility site, this gen-tie alternative would cross a total of about 0.8 miles with about 0.4 miles on BLM land and 0.4 miles on private lands. The private lands are fallow agricultural fields. Proposed impacts for this alternative are shown in **Table 2**.

### 1.2.2 Private Land Gen-Tie Alternative

The Private Land Gen-Tie Alternative would originate from the western side of the Project site and would cross approximately 1.75 miles of private lands to the west. It would follow existing field roads and ditches to the C-Solar West Project site. From there, available capacity would be utilized on the C-Solar West Project's gen-tie line that has an approved right-of-way to the Imperial Valley Substation and use of that gen-tie line would not require any physical disturbance beyond that already permitted and approved. Proposed impacts for this alternative are shown in **Table 2**.

**Figure 3** shows the locations of the various gen-tie alternatives described above.

In addition to any of the long-term interconnection solutions described above, a short-term electrical interconnection solution may be implemented that would involve an interconnection to IID's S Line that crosses the site. If this solution is utilized, it would provide temporary interconnection to the grid and would be replaced by the permanent interconnection into the Imperial Valley Substation when completed.

**Table 2 – Proposed Impacts for the Campo Verde Solar Project**

<b>Project Component</b>	<b>Temporary Impacts (acres)</b>	<b>Permanent Impacts (acres)</b>
<b><u>Proposed Project</u></b>		
<b>Campo Verde Solar Site</b>	1,852.0	1,852.0
<b>Proposed Gen-Tie</b>		
<b>Total</b>	<b>7.69</b>	<b>0.05</b>
<b><u>Alternatives</u></b>		
<b>Alternative Gen-Tie Across BLM Land</b>		
<b>Total</b>	<b>8.01</b>	<b>0.05</b>
<b>Private Land Gen-Tie Alternative</b>		
<b>Total</b>	<b>10.19</b>	<b>0.10</b>

### 1.1.3 Survey Area

The survey area for the Project is shown on **Attachment 1: Figure 3** and includes:

- The Campo Verde Solar Energy Facility and a 1,000-foot buffer;
- The Proposed Gen-Tie and Alternative Gen-Tie across BLM land encompassing a 160-foot Gen-tie right-of-way (ROW) corridor on federal land, and the Private Land Gen-Tie Alternative encompassing a 200-foot buffer on both sides of the ROW

The survey area is found in portions of Township 16 South, Range 12 East, Sections 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 33, and 34; and Township 16.5 South, Range 12 East, Section 3.

The survey area for most species/resources is defined as the Project Area plus a 1,000-foot buffer area. The survey area is 4,288 acres in size. Some species required different survey areas, which are described on a case-by-case basis.

## 1.2 Regulatory Environment

The following state and federal environmental regulations apply to the proposed project:

### 1.2.1 Federal

**Endangered Species Act of 1973.** Endangered Species Act of 1973 (16 United States Code [U.S.C.] 1531–1544), as amended (ESA), protects federally listed threatened and endangered species from unlawful take. “Take” under ESA includes activities such as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” The United States Fish and Wildlife Service (USFWS) regulations define harm to include some type of “significant habitat modification or degradation.”

Section 7 of the ESA requires federal agencies to ensure that any action authorized, funded, or carried out by them is not likely to jeopardize the continued existence of listed species or modify their critical habitat. When a federal agency action, such as issuance of a permit or grant of ROW, may affect a federally listed species, the federal action agency requests initiation of either formal or informal consultation with USFWS. The final product of formal Section 7 consultation is a biological opinion in which USFWS determines whether the proposed action is likely to jeopardize the continued existence of listed species or result in destruction or adverse modification of critical habitat. If the determination is yes, the USFWS will recommend reasonable and prudent alternatives to the proposed action that would reduce the level of impact to no jeopardy/no adverse modification of critical habitat. A biological opinion may include an incidental take statement that provides the federal agency and the project applicant with incidental take authority for the activities evaluated in the biological opinion. The regulations implementing Section 7 of ESA require federal agencies to conference with the USFWS for any species that is proposed as a candidate for federal listing so that USFWS can provide non-binding recommendations that will avoid or minimize impact to the species. The USFWS may, if requested, conduct the conference as a formal consultation by providing a conference opinion and incidental take statement. If the species becomes listed, the USFWS may adopt the incidental take statement provided in the biological opinion, thus conferring incidental take authority.

**Migratory Bird Treaty Act.** The Migratory Bird Treaty Act of 1918 (MBTA; 16 U.S.C. 703 et seq.) is a federal statute that implements treaties with several countries on the conservation and protection of migratory birds. The number of bird species covered by the MBTA is listed at 50 Code of Federal Regulations (CFR) 10.13. The regulatory definition of “migratory bird” is broad, and includes any mutation or hybrid of a listed species and any part, egg, or nest of such birds (50 CFR 10.12). Migratory birds are not necessarily federally listed endangered or threatened species under the ESA. The MBTA, which is administered by USFWS, makes it unlawful “by any means or in any manner, to pursue, hunt, take, capture, [or] kill” any migratory bird, or attempt such actions, except as permitted by regulation. The applicable regulations prohibit the take, possession, import, export, transport, sale, purchase, barter, or offering of these activities, except under a valid permit or as permitted in the implementing regulations (50 CFR 21.11).

**Bald and Golden Eagle Protection Act.** The Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c), enacted in 1940 and as amended, prohibits anyone, without a permit issued by the USFWS, from "taking" bald and golden eagles, including their parts, nests, or eggs. The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." For purposes of these guidelines, "disturb" means: "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."

**Federal Water Pollution Control Act (Clean Water Act).** The Clean Water Act (CWA; 33 USC 1251 et seq.), as amended, provides a structure for regulating the discharge of pollutants into the waters of the U.S. Through this Act, the Environmental Protection Agency is given the authority to implement pollution control programs. These include setting wastewater standards for industry and water quality standards for contaminants in surface waters. The discharge of any pollutant from a point source into navigable waters is illegal unless a permit under its provisions is acquired. In California, the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCBs) are responsible for implementing the CWA. Section 404 of the CWA regulates the discharge of dredged, excavated or fill material in wetlands, streams, rivers, and other waters of the U.S. The U.S. Army Corps of Engineers (ACOE) is the federal agency authorized to issue Section 404 Permits for certain activities conducted in wetlands or other waters of the U.S. Section 401 of the CWA grants each state the right to ensure that the State's interests are protected on any federally permitted activity resulting in any discharge into navigable waters within the State. In California, the RWQCBs are the agencies mandated to ensure protection of the State's waters. For a proposed project that requires an ACOE CWA Section 404 permit, the RWQCB must certify that such discharge complies with state water quality standards through a Water Quality Certification determination (Section 401).

**California Desert Conservation Area (CDCA).** The CDCA encompasses 25 million acres of land in southern California designated by Congress in 1976 through the Federal Land Policy and Management Act (FLPMA). The BLM directly administers approximately 10 million acres of the CDCA. The CDCA Plan designated Yuha Basin Area of Critical Environmental Concern (ACEC) Management Plan was prepared to give additional protection to unique cultural resources and wildlife values found in the region while also providing for multiple use management. The ACEC Management Plan allows for the "traversing of the ACEC by proposed transmission lines and associated facilities if environmental analysis demonstrates that it is environmentally sound to do so."

**National Environmental Policy Act.** The National Environmental Policy Act (NEPA; 42 U.S.C. 4321 et seq.) was signed into law on January 1, 1970. The Act establishes national environmental policy and goals for the protection, maintenance, and enhancement of the environment and provides a process for implementing these goals within the federal agencies. NEPA requires Federal agencies to integrate environmental values into their decision-making processes by considering the environmental impacts of, and reasonable alternatives to, their proposed actions.

### 1.2.2 State

**California Endangered Species Act.** The California Endangered Species Act of 1984 (CESA) provides a framework for the listing and protection of wildlife species determined to be threatened or endangered in California.

**California Fish and Game Code 3503.5.** Raptors (birds of prey) and active raptor nests are protected by the California Fish and Game Code 3503.5, which states that it is “unlawful to take, possess, or destroy any birds of prey or to take, possess, or destroy the nest or eggs of any such bird” unless authorized (California Department of Fish and Game [CDFG] 1991).

**California Fish and Game Code 3503.** Bird nests and eggs are protected by the California Fish and Game Code 3503, which states “it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto.”

**California Fish and Game Code 3513.** Protects California’s migratory birds by making it unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame birds.

**State of California Fully Protected Species.** The classification of Fully Protected was the State's initial effort in the 1960's to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, mammals, amphibians and reptiles, birds, and mammals. Most fully protected species have also been listed as threatened or endangered species under ESA and/or California Endangered Species Act (CESA). Fully Protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.

**California Fish and Game Code, Section 1600, as amended.** Under Section 1602 of the Fish and Game Code, CDFG regulates activities that would divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake that supports fish or wildlife. CDFG has jurisdiction over riparian habitats (e.g., southern willow scrub) associated with watercourses. Jurisdictional waters are delineated by the outer edge of riparian vegetation or at the top of the bank of streams or lakes, whichever is wider. CDFG jurisdiction does not include tidal areas or isolated resources. Section 1602 of the Fish and Game Code requires any person who 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 to notify the CDFG before beginning the project. If the CDFG determines that the project may adversely affect existing fish and wildlife resources, a Lake or Streambed Alteration Agreement is required.

**Native Plant Protection Act.** The Native Plant Protection Act (*California Fish and Game Code Section. 1900-1913*; NPPA) prohibits the taking, possessing, or sale within the state of any plant listed by CDFG as rare, threatened, or endangered. An exception to this



prohibition in the Act allows landowners, under specified circumstances, to take listed plant species, provided that the owners first notify CDFG at least 10 days prior to the initiation of activities that would destroy them. The NPPA exempts from “take” prohibition “the removal of endangered or rare native plants from a canal, lateral ditch, building site, or road, or other right of way.”

**California Environmental Quality Act (CEQA).** The California Environmental Quality Act of 1970 (CEQA), Public Resources Code (PRC) 21100 et seq., requires lead agencies to evaluate the environmental impact associated with a proposed project. CEQA requires that a local agency prepare an Environmental Impact Report (EIR) on any project it proposes to approve that may have a significant effect on the environment. The purpose of an EIR is to provide decision-makers, public agencies, and the general public with an objective document that fully discloses the potential environmental effects of a proposed project. The EIR process is specifically designed to objectively evaluate and disclose potentially significant direct, indirect, and cumulative impacts of a proposed project; to identify alternatives that may reduce or eliminate a project's significant effects; and to identify feasible measures that mitigate significant effects of a project. In addition, CEQA requires that an EIR identify those adverse impacts that remain significant after mitigation.

**Porter–Cologne Water Quality Control Act, as amended.** The Porter–Cologne Act grants the State Water Resource Control Board (SWRCB) and the RWQCBs power to protect water quality and is the primary vehicle for implementation of California’s responsibilities under the federal Clean Water Act. Any person proposing to discharge waste within any region must file a report of waste discharge with the appropriate regional board.



## 2.0

# SURVEY METHODS

---

Data regarding biological resources within the Project Area were obtained through field surveys and literature reviews of applicable reference materials.

### 2.1 Field Surveys

The 4,288-acre survey area encompasses the entire Campo Verde Solar Energy Facility, the 160-foot-wide ROWs along the proposed and alternative Gen-tie routes, and buffer areas that varied for several surveys based on the target species and include 4,201 acres of private land and 87 acres of BLM-administered land.

#### 2.1.1 General Biological Survey

Habitat assessments and general biological surveys of the proposed Campo Verde Solar Energy Facility site were conducted on May 5 and September 30, 2010, March 28 through April 5, 2011, and October 23 through 27, 2011. The associated linear facilities surveys were conducted from October 23 through 27, 2011. The focus of these surveys was twofold: 1) to document the botanical resources and potentially jurisdictional state and federal waters and wetlands, and 2) to document suitable threatened, endangered, and sensitive wildlife species habitats on the proposed Campo Verde Solar Energy Facility and along the proposed and alternative Gen-tie Line corridors. The field surveys were conducted by surveying naturally vegetated areas with public access on foot and surveying the remainder of the area from public roads. The earthen drains and canals on the Solar Energy Facility were surveyed for indications of wetland vegetation and wildlife use. High quality aerial photography was used to map habitats and other features in areas that couldn't be accessed from public roads. These areas were examined with binoculars and vegetation communities were interpreted and mapped on the aerials.

#### 2.1.2 Focused Rare Plant Survey

Rare plant surveys were performed on October 23 and 24, 2011 March 3 and 4, 2012 and March 30 and 31, 2012 in accordance with *Survey Protocols Required for NEPA/ESA Compliance for BLM Special Status Plant Species* (BLM 2009a) and the *Protocols for Surveying and Evaluating Impacts to Special Status native Plant Populations an natural Communities* (CDFG 2009b). The surveys were conducted during the traditional blooming periods of numerous sensitive species known from the vicinity of the project. Spring and fall rare plant surveys were also conducted for several nearby projects in the same corridor and those data were available and used for this analysis.

The entire rare plant survey area on BLM lands was examined on foot using transects. Approximate 30-meter transects were walked within the survey area that encompassed the various gen-tie alignments.

Private lands were evaluated for suitability to support rare plants; it was determined that the private lands have been intensively cultivated for decades, which has resulted in a change to the natural soil profile and limited potential for growth of native plants. As such, it was determined that the private lands do not support suitable habitat for rare plants, though spring surveys were conducted in this area. The natural vegetation along the Westside Main Canal and the adjacent canals and drains was also surveyed to assess potential to support rare plants.

Rare plant surveys of the fallow agricultural areas were not conducted in the fall because these areas were determined to have no potential to support sensitive rare plants at the time of fall survey. Fall-germinating and blooming ephemeral plant species were absent from the undisturbed native habitats (e.g. public lands between the IV Substation and the Westside Main Canal) due to the lack of sufficient summer and early fall rains for seed germination. Spot field checks of the disturbed native habitats in the private agricultural lands north of the Westside Main Canal also revealed the absence of fall germinating and blooming ephemeral plant species. The absence of these species in higher quality native habitats led to the conclusion that these species were also absent from the previously cultivated habitats because fall germinating species did not sprout in this portion of the Yuha Desert in the fall of 2011. These low quality habitats were surveyed in the spring of 2012.

A database search using the California Natural Diversity Database (CNDDDB) RareFind indicated that five rare plant species are known from the project vicinity: brown turbans (*Malperia tenuis*) a CNPS List 2.3 species, hairy stickleaf (*Mentzelia hirsutissima*) a CNPS List 2.3 species, fairy duster (*Calliandra eriophylla*) a CNPS List 2.3 species, rock nettle (*Eucnide rupestris*) a CNPS List 2.2 species and Thurber's pilostyles (*Pilostyles thurberi*) a CNPS List 4.3 species. In addition, other sensitive species are known to potentially occur within the survey area and were included in the survey (refer to **Section 3.1.4.1** and **3.2.4.1**).

Phenology of common species at the time of the survey was used to verify that the survey was conducted within the period when rare plants would be observable. Shape files depicting survey area boundaries were uploaded onto GPS units. Transect locations were determined using UTM's. Track logs depicting transects were recorded on the GPS units.

### **2.1.3 Focused Burrowing Owl Surveys**

Burrowing Owl surveys were conducted following California Burrowing Owl Consortium *Burrowing Owl Survey Protocol and Mitigation Guidelines* (CBOC 1993) and CDFG's *Staff Report on Burrowing Owl Mitigation* (CDFG 1995).

Phase I and Phase II surveys of the Campo Verde Solar Energy Facility site were conducted simultaneously by qualified biologists during the 2011 breeding season (March-April). Phase I and II surveys of the Gen-tie Corridors were conducted simultaneously during the fall of 2011 (October). The Phase I habitat assessments determined that most of the study area contains suitable Burrowing Owl habitat, and Phase II burrow surveys were conducted.

Phase II surveys covered the entire study area and potentially suitable burrows were recorded. Transects at 10-meter spacing were walked within the BLM Gen-tie Corridor (including a

500-foot buffer around the project area) to ensure that all suitable burrows were identified. Within agricultural lands, a combination of vehicular and pedestrian surveys were conducted along roads and irrigation infrastructure (per Bartok and Conway 2010).

Burrows that had the potential to be used by Burrowing Owls were marked using a handheld global positioning system (GPS) unit. Photos were taken of representative potential burrows and owl observations were noted. “Burrow Clusters” were recorded in areas that supported high densities of burrow entrances that were either (1) multiple entrances associated with a single burrow; or (2) separate burrows that were located too close together to support more than one breeding pair of owls (burrows within 5 meters of each other).

The Burrowing Owl nesting season begins as early as February 1 and continues through August 31 (Thomsen 1971, Zam 1974). The timing of nesting activities varies with latitude and climatic conditions. Phase III surveys were conducted on the Campo Verde Solar Site during the breeding season, beginning March 1 and ending August 31. All Burrowing Owl sightings were recorded (including occupied burrows and burrows with sign) and mapped. Numbers of adults and juveniles were recorded, as well as behavior such as courtship and copulation. Territory boundaries and foraging areas were not mapped, mainly because of the difficulty posed by the active nests being so close together where home-ranges potentially overlap.

Surveys were conducted in the morning and evening (one-half hour before to two hours after sunrise and two hours before to one-half hour after sunset). Burrows were examined for owl sign during the first observation of suitable burrows (typically during Phase II surveys). Subsequent observations were conducted from fixed points that provided visual coverage of the burrows using spotting scopes or binoculars. When possible, observers remained in vehicles to minimize disturbance to the birds as much as possible.

Surveys were conducted at each burrow on four separate days in order to minimize the likelihood of false-negative results (CBOC 1993). Phase III surveys were conducted along the Proposed and Alternative Gen-tie Corridors during the spring of 2012 in accordance with the protocol.

Winter resident surveys were conducted during December 2011 and January 2012. Winter survey methodologies followed Phase III protocol (CBOC 1993) and were conducted on four separate days during the 2011/2012 Winter Season. This survey was completed at the end of January 2012. Breeding season surveys were conducted for the second time on the solar generation facility site and along the proposed gen-tie and alternative routes in March and April 2012.

#### **2.1.4 Avian Use Surveys**

Winter avian use surveys were completed in December 2011 and January 2012. Spring avian use surveys were completed in March and April 2012. They were performed by qualified biologists experienced in the identification of North American birds by sight and sound, and in accordance with *BLM’s Solar Facility Point Count Protocol*. Point-count stations were

located along 4 transects placed throughout the proposed project area (solar generation facility and gen-tie). Transect locations were designed to sample all habitat types present within the project area with a focus on areas most likely to contain a high abundance and/or diversity of birds, while maintaining adequate spatial coverage of the entire solar generation facility site and proposed gen-tie corridor. Each transect was approximately 1,250-meters in length with point-count locations spaced every 250-meters along transects. A total of 24 point-count stations were sampled during each survey event, with a total of four survey events during the winter survey season (December 2011 to January 2012) and four survey events during the spring season (March to April 2012).

At each point count station, biologists recorded all birds seen or heard within a 100-meter radius over a 10-minute sampling period. Pairs or groups of birds were recorded as single detections to avoid issues resulting from statistical dependence. Birds seen or heard outside of the 100-meter radius were recorded as incidental observations and contributed to the overall project species list, but were excluded from analyses aimed at quantifying avian abundance. Birds that were seen or heard along transects, but between point-count stations, were also recorded as incidental observations. Point counts were generally performed no earlier than 30-minutes prior to sunrise and ended within four hours of sunrise. Surveys were not performed during inclement weather conditions (e.g. more than light or intermittent rain, winds greater than 15 miles-per-hour).

### **2.1.5 Jurisdictional Delineation**

The project area (solar generation facility site and gen-tie) was evaluated for drainage features during field visits performed on April 4 - 5, 2011, October 25 - 27, 2011 and December 19 - 20, 2011. Additional information was gathered using a Geographic Information System (GIS) and aerial imagery. Determinations regarding the potential jurisdictional status of the various features located within the project area are based on the applicable regulations and associated guidance documents as well as on personal communications with Lanika Cervantes, Project Manager in the Regulatory Division of the US Army Corps of Engineers (ACOE) and Magdalena Rodriguez, Wildlife Biologist, from the California Department of Fish and Game (CDFG). The Applicant submitted a report for a Preliminary Jurisdictional Determination to the ACOE and a determination of the extent of potential CDFG-jurisdictional waters during the first quarter of 2012; the ACOE concurred with those findings in a letter dated April 23, 2012. The Applicant is not required to obtain a 404 permit but may be required to obtain a Streambed Alteration Agreement from CDFG.

## **2.2 Literature Review**

Determination of the potential occurrence for listed, sensitive, or noteworthy species is based upon known ranges and habitat preferences for the species (State of California 2009 and 2010a; CNPS 2001; Reiser 2001), species occurrence records from the California Natural Diversity Database (CNDDDB; State of California 2011), the BLM Special Status plant and wildlife species website (BLM 2010), and species occurrence records from other sites in the vicinity of the survey area.

Additional resources that were consulted included the *Biological Technical Report for the Imperial Solar Energy Center West* (RECON 2010a), *Biological Technical Report for the Imperial Solar Energy Center South* (RECON 2010f), the *Biological Technical Report for the Centinela Solar Energy Project* (Heritage 2011c), *Draft Environmental Impact Report/Environmental Assessment for the Centinela Solar Energy Project* (EGI 2011), and the *Draft Environmental Impact Statement for the SES Solar Two* (URS 2008).

## **3.0**

# **EXISTING CONDITIONS**

---

### **3.1 Campo Verde Solar Energy Facility Site**

The following sections describe the existing conditions on lands associated with the Campo Verde Solar Energy Facility Site (1,990 acres) and associated buffer areas (refer to **Section 1.1.3**).

#### **3.1.1 Topography, Soils and Drainage**

The survey area is located in the Yuha Basin of the Colorado Desert between agricultural lands to the north, east and west, and native desert to the south, as well as within active agricultural lands. The uplands are relatively flat, with sparse vegetation and sand that ranges from soft and rolling to flat and compact. Elevation of the survey area ranges from sea level to 46 feet below mean sea level (USGS 1976). The proposed Campo Verde Solar Site is comprised of active agricultural fields.

There are ten major soil types found within the survey area, including Badland, Glenbar, Holtville, Imperial-Glenbar, Indio-Vint, Meloland-Holtville, Indio, Vint, Meloland, Rositas soils (NRCS 2006 and 2011). These soils are primarily found on flat basin floors and are formed from clay, silt, and sandy alluvium materials.

The Campo Verde Solar Energy Facility Site parcels are currently active agriculture lands growing crops such as wheat, alfalfa, and Bermuda grass. Irrigation water is supplied by a complex, engineered system of concrete-lined canals or lateral canals operated and maintained by the Imperial Irrigation District (IID). The concrete-lined canals and lateral canals are used to deliver water to multiple farm fields and typically contain water at all times except during maintenance periods.

The farm fields are large (typically 80 acres) flat fields graded for flood irrigation. When a field is irrigated, an allocated quantity of water is allowed to flow from the IID delivery canal to a smaller ditch (locally referred to as a “head ditch”), which distributes the water evenly across the field. The head ditches are either earthen or concrete-lined. Another ditch (locally referred to as a “tail ditch”) is located at the opposite, lower elevation side of the field. The tail ditch collects any excess irrigation water and directs it to an IID-operated and maintained drain. The tail ditches on the Campo Verde Solar Energy Facility Site are all earthen and are frequently rebuilt when the fields are plowed and disked. Water generally flows from south to north through the Solar Energy Facility Site; the IID drains flow to the New River which flows to the Salton Sea.

### 3.1.2 General Vegetation

The Campo Verde Solar Energy Facility Site is comprised of active agricultural lands growing crops such as wheat, oats, alfalfa, and Bermuda grass. Native species of vegetation on the site are absent, with a few exceptions; no undisturbed native habitats are present on the site. Areas of native plants and disturbed vegetation communities occur in scattered areas including fallow fields, along “hedge rows” or along irrigation drains and canals. The fields on the site are ringed by a series of earthen and concrete canals and drains that provide irrigation to the fields. Sporadic riparian and wetland vegetation occur along portions of some of the earthen canals and berms. This vegetation is a mixture of native and non-native species such as arrow weed (*Pluchea serricea*) and cattails (*Typha* sp.), two native species, and tamarisk (*Tamarix ramosissima*), bitter dock (*Rumex obtusifolius*), and sprangletop (*Leptochloa* sp.).

Routine maintenance of these drains and canals involves the periodic removal of vegetation. Vegetation provides resistance to hydrologic flow; its removal increases flow. Since vegetation clearing is a routine activity, the wetland vegetation is mostly sparse and not well developed. The wetland vegetation along these canals and drains varies in time and space due to the periodic vegetation clearing activities.

The southwestern portion of the Campo Verde Solar Energy Facility Site contains several parcels that are fallow agriculture. Some native vegetation is beginning to recolonize in these areas. These areas currently do not represent native habitat. However, if left inactive, native species could eventually fully recolonize these areas. Vegetation was mapped on these parcels (**Attachment 1: Figure 6**) and a rare plant survey was also conducted. Given the absence of fall-blooming species in 2011, the decision was made not to conduct fall rare plant surveys.

Vegetation communities were mapped within the survey area on a one-inch-equals-400-foot color aerial photograph (**Attachment 1: Figure 6**). A total of 47 plant species, representing 17 plant families, were identified within the survey area during fall and spring surveys. A complete list of plant species observed in the Project Area can be found in **Attachment 2**. No sensitive species were observed on the Solar Energy Facility Site (**Section 3.1.4.1**)

Fifteen vegetation communities were mapped within the private land survey area (**Table 3**). Vegetation community classifications in this BTR follow A Manual of California Vegetation (Sawyer, Keeler-Wolfe and Evens 2009) and Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1986). Communities that are similar in composition were lumped together in the discussion following **Table 3**.



**Table 3 – Vegetation Communities/Land Cover Types Within The Campo Verde Solar Energy Facility Survey Area**

<b>Vegetation Community</b>	<b>Acres</b>
Active Agriculture (AG-A)	3780.3
Fallow Agriculture (AG-F)	134.8
Arrow Weed Thicket (AS)	9.3
Arrow Weed Thicket - Disturbed (AS-D)	11.3
Athel Tamarisk Type Woodland (AW)	1.5
Cattail Marsh (CM)	2.8
Cattail Marsh - Disturbed (CM-D)	0.6
Common Reed Marsh (CRM)	5.0
Common Reed Marsh - Disturbed (CRM-D)	9.6
Developed (DEV)	121.5
Disturbed Wetland (DW)	16.6
Open Water with Arrow Weed Thicket (OW)	1.3
Quailbush Scrub (BSS)	38.8
Quailbush Scrub - Disturbed (BSS-D)	27.9
Tamarisk Thicket (TS)	5.9
<b>Total</b>	<b>4167.5</b>

### **3.1.2.1 Agriculture (Ag)/Fallow Agriculture (AG-F)**

Active agricultural fields encompass 3,780.3 acres of the survey area (approximately 91 percent of the private land survey area). The vast majority of the proposed Campo Verde Solar Energy Facility Site occurs in this habitat type. Wheat, oats, alfalfa, and Bermuda grass are currently the primary crops within the fields. Agricultural weeds such as five-hook bassia are present along the edge of the fields.

Fallow agricultural areas are not currently under cultivation and are being invaded by non-native weeds such as five-hook bassia, tamarisk, Saharan mustard (*Brassica tournefortii*), and the native shrub quailbush. Though quailbush and tamarisk are facultative wetland species, there are no wetland areas in the fallow agricultural habitats. Areas qualifying as tamarisk thickets (and potential wetland areas) are addressed in **Section 3.1.2.5**. Fallow agricultural fields encompass 193.6 acres of the survey area (approximately 5 percent of the private land survey area).

### **3.1.2.2 Arrow Weed Thicket (AS and AS-D)**

Arrow weed thicket is a shrub community dominated or co-dominated by arrow weed (*Pluchea serricea*). The canopy is intermittent to continuous with the shrub canopy usually less than 5 meters in height. The herbaceous layer in these communities is generally sparse. This community occurs around springs, seeps, irrigation ditches, canyon bottoms, stream borders, and seasonally flooded washes in desert. The USFWS Wetland Inventory recognizes this as a facultative wetland species. The community occurs throughout the Mojave, Colorado and Sonoran deserts of California (Sawyer et al. 2009). Within the survey area, this



community occurs along irrigation drains and canals or other areas with a high water table. Tamarisk (*Tamarix ramosissima*), cattails (*Typha* sp.), and common reed (*Phragmites australis*) are major associates or co-dominants in some areas. Salt grass (*Distichlis spicata*), salt marsh fleabane (*Pluchea odorata*) and goldenbush (*Isocoma acradenia*) are sporadic minor associates. In many instances these earthen irrigation canals and drains are routinely cleared of vegetation to facilitate hydrologic flow. Areas where the vegetation has not fully recovered from the previous clearing are classified as disturbed arrow weed thicket.

Approximately 20.6 acres of arrow weed thicket (including the disturbed component) is present along the IID-managed canals (0.5 percent of the private land survey area). Most of these areas are regularly cleared of this vegetation and they are constantly changing.

### **3.1.2.3 Tamarisk Woodland (AW) and Tamarisk Thicket (TS)**

Individuals of athel (*Tamarix aphylla*) have been planted in large numbers as a windscreen along the edges of agricultural fields. This semi-evergreen or evergreen tree reaches a height of 12 meters. The herbaceous layer in these communities is generally sparse (Sawyer et al. 2009). Approximately 1.5 acres (< 0.1 percent of the private land survey area) of tamarisk woodland.

Tamarisk thicket is a shrub community dominated or co-dominated by tamarisk (*Tamarix ramosissima*). This non-native species has invaded many areas of native riparian vegetation where they develop dense, monospecific stands across floodplains, wetlands, and lake margins. The USFWS Wetland Inventory recognizes this as a facultative species. The canopy is continuous to open with the shrub canopy usually less than 8 meters in height. The herbaceous layer in these communities is generally sparse. This community occurs throughout watercourses in the Mojave, Colorado and Sonoran deserts (Sawyer et al. 2009). Within the survey area, this community occurs within irrigation drains and canals, generally along the channel bottoms and lower slopes or within fallow fields with a high water table. Arrow weed (*Pluchea serricea*), cattails (*Typha* sp.), and common reed (*Phragmites australis*) are major associates to co-dominants in some areas. Approximately 5.9 acres (0.1 percent of the private land survey area) of tamarisk thicket are present.

### **3.1.2.4 Quailbush Scrub (BSS and BSS-D)**

Quailbush scrub encompasses 66.7 acres of the survey area (approximately 1.5 percent of the private land survey area). Quailbush scrub is a shrub community with quailbush (*Atriplex lentiformis* ssp. *lentiformis*), the sole dominant in this community. The canopy is less than 5 meters in height and open to dense with a variable herbaceous layer. This community occurs in alkali sinks, flats, washes, wetlands and gentle to steep slopes, usually on saline or alkaline clays. This species is recognized as a USFWS Wetland Inventory facultative species. Fluvial disturbances and groundwater availability are primarily responsible for this species occurrence (Sawyer et al. 2009). Within the project area this community occurs in very dense stands along the borders of agriculture fields and in fallow agriculture fields. Though quailbush is a native shrub, it readily colonizes fallow fields; these patches still support a very high number and density of non-native invasive species, especially five-hook bassia (*Bassia hyssopifolia*). Native plant species diversity is low in this community.

### **3.1.2.5 Cattail Marsh (CM and CM-D)**

Cattail marsh encompasses 3.4 acres of the survey area (< 0.1 percent of the private land survey area). These are semi-permanently flooded freshwater or brackish marshes that are dominated or co-dominated by cattails (*Typha latifolia*) throughout the state (Sawyer et al. 2009). Within the survey area, this community occurs along the channel bottoms of the earthen canals and drains where there is relatively permanent water source. Tamarisk (*Tamarix ramosissima*), arrow weed (*Pluchea serricea*) and common reed (*Phragmites australis*) are co-dominants or major associates in some areas. In many instances these earthen irrigation canals and drains are routinely cleared of vegetation to facilitate hydrologic flow. Areas where the vegetation has not fully recovered from the previous clearing are classified as disturbed cattail marsh.

### **3.1.2.6 Common Reed Marsh (CRM and CRM-D)**

Common reed marsh encompasses 14.6 acres of the survey area (approximately 0.3 percent of the private land survey area). These are semi-permanently flooded and slightly brackish marshes, ditches and impoundments that are dominated or co-dominated by common reed (*Phragmites australis*). Native stands occur in wetlands throughout the Mojave, Colorado and Sonoran deserts. The USFSW Wetland Inventory recognizes common reed as a facultative wetland species (Sawyer et al. 2009). Within the survey area, these marshes occur along the channel bottoms of the canals and drains with a more permanent water source. Cattails (*Typha latifolia*), tamarisk (*Tamarix ramosissima*), and arrow weed (*Pluchea serricea*) are co-dominants or major associates. In many instances these earthen irrigation canals and drains are routinely cleared of vegetation to facilitate hydrologic flow. Areas where the vegetation has not fully recovered from the previous clearing are classified as disturbed common reed marsh.

### **3.1.2.7 Disturbed Wetland (DW)**

Disturbed wetland encompasses 16.6 acres of the survey area (approximately 0.4 percent of the private land survey area). Earthen canals and drains that are regularly cleared of vegetation usually support herbaceous non-native species; these areas have been mapped as disturbed wetlands. Most of the species in the disturbed wetlands are non-native grasses and forbs; with the exception of salt grass, they were not identifiable at the time of the fall survey. Other species expected to occur in these drainages include sprangletop (*Leptochloa* spp.), umbrella sedge (*Cyperus* spp.) and dock (*Rumex* spp.).

### **3.1.2.8 Developed (DEV)**

Approximately 121.5 acres of developed land occurs within the survey area (approximately 3 percent of the private land survey area). These areas contain little to no vegetation. Developed areas consist of residential dwellings, agricultural buildings, and storage areas.

### **3.1.2.9 Open Water with Arrow Weed Thicket (OW)**

This habitat is restricted to the Westside Main Canal. Arrow weed thicket is restricted to a narrow band along the banks of this canal. Arrow weed is the dominant species and in many areas the only species along the banks of this canal. Approximately 20.6 acres (0.5 percent of the survey area) occur in this cover type.

### **3.1.3 General Wildlife**

The wildlife species observed in and around the solar energy facility site survey area were typical of the disturbed and agricultural habitats, which provide cover, foraging, and breeding habitat for a variety of wildlife species. **Attachment 3** provides a list of all wildlife species observed.

#### **3.1.3.1 Invertebrates**

The survey area contains suitable habitat for a wide variety of invertebrates. Within the agricultural fields and along portions of the Gen-tie Line, harvester ants (*Pogonomyrmex* spp.), grasshoppers (*Orthoptera* spp.) and flies (*Diptera* spp.) were observed regularly. Cabbage white (*Pieris rapae*) and other butterflies and moths (*Lepidoptera* spp.) were also regularly observed in all portions of the survey area.

#### **3.1.3.2 Amphibians**

Most amphibians require moisture for at least a portion of their life cycle, with many requiring a permanent water source for habitat and reproduction. Terrestrial amphibians have adapted to more arid conditions and are not completely dependent on a perennial or standing source of water. These species avoid desiccation by burrowing beneath the soil or leaf litter during the day and during the dry season.

No amphibians were observed within the survey area. American Bullfrog (*Rana catesbeiana*) was observed in close vicinity to the survey area. Bullfrogs typically occupy the large drains that carry water relatively permanently.

#### **3.1.3.3 Reptiles**

The diversity and abundance of reptile species varies with habitat type. Many reptiles are restricted to certain plant communities and soil types, although some of these species would also forage in adjacent communities. Other species are more ubiquitous, using a variety of vegetation types for foraging and shelter. A diverse list of species of lizards and snakes could be expected to inhabit both agricultural and/or desert habitats.

No reptile species were observed in the survey area.

### 3.1.3.4 **Birds**

The diversity of bird species varies with respect to the character, quality, and diversity of vegetation communities. Due to the homogeneity of much of the habitat within the private land portions of the survey area, bird diversity was relatively low, but did increase in and around the larger drains.

During winter avian use surveys previously conducted in the area, Western Meadowlark (*Sturnella neglecta*) was the most frequently detected species as well as the most widespread. Other frequently detected species include Horned Lark (*Eremophila alpestris*), Black Phoebe (*Sayornis nigricans*), Long-billed Curlew (*Numenius americanus*), and Song Sparrow (*Melospiza melodia*). Other widespread species include Horned Lark, Black Phoebe, and Mourning Dove (*Zenaida macroura*). Horned Larks were by far the most numerous species during the survey. Long-billed Curlews were the second most numerous species. The most commonly observed species were all common agricultural associates.

During spring avian use surveys in the area, Red-winged Blackbird was the most frequently detected species. Other frequently detected species include Western Meadowlark (*Sturnella neglecta*), Long-billed Curlew (*Numenius americanus*), Mourning Dove (*Zenaida macroura*), Horned Lark (*Eremophila alpestris*) and Cliff Swallow (*Petrochelidon pyrrhonota*). Western Meadowlark was the most widespread and other widespread species includes Red-winged Blackbird, Horned Lark, Mourning Dove, Cliff Swallow, and Long-billed Curlew (*Numenius americanus*). Red-winged Blackbirds were by far the most numerous species during the survey. Other numerous species included Cattle Egrets (*Bubulcus ibis*) and Long-billed Curlews. As was observed in the winter surveys, the most common species were common agricultural associates.

The only trees present in the area are associated with residences or other buildings. These trees are limited in number and distribution but could represent potentially suitable nesting substrate for several species of raptors. Possible nesting species include red-tailed hawk (*Buteo jamaicensis*) and great-horned owl (*Bubo virginianus*). No raptor nests were observed during any of the site visits. Other common raptors included American Kestrel, Prairie Falcon, Burrowing Owl, and Barn Owl.

### 3.1.3.5 **Mammals**

Suitable mammal habitat is limited in the agricultural lands within the survey area. Desert black-tailed jackrabbit (*Lepus californicus deserticola*), desert cottontail (*Sylvilagus audubonii*), round-tailed ground squirrel (*Spermophilus tereticaudus*), desert kangaroo rat (*Dipodomys deserti deserti*), and coyote (*Canis latrans*) were detected often within all project component survey areas through direct observation as well as burrows, tracks, and scat, though not as frequently as in native habitats. A bobcat (*Lynx rufus*) was also observed.

### 3.1.4 Sensitive Biological Resources

#### 3.1.4.1 Special Status Plant Species

No sensitive plant species were observed on the Campo Verde Solar Energy Facility site, private land portions of the Gen-tie line or associated buffers, and none are expected to occur given the limited amount of suitable native habitat and the ongoing disturbances related to the agricultural activities.

##### 3.1.4.1.1 Federally Listed Species

Based on the literature review, no federally-listed threatened or endangered plant species were identified as having the potential to occur within the survey area. No federally-listed threatened or endangered species were observed during focused rare plant surveys.

##### 3.1.4.1.2 State-listed Species

Based on the literature review, no state-listed plant species were identified as having the potential to occur within the survey area. No state-listed species were observed on-site during focused rare plant surveys.

##### 3.1.4.1.3 BLM Sensitive Species

BLM sensitive species include all species currently on CNPS List 1B, as well as others that are designated by the California BLM State Director. No BLM sensitive species were identified as having the potential to occur within the survey area. No BLM sensitive species were observed during focused rare plant surveys.

##### 3.1.4.1.4 Priority Plant Species

Priority plant species are rare, unusual, or key species that are not sensitive by BLM or listed as threatened and endangered. Priority plant species are specifically plants that are included on the CNPS Lists 2–4.

One priority plant species was identified as having the potential to occur within the survey area: California satintail (*Imperata brevifolia*). This species is discussed below.

**California satintail (*Imperata brevifolia*).** California satintail has been reported southeast of the Imperial Valley Substation, approximately 3 miles from the Campo Verde Solar Site. This species occurs in desert wash and riparian scrub habitats; there are few desert wash habitats in the survey area and none on the Campo Verde Solar Energy Facility site. It has a low to moderate potential to occur within the tributary of the New River northeast of the site. This species is not expected to occur within the drains and canals on the Campo Verde Solar Energy Facility site. The riparian habitat along the larger canals and drains on the Campo Verde Solar Site support non-native (e.g., tamarisk) or native species that grow in very dense stands (cattails and arrow weed) that generally restrict the presence of other species due to

their density, and they are periodically cleared of vegetation. This species was not observed during the October 2011 of the March 2012 surveys, both of which coincided with the species' traditional blooming period (September-May). Therefore, this uncommon species is not expected to occur within drains and canals on the Campo Verde Solar Site.

### **3.1.4.2 Special Status Wildlife Species**

Fourteen special status wildlife species were determined to have the potential to occur within the survey area and those whose occurrence is most pertinent to the private land portions of the survey area are discussed in detail below. This includes federally listed species, state listed species, and BLM sensitive species that are known to occur in the Imperial Valley, as well as CDFG species of special concern that were observed during surveys.

#### *3.1.4.2.1 Federally Listed Species*

The following federally listed species are discussed in this section because their habitat requirements and/or potential for occurrence are most pertinent to the private land portion of the survey area, though the following discussions evaluate the potential for occurrence in both the private land portion of the survey area as well as the BLM survey area. Peninsular bighorn sheep (*O. c. nelson*; endangered) is discussed in **Section 3.2.3.1**.

### **Southwestern Willow Flycatcher**

#### Species Profile

Southwestern Willow Flycatcher (SWFL) is federally listed as endangered, and all willow flycatchers in California, including the southwestern and two other subspecies (*E. t. brewsteri* and *E. t. adastus*) are state-listed as endangered. Critical habitat was designated for the SWFL on October 19, 2005 in San Diego County, California and in Arizona (USFWS 2005). No critical habitat was designated within Imperial County, California.

Willow Flycatchers are in the Tyrannidae family and are one of ten species of Empidonax flycatchers in the United States. Empidonax flycatchers are difficult to distinguish visually but have distinctive songs. SWFL is generally paler than other willow flycatcher subspecies and differs in morphology. SWFLs are migrants, arriving on their breeding grounds in mid-May to early June (Garrett and Dunn 1981; Unitt 2004). SWFL migrates south from its breeding range in August or September. Several subspecies of Willow Flycatcher are known to migrate through southern California, with the most common migrant being *E. t. brewsteri* (Unitt 2004). It is virtually impossible to differentiate between subspecies of Willow Flycatcher during migration. SWFL requires riparian habitat with willow (*Salix* spp.) thickets (Unitt 2004) for breeding. Understory species include mule fat (*Baccharis* sp.) and arrow weed (*Pluchea* sp.). SWFLs also nest in areas with tamarisk (*Tamarix* spp.) and Russian olive (*Eleagnus angustifolia*) where these species have replaced the native willow. Surface water is required at nesting sites. Estimated nesting habitat patch size varies from 0.2 to 1.5 acres. Nests are constructed in densely vegetated thickets with trees between 13 and 23 feet in height (Tibbitts et al. 1994; Sogge et al. 2010)



Threats in the United States include loss of riparian habitat due to water diversion, flood control, urbanization, grazing, and invasion of non-native species. Parasitism by brown-headed cowbirds (*Molothrus ater*) has been a significant factor in the decline of this species in California, Arizona and elsewhere (Sedgwick 2000).

SWFL breeds in southern California, Arizona, New Mexico, southern Nevada, southern Utah, western Texas, northwestern Mexico, and possibly southwestern Colorado. It winters in Mexico, Central America, and possibly northern South America. Historically common in all the lower-elevation riparian areas of southern California, the SWFL was found in the Los Angeles Basin, San Bernardino/Riverside County area, and San Diego County (Unitt 2004). SWFL persists in the Colorado, Owens, Kern, Mojave, Santa Ana, Santa Margarita, San Luis Rey, Santa Clara, Santa Ynez, Sweetwater, and San Dieguito river systems and in San Timeteo, Pilgrim, and Temecula Creeks.

#### Critical Habitat

Critical habitat was designated for the SWFL on October 19, 2005 in San Diego County, California and in Arizona (USFWS 2005). No critical habitat was designated within Imperial County, California.

#### Occurrence

SWFLs are not likely to nest within the survey area, but may migrate through the project area and possibly forage during migration within the arrow weed scrub and tamarisk scrub habitats associated with portions or all of Fig Drain, Diehl Drain, Wixom Drain, Dixie 3A Drain, Westside Drain, and Wormwood 7 Drain (**Attachment 1: Figures 4a-c**). Flycatcher vocalizations have been heard during recent biological surveys (including protocol-level SWFL surveys) near the action area along the Westside Main Canal.

Two Willow Flycatcher subspecies are known to migrate through the Imperial Valley and in the vicinity of the Campo Verde Solar Project – Southwestern Willow Flycatcher (*Empidonax trailii extimus*) and Northwestern Willow Flycatcher (*Empidonax trailii brewsteri*). These two subspecies are nearly identical in appearance (Pyle 1997), have nearly identical vocalizations (Unitt 1987), and are, thus, nearly impossible to distinguish in the field.

Willow Flycatchers were detected during surveys conducted for other solar projects in the area. Protocol-level surveys were conducted to determine their subspecies and migration status. Based on the results, it was concluded that the Willow Flycatchers detected were migrants. No resident or nesting Southwestern Willow Flycatchers were detected (RECON 2010b).

Breeding Southwestern Willow Flycatchers are riparian obligates, typically nesting in relatively dense riparian vegetation where surface water is present or soil moisture is high enough to maintain the appropriate vegetation characteristics (USFWS 2002). While some of the vegetation communities within the Campo Verde Solar Energy Facility survey area include some species associated with riparian areas, and some of the canals and drains have surface water and high soil moisture, none of the areas supports vegetation that is tall or dense

enough for nesting; therefore, there is no Willow Flycatcher breeding habitat in the Campo Verde Solar survey area. Additionally, species occurrence records from the California Natural Diversity Database (State of California 2011) do not indicate the presence of Willow Flycatchers in the vicinity of the survey area. Therefore, the available data, combined with the field surveys, indicate that there is no known suitable nesting habitat for Southwestern Willow Flycatchers in or around the Campo Verde Solar Project survey area and that Southwestern Willow Flycatchers would be expected to be present in the Campo Verde Solar Energy Facility survey area only as migrants in the vicinity of portions or all of Fig Drain, Diehl Drain, Wixom Drain, Dixie 3 Drain, Dixie 3A Drain, Dixie 3B Drain, Dixie 4 Drain, Westside Drain, Forget-Me-Not Drain 1, and Wormwood 7 Drain (**Attachment 1: Figures 4a-c**).

These data indicate that Willow Flycatchers (*E.t. extimus*, *E.t. brewsteri* or both) migrate through the Westside Main Canal corridor and may forage in the tamarisk and arrow weed vegetation during migration; however, this analysis will assume they are the southwestern subspecies in order to provide the most conservative assessment. Potential SWFL migration habitat in the action area is shown on **Attachment 1: Figures 4a-c**.

## Yuma Clapper Rail

### Species Profile

The Yuma Clapper Rail (YCR) was federally listed as endangered March 11, 1967, under the Endangered Species Preservation Act of October 15, 1966, and state-listed as threatened February 22, 1978 (USFWS 2006). The YCR is also protected under the Migratory Bird Treaty Act and similar State laws. Critical habitat has not been established for this species.

This bird breeds in freshwater marshes along the Colorado River from Needles, California, to the Colorado River delta and at the Salton Sea. The YCR breeds in freshwater marshes and brackish waters and nests on firm, elevated ground, often under small bushes. It typically occupies emergent marsh vegetation, such as pickleweed and cordgrass, as well as mature stands of bulrush and cattail around the Salton Sea. High water levels may force them into willow and tamarisk stands. Tamarisk is also used after breeding and in winter at some sites. Nests are built between March and late July in clumps of living emergent vegetation over shallow water. Typical home ranges exceed 17 acres, increasing after the breeding season.

Crayfish dominates the diet of YCR, though small fish, tadpoles, clams, and other aquatic invertebrates are also consumed (Ohmart and Tomlinson 1977; Anderson and Ohmart 1985; Todd 1986; Eddleman 1989; Conway 1990 in USFWS 2010a). The seasonal availability of crayfish in different habitat locations corresponds to shifts in habitat use by YCRs (Bennett and Ohmart 1978; Eddleman 1989, Conway et al. 1993 in USFWS 2010a).

YCRs are mostly active during daylight hours, with little to no activity after dark. Daily movement is lowest during the late breeding period (May-July) and highest during the late winter (January-February; USFWS 2010a). Juvenile dispersal, movements by unpaired males during the breeding season and by both sexes post-breeding, and relocations in response to changing water levels are also documented (USFWS 2010a). Studies to determine migratory



patterns showed a difficulty in locating the YCR during winter months without telemetry. While the YCR was previously thought to be migratory, experts have determined that they are year-round residents, albeit discreet during winter months, of the lower Colorado River and Salton Sea (USFWS 2010a).

Habitat destruction and depredation by mammals and raptors have caused population declines. It is also possible that increased selenium concentrations from agricultural runoff are affecting reproduction (Unitt 2004; Zeiner 1989).

#### Critical Habitat

No critical habitat has been designated for YCR, and none is proposed.

#### Occurrence

This species is not likely to nest within the survey area. There are seven narrow patches of typha and typha/phragmites habitat in the action area associated with Fig Drain, Wixom Drain, Dixie 3A Drain, an unnamed wetland adjacent to Dixie 3A Drain, Dixie 4 Drain, Westside Drain and Wormwood 7 Drain (**Attachment 1: Figures 4a-c**). These areas exhibit steep shelving to the water level, creating water depths deeper than those preferred by YCR. They are also narrow and linear in nature. The sides of the channels are steep and would inhibit nesting, and vehicles travel the elevated hard-packed dirt roads on either side of the channels regularly. Given the lack of suitable breeding habitat within the channels and the high level of human disturbance adjacent to the channels, this species is not likely to nest within this cattail marsh vegetation.

There is a low potential for YCR to forage in the cattail marsh vegetation or winter in the tamarisk thickets associated with Fig Drain, Wixom Drain, Dixie 3A Drain, an unnamed wetland adjacent to Dixie 3A Drain, Dixie 4 Drain, Westside Drain and Wormwood 7 Drain (**Attachment 1: Figures 4a-c**). The active agricultural fields immediately adjacent to the cattail marshes provide a constant source of human disturbance in the area, and where these areas are located along the outside boundary of the project area, these practices will continue to occur after construction is completed. The nearest known location for this species is within Wixom Drain near Fig Lagoon, approximately 0.5 miles north of the action area (USFWS 2010b). The New River is approximately 0.3 miles north and east of the action area and may provide the nearest suitable nesting habitat for this species. Given the distance from suitable and potential nesting habitat and level of existing human disturbance due to agricultural practices, there is a very low potential for YCR to forage within the isolated cattail marsh habitats or to winter in the tamarisk vegetation within the survey area. In addition, this species was not incidentally observed during numerous biological surveys conducted in and near these habitats for the other solar projects in the area.

#### *3.1.4.2.2 State Listed Species*

Four state-listed wildlife species were evaluated based on their known occurrences in Imperial County: greater Sandhill Crane (*Grus canadensis tabida*), Yuma clapper rail, barefoot banded gecko (*Coleonyx switaki*), and Peninsular bighorn sheep. Of these species, the Yuma clapper rail and Peninsular bighorn sheep are federally listed and discussed in

**Sections 3.1.4.2.1 and 3.2.4.2.1** (respectively). The greater Sandhill Crane and barefoot banded gecko species are discussed below.

### **Greater Sandhill Crane (*Grus canadensis tabida*)**

#### Species

The Greater Sandhill Crane is state-listed as threatened and is protected under the federal MBTA and similar State legal protections. This species is known to winter in Imperial County California (Zeiner et al. 1989).

#### Habitat

Both Greater (*Grus canadensis tabida*) and Lesser (*G. c. canadensis*) Sandhill Cranes occur in California. Historically, *G. c. tabida* was a fairly common breeder on the northeastern plateau (Zeiner et al. 1989). It is now reduced greatly in numbers, and breeds only in Siskiyou, Modoc, Lassen, Sierra Valley, Plumas and Sierra counties (Zeiner et al. 1989). In summer, this subspecies occurs in and near wet meadows as well as shallow lacustrine, and freshwater emergent wetland habitats. It winters primarily in the Sacramento and San Joaquin valleys from Tehama County south to Kings County, where it frequents annual and perennial grassland habitats, moist croplands with rice or corn stubble, and open, emergent wetlands. It prefers relatively treeless plains. The migratory subspecies *G. c. canadensis* winters in similar habitats in the San Joaquin and Imperial valleys (Zeiner et al. 1989), and to a lesser extent in the Sacramento Valley. In southern California, it concentrates on the Carrizo Plain, San Luis Obispo County, with smaller flocks near Brawley, Imperial County, and Blythe, Riverside County (Zeiner et al. 1989). The latter two flocks may be partly, or largely, *G. c. tabida*, which formerly wintered more commonly in southern California, but which has declined greatly there and throughout its range. Outside of known wintering grounds, *G. c. tabida* is extremely rare except that it migrates over much of interior California. A few coastal sightings of Greater Sandhill Crane exist from Marin County southward, but there are no records from offshore islands. When foraging, the Greater Sandhill Crane prefers open shortgrass plains, grain fields, and open wetlands (Zeiner et al. 1989), but it may also feed on dry plains far from water. The Greater Sandhill crane feeds on grasses, forbs, especially cereal crops (newly planted or harvested); and also uses its long bill to probe in soil for roots, tubers, seeds, grains, earthworms, and insects. It will also feed on larger prey, such as mice, small birds, snakes, frogs, and crayfish.

#### Occurrence

The greater sandhill crane is likely to forage within the agricultural fields within the private lands portion of the survey area at times during winter, but this species is not expected to breed in the survey area. This species was not observed during field surveys.

### **Barefoot Banded Gecko (*Coleonyx switaki*)**

#### Species

The barefoot banded gecko is state-listed as threatened. Its known range occurs along the eastern face of the Peninsular Ranges in San Diego and Imperial Counties, and little information is known about its extended range or abundance.

### Habitat

Habitat for the barefoot banded gecko is found in arid rocky areas on flatlands, canyons, and thornscrub, especially where there are large boulders and rock outcrops, and where vegetation is sparse (Murphy 1974). In California, this species inhabits the arid desert slopes of the eastern side of the Peninsular Ranges from Borrego Springs south to the Baja California border, and may occur at elevations from near sea level to over 2,000 ft. (700 m). An isolated population is known to occur in the Coyote Mountains of Imperial County. It ranges farther south in Baja California along the eastern edge of the mountains to near Santa Rosalia (Murphy 1974).

The barefoot banded gecko is insectivorous. Most likely, the breeding season lasts from spring to summer, May to July. Females lay one or two eggs, roughly 3 weeks after mating, and may lay eggs several times each season. Eggs hatch after around 2 months, in late summer to early fall (Murphy 1974).

### Occurrence

No barefoot banded geckos are expected to occur within the survey area based on a lack of suitable habitat in the form of large boulders and rocky outcrops. This species was not observed during field surveys.

#### 3.1.4.2.3 *BLM Sensitive Wildlife*

Seven BLM sensitive wildlife species were evaluated based on their presence on the BLM sensitive list within the El Centro Field Office's jurisdiction: Colorado Desert fringe-toed lizard (*Uma notata notata*), flat-tailed horned lizard, barefoot banded gecko, Western Burrowing Owl, Mountain Plover, California leaf-nosed bat (*Macrotus californicus*), and pallid bat (*Antrozous pallidus*). The barefoot banded gecko is also a state-listed species and is discussed in **Section 3.1.4.2.2**.

The following BLM sensitive species are discussed in this section because their habitat requirements and/or potential for occurrence are most pertinent to the private land portion of the survey area, though the following discussions evaluate the potential for occurrence in both the private land portion of the survey area as well as the Gen-tie Line survey area. Colorado desert fringe-toed lizard and flat-tailed horned lizard are discussed in **Section 3.2.3.3**.

### **Burrowing Owl (*Athene cunicularia*)**

#### Species

The Burrowing Owl is a California Species of Special Concern and a BLM sensitive species. It is protected by the MBTA and California Fish & Game Code §§ 3503, 3503.5, 3513. Nesting occurs from March through August. Burrowing Owls typically form a pair-bond for more than 1 year and exhibit high site fidelity, reusing the same burrow year after year (Haug et al. 1993). The female remains inside the burrow during most of the egg laying and incubation period and is fed by the male throughout brooding. Burrowing Owls are opportunistic feeders, consuming a diet that includes arthropods, small mammals, and birds, and occasionally amphibians and reptiles (Haug et al. 1993). Urbanization has greatly

reduced the amount of suitable habitat for this species. Other contributions to the decline of this species include the poisoning of squirrels and prairie dogs, and collisions with automobiles. A survey effort carried out between 1991 and 1993 indicated that major population densities remain in the Central and Imperial valleys (DeSante et al. 1996), where this species is a year-round resident in Imperial County.

#### Habitat

The Burrowing Owl is primarily restricted to the western United States and Mexico. Habitat for the Burrowing Owl includes dry, open, short-grass areas often associated with burrowing mammals (Haug et al. 1993). In Imperial County it can be found in desert scrub, grassland, and agricultural areas, where it digs its own or occupies existing burrows.

#### Occurrence

During focused burrowing owl surveys several active Burrowing Owl burrows were observed within the survey area, primarily associated with berms and ditches lining the active agricultural fields (Heritage 2012, Heritage unpub. data). These surveys identified 55 active burrows within the survey area (all of which are on private land) and 157 inactive burrows, 108 of which are on private land and 49 of which are on BLM land. **Figure 5** shows the location of active burrows in and around the Project Area.

### **Mountain Plover**

#### Species Profile

On June 29, 2010, USFWS announced the proposed listing of the Mountain Plover as threatened under the ESA of 1973, as amended (USFWS 2010a). The proposed rule to list the Mountain Plover as a threatened species was withdrawn by Federal Register dated May 12, 2011, Therefore, ESA Section 7 consultation is no longer required. The Mountain Plover (family Charadriidae) is a small terrestrial shorebird, which averages 8 inches in length. Mountain Plovers are light brown above and white below, and are distinguished from other plovers by the lack of a contrasting dark breast band. Mountain Plovers are migratory, wintering in California, southern Arizona, Texas, and Mexico, and breeding primarily in Colorado and Montana from April through June. Breeding also occurs in Arizona, Utah, Wyoming, Nebraska, Kansas, Oklahoma, Texas, and New Mexico. The Sacramento, San Joaquin, and Imperial valleys of California are thought to support the greatest number of wintering Mountain Plovers (USFWS 2010c).

Throughout their range, Mountain Plovers are found within sparsely vegetated areas such as xeric shrublands, shortgrass prairie, and barren agricultural fields, but rarely near water. They are a diurnal species, foraging during daylight hours for ants, beetles, and crickets, and grasshoppers with a series of short runs and stops.

Mountain Plovers nest in areas with short vegetation and bare ground, including near livestock watering tanks. Nests are constructed as a depression in the ground and lined with organic debris in areas with at least 30-percent bare ground and with nearby conspicuous objects such as rocks or forb clumps. Vegetation at nest sites is typically less than 4 inches in height and slope is less than 5 percent. Nest sites are typically dominated by needle-and-

thread (*Stipa comata*), blue grama (*Bouteloua gracilis*), buffalo grass (*Buchloe dactyloides*), plains prickly pear cactus (*Opuntia polyacantha*), June grass (*Koeleria cristata*), and sagebrush (*Artemisia* sp.; USFWS 1999). Mountain Plovers have historically nested on black-tailed prairie dog (*Cynomys ludovicianis*) towns. Clutch size ranges from 1–4 eggs.

Mountain Plovers use non-breeding (wintering) habitats that are similar to those they use on breeding grounds: heavily grazed pastures, burned fields, fallow fields, and tilled fields (Hunting et al. 2001 in Andres and Stone 2009; Knopf and Wunder 2006 in Andres and Stone 2009). Mountain Plovers were historically associated with kangaroo rat (*Dipodomys*) precincts and California ground squirrel (*Spermophilus beecheyi*) colonies within the Central Valley of California (U.S. Fish and Wildlife Service 2003 in Andres and Stone 2009). In California's Imperial Valley, they preferentially use alfalfa fields that have been harvested and grazed by domestic sheep, as well as Bermuda grass fields that have been burned post-harvest (Wunder and Knopf 2003 in Andres and Stone 2009).

Mountain Plovers are considered to have been historically common in western and central Kansas; between Fort Supply, Oklahoma, and Dodge City, Kansas; western South Dakota; and they may have bred in northern Mexico (USFWS 1999). Information from the Breeding Bird Survey and Christmas Bird Count data shows a decline in the Mountain Plover at a rate of 2.7–2.8 percent per year from 1966 to 2007, although the data are characterized as having deficiencies (Andres and Stone 2009).

Threats to the Mountain Plover include loss of habitat due to conversion of grasslands to urban and active agricultural uses in their breeding grounds, prairie dog control, domestic livestock management; human disturbance during the nesting season; grasshopper control measures; use of pesticides; and other land uses throughout their range (USFWF 1999). Specific conservation issues for the Mountain Plover in the Imperial Valley include the variable nature of agricultural crops; although cultivated fields are abundant in the Central and Imperial Valleys, varying proportions may be suitable in any given year (Andres and Stone 2009). Economic forces in any given year dictate crop selection and livestock operations, which can positively or negatively affect Mountain Plover habitat (Andres and Stone 2009).

Because Mountain Plovers are relatively tolerant of disturbance, human intrusion and disturbance have not been identified as major winter conservation threats, although response varies for individual birds (Andres and Stone 2009). Mountain Plovers have been described as extremely tolerant of machinery, including off-road vehicles, tractors, and military aircraft (Andres and Stone 2009). Plovers will quickly leave roost areas when approached by walking humans (Knopf and Wunder 2006 in Andres and Stone 2009).

#### Critical Habitat

No critical habitat has been designated for the Mountain Plover, and none is proposed.

#### Occurrence

Mountain Plovers are known to over-winter in the Imperial Valley, foraging within the large agricultural complex that surrounds El Centro and spans from Mexico to the Salton Sea. In 2009, the Imperial County Agricultural Crop and Livestock Report (Imperial County 2009)

reported approximately 353,128 acres of field crops to be grown within this large agricultural complex, including primarily alfalfa hay, Bermuda grass hay, Kleingrass hay, pastured crops, Sudan grass hay, and wheat. An additional 62,237 acres of primarily alfalfa and Bermuda grass were grown as seed crops (Imperial County 2010), totaling over 415,365 acres of alfalfa and grass crops. Additional grass crop fields are present south of the border in Mexico. As discussed previously, Mountain Plovers forage in the fields at various stages of the crop rotation, including when soils are freshly tilled prior to planting; when the crops are young and vegetative growth is still under 25 centimeters in height; after the crops have been harvested, and short stubble is present; and after the fields have been burned to prepare them for the next crop.

A survey conducted in 1999 by the Point Reyes Bird Observatory catalogued the avifauna using the Salton Sea and surrounding agricultural complex (Shuford et al. 2000). The survey counted approximately 2,486 Mountain Plovers in February, 2,790 in November, and 3,758 in December in the Imperial Valley in 1999. The mean number for these three surveys represents about 30–38 percent of the species' estimated population of 8,000–10,000 individuals (anonymous 1999 in Shuford et al. 2000). On prior surveys across the California wintering range, 2,072 Mountain Plovers were recorded in the Imperial Valley in 1994, and 755 Mountain Plovers were recorded in 1998. This represented 61 and 35 percent of the totals of 3,390 and 2,179 individuals found statewide, respectively (B. Barnes in CDFG unpubl. data; K. Hunting in Shuford et al. 2000).

The higher totals in the Imperial Valley in 1999 are thought to reflect an increase in observer coverage over prior years rather than a population increase (Shuford et al. 2000). Plovers were distributed widely over the Imperial Valley with no consistent areas of concentration in 1999, presumably reflecting the shifting availability of suitable fields with the temporal and spatial variation in cultivation practices (Shuford et al. 2000). Concentrations of Mountain Plovers in relatively few sites in February 1999 appeared to reflect a preference by plovers for burned fields during that season (Shuford et al. 2000). The survey shows flocks foraging throughout the agricultural complex during the winter, including several flocks approximately within the study area ranging in size from 1-250 individuals.

A more recent survey, coordinated by the Natural History Museum of Los Angeles County (NHMLAC), was conducted throughout the Imperial Valley on January 21–23, 2011. This survey recorded 877 Mountain Plovers within approximately 20 percent of the 23 search areas; no Mountain Plovers were detected south of Interstate 8 (Molina 2011). This survey shows a marked decline in population numbers from previous surveys coordinated by the NHMLAC in 2007 (which yielded 4,687 birds within 86 percent of areas surveyed), and 2008 (which yielded 2,955 birds within 74 percent of the search areas).

This decline in population numbers does not appear to relate directly to the amount of foraging habitat available in the Imperial Valley. The acreage of agricultural fields fluctuated by tens of thousands of acres between 2005 and 2009, but the fluctuations in acreage remained within  $\pm 15$  percent of the average acreage every year (**Table 4**; Imperial County 2006, 2007, 2008, 2009, 2010). The population numbers of Mountain Plover decreased from



2007 to 2008 (Molina 2011), while the acreage of field crops (foraging habitat) increased from 2007 to 2008.

**Table 4 – Agricultural Crop History for 2005-2009 in the Imperial Valley**

Year	Field Crop (acres)	Seed Crop (acres)	Total (Acres)	Estimated Habitat During Winter Months (50% of Total)	Variation From Prior Year	Variation From Average
2009	353,128	62,237	415,365	207,683	(30,759)	7,279
2008	412,335	64,547	476,882	238,441	31,583	23,480
2007	352,156	61,561	413,717	206,859	(11,179)	8,103
2006	361,383	74,691	436,074	218,037	14,249	3,076
2005	351,174	55,711	407,577	203,789	---	11,173
<b>Average</b>	<b>366,174</b>	<b>63,749</b>	<b>429,923</b>	<b>214,962</b>	<b>---</b>	<b>10,622</b>

Source: Imperial County (2006-2010)

Notes: Variation in acres of estimated foraging habitat varies year to year by 10,000 to 30,000 acres.

Total estimated foraging habitat has been relatively stable or increasing from 2005-2010.

As the crops and rotation schedules on any given field often differ from year to year, the amount of foraging habitat available to Mountain Plovers also differs from year to year and throughout the year. Given the constraints of available crop rotation history, information provided by landowners, and examination of the current conditions of the fields, a conservative approach was taken to estimating potential available habitat within the proposed Campo Verde Solar Energy Facility. Assuming that any given crop/field is suitable as foraging habitat for 50 percent of the wintering months of November through February—either providing habitat after being planted until it grows over 9.84 inches, or after the crops have been harvested and/or burned mid-winter in preparation for a spring crop—it is estimated that approximately 3,807 of the 4,268 acres would be available as moderate to highly suitable foraging habitat within the proposed Campo Verde survey area at any given time during winter. This assumes the current crop types (alfalfa, wheat, and Bermuda grass).

On January 18, 2011, USFWS provided the Interim—Survey Guidance for Wintering Mountain Plover (*Charadrius montanus*) in the Imperial Valley (USFWS 2011). It provides guidance on conducting presence/absence surveys and determining winter population numbers for Mountain Plover. Surveys were conducted at two nearby solar projects: Centinela Solar Energy Project (located approximately 3.2 miles to the southeast) and the ISEC South project (located approximately 5.3 miles to the southeast) and no Mountain Plovers were detected. Surveys are being conducted during February, 2012. Mountain plovers were observed on multiple occasions during field surveys for the Campo Verde Project.

### **California Leaf-nosed Bat (*Macrotus californicus*)**

#### Species

The California leaf-nosed bat is a Species of Special Concern and a BLM sensitive species. This bat is found primarily in desert areas of the southwestern United States, and ranges through Imperial County and the eastern parts of Riverside and San Diego Counties in California.

### Habitat

The California leaf-nosed bat is commonly found in desert habitats that include riparian, wash, scrub, succulent scrub, alkali scrub, and palm oasis. The species is non-migratory and active year-round, requiring rocky, rugged terrain, caves, or mine shafts for roosting. These gregarious bats have been observed in groups of up to 500, with both sexes roosting together during the non-breeding season and separately during spring and summer. It forages over flats and washes within one mile of its roost, and is a "gleaning" insectivore which captures prey such as crickets, grasshoppers, beetles, and sphinx moths straight from the ground or foliage rather than in flight (BCI 2010). It typically hunts within a few feet of the ground using its superior eyesight to search for insects. Population declines are generally attributable to loss of roost sites resulting from human intrusion and physical alteration (Zeiner et al. 1990).

### Occurrence

The thickets, agricultural fields and irrigation channels within the survey area offer foraging opportunities for this species. The nearest reported location for the California leaf-nosed bat is approximately 22 miles northwest of the proposed project (State of California 2010b). No known roosts occur in the survey area, and there is no suitable roosting habitat within or near the survey area.

### **Pallid Bat (*Antrozous pallidus*)**

#### Species

The Pallid bat is a Species of Special Concern and a BLM sensitive species. It is a locally common yearlong resident of low elevations throughout most of California.

#### Habitat

This bat occupies a variety of habitats including grasslands, shrublands, woodlands, and forests at elevations ranging from sea level up through mixed conifer forests. The species occurs most commonly in open, dry habitats and prefers rocky areas for roosting. Pallid bats are social, commonly roosting in multi-species groups of 20 or more. The day roosts, such as caves, crevices, and mines, must protect the bats from high temperatures. The bats forage low over open ground, and consume large, hard-shelled prey items such as beetles, grasshoppers, cicadas, spiders, scorpions, and Jerusalem crickets. Pallid bats are very sensitive to disturbance at the roosting sites as these roosts are crucial for metabolic economy and juvenile development. Population declines are generally attributable to loss of roost sites resulting from human intrusion and physical alteration (Zeiner et al. 1990).

#### Occurrence

The entire survey area offers foraging opportunities for this species. The nearest reported location for the pallid bat is approximately 22 miles west of the proposed project (State of California 2010b). Roosts are not known to occur in the survey area, and there is no suitable roosting habitat within or near the survey area.



#### 3.1.4.2.4 California Species of Special Concern and Fully Protected Species

Three species that are classified as CDFG Species of Special Concern were observed within the survey area or were observed during surveys for nearby projects (RECON 2010a, 2010b, Heritage 2011c); Loggerhead Shrike, Crissal Thrasher (*Toxostoma crissale*), and LeConte's Thrasher (*T. lecontei lecontei*). Golden Eagle (*Aquila chrysaetos*), a CDFG Fully Protected Species, and protected under the Bald and Golden Eagle Protection Action, MBTA, and Fish & Game Code sections 3503, 3503.5, and 3513, was also observed near the Project Area (Heritage 2011c). The following discussions evaluate the potential for occurrence of California Species of Special Concern and Fully Protected Species in both the private land portion of the survey area as well as the Gen-tie survey area.

##### **Loggerhead Shrike (*Lanius ludovicianus*)**

###### Species

The Loggerhead Shrike is a CDFG Species of Special Concern and is a year-round resident in Imperial County.

###### Habitat

The Loggerhead Shrike inhabits most of the continental United States and Mexico and is a year-round resident of southern California. The Loggerhead Shrike prefers open habitat with perches for hunting and fairly dense shrubs for nesting (Yosef 1996). In southern California, Loggerhead Shrikes inhabit grasslands, agricultural fields, chaparral, and desert scrub (Unitt 1984). Their breeding season is from March to August. Loggerhead Shrikes are highly territorial and usually live in pairs in permanent territories (Yosef 1996). Loggerhead Shrikes feed on small reptiles, mammals, amphibians, and insects that they often impale on sticks or thorns before eating. Loggerhead Shrike populations are declining, likely due to urbanization and loss of habitat and, to a lesser degree, pesticide use (Yosef 1996).

###### Occurrence

Loggerhead Shrikes were observed regularly within the private land portions of the survey area. The agricultural habitats associated with the Solar Energy Facility provide suitable foraging habitat for this species. No Loggerhead Shrike nests were identified, though the species may nest in mesquite or tamarisk habitats in the vicinity of the private land portions of the survey area.

##### **Crissal Thrasher (*Toxostoma crissale*)**

###### Species

The Crissal Thrasher is a CDFG Species of Special Concern and is a year-round resident in Imperial County.

###### Habitat

A resident of southeastern California deserts, it is still fairly common in Colorado River Valley but local and uncommon elsewhere. This species occupies dense thickets of shrubs or low trees in desert riparian and desert wash habitats. In eastern Mojave Desert of San Bernardino

and southeastern Inyo counties, it also occurs in dense sagebrush and other shrubs in washes within juniper and pinyon–juniper habitats, up to 1800 m (5900 ft.). It is also a resident in the Imperial, Coachella, and Borrego valleys, but numbers have declined markedly in recent decades (Grinnell and Miller 1944; Remsen 1978; Garrett and Dunn 1981 as cited in Zeiner 1989).

This species forages mostly on the ground, especially between and under shrubs. It uses its bill to dig in friable soil and to probe in litter. Its diet is poorly known, but includes insects, other invertebrates, berries, and other small fruits, seeds, and occasionally small lizards (Bent 1948 as cited in Zeiner 1989). Breeding season for the crissal thrasher lasts from February into June with a peak in March and April.

The Crissal Thrasher's numbers have been reduced greatly by removal of mesquite brushland for agricultural development and by introduction of tamarisk. Off-road vehicle activity also may also degrade habitat and disturb thrashers (Zeiner 1989).

#### Occurrence

This species has been observed within mesquite thickets associated with nearby projects (RECON 2010). The active agricultural areas within the private land portions of the survey area do not support suitable nesting or foraging habitat for this species due to the lack of suitable vegetation and the lack of loose, friable soils for foraging. Crissal Thrashers were not observed within the survey area.

### **Le Conte's Thrasher (*Toxostoma lecontei lecontei*)**

#### Species

The Le Conte's Thrasher is a CDFG Species of Special Concern and a year-round resident in Imperial County.

#### Habitat

Le Conte's Thrasher is an uncommon to rare, local resident in southern California deserts from southern Mono County south to the Mexican border, and in western and southern San Joaquin Valley. It occurs primarily in open desert wash, desert scrub, alkali desert scrub, and desert succulent shrub habitats. Le Conte's Thrasher may also occur in Joshua tree woodlands with scattered shrubs (Grinnell and Miller 1944; McCaskie et al. 1979, 1988; Garrett and Dunn 1981 as cited in Zeiner 1989).

This species feeds on a variety of insects and other terrestrial arthropods; occasionally on seeds, small lizards, other small vertebrates (Bent 1948; Sheppard 1970 as cited in Zeiner 1989). It primarily forages on ground by probing and digging in soil and litter with bill. The Le Conte's Thrasher is a year-round, non-migratory species that breeds from late January into early June, with a peak from mid-March to mid-April.

#### Occurrence

This species was observed within desert wash vegetation associated with a nearby project (RECON 2010). The active agricultural areas within the private land portions of the survey

area do not support suitable nesting or foraging habitat for this species due to the lack of suitable vegetation and the lack of loose, friable soils for foraging. LeConte's Thrashers were not observed within the survey area.

#### 3.1.4.2.5 Golden Eagle (*Aquila chrysaetos*)

##### Species

This eagle occurs throughout the United States and is a rare resident in San Diego County and Imperial Counties (Unitt 2004; Zeiner 1989).

##### Habitat

Golden Eagles nest on cliffs of all heights and in large trees in open areas, and use rugged, open habitats with canyons and escarpments used most frequently for nesting (Zeiner 1989). Alternative nest sites are maintained, and old nests are reused. Golden Eagles build large platform nests, often 3 meters (10 feet) across and 1 meter (3 feet) high, of sticks, twigs, and greenery.

This species forages over large areas of grassland, desert, and open chaparral or sage scrub where they primarily prey upon rabbits, ground squirrels and prairie dogs. Golden Eagles forage close to and far from their nests, i.e. < 6 kilometers from the center of their territories, but have been observed to move 9 kilometers from the center of their territories in favorable habitat (McGrady et al. 2002 as cited in USFWS 2010d). These distances may be greater in xeric habitats (USFWS 2010c).

##### Occurrence

In San Diego County, Golden Eagles have been documented to be on the decline, which may represent regional trends (Unitt 2004). Golden Eagles are infrequently sited foraging over agricultural lands in the Imperial Valley in Imperial County. A Golden Eagle was observed foraging over the Mount Signal Drain and adjacent agricultural fields during surveys associated with a nearby project, approximately 4.5 miles southeast of the Imperial Valley Substation (Heritage 2011c). No previous records of this species were identified within the project vicinity (State of California 2011). There is natural and manmade nesting habitat for Golden Eagle in the regional vicinity (mountains to the northwest and south in Mexico), and the Solar Energy Facility site provides low quality foraging habitat for the species. Formal eagle surveys were not identified by the agencies as necessary for this project; instead, for the purposes of this and other analyses, occasional eagle foraging activities are assumed to occur within and around the project area. No suitable nesting habitat is present within the survey area or the immediate vicinity. Therefore, Golden Eagles are not expected to nest within the survey area.

The nearest known Golden Eagle population is approximately 10 miles northwest of the survey area, in the Coyote Mountains (Recon 2010a, 2010b). The In-Ko-Pah and Jacumba mountains, approximately 10 miles west of the proposed project, also provide suitable habitat for this species. Due to the distance from known territories, Golden Eagles associated with these populations are not expected to forage within or adjacent to the survey area. Mt. Signal, approximately 5.5 miles south of the Project Area, across the U.S.-Mexico border, may

support suitable nesting habitat, although data for this area were not identified during the literature search. Individuals nesting in or around Mt. Signal could potentially use the survey area and surrounding vicinity for foraging activities.

#### **3.1.4.3 Riparian Habitat or Sensitive Natural Communities**

Special status natural communities are those communities “that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects” (State of California 2009b). There are approximately 20.6 acres of arrow weed thicket (approximately 11.3 acres of which are disturbed) and approximately 1.3 acres of open water with arrow weed thicket within the survey area.

There are several riparian habitats within the survey area associated with the large irrigation drains present throughout the survey area. These communities include common reed marsh, cattail marsh, tamarisk thicket, and disturbed wetland. None of these communities are considered to be special status communities.

There are no other special status communities present within the survey area.

#### **3.1.4.4 Jurisdictional Waters**

A jurisdictional delineation was conducted to determine the extent of ACOE, CDFG, and RWQCB resources within the survey area. The private land survey area for potentially jurisdictional waters was comprised of the Campo Verde Solar Energy Facility. A 200-foot buffer area was surveyed and analyzed for this resource. The delineation results for these surveys are included in **Appendix 4**. The Drainage Report was submitted to the ACOE and CDFG in February 2012. The ACOE responded with a Preliminary Jurisdictional Determination (PJD) on April 23, 2012 agreeing with the determinations made in the Drainage Report. The CDFG has given verbal concurrence but no written response has been received to date. Therefore, the following discussion of jurisdictional waters may change pending ongoing consultation with the CDFG. **Attachment 1: Figure 7** shows the potentially jurisdictional ACOE and CDFG waters.

##### *3.1.4.4.1 ACOE Jurisdictional Waters*

#### **Wetlands**

Two ACOE wetland areas were identified within the private land portions of the survey area. The first (Feature 50) is immediately south and outside of the project area boundary, along Diehl Road (**Attachment 1: Figure 7, Page C-3**). This area is a defunct irrigation drain that receives water from an adjacent drain. The second (Feature 11A) is located just west of Drew Road in the northeast corner of the project area (**Attachment 1: Figure 7, Page F-1**). Formal wetland delineations were not performed in these areas. However, based on wetland vegetation (cattail, phragmites, etc.) and wetland hydrology (inundation), the features are assumed to be jurisdictional wetlands. All other ACOE

jurisdictional areas delineated are preliminarily considered non-wetland waters of the U.S., made up of irrigation canals and drains.

### **Non-wetland Waters of the U.S.**

Non-wetland waters within the private land portion of the Survey Area are primarily associated with the larger irrigation canals and drains.

A total of 18 features were identified as potentially federally jurisdictional (**Attachment 1: Figure 7**), while 98 features were identified as not federally jurisdictional. All of the features on the Solar Site are man-made features constructed wholly within uplands; these features are used for agricultural irrigation (supply and drainage). Typically the head ditches used to irrigate individual fields, as well as the tail ditches used to drain individual fields, convey water during periodic and infrequent irrigation events; they are typically dry and would not meet the definition of a Relatively Permanent Water (RPW) and, thus, would not be jurisdictional. The larger, Imperial Irrigation District (IID)-maintained, concrete-lined canals and lateral canals used to convey water to multiple fields convey water for most of the year and would likely be considered federally jurisdictional. Similarly, the larger IID-maintained drains that collect tail water from multiple fields convey water at all times of the year and would likely be considered federally jurisdictional. More detailed information including location, name of the feature, width of the ordinary high water mark, and a detailed mapbook is included in **Appendix 2 – Jurisdictional Waters Report**.

#### *3.1.4.4.2 CDFG Jurisdictional Waters*

CDFG generally takes jurisdiction of all stream features including drains and canals. The CDFG jurisdiction extends from the top of bank to the opposite top of bank on these features or the limits of riparian vegetation if this vegetation extends beyond the top of the banks. Wetlands need to only fulfill one of the three aforementioned ACOE (hydrology, hydric soils, wetland vegetation) criteria to be considered CDFG jurisdictional wetlands.

Under Section 1600 of the CDFG Code, CDFG jurisdiction includes "...bed, channel or bank of any river, stream or lake designated by the department in which there is any time an existing fish or wildlife resource or from which these resources derive benefit..." Canals, aqueducts, irrigation ditches, and other means of water conveyance can also be considered streams if they support aquatic life, riparian vegetation or stream dependent terrestrial benefit (Cylinder 1995).

Generally speaking, most canals, head and tail ditches do not support riparian habitat. Larger drains, however, typically do support some riparian habitat and are often considered state jurisdictional. Drainage features were considered potentially jurisdictional if they exhibited naturally occurring bed and bank, riparian vegetation potentially providing wildlife habitat, and/or evidence of regular flow. A total of 23 features were identified as potentially state jurisdictional (**Attachment 1: Figure 7**). Features occurring within the Campo Verde Solar Energy Facility that did not satisfy these criteria were very small tail ditches and concrete lined head ditches. The tail ditches were frequently isolated within individual fields, did not

support distinct bed and bank, riparian vegetation or evidence of regular flow, or are plowed under and re-created each time the field is replanted. The head ditches convey water during periodic and infrequent irrigation events; they are typically dry. The larger, IID-maintained, concrete-lined canals and lateral canals used to convey water to multiple fields convey water for most of the year, sometimes support riparian vegetation and/or fisheries, and would likely be considered CDFG jurisdictional. Similarly, the larger IID-maintained drains that collect tail water from multiple fields convey water for most of the year and would likely be considered CDFG jurisdictional.

More detailed information including location, name of the feature, width of bank to bank, and a detailed mapbook is included in **Appendix 2 – Jurisdictional Waters Report**.

#### **3.1.4.5 *Habitat Connectivity and Wildlife Corridors***

Wildlife movement corridors and habitat linkages are areas that connect suitable wildlife habitat areas in a region otherwise fragmented by rugged terrain, changes in vegetation, or human disturbance. Corridors are generally local pathways connecting short distances usually covering one or two main types of vegetation communities. Linkages are landscape level connections between very large core areas and generally span several thousand feet and cover multiple habitat types. Natural features such as canyon drainages, ridgelines, or areas with vegetation cover provide corridors and linkages for wildlife travel. The habitat connectivity provided by corridors and linkages is important in providing access to mates, food, and water, allowing the dispersal of individuals away from high-density areas, and facilitating the exchange of genetic traits between populations (Beier and Loe 1992).

Both avian and terrestrial wildlife species are able to move freely throughout the survey area and are not restricted to a specific corridor or linkage.

### **3.2 Gen-tie Line Alternatives**

The following sections describe the existing conditions on lands associated with the Proposed Gen-Tie, the Alternative Gen-Tie across BLM land, and the Private Land Gen-Tie Alternative and associated buffer areas. This area is referred to as the “gen-tie survey area”.

#### **3.2.1 Soils and Topography**

The survey area is located in the Yuha Basin of the Colorado Desert between agricultural lands to the north and east and native desert to the south and west. No alluvial fans or small washes are present in the gen-tie line corridors. The area is relatively flat, with sparse vegetation and sand that ranges from soft and rolling to flat and compact. The gen-tie survey area is comprised of native desert, active agricultural fields, and fallow agricultural fields.

There are ten major soil types found within the survey area, including Badland, Glenbar, Holtville, Imperial-Glenbar, Indio-Vint, Meloland-Holtville, Indio, Vint, Meloland, Rositas soils (NRCS 2006 and 2011). These soils are primarily found on flat basin floors and are formed from clay, silt, and sandy alluvium materials.



The elevation trends downward from the south to the north. Soils are very permeable and there are no drainages or washes present in the Gen-tie Line corridor on BLM lands. Presumably, most surface water is absorbed into the ground or sheet flows to the Westside Main Canal just north of the BLM lands.

### **3.2.2 General Vegetation**

Ten vegetation communities were mapped within the gen-tie survey area. The following sections describe existing vegetation in the gen-tie survey area. Communities that are similar in composition were lumped together in the discussion.

#### **3.2.2.1 Creosote Bush-White Bursage Scrub (CBS and CBS-D)**

Creosote bush–white bursage scrub (including the disturbed component) is the major component of the survey area. This community is dominated by creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*) with relatively sparse vegetative cover and flat topography. Four-wing saltbush (*Atriplex canescens*) and plicate tiquilia (*Tiquilia palmeri*) are present as sporadic minor associates. This community occurs in minor washes and rills, alluvial fans, bajadas, upland slopes, usually on well-drained alluvial, colluvial and sandy soils (Sawyer, et al. 2009). It covers approximately 67% of the central Mojave Desert and 70% of the Colorado and Sonoran deserts in California (Sawyer et al. 2009). Plantain (*Plantago* sp.), narrow-leaf cryptantha (*Cryptantha angustifolia*), basket evening-primrose (*Oenothera deltoides*) and narrow-leaf oligomeris (*Oligomeris linifolia*) are very common in the herbaceous layer. Other ephemeral species expected to occur within this community include: short-ray desert marigold (*Baileya pauciradiata*), desert dandelion (*Malacothrix glabrata*), spectacle-pod (*Dithyrea californica*), onyx flower (*Achyronychia cooperi*) and bajada lupine (*Lupinus cocinnus*). Areas of high human disturbance are classified as disturbed creosote bush-white bursage scrub.

#### **3.2.2.2 Agriculture (Ag) and Fallow Agriculture (AG-F)**

Active agricultural fields primarily consist of alfalfa and Bermuda grass. Agricultural weeds such as five-hook bassia are present along the edge of the fields.

Fallow agricultural fields are being invaded by non-native weeds such as five-hook bassia, tamarisk, Saharan mustard (*Brassica tournefortii*), and the native shrub quailbush.

#### **3.2.2.3 Arrow Weed Thicket (AS and AS-D)**

Arrow weed thicket is a shrub community dominated or co-dominated by arrow weed (*Pluchea serricea*). The canopy is intermittent to continuous with the shrub canopy usually less than 5 meters in height. The herbaceous layer in these communities is generally sparse. This community occurs around springs, seeps, irrigation ditches, canyon bottoms, stream borders, and seasonally flooded washes in desert. The USFWS Wetland Inventory recognizes this as a facultative wetland species. The community occurs throughout the Mojave,



Colorado and Sonoran deserts of California (Sawyer et al. 2009). Within the Gen-tie survey area, this community occurs along irrigation drains and canals. Areas where the vegetation has not fully recovered from the previous clearing are classified as disturbed arrow weed thicket. Most of these areas are regularly cleared of this vegetation and they are constantly changing.

#### **3.2.2.4 Stabilized Desert Dunes – Disturbed (SDD-D)**

Stabilized desert dunes in the survey area are the result of several types of windbreaks that have been created to prevent sand from blowing into the agricultural fields. These windbreaks include plantings of athel (*Tamarix aphylla*), soil berms and hay bale/soil berms. These berms have created stabilized sand dunes primarily on the windward sides of these features. The vegetation in these areas is dominated by creosote bush, four-wing saltbush and three-fork ephedra (*Ephedra trifurca*). Ephemeral species expected to occur here are the same as those described previously for the creosote bush scrub, especially basket evening-primrose (*Oenothera deltoides*), dicoria (*Dicoria canescens*) and parch locoweed (*Astragalus aridus*) and desert locoweed (*Astragalus didymocarpus*). Because these dunes are an artifact of human creation and the foreign materials that are a part of this dune system, these have been classified as disturbed dunes.

#### **3.2.2.5 Athel Tamarisk Type Woodland (AW)**

Individuals of athel (*Tamarix aphylla*) have been planted as a windscreen along the edges of agricultural fields. This semi-evergreen or evergreen tree reaches a height of 12 meters. The herbaceous layer in these communities is generally sparse (Sawyer et al. 2009).

#### **3.2.2.6 Tamarisk Thicket (TS)**

Tamarisk thicket is a shrub community dominated or co-dominated by tamarisk (*Tamarix ramosissima*). This non-native species has invaded many areas of native riparian vegetation where they develop dense, monospecific stands across floodplains, wetlands, and lake margins. The USFWS Wetland Inventory recognizes this as a facultative species. The canopy is continuous to open with the shrub canopy usually less than 8 meters in height. The herbaceous layer in these communities is generally sparse. This community occurs throughout watercourses in the Mojave, Colorado and Sonoran deserts (Sawyer et al. 2009). Within the survey area, this community occurs within irrigation drains and canals, generally along the channel bottoms and lower slopes or within fallow fields with a high water table. Arrow weed (*Pluchea serricea*), cattails (*Typha* sp.), and common reed (*Phragmites australis*) are major associates to co-dominants in some areas.

#### **3.2.2.7 Developed/Disturbed (DEV/DH)**

Developed/disturbed land occurs within the survey area. These areas contain little to no vegetation. Disturbed areas include areas adjacent to the Imperial Valley Substation on BLM land and one residence on private land within the buffer. These areas are usually kept bare of vegetation by constant vehicle traffic but may support non-native weed species.

### **3.2.2.8 Open Water with Arrow Weed Thicket (OW)**

This habitat is restricted to the Westside Main Canal. Arrow weed thicket is restricted to a narrow band along the banks of this canal. Arrow weed is the dominant species and in many areas the only species along the banks of this canal.

### **3.2.2.9 Common Reed Marsh – Disturbed (CRM-D)**

Common reed marsh includes semi-permanently flooded and slightly brackish marshes, ditches and impoundments that are dominated or co-dominated by common reed (*Phragmites australis*). Native stands occur in wetlands throughout the Mojave, Colorado and Sonoran deserts. The USFSW Wetland Inventory recognizes common reed as a facultative wetland species (Sawyer et al. 2009). Within the survey area, these marshes occur along the channel bottoms of the canals and drains with a more permanent water source. Cattails (*Typha latifolia*), tamarisk (*Tamarix ramosissima*), and arrow weed (*Pluchea serricea*) are co-dominants or major associates. In many instances these earthen irrigation canals and drains are routinely cleared of vegetation to facilitate hydrologic flow. Areas where the vegetation has not fully recovered from the previous clearing are classified as disturbed common reed marsh.

### **3.2.2.10 Disturbed Wetland (DW)**

Disturbed wetland included earthen canals and drains that are regularly cleared of vegetation usually support herbaceous non-native species; these areas have been mapped as disturbed wetlands. Most of the species in the disturbed wetlands are non-native grasses and forbs; with the exception of salt grass, they were not identifiable at the time of the fall survey. Other species expected to occur in these drainages include sprangletop (*Leptochloa* spp.), umbrella sedge (*Cyperus* spp.) and dock (*Rumex* spp.).

## **3.2.3 Special Status Plant Species**

**Table 5** lists all the Special Status Plants that are known from the vicinity of the Campo Verde Project area. Surveys of the BLM lands were conducted in October 2011 and March 2012. The fall surveys were conducted to capture fall-blooming ephemeral species and woody perennial species (trees and shrubs), which may not bloom in the fall but would have been observable during this survey window. The March 2012 surveys were conducted to capture early spring ephemeral blooming species as well as the aforementioned woody perennial species, many of which bloom during the spring. Many of the special status species have a long blooming period that extends from the fall through the spring encompassing both the fall and spring survey periods and would have been detectable, if present during both of these surveys. No Special Status Plants were observed on the BLM lands during either the October or March surveys. This area of Imperial County experienced very little summer/fall rainfall. As a result, there was no evidence that any fall blooming, ephemeral species germinated during the fall 2011. Because of the low amount of rainfall, fall blooming Special Status Plants that could be present onsite may not have been observable. Despite this, approximately one-half of the Campo Verde Project area on the BLM lands was surveyed in

November 2010 for the Centinela Solar Energy Project (Heritage 2011); no Special Status Species were observed in this area at that time and fall blooming species were present in this area in 2010 either.

Though other portions of the Sonoran Desert had reported low representation of spring blooming ephemerals during spring of 2012, the BLM lands within the Campo Verde Project area exhibited a good representation of the very common spring blooming annuals and herbaceous perennials in early March. High cover of plantain, narrow-leaf cryptantha, as well as lesser coverage of desert lily, basket evening-primrose (*Oenothera deltoides* ssp. *deltoides*) desert sunflower (*Geraea canescens*), and desert dandelion (*Malacothrix glabrata*) indicate that rainfall was sufficient for germination of these early ephemeral species and suggests that conditions were sufficient for germination of early-spring ephemeral special status plant species if present. Most of the Special Status Species assessed in this report are either not expected to occur or would have a low potential to occur, within the BLM lands. The majority of the species are not expected to occur because of lack of appropriate habitat, or lack of known or historical populations from the vicinity. Species with a low potential for occurrence have suitable habitat present within the Campo Verde Project area on BLM lands, but due to the relatively small amount of habitat, the proximity to agricultural fields, the Imperial Valley substation, and several existing transmission lines, their potential for occurrence is much less likely.

**Table 5** provides a detailed analysis of all special status plant species evaluated for the Gen-tie Survey area.

### **3.2.3.1 Federally-listed Species**

Based on the literature review and field surveys, no federally listed threatened or endangered plant species were identified as having the potential to occur within the Gen-tie survey area. No federally listed threatened or endangered species were observed during focused rare plant surveys.

### **3.2.3.2 State-listed Species**

Algodones Dunes sunflower is a California state listed endangered species and a California Native Plant Society's (CNPS) Rare Plant Rank 1.2 (Rare, Threatened or Endangered in California, and elsewhere/fairly endangered in California) species. This species was not observed during the survey which coincided with its blooming period (September – May). There is very marginal suitable habitat (desert dunes) within the project area on BLM lands. As mentioned previously, these dunes are the result of human created windbreaks. This species is also only known from the Algodones Dunes; the site is well outside of the known range of this species. This species was not observed during the October 2011 or the March 2012 surveys both of which coincided with this species traditional blooming period (September – May). As such, this species is not expected to occur within the Campo Verde Project area on the BLM or private lands.

Wiggins' croton is a California state listed rare species and a BLM sensitive species that was historically considered restricted to the Algodones Dunes on East Mesa, though this species has recently been reported near Plaster City. Individuals of croton previously observed around the IV Substation adjacent to the Campo Verde project area are California croton (*Croton californicus*) (John Messina pers obs). No individuals in the genus *Croton* were observed within the Campo Verde Project area during the October 2011 or the March 2012 the latter of which coincided with this species traditional flowering period (March-May). Wiggins' croton is not expected to occur within the BLM lands Campo Verde Project area. No state-listed species were observed on-site during focused rare plant surveys.

### 3.2.3.3 **BLM Sensitive Species**

A total of 10 BLM sensitive species are known from the Campo Verde Project area: Peirson's milk vetch and Wiggins' croton mentioned in the previous subsection, chaparral sand verbena (*Abronia villosa* var. *aurita*), Peirson's pincushion (*Chaenactis carphoclinia* var. *peirsonii*), flat-seeded spurge (*Chamaesyce platysperma*), Wolf's cholla (*Cylindropuntia wolfii*), Mountain Springs bush lupine (*Lupinus excubitus* var. *medius*), giant Spanish needle (*Palafoxia arida* var. *gigantea*), sand food (*Pholisma sonora*) and Orcutt's woody-aster (*Xylorhiza orcuttii*). Below is a brief discussion of these species, additional information is included in **Table 5**.

No BLM sensitive species were observed during either the October 2011 or March 2012 surveys. The October 2011 and March 2012 surveys both coincided with the blooming periods of chaparral sand verbena, and flat-seeded spurge. The March 2012 survey coincided with the blooming periods of Peirson's pincushion, Wolf's cholla, Mountain Springs bush lupine, giant Spanish needle, sand food, and Orcutt's woody-aster.

Chaparral sand verbena is a BLM Sensitive Species, a CNPS Rare Plant Rank 1B.1 species, and a CNDDDB special plant. This annual occurs in sandy areas including desert dunes. This species was not observed during the March surveys which coincided with its traditional flowering period (January – September). Marginal dune habitat occurs along the Preferred Gen Tie route just north of the IV Substation, but this species is not expected to occur within the project area.

Peirson's pincushion is a BLM Sensitive Species, a CNPS Rare Plant Rank 1B.3 species, and a CNDDDB special plant. This annual grows in sandy areas. This species was not observed during the March surveys which coincided with its traditional flowering period (March - April). Most reported occurrences of this species are not close to the site. As such this species has a low potential for occurrence within the project area.

Flat-seeded spurge is a BLM Sensitive Species, a CNPS Rare Plant Rank 1B.2 species, and a CNDDDB special plant. This annual occurs in sandy areas but is only known from a few historical locations. The March survey coincided with this species traditional blooming period (February – September) but due to its rarity is not expected to occur within the project area.

Wolf's cholla is a BLM Sensitive Species, a CNPS Rare Plant Rank 4.3 species, and a CNDDDB special plant. Wolf's cholla is a small, multi-branched cactus with cylindrical stem segments. This species is known from Pinto Wash south of the Project area. This species was not observed during the October 2011 or the March 2012 surveys the latter of which coincided with this species traditional blooming period (March-May). As such, this species is not expected to occur within the Campo Verde Project area on the BLM or private lands.

Mountain Springs bush lupine is a BLM Sensitive Species, a CNPS Rare Plant Rank 1B.3 species, and a CNDDDB special plant. This perennial shrub blooms from March – May which coincides with the March surveys. This species was not observed during the surveys and is not expected to occur within the Campo Verde Project area as the project area is well east of the reported range of this species (i.e. Mountain Springs Grade).

Giant Spanish needles is a BLM sensitive species, a CDFG special plant and a CNPS Rare Plant Rank 1B.3 species. This species occurs in desert dunes. There is marginal dune habitat within the project area, specifically along the Proposed Gen Tie route on the BLM lands. This species was not observed during the March surveys, which were conducted during the traditional flowering period of this species (March – May). This species is not expected to occur within the Campo Verde Project area as most of the reported localities for this species are in the Algodones Dunes of East Mesa.

Sand food is a BLM sensitive species, a CDFG special plant and a CNPS Rare Plant Rank 1B.2 species. This herbaceous perennial is parasitic on other desert shrub species generally occurring in very sandy areas. Though this species was not observed during the surveys, which coincided with this species traditional flowering period (March – May), there is a low to moderate potential for its occurrence within the Campo Verde Project area especially in the sandy areas along the Proposed Gen-Tie route since it is a parasitic plant and the flowers are not always present.

Orcutt's woody-aster is a BLM sensitive species, a CDFG special plant and a CNPS Rare Plant Rank 1B.2 species. This herbaceous perennial was not observed during the March 2012 surveys which coincided with this species traditional blooming period (March – April). Rocky canyons and sandy washes are its typical habitat which are absent from the project area. As such this species is not expected to occur within the project area.

No other BLM Sensitive Species are expected to occur within the Gen-tie survey area.

### **3.2.3.4 Priority Plant Species**

The remaining 37 plants assessed for the Campo Verde Project are CDFG Special Plants and are contained within the CNPS Inventory. All of these plants are assessed in **Table 5**. Those species with the highest potential for occurrence or with reported occurrences near the Campo Verde Project area are discussed below. The remaining species are discussed in Table 3.

Brown turbans (*Malperia tenuis*) is a CNPS Rare Plant Rank 2.3 species and CNDDDB special plant. This species occurs in Sonoran Desert scrub and is known from the Yuha Basin. This

inconspicuous species is very difficult to observe. Though no individuals were observed during the March survey, which coincided with its traditional flowering period (March-April), this species would still have a low-moderate potential for occurrence due to its very inconspicuous nature.

Parish's desert-thorn (*Lycium parishii*) is a CNPS Rare Plant Rank 2.3 species and CNDDDB special plant. One individual of desert thorn (*Lycium* sp.) was observed during the October 2011 survey along the Preferred Gen-Tie route just north of the IV Substation. This individual was not in flower during this survey and could not be identified. Attempts to relocate this individual during the March survey were not successful. This species would have a low potential for occurrence within the project area.

Thurber's pilostyles is a CNPS Rare Plant Rank 4.3 species (Plants of limited distribution/not very endangered in California) and a CNDDDB special plant. Thurber's pilostyles is a parasitic plant of the genus *Psorothamnus*. This species is known from Pinto Wash south of the Project area. Several individuals of white dalea (*Psorothamnus emoryi*) were observed along the southern portion of the Proposed Gen-Tie route just north of the IV Substation. No individuals of Thurber's pilostyles were observed on these individuals though this species may not have been observable at the time of the survey as this parasitic flower is usually only present in January and February. However, this species would have a low potential for occurrence within the BLM lands portion of the Campo Verde Project area due to the small population size of its host.

Utah vine milkweed (*Funastrum utahense*) is a CNPS Rare Plant Rank 4.2 species. This species is an herbaceous vine that grows on other desert shrubs and was not observed during either survey. The second March survey may have been a little too early to detect this species, which typically blooms from April-June. Despite this, Utah vine milkweed would have a low to moderate potential for occurrence within the Campo Verde Project area on BLM lands.

California satintail (*Imperata brevifolia*) is a CNPS Rare Plant Rank 2.1 species (Rare, Threatened or Endangered in California, more common elsewhere/seriously endangered in California) and a CNDDDB special plant. This tall perennial grass occurs in riparian scrub and mesic habitats, which are not present along the gen-tie corridors on the BLM lands. This species was not observed during the October 2011 or the March 2012 surveys both of which coincided with this species traditional blooming period (September-May). As such, these species are not expected to occur within the Campo Verde Project area on the BLM or private lands.

Abram's spurge (*Chamaesyce abramsiana*) is known from several historical locations from the vicinity of the Campo Verde Project area. Abram's spurge is a CNPS 2.2 species (Rare, Threatened or Endangered in California, more common elsewhere/fairly endangered in California) and a CNDDDB special plant that is a fall/winter blooming species (September – November). This species was not observed during the October 2011 survey which though conducted during this species traditional flowering period (September-November) may be inconclusive due to the lack of summer/fall precipitation in the Campo Verde project area.



Despite this, Abram's spurge is not expected to occur within the project area given the lack of known populations near the project site and because much of the suitable habitat is adjacent to agricultural activities, a substation and transmission line corridors.

Little-leaf elephant tree (*Bursera microphylla*), fairy duster (*Calliandra eriophylla*), crucifixion thorn tree (*Castela emoryi*) are all CNPS Rare Plant Rank 2.3 and CNDDDB special plants. All are perennial trees or shrubs and would have been observable during the time of the survey during both the October 2011 and March 2012 surveys. The March 2012 surveys coincided with the traditional flowering period of the fairy duster. No individuals of these species were observed during the surveys. In addition, preferred habitats for these species are typically more rocky or gravelly bajadas or playas that are not present within the Campo Verde Project area. As such the little-leaf elephant tree, fairy duster, and crucifixion thorn tree are not expected to occur within the BLM lands Campo Verde Project area.

The remainder of the species in Table 4.12-7 either have a very low potential for occurrence or are not expected to occur within the Campo Verde Project area on BLM lands because of the absence of suitable habitat of the site is outside of the known range of these species.

**Table 5 – Special Status Plant Species Potentially Occurring in the Gen-tie Survey Area**

<b>Special Status Plant Species Occurring or Potentially Occurring Within the Campo Verde Facility and Gen-tie Line Corridors</b>		
<b>Species Name</b>	<b>Sensitivity Status</b>	<b>Potential for Occurrence</b>
Pygmy lotus ( <i>Acemisson haydonii</i> )	CNPS Rare Plant Rank 1B.3	Occurs in rocky Sonoran Desert scrub. Herbaceous perennial; blooms January – June. Known from In-Ko-Pah Gorge quad (CNPS 2011). Suitable habitat (i.e., rocky/gravelly desert scrub) absent. Site outside of current known range of species and well below reported lower elevational range (520m) (CNPS 2011). This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Chaparral sand verbena ( <i>Abronia villosa</i> var. <i>aurita</i> )	BLM: Sensitive CDFG: Special Plant CNPS Rare Plant Rank 1B.1	Occurs in sandy floodplains or flats in generally, inland arid areas of sage scrub and open chaparral and desert dunes (Reiser 2001; CNPS 2011). Annual; blooms January – September (CNPS 2011). Known from Calexico, Seeley, and Superstition Mountains quads (CNPS, 2010). Marginal dune habitat present within native habitats in Campo Verde project area. This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Watson's amaranth ( <i>Amaranthus watsonii</i> )	CDFG: Special Plant CNPS Rare Plant Rank 4.3	Occurs in Sonoran Desert Scrub. Annual; blooms August – September. Not observed but survey occurred outside of traditional blooming period. Suitable habitat present within native desert scrub in Campo Verde project area. Known from Calexico and Heber quads (CNPS 2011). Low to moderate potential for occurrence within desert scrub habitats but were not observed during spring or fall surveys.
Salton milk vetch ( <i>Astragalus crotalariae</i> )	CDFG: Special Plant CNPS Rare Plant Rank 4.3	Occurs in sandy or gravelly Sonoran Desert scrub habitat and is known from the Superstition Mountains quad. This herbaceous perennial blooms from January to April (CNPS 2011). Potential habitat present within Campo Verde project area. This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.



<b>Special Status Plant Species Occurring or Potentially Occurring Within the Campo Verde Facility and Gen-tie Line Corridors</b>		
Harwood's milk vetch ( <i>Astragalus insularis</i> var. <i>harwoodii</i> )	CDFG: Special Plant CNPS Rare Plant Rank: 2.2	Occurs in Sonoran Desert scrub with gravelly, sandy washes or dunes (Reiser, 2001). Annual; blooms January-May (CNPS 2011). Known from southwest of Plaster City between S-80 and I-80 (URS 2010). Also known from In-Ko-Pah Gorge and Coyote Wells quads (CNPS 2011). Habitat (sandy dunes) present within native desert scrub in survey. Known from Coyote Wells quad (CNPS 2011). This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Borrego milk vetch ( <i>Astragalus lentiginosus</i> var. <i>borreganus</i> )	CDFG: Special Plant CNPS Rare Plant Rank 4.3	Occurs in sandy Sonoran Desert scrub habitat and is known from the Shell Reef quad in upper Borrego Valley and from the Algodones Dunes on East Mesa. This herbaceous perennial blooms from February to May (CNPS 2011). Potential habitat present This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Peirson's milk vetch ( <i>Astragalus magdalenae</i> var. <i>peirsonii</i> )	USFWS: Threatened CDFG: Endangered BLM: Sensitive CNPS Rare Plant Rank 1B.2	Occurs in desert dunes habitat, this species is known from fewer than 10 occurrences. Known from Algodones Dunes on East Mesa and upper Borrego Valley. A herbaceous perennial that blooms from December to April (CNPS 2011). Marginal dune habitat present. This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Desert ayenia ( <i>Ayenia compacta</i> )	CDFG: Special Plant CNPS Rare Plant Rank: 2.3	Occurs in rocky Sonoran Desert scrub. An herbaceous perennial that blooms from March to April (CNPS 2011). Closest reported populations include Jacumba and Sweeney Pass. This species not expected to occur in the Campo Verde project area due to the lack of suitable habitat, i.e., rocky areas. Known populations are well west of the corridor in the rocky mountains above the Yuha Basin. This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Little-leaf elephant ( <i>Bursera microphylla</i> )	CDFG: Special Plant CNPS Rare Plant Rank: 2.3	Occurs in alluvial fan scrub (Reiser 2001) and rocky areas in Sonoran Desert scrub. Deciduous tree; blooms June-July (CNPS 2011). Not observed within Campo Verde project area during survey. Distinctive tree species would have been observed during surveys if present. Nearest location in In-Ko-Pah Gorge, Sweeney Pass and Arroyo Tapiado quads (CNPS, 2011). Alluvial fan scrub habitat and rocky scrub absent in the Campo Verde project area. Closest sites are in rocky desert foothills to west of site. Species is not expected to occur within project area.
Fairy duster ( <i>Calliandra erriophylla</i> )	CDFG: Special Plant CNPS Rare Plant Rank 2.3	Occurs in Sonoran Desert scrub primarily on rocky hillsides and bajadas (Reiser, 2001; CNPS 2011). Deciduous shrub; blooms January – March (CNPS 2011). One CNDDDB occurrence south of the Campo Verde project area which is also likely the Yuha Basin Quad location reported by CNPS (2011). Most occurrences of this species in East Mesa of Imperial County (CNPS 2011). Not observed during the March 2012 surveys which were conducted during this species traditional flowering period. Not expected to occur due to absence of suitable habitat in Campo Verde project area.
Crucifixion thorn ( <i>Castela emoryi</i> )	CDFG: Special Plant CNPS Rare Plant Rank 2.3	Occurs in playas and gravelly areas in Sonoran Desert scrub. Deciduous shrub; blooms April – July (CNPS 2011). Not observed during the surveys. Distinctive shrub species would have been observed if present. Not expected to occur. Suitable habitat (i.e., playas and gravelly areas) absent in Campo Verde project area. Known from Yuha Basin and Coyote Wells quads (CNPS 2011).

<b>Special Status Plant Species Occurring or Potentially Occurring Within the Campo Verde Facility and Gen-tie Line Corridors</b>		
Peirson's pincushion ( <i>Chaenactis carphoclinia</i> var. <i>peirsonii</i> )	BLM: Sensitive CDFG: Special Plant CNPS Rare Plant Rank 1B.3	Occurs in sandy Sonoran Desert scrub. Annual; blooms March-April. Known only from the eastern Santa Rosa Mountains with closest reported location from the Borrego Mountain SE quad (CNPS 2011). Suitable habitat present in Campo Verde project area. This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Abram's spurge ( <i>Chamaesyce abramsiana</i> )	CDFG: Special Plant CNPS Rare Plant Rank 2.2	Occurs in sandy Sonoran Desert scrub. Annual; blooms September – November (CNPS 2011). Suitable habitat present in Campo Verde project area. Historical collections known from Calexico, Heber and Brawley quads (CNPS, 2011). Not observed during focused survey for this species in October 2011 which was conducted during this species' traditional flowering period. However, late summer and fall rains may have been insufficient for seeds to germinate this year. Low potential to occur in native desert scrub habitats in Campo Verde project area.
Arizona spurge ( <i>Chamaesyce arizonica</i> )	CDFG: Special Plant CNPS Rare Plant Rank 2.3	Occurs in sandy Sonoran Desert scrub. Known from the In-Ko-Pah Gorge Quad, this species is undocumented in Imperial County. This herbaceous perennial blooms from March to April (CNPS 2011). Not expected to occur within Campo Verde project area. Though suitable habitat is present, Campo Verde project area is outside of this species current known range. This species was not observed during the March 2012 surveys, which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Flat-seeded spurge ( <i>Chamaesyce platysperma</i> )	BLM: Sensitive CDFG: Special Plant CNPS Rare Plant Rank 1B.2	Occurs in desert dunes and sandy Sonoran Desert scrub. Known in California from only four herbarium collections and one collection from Imperial County in 1987 (CNPS 2011). Annual; blooms February – September. Known from Superstition Mountain and Kane Springs quads in Imperial County (CNPS 2011). Not expected to occur within Campo Verde project area. Though marginal suitable habitat for this species exists, species is very rare in Imperial County. This species was not observed during the March 2012 surveys, which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Sand evening primrose ( <i>Chylismia arenaria</i> )	CDFG: Special Plant CNPS Rare Plant Rank 2.2	Occurs in sandy or rocky Sonoran Desert scrub. This annual/herbaceous perennial blooms from November–May and is reported from the Quartz Peak quad in the Chocolate Mountains (CNPS 2011). Though suitable habitat is present the reported occurrences of this species are distant from the Campo Verde project area. Low potential for occurrence. This species was not observed during the March 2012 surveys, which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Las Animas colubrina ( <i>Colubrina californica</i> )	CNPS Rare Plant Rank 2.3	Occurs in Sonoran Desert scrub (CNPS 2001) often localized around springs and mesic rocky canyon bottoms (Reiser 2001). This deciduous shrub blooms from April-June and is reported from Picacho Peak and Quartz Peak in the Chocolate Mountains (CNPS, 2001). Suitable habitat lacking and site is outside known current distribution. Not expected to occur within Campo Verde project area. Surveys for this species will be conducted in appropriate habitat within its blooming season in 2012.
Spiny abrojo ( <i>Condalia globosa</i> var. <i>pubescens</i> )	CDFG: Special Plant CNPS Rare Plant Rank 4.2	Occurs in Sonoran Desert scrub. This deciduous shrub blooms from March-May. This species is reported from Imperial County but no quad data is available (CNPS 2011). Suitable habitat is present in the Campo Verde project area. This species was not observed during the March 2012 surveys, which were conducted during this species traditional blooming period. This species is not expected to occur

<b>Special Status Plant Species Occurring or Potentially Occurring Within the Campo Verde Facility and Gen-tie Line Corridors</b>		
		within the Campo Verde project area.
Wiggins croton ( <i>Croton wigginsii</i> )	BLM: Sensitive CDFG Rare CNPS Rare Plant Rank 2.2	Occurs in desert dunes and Sonoran Desert scrub. Shrub; blooms March – May. CNPS reports species restricted to Algodones Dunes and all CNPS locations are on the East Mesa (CNPS 2011). Known from near Plaster City between S-80 and I-80 (URS, 2010). Marginal suitable habitat present (i.e. desert dunes), but dunes are result of human creation and site and is outside of species range. This species was not observed during the March 2012 surveys, which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Ribbed cryptantha ( <i>Cryptantha costata</i> )	CDFG: Special Plant CNPS Rare Plant Rank: 4.3	Occurs in desert sand dunes and sandy desert scrub. Annual; blooms February – May (CNPS 2011). Reiser (2001) reports an old historical collection from Pinto Wash. Marginal suitable habitat within Campo Verde project area. This species was not observed during the March 2012 surveys, which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Wolf's cholla ( <i>Cylindropuntia wolfii</i> )	BLM: Sensitive CDFG: Special Plant CNPS Rare Plant Rank 4.3	Occurs in Sonoran Desert scrub, usually on alluvial fans or rocky slopes (Reiser 2001). Stem succulent that blooms from March-May. Known from San Diego and Imperial counties and Baja, California (CNPS 2011). Known from Pinto Wash south of the IV substation. This species was not observed during the March 2012 surveys, which were conducted during this species traditional flowering period. This species is not expected to occur within Campo Verde project area.
Glandular ditaxis ( <i>Ditaxis claryana</i> )	CDFG: Special Plant CNPS Rare Plant Rank 2.2	Occurs in sandy Sonoran Desert scrub. Herbaceous perennial; blooms October – March. Known from Algodones Dunes. Ogliby and Iris quads are closest reported populations (CNPS 2011). Not observed during the October 2011 or the March 2012 surveys were both conducted during this species traditional blooming period. This species is not expected to occur, as Campo Verde project area is outside of known range.
California ditaxis ( <i>Ditaxis serrata</i> var. <i>californica</i> )	CDFG: Special Plant CNPS Rare Plant Rank 3.2	Sonoran Desert scrub. Herbaceous perennial, blooms March-December. Nearest known occurrence Clark Lake Quad in northern Anza Borrego State Park. Most of the other locations reported along the I-10 corridor between Indio and Blythe (CNPS 2011). Not observed during the October 2011 or the March 2012 surveys both of which were conducted during this species traditional flowering period. This species is not expected to occur within the Campo Verde project area.
Rock nettle ( <i>Eucnide rupestris</i> )	CDFG: Special Plant CNPS Rare Plant Rank 2.2	Sonoran Desert scrub. Annual; blooms December – April. Known from Mount Signal and Coyote Wells quads (CNPS 2011). CNDDB occurrence in Yuha Basin (likely CNPS Coyote Wells quad location). Suitable habitat present in Campo Verde project area. This species was not observed during the March 2012 surveys, which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Utah vine milkweed ( <i>Funastrum utahense</i> )	CDFG: Special Plant CNPS Rare Plant Rank: 4.2	Occurs in sandy or gravelly Sonoran Desert Scrub. Herbaceous, perennial growing on desert shrubs; blooms April – June (CNPS 2011). Known from southwest of Plaster City between S-80 and I-80 (URS 2010). Suitable habitat present in Campo Verde project area. Known from Yuha Basin south of S80. Low to moderate potential for occurrence. Surveys for this species will be conducted in appropriate habitat within its blooming season in 2012.
Algodones Dunes sunflower ( <i>Helianthus niveus</i> ssp. <i>tephrodes</i> )	CDFG: Endangered CNPS Rare Plant Rank 1B.2	Occurs in desert dunes and is restricted to the Algodones Dunes of East Mesa. This herbaceous perennial blooms from September-May. Not observed during October 2011 survey or the March 2012 surveys and not expected to occur in Campo Verde project area. . Marginal suitable habitat present (i.e. desert dunes), but dunes are result of

<b>Special Status Plant Species Occurring or Potentially Occurring Within the Campo Verde Facility and Gen-tie Line Corridors</b>		
		human creation and site and is outside of species range.
Curly herissantia ( <i>Herissantia crispa</i> )	CDFG: Special Plant CNPS Rare Plant Rank 2.3	Occurs in Sonoran Desert scrub. Annual- herbaceous perennial; Blooms August – September. Only known from two locations in California, both in San Diego County (Pinto Wash and Mountain Springs Grade) (CNPS 2011). Not known from Imperial County. Suitable habitat present in Campo Verde project area. However, site is well below reported lower elevational range (700m) (CNPS 2011). Not expected to occur due to species known range. Surveys for this species will be conducted in appropriate habitat within its blooming season in 2012.
Pink velvet mallow ( <i>Horsfordia alata</i> )	CDFG: Special Plant CNPS Rare Plant Rank 4.3	Occurs in rocky Sonoran Desert scrub. This perennial shrub blooms almost year round from February-December. This species is reported from Imperial County but no quad data is available (CNPS 2011). Suitable habitat (rocky desert scrub) is absent from Campo Verde project area. This species was not observed during the March 2012 surveys, which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Newberry's velvet mallow ( <i>Horsfordia newberryi</i> )	CDFG: Special Plant CNPS Rare Plant Rank 4.3	Occurs in rocky Sonoran Desert scrub. This perennial shrub blooms almost year round from February-December. This species is reported from the Carrizo Mountain Quad (CNPS 2011). Suitable habitat i.e. rocky areas, is absent in the Campo Verde project area. This species was not observed during the March 2012 surveys, which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
California satintail ( <i>Imperata brevifolia</i> )	CDFG: Special Plant CNPS Rare Plant Rank 2.1	Riparian scrub; desert scrub. Herbaceous perennial; blooms September – May (CNPS 2011). CNDDDB occurrence immediately east of Campo Verde project area between Greeson Wash and New River. Not observed during October 2011 survey. Not expected to occur in the BLM lands Campo Verde project area due to the lack of suitable habitat. This species is not expected to occur in the project area as all of the riparian scrub habitats within the project area are associated with irrigation canals and drains that are frequently cleared of vegetation. This species is not expected to occur within the Campo Verde project area.
Baja California ipomopsis ( <i>Ipomopsis effusa</i> )	CDFG: Special Plant CNPS Rare Plant Rank 2.1	Occurs in washes in Sonoran desert scrub. Annual; blooms April – June. Only known location in California from Pinto Wash west of the site. Considered a waif in California, more common in Baja, California (CNPS 2011). Suitable habitat present in Campo Verde project area. Not expected in the Campo Verde project area due to known range and rarity in California and not observed during fall and spring surveys.
Slender-leaved ipomopsis ( <i>Ipomopsis tenuifolia</i> )	CDFG: Special Plant CNPS Rare Plant Rank 2.3	Occurs in rocky/gravelly Sonoran Desert scrub. Herbaceous perennial; blooms March – May. Known from In-Ko-Pah Gorge and Jacumba quads (CNPS 2011). Suitable habitat, (i.e., rocky/gravelly desert scrub) absent. Site outside of known current range of species. This species was not observed during the March 2012 surveys, which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Mountain Springs bush lupine ( <i>Lupinus excubitus</i> var. <i>medius</i> )	BLM: Sensitive CDFG: Special Plant CNPS Rare Plant Rank 1B.3	Occurs in Sonoran Desert scrub. Perennial shrub; blooms March – May. Known from In-Ko-Pah Gorge and surrounding quads of desert transition areas (CNPS 2011). Marginal habitat (species range is more in desert transition habitats). Site outside of current species known range and well below reported lower elevational range (425m) (CNPS 2011). This species was not observed during the March 2012 surveys, which were conducted during this species traditional blooming period.

<b>Special Status Plant Species Occurring or Potentially Occurring Within the Campo Verde Facility and Gen-tie Line Corridors</b>		
		This species is not expected to occur within the Campo Verde project area.
Parish's desert-thorn ( <i>Lycium parishii</i> )	CDFG: Special Plant CNPS Rare Plant Rank: 2.3	Occurs in Sonoran Desert scrub with sandy plains and washes. Shrub; blooms March – April. Known from In-Ko-Pah Gorge and Carrizo Mountain quads (CNPS 2011). Reported south of Hwy 98. Suitable habitat present. This species was not observed during the March 2012 surveys, which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Coulter's lyrepod ( <i>Lyrocarpa coulteri</i> )	CDFG: Special Plant CNPS Rare Plant Rank 4.3	Occurs in rocky or gravelly Sonoran Desert scrub. This herbaceous perennial; blooms January – June (Reiser 2001; CNPS 2001). Reiser (2001) reports this species from a number of rocky desert canyons in eastern San Diego County. Suitable habitat (i.e., rocky/boulders) absent. This species was not observed during the March 2012 surveys, which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Brown turbans ( <i>Malperia tenuis</i> )	CDFG: Special Plant CNPS Rare Plant Rank: 2.3	Occurs in sandy, Sonoran Desert scrub. Annual, blooms March – April (CNPS 2011). Several CNDDDB locations in Yuha Basin which correspond to CNPS locations for the Mount Signal, Painted Gorge and Yuha Basin quads (CNPS 2011). Suitable habitat present. This species was not observed during the March 2012 surveys, which were conducted during this species traditional blooming period. This species would still have a low to moderate potential to occur within the Campo Verde project area due to its inconspicuous nature.
Hairy stickleaf ( <i>Mentzelia hirsutissima</i> )	CDFG: Special Plant CNPS Rare Plant Rank: 2.3	Occurs in Sonoran Desert Scrub on rocky hillsides and desert mesas (Reiser 2001; CNPS 2011). Annual; blooms March – May. Known from Mount Signal quad (CNPS 2011). Rocky hillsides absent but desert mesas present. Most of this species' localities in the desert transition areas to the east of the site including localities from In-Ko-Pah Gorge and Sweeny Pass quads (CNPS 2011). This species was not observed during the March 2012 surveys, which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Creamy blazing star ( <i>Mentzelia tridentata</i> )	CDFG: Special Plant CNPS Rare Plant Rank 1B.3	Occurs in rocky, gravelly and sandy desert scrub. Annual; blooms March – May. Known from In-Ko-Pah Gorge quad (CNPS 2011). Suitable sandy scrub habitat present in Campo Verde project area. However, site outside of known range in California and well below lower elevational limit (700 meters) reported for this species (CNPS 2011). This species was not observed during the March 2012 surveys, which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Slender-lobed four o'clock ( <i>Mirabilis tenuiloba</i> )	CDFG: Special Plant CNPS Rare Plant Rank: 4.3	Occurs in Sonoran Desert Scrub. A herbaceous perennial that blooms March – May. This species is reported from the 17 Palms Quad (CNPS 2011). Suitable desert scrub habitat present in Campo Verde project area. This species was not observed during the March 2012 surveys, which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Slender wooly-heads ( <i>Nemacaulis denudata</i> var. <i>gracilis</i> )	CDFG: Special Plant CNPS Rare Plant Rank: 2.2	Occurs in desert dunes and Sonoran Desert scrub. Annual; blooms March – May. Known from Coyote Wells quad. Most of locations for this species are in Algodones Dunes of East Mesa (CNPS 2011). Marginal dune habitat present. This species was not observed during the March 2012 surveys, which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Giant Spanish-needle	BLM: Sensitive	Occurs in desert dunes. Annual- herbaceous perennial; blooms March



<b>Special Status Plant Species Occurring or Potentially Occurring Within the Campo Verde Facility and Gen-tie Line Corridors</b>		
<i>(Palafoxia arida</i> var. <i>gigantea)</i>	CDFG: Special Plant CNPS Rare Plant Rank 1B.3	– May. Known from Algodones Dunes on the East Mesa (CNPS 2011). Marginal desert dune habitat present. Site is well west of reported range of species. This species was not observed during the March 2012 surveys, which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Sand food ( <i>Pholisma sonorae</i> )	BLM: Sensitive CDFG: Special Plant CNPS Rare Plant Rank 1B.2	Occurs in desert dunes and sandy Sonoran Desert scrub. This herbaceous perennial is parasitic on native desert shrubs and blooms from March – May. This species is known from the Holtville West Quad just east of the corridors and most of the locations are in the Algodones Dunes of the East Mesa (CNPS 2011). Suitable habitat (sandy areas and dunes) is marginal. Surveys for this species will be conducted in appropriate habitat within its blooming season in 2012. This species was not observed during the March 2012 surveys, which were conducted during this species traditional blooming period. This species would have a low to moderate potential for occurrence, as a parasitic plant, it is not always observable and there are numerous host plants present.
Thurber's pilostyles ( <i>Pilostyles thurberi</i> )	CDFG: Special Plant CNPS Rare Plant Rank: 4.3	Herbaceous perennial parasitic on <i>Psorothamnus emoryi</i> a few individuals were observed within the project area; blooms January. Known from Plaster City and Mount Signal (Reiser 2001). Known from southwest of Plaster City between S-80 and I-80 (URS 2010). Known from Pinto Wash south of the IV Substation. Not observed during the surveys, which were not conducted during this species traditional blooming period. Three to five individuals of its host <i>Psorothamnus emoryi</i> were observed along the Proposed Gen-Tie route just north of the IV substation. Though no individuals of Thurber's pilostyles were observed on these individuals, the flowers of Thurber's pilostyles may have already been absent. There is a low to moderate potential for this species to occur, and if it does it would be at very low numbers given the population size of its host.
Desert unicorn-plant ( <i>Proboscidea althaeifolia</i> )	CDFG: Special Plant CNPS Rare Plant Rank 4.3	Occurs in sandy, Sonoran Desert scrub. Herbaceous perennial; blooms May – August (CNPS 2011). There are no CNPS or CNDDB locations for this species in the vicinity of the project. Suitable habitat present, low to moderate potential for occurrence within Campo Verde project area but was not observed during spring or fall surveys.
Desert spike-moss ( <i>Selaginella eremophila</i> )	CDFG: Special Plant CNPS Rare Plant Rank: 2.2	Occurs in rocky or gravelly terrain in Sonoran Desert scrub (Reiser 2001; CNPS 2011). Herbaceous perennial is most conspicuous in May-July (CNPS 2011). Closest reported populations in rocky desert scrub of In-Ko-Pah and Sweeney Pass quads (CNPS 2011). Not expected to occur within Campo Verde project area due to the lack of suitable habitat.
Dwarf germander ( <i>Teucrium cubense</i> ssp. <i>depressum</i> )	CDFG: Special Plant CNPS Rare Plant Rank: 2.2	Occurs in sandy washes, streams and wet soils, Sonoran Desert scrub. Annual; blooms March – May (September- November if fall rains occur). Known from Coyote Wells quad (CNPS 2011). Not observed or expected in Campo Verde project area. Suitable habitat (i.e., sandy washes) absent. Not observed during surveys. October 2001 survey and March 2012 surveys conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde Project area.
Mecca aster ( <i>Xylorhiza cognata</i> )	CDFG: Special Plant CNPS Rare Plant Rank 1B.2	Occurs in Sonoran Desert scrub. This species is known from 17 Palms Quad. This herbaceous perennial blooms from January-June. Most of the reported occurrences are in the Indio and Mecca Hills surrounding Palm Springs and Indio (CNPS 2011). Suitable habitat present, but site may also be at limits of known species range. This species was not observed during the March 2012 surveys, which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.

<b>Special Status Plant Species Occurring or Potentially Occurring Within the Campo Verde Facility and Gen-tie Line Corridors</b>		
Orcutt's woody-aster ( <i>Xylorhiza orcuttii</i> )	BLM: Sensitive CDFG: Special Plant CNPS Rare Plant Rank: 1B.2	Occurs in Sonoran Desert scrub in rocky canyons and sandy washes (Reiser 2001). Herbaceous perennial; blooms March – April (CNPS 2011). Closest reported localities are Carrizo and Borrego Mountain quads, areas of rocky terrain. Suitable habitat absent. This species was not observed during the March 2012 surveys, which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.

Sensitivity Status Codes used in this table:

USFWS: Endangered- Plant taxa that are listed as threatened under the Federal Endangered Species Act

CDFG: Endangered- Plant taxa that are listed as endangered with extinction under the California Endangered Species Act

Special Plant: Plant taxa that are inventoried by the CNDDDB

BLM: Sensitive- Plants that are designated by the State Director for special management consideration.

CNPS: Rare Plant Rank 1: Rare, Threatened or Endangered in California and elsewhere

Rare Plant Rank 2: Rare, Threatened or Endangered in California, more common elsewhere

Rare Plant Rank 3: Plants for which more information is needed

Rare Plant Rank 4: Plants of Limited Distribution

Threat extension: .1- Seriously endangered in California

2- Fairly endangered in California

3- Not very endangered in California



### 3.2.4 Alternative Descriptions - Vegetation

#### 3.2.4.1 Proposed Gen-Tie

##### General Vegetation

**Table 6** shows the ten vegetation communities that occur within the survey area for the Proposed Gen-Tie. These are shown on **Attachment 1 – Figure 6**.

**Table 6 - Vegetation Communities/Land Cover Types  
Proposed Gen-Tie**

<b>Vegetation Community</b>	<b>BLM Land (Acres)</b>	<b>Private Land (Acres)</b>
Active Agriculture (AG-A)	1.49	2.22
Fallow Agriculture (AG-F)	0.79	0.96
Arrow Weed Thicket (AS)	0.41	0.44
Arrow Weed Thicket - Disturbed (AS-D)	0.21	0.50
Athel Tamarisk Type Woodland (AW)	0.42	0.52
Creosote Bush - White Bursage Scrub (CBS)	35.14	0.00
Creosote Bush - White Bursage Scrub - Disturbed (CBS-D)	1.82	2.33
Developed (DEV)	2.19	0.00
Open Water with Arrow Weed Thicket (OW)	0.71	0.44
Stabilized Desert Dunes - Disturbed (SDD-D)	22.28	0.00
<b>Total</b>	<b>65.46</b>	<b>7.41</b>

##### Special Status Plant Species

The potential for the occurrence of special status species for this gen-tie-alternative is described above and summarized in **Table 5**.

#### 3.2.4.2 Alternative Gen-Tie Across BLM Land

##### General Vegetation

**Table 7** shows the ten vegetation communities that occur within the survey area for the Alternative Gen-Tie across BLM land. These are shown on **Attachment 1 – Figure 6**.

**Table 7 - Vegetation Communities/Land Cover Types  
Alternative Gen-Tie Across BLM Land**

<b>Vegetation Community</b>	<b>BLM Land (Acres)</b>	<b>Private Land (Acres)</b>
Active Agriculture (AG-A)	0.00	1.40
Fallow Agriculture (AG-F)	0.00	21.50
Arrow Weed Thicket – Disturbed (AS-D)	0.00	0.32
Athel Tamarisk Type Woodland (AW)	0.43	0.04
Tamarisk Thicket (TS)	0.00	0.17
Creosote Bush - White Bursage Scrub (CBS)	22.36	2.03
Creosote Bush - White Bursage Scrub - Disturbed (CBS-D)	0.60	1.37
Developed (DEV)	2.19	2.13
Open Water with Arrow Weed Thicket (OW)	0.00	1.34
Stabilized Desert Dunes - Disturbed (SDD-D)	1.22	0.09
<b>Total</b>	<b>26.92</b>	<b>30.39</b>

### Special Status Plant Species

The potential for the occurrence of special status species for this gen-tie-alternative is described above and summarized in **Table 5**.

### **3.2.4.3 Private Land Gen-Tie Alternative**

#### General Vegetation

**Table 8** shows the eight vegetation communities that occur within the survey area for the Private Land Gen-Tie Alternative. These are shown on **Attachment 1 – Figure 6**.

**Table 8 - Vegetation Communities/Land Cover Types  
Private Land Gen-Tie Alternative**

<b>Vegetation Community</b>	<b>Private Land (Acres)</b>
Active Agriculture (AG-A)	112.26
Fallow Agriculture (AG-F)	4.04
Arrow Weed Thicket (AS)	0.83
Athel Tamarisk Type Woodland (AW)	0.27
Common Reed Marsh - Disturbed (CRM-D)	0.50
Developed (DEV)	3.35
Disturbed Wetland (DW)	1.11
Open Water with Arrow Weed Thicket (OW)	1.25
<b>Total</b>	<b>123.61</b>

---

### Special Status Plant Species

There are no suitable habitats for special status species along this gen-tie-alternative.

### **3.2.5 General Wildlife**

The wildlife species observed in the gen-tie survey area were typical of common Colorado Desert habitats, which provide cover, foraging, and breeding habitat for a variety of wildlife species. **Attachment 3** provides a list of all wildlife species observed and some of the primary species are described below.

#### **3.2.5.1 Invertebrates**

The Gen-tie survey area contains suitable habitat for a wide variety of invertebrates. Within the Gen-tie line, harvester ants (*Pogonomyrmex* spp.), and flies (*Diptera* spp.) were observed regularly. Cabbage white (*Pieris rapae*) and other butterflies and moths (*Lepidoptera* spp.) were also regularly observed in all portions of the survey area.

#### **3.2.5.2 Amphibians**

Most amphibians require moisture for at least a portion of their life cycle, with many requiring a permanent water source for habitat and reproduction. Terrestrial amphibians have adapted to more arid conditions and are not completely dependent on a perennial or standing source of water. These species avoid desiccation by burrowing beneath the soil or leaf litter during the day and during the dry season. No amphibians were observed within the gen-tie survey area.

#### **3.2.5.3 Reptiles**

The diversity and abundance of reptile species varies with habitat type. Many reptiles are restricted to certain plant communities and soil types, although some of these species would also forage in adjacent communities. Other species are more ubiquitous, using a variety of vegetation types for foraging and shelter.

Four reptile species were commonly observed throughout the gen-tie survey area or are known to occur in the immediate vicinity of the gen-tie survey area: desert iguana (*Dipsosaurus dorsalis*), common zebra-tailed lizard (*Callisaurus draconoides*), Great Basin tiger whiptail (*Aspidoscelis tigris tigris*), sidewinder rattlesnake (*Crotalus cerastes*), and Flat-tailed horned lizard (FTHL; *Phrynosoma mcallii*). FTHL individuals and sign have been observed immediately south of the IV Substation (see **Section 3.2.6.3**).

#### **3.2.5.4 Birds**

The diversity of bird species varies with respect to the character, quality, and diversity of vegetation communities. Due to the homogeneity of much of the habitat within the Gen-tie survey area, bird diversity is relatively low.

Common species are expected to include Horned Lark (*Eremophila alpestris*), Mourning Dove (*Zenaida macroura*), Yellow-rumped Warbler (*Dendroica coronata*), Blue-gray Gnatcatcher (*Polioptila caerulea*), Black-tailed Gnatcatcher (*Polioptila melanura*), White-crowned Sparrow (*Zonotrichia leucophrys*), Rufous-crowned Sparrow (*Aimophila ruficeps*), Black Phoebe (*Sayornis nigricans*), and Turkey Vulture (*Cathartes aura*).

Turkey Vultures are known to roost on transmission line structures associated with existing transmission lines running south out of the IV Substation. A pair of Red-tailed Hawks (*Buteo jamaicensis*) has been observed tending a stick nest approximately 0.3-miles southeast of the Proposed Gen-Tie ROW, on a Southwest Powerlink transmission line structure.

### **3.2.5.5 Mammals**

Suitable mammal habitat is present within the gen-tie survey area. Desert black-tailed jackrabbit (*Lepus californicus deserticola*), desert cottontail (*Sylvilagus audubonii*), round-tailed ground squirrel (*Spermophilus tereticaudus*), desert kangaroo rat (*Dipodomys deserti*), and coyote (*Canis latrans*) were detected often within or immediately adjacent to the Gen-tie survey area through direct observation as well as burrows, tracks, and scat.

### **3.2.6 Special Status Wildlife Species**

Fifteen special status wildlife species were determined to have the potential to occur within survey area and those whose potential occurrence is most pertinent to the gen-tie survey area are discussed in detail below. These species include federally listed species, state listed species, and BLM sensitive species that are known to occur in the Imperial Valley, as well as CDFG species of special concern that were observed during surveys.

#### **3.2.6.1 Federally-listed Species**

Suitable habitat for Southwestern Willow Flycatcher and Yuma Clapper Rail exists in several agricultural drains within the gen-tie survey area (discussed in **Section 3.1.4.2.1**).

#### **Peninsular Bighorn Sheep**

##### Species Profile

Peninsular bighorn sheep, formerly known as *O. c. cremnobates*, was federally listed endangered on March 18, 1998, and state-listed threatened on June 27, 1971 (USFWS 2001). Previously, *O. c. cremnobates* was considered to be distinct from the other subspecies of *Ovis canadensis*. However, new deoxyribonucleic acid (DNA) analysis has concluded that *O. c. cremnobates* are genetically indistinct from Nelson's bighorn sheep (*Ovis canadensis nelsoni*); *O. c. cremnobates* was taxonomically reclassified as *O. c. nelsoni* and designed as a "distinct vertebrate population segment" (DPS USFWS 2009). The Peninsular DPS occurs within the Peninsular Ranges and was listed as federally endangered (USFWS 2001). Critical habitat was designated in 2009 and includes portions of western Imperial County,

approximately 12 miles west of the action area. A recovery plan was also prepared for the bighorn sheep in the Peninsular Ranges in 2000 (USFWS 2000).

Peninsular bighorn sheep prefer steep, open slopes, canyons, and washes in hot and dry desert regions where the land is rough, rocky, and sparsely vegetated. Open terrain with good visibility is critical, because bighorn sheep primarily rely on their sense of sight to detect predators (USFWS 2001). Most Peninsular bighorn sheep live between 300 and 4,000 feet in elevation, where average annual precipitation is less than four inches and daily high temperatures average 104 degrees Fahrenheit (°F) in the summer. Caves and other forms of shelter (e.g., rock outcrops) are used during inclement weather and for shade during hotter months. In the Peninsular Ranges, bighorn sheep browse on a wide variety of plants, including shrubs, forbs, cacti, and grasses (USFWS 2001). Although steep escape route terrain is closely associated with bighorn sheep, low rolling and flat terrain including foothills and washes provide an alternative source of high quality browse forage during times when resources become limited (USFWS 2001). Lambing areas are associated with ridge benches or canyon rims adjacent to steep slopes or escarpments. Alluvial fans (sloping deposits of gravel, sand, clay, and other sediments that spread fanlike at the base of canyons and washes) are also used for breeding, feeding, and movement (USFWS 2001).

Peninsular bighorn sheep are closely associated with mountainous habitat and often are hesitant to venture far from escape terrain (Geist 1971 in USFWS 2000). Although they have been documented to move great distances from escape terrain on rare occasions (Schwartz et al. 1986 in USFWS 2000), it is common to observe animals moving a short distance from escape terrain in search of forage or water sources, or moving between neighboring mountains. Researchers have documented animals ranging at a variety of distances from mountainous terrain (greater than 20 percent slope), from 0.5 to 1.6 miles, but Peninsular bighorn sheep were most frequently found within 0.5 miles of the mountainous terrain (USFWS 2000).

Historically, bighorn sheep have been documented in the Peninsular Ranges since early explorers such as Anza observed them in the 1700s (Bolton 1930 in USFWS 2001). The distribution of Peninsular bighorn sheep has become more fragmented in the recent past, possibly due to the construction of roads that bisect ancestral bighorn trails and restrict bighorn movement (USFWS 2001). Bighorn sheep exhibit a naturally patchy distribution as a result of natural breaks in mountainous habitat (Schwartz et al. 1986 and Bleich et al. 1990a and 1996 in USFWS 2001). Currently, the Peninsular bighorn is distributed in fragmented populations from the Jacumba Mountains in San Diego County near the U.S./Mexico border to the San Jacinto Mountains in Riverside County (USFWS 2001).

#### Critical Habitat

Critical habitat for Peninsular bighorn sheep was designated in 2009 and includes portions of western Imperial County. The closest DCH is approximately 12 miles west of the action area in the Jacumba Mountains.

### Occurrence

The nearest recorded location for this species was approximately 16 miles west of the survey area, in the rocky hills southwest of Ocotillo, California (USFWS 2010b). The survey area does not contain the steep, rocky terrain that typically provides cover and habitat for the Peninsular bighorn sheep. The Coyote, In-Ko-Pah, and Jacumba mountains that provide suitable year-round habitat for this species are located 11 to 14 miles from the survey area. The project is situated in the large agricultural complex that surrounds El Centro on the eastern edge of the Yuha Desert, and does not function as a movement corridor for Peninsular bighorn sheep between the Peninsular mountain ranges in western Imperial Valley. In addition, the site is too far from the Peninsular ranges and the corridors between the ranges to serve as a source habitat for foraging or water (USFWS 2000). The location of the survey area within predominantly agricultural lands also reduces the likelihood of use by Peninsular bighorn sheep, which are sensitive to human activity and disturbance (USFWS 2010d).

Peninsular bighorn sheep were not detected in the survey area during numerous biological surveys. Given the distance from suitable rocky terrain; agricultural lands within the survey area; distance of suitable foraging habitat from the Jacumba Mountains; lack of detection within the survey area; and the unlikelihood of the survey area to function as a movement corridor for this species, Peninsular bighorn sheep are not expected to occur within the survey area or the vicinity.

#### **3.2.6.2 State-listed Species**

State listed species with the potential to occur within the Gen-tie survey area include: greater Sandhill Crane (*Grus canadensis tabida*), barefoot-banded gecko (*Coleonyx switaki*), and Peninsular bighorn sheep. Sandhill crane and barefoot-banded gecko are discussed in **Section 3.1.4.2.2**. Peninsular bighorn sheep is discussed in **Section 3.2.6.1**.

#### **3.2.6.3 BLM Sensitive Species**

Seven BLM sensitive wildlife species were evaluated based on their presence on the BLM sensitive list within the El Centro Field Office's jurisdiction. These include the Colorado Desert fringe-toed lizard (*Uma notata notata*), flat-tailed horned lizard, barefoot banded gecko, Western Burrowing Owl, Mountain Plover, California leaf-nosed bat (*Macrotus californicus*), and pallid bat (*Antrozous pallidus*). The barefoot banded gecko is also a state-listed species and is discussed above. Mountain Plover, California leaf-nosed bat, and pallid bat are discussed in **Section 3.1.4.2.3**.

#### **Colorado Desert Fringe-toed Lizard (*Uma notata notata*)**

##### Species

The Colorado Desert fringe-toed lizard is a CDFG Species of Special Concern and a BLM sensitive species. This species is primarily insectivorous, but will also feed on plant material. This species' diet consists of ants, beetles, antlion larvae, hemipterans, grasshoppers, and caterpillars. Plant foods include buds, flowers, leaves, and seeds. Conspecifics and other lizards are also eaten occasionally. Sight is most frequently used to

find food on the surface of sand. Buried fringe-toed lizards also use hearing to detect prey on the sand surface, or to find buried prey when above ground (Zeiner et al. 1988).

Fringe-toed lizards usually seek refuge from enemies by burrowing in the sand ("sand swimming") within 5 to 6 centimeters (2 to 2.4 inches) of the surface. They are usually buried on the lee sides of dunes and hummocks to prevent excavation by wind. Rodent burrows and the bases of shrubs are also used for cover and thermoregulation. Lizards usually hibernate in sand 30 centimeters (12 inches) deep, but juveniles and subadults may be found closer to the surface (Zeiner et al. 1988).

#### Habitat

The Colorado Desert fringe-toed lizard is found in the Colorado desert, south of the Salton Sea in Imperial and San Diego Counties. Its elevational range extends from sea level up to 180 meters (590 feet; Jennings and Hayes 1994). The Colorado Desert fringe-toed lizard is restricted to fine, loose, wind-blown sand dunes, dry lakebeds, sandy beaches or riverbanks, desert washes, and sparse desert scrub (Zeiner et al. 1988).

#### Occurrence

This species has a moderate potential to occur within Creosote Bush – White Bursage Scrub and Stabilized Sand Dune habitats present in the survey area, but none were observed during surveys. This species is known to occur approximately three miles south of the survey area (State of California 2010). Some of the area within the Creosote Bush – White Bursage Scrub habitat represents potentially suitable habitat although loose sandy areas are limited in depth and extent and are not highly suitable. The Stabilized Sand Dune habitat represents higher quality habitat for this species due the greater depth and extend of loose sandy areas.

### **Flat-tailed Horned Lizard (*Phrynosoma mcallii*)**

#### Species

In California, the flat-tailed horned lizard (FTHL) was designated a sensitive species by the BLM in 1980. In 1988, a petition was submitted to the California Fish and Game Commission (CFGC) to list the species as endangered. In 1989, the commission voted against the proposed listing. In 1993, the USFWS published a proposed rule to list the FTHL as a threatened species (USFWS 2010a). In 2006, the USFWS withdrew its proposal (USFWS 2006). On March 2, 2010, USFWS re-instated the 1993 proposed listing of the FTHL as federally threatened (USFWS 2010e). The Ninth Circuit Court of Appeals ordered the USFWS to make a final listing determination by November 3, 2010. On March 15, 2011, the USFWS again withdrew its proposal to list the FTHL under the Endangered Species Act (USFWS 2011).

FTHL has the typical flattened body shape of horned lizards. It is distinguished from other species in its genus by its dark dorsal stripe, lack of external openings, broad flat tail, and comparatively long spines on the head (Funk 1981 as cited in Interagency Coordinating Committee [ICC] 2003). The FTHL has two rows of fringed scales on each side of its body. The species has cryptic coloring, ranging from pale gray to light rust brown dorsally and white or cream ventrally with a prominent umbilical scar. The only apparent external



difference between males and females is the presence of enlarged postanal scales in males. Maximum snout-vent length for the species is 3.3 inches (Muth and Fisher 1992 as cited in ICC 2003).

FTHLs escape extreme temperatures by digging shallow burrows in the loose sand. Adults are primarily inactive from mid-November to mid-February. Juvenile seasonal activity is often dependent on temperature fluctuations. Breeding activity takes place in the spring with young hatching in late July and September. The diet of horned lizards typically consists of greater than 95 percent native ant species, mostly large harvester ants (*Pogonomyrmex* spp.).

#### Habitat

The FTHL is found in the low deserts of southwestern Arizona, southeastern California, and adjacent portions of northwestern Sonora and northern Baja California, Mexico. In California, the FTHL is restricted to desert washes and desert flats in central Riverside, eastern San Diego, and Imperial counties. The majority of the habitat for the species is in Imperial County (Turner et al. 1980 as cited in ICC 2003).

The lizard is known to inhabit sand dunes, sheets, and hummocks, as well as gravelly washes. The species is thought to be most abundant in creosote bush scrub vegetation communities. However, this species may also be found in desert scrub, desert wash, succulent shrub, alkali scrub, and sparsely vegetated sandy flats. It is typically found in dry, hot areas of low elevation (less than 800 feet).

#### Occurrence

The BLM gen-tie survey area is located with the Yuha Desert Management Area. The Creosote Bush – White Bursage Scrub and, especially, Stabilized Sand Dune habitats associated with the BLM Gen-tie Line survey area have the potential to support FTHL and FTHL are known to occur in this area

Focused surveys for FTHL were performed as part of a nearby project immediately south of the Gen-tie survey area. A total of 14 observations of potential FTHL sign were recorded during those surveys (Heritage 2011c). FTHL sign was not limited to the sandiest portions of the survey area, and FTHL sign was found in disturbed areas in several instances (e.g. on an existing road), often times in areas with compacted and/or gravelly soils.

Flat-tailed horned lizard density in the survey area appears to be low. FTHL are apparently not limited to the most highly suitable habitats, and have been observed in disturbed habitats. Thus, the entire BLM gen-tie survey area can be considered occupied, although at low densities compared to areas with greater expanses of higher-quality habitat in other portions of the MA. The Stabilized Sand Dune habitats likely represent the highest quality habitat for this species, based on the depth and extent of loose sandy area associated with this habitat type.

## Western Burrowing Owl

Burrowing Owl is discussed in detail in **Section 3.1.4.2.3**. Suitable habitat within the gen-tie survey area occurs in the active agriculture, fallow agriculture, and creosote bush – white bursage habitat types.

### **3.2.6.4 California Species of Special Concern and Fully Protected Species**

Three species that are classified as CDFG Species of Special Concern were observed within the survey area or were observed during surveys for nearby projects (RECON 2010a, 2010b; Heritage 2011c); Loggerhead Shrike, Crissal Thrasher (*Toxostoma crissale*), and LeConte's thrasher (*T. lecontei lecontei*). Golden eagle (*Aquila chrysaetos*), a CDFG Fully Protected Species, and protected under the Bald and Golden Eagle Protection Action, MBTA, and Fish & Game Code sections 3503, 3503.5, and 3513, has also been observed near the survey area (Heritage 2011a). These species are discussed in **Section 3.1.4.2.4**.

### **3.2.6.5 Other Species**

The following species are not special status species receiving additional legal protection. These species have the potential to occur within the project area and are being addressed based on comments received.

#### **Desert Kit Fox (*Vulpes macrotis*)**

Desert kit foxes (*Vulpes macrotis*) are widely distributed in desert scrub habitats in western North America including Sonoran creosote bush scrub. Portions of the gen-tie survey area are considered potentially suitable habitat for the desert kit fox. A formal kit fox burrow survey has not been conducted for the project area; potentially suitable burrows for this species may be present throughout the survey area though are most likely to occur along the northern portion of the proposed gen-tie alternative.

#### **American Badger (*Taxidea taxus*)**

The American badger is found in open habitats throughout much of western and central North America. Open habitats occupied by this species can include grasslands, shrublands and scrub habitats, including Sonoran creosote bush scrub. A formal American badger burrow survey has not been conducted for the project area; potentially suitable burrows for this species may be present throughout the survey area though are most likely to occur along the northern portion of the proposed gen-tie alternative.

## **3.2.7 Alternative Descriptions - Wildlife**

### **3.2.7.1 Proposed Gen-Tie**

### General Wildlife

The invertebrates, amphibians, reptiles, birds, and mammals that occur along this gen-tie alternative are the same as those described in **Section 3.2.5**.

### Special Status Wildlife

Fifteen of the seventeen special status wildlife species discussed in **Section 3.2.6** have the potential to occur along the proposed gen-tie (there is no habitat for Yuma Clapper Rail or barefoot-banded gecko). These species include federally listed species, state listed species, BLM sensitive species that are known to occur in the Imperial Valley, CDFG species of special concern that were observed during surveys, and other species.

Thirty suitable, inactive Burrowing Owl burrows were initially recorded in the survey area for this gen-tie route. However, they occur within dune habitats and regularly get filled in or collapsed. During these surveys, Burrowing Owls were not observed.

### **3.2.7.2      *Alternative Gen-Tie Across BLM Land***

### General Wildlife

The invertebrates, amphibians, reptiles, birds, and mammals that occur along this gen-tie alternative are the same as those described in **Section 3.2.5**.

### Special Status Wildlife

Fifteen of the seventeen special status wildlife species discussed in **Section 3.2.6** have the potential to occur along the alternative gen-tie across BLM land (there is no habitat for Yuma Clapper Rail or barefoot-banded gecko). These species include federally listed species, state listed species, BLM sensitive species that are known to occur in the Imperial Valley, CDFG species of special concern that were observed during surveys, and other species.

Two suitable, inactive Burrowing Owl burrows (abandoned irrigation pipe) were recorded in the survey area in the Fallow Agriculture habitat within the survey area for this gen-tie route. No Burrowing Owls were observed during the surveys.

### **3.2.7.3      *Private Land Gen-Tie Alternative***

### General Wildlife

The invertebrates, amphibians, birds, and mammals that occur along this gen-tie alternative are the same as those described in **Section 3.2.5**. No reptile species were observed in the survey area for this alternative.

### Special Status Wildlife

Eleven of the seventeen special status wildlife species discussed in **Section 3.2.6** have the potential to occur along the proposed gen-tie (there is no habitat for Peninsular bighorn sheep, barefoot-banded gecko, flat-tailed horned lizard, Colorado Desert fringe-toed lizard, desert kit fox or American badger). These species include federally listed species, state listed species, BLM sensitive species that are known to occur in the Imperial Valley, CDFG species of special concern that were observed during surveys, and other species.

Three suitable Burrowing Owl burrows were recorded in the survey area in the Active Agriculture habitat within the survey area for this gen-tie route. No Burrowing Owls were observed during the surveys.

### **3.2.8 Riparian Habitat or Sensitive Natural Communities**

Special status natural communities are those communities “that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects” (State of California 2009b). The arrow weed thicket associated with the Westside Main Canal near the north end of the proposed gen-tie is considered a special status natural community. There are no other special status natural communities or other riparian habitats within the survey area.

#### **3.2.8.1 Proposed Gen-Tie**

The arrow weed thicket associated with the Westside Main Canal near the north end of the Proposed Gen-Tie is considered a special status natural community. There are approximately 1.6 acres of arrow weed thicket and 1.2 acres of open water with arrow weed thicket present within the Proposed Gen-Tie Line survey area.

#### **3.2.8.2 Alternative Gen-Tie Across BLM Land**

There are approximately 1.3 acres of open water with arrow weed thicket and 0.3 acres of arrow weed thicket within the survey area for this gen-tie route.

#### **3.2.8.3 Private Land Gen-Tie Alternative**

There are approximately 0.8 acres of arrow weed thicket and 1.3 acres of open water with arrow weed thicket near the west end of the Private Land Gen-Tie.

### **3.2.9 Jurisdictional Waters**

A jurisdictional delineation was conducted to determine the extent of ACOE, CDFG, and RWQCB resources within the survey area. The gen-tie survey area for potentially jurisdictional waters was comprised of the three gen-tie alternatives and a 200-foot buffer area. The delineation results for these surveys are included in **Appendix 2**. The Drainage Report was submitted to the ACOE and CDFG in February 2012. . The ACOE responded

with a PJD on April 23, 2012 agreeing with the determinations made in the PJD report in **Appendix J**. The CDFG has given verbal concurrence but no written response has been received to date. Therefore, the following discussion of jurisdictional waters may change pending ongoing consultation CDFG. The potentially jurisdictional ACOE and CDFG waters are shown in **Attachment 1: Figure 7**.

### **3.2.9.1 ACOE Jurisdictional Waters**

No ACOE wetlands were identified within the gen-tie survey area. The Westside Main Canal was the only jurisdictional water of the U.S. (non-wetland) identified within the Proposed Gen-Tie or Alternative Gen-Tie across BLM land survey area. This feature crosses a small portion of BLM-managed lands near the northern terminus of the Proposed Gen-Tie alternative and the Alternative Gen-Tie across BLM land; both would span this feature. Several potentially jurisdictional WOUS occur within the Private Land Gen-Tie survey area; all would be spanned.

### **3.2.9.2 CDFG Jurisdictional Waters**

CDFG generally takes jurisdiction of all stream features including drains and canals. The CDFG jurisdiction extends from the top of bank to the opposite top of bank on these features or the limits of riparian vegetation if this vegetation extends beyond the top of the banks. Wetlands need to only fulfill one of the three aforementioned ACOE (hydrology, hydric soils, wetland vegetation) criteria to be considered CDFG jurisdictional wetlands.

Under Section 1600 of the Fish and Game Code, CDFG jurisdiction includes "...bed, channel or bank of any river, stream or lake designated by the department in which there is any time an existing fish or wildlife resource or from which these resources derive benefit..." Canals, aqueducts, irrigation ditches, and other means of water conveyance can also be considered streams if they support aquatic life, riparian vegetation or stream dependent terrestrial benefit (Cylinder 1995).

The Westside Main represents the only potentially state jurisdictional feature within the Proposed Gen-Tie and Alternative Gen-Tie Across BLM Land survey area and it would be spanned. Several potentially state jurisdictional features occur within the Private Land Gen-Tie survey area; all would be spanned

### **3.2.10 Habitat Connectivity and Wildlife Corridors**

Wildlife movement corridors and habitat linkages are areas that connect suitable wildlife habitat areas in a region otherwise fragmented by rugged terrain, changes in vegetation, or human disturbance. Corridors are generally local pathways connecting short distances usually covering one or two main types of vegetation communities. Linkages are landscape level connections between very large core areas and generally span several thousand feet and cover multiple habitat types. Natural features such as canyon drainages, ridgelines, or areas with vegetation cover provide corridors and linkages for wildlife travel. The habitat connectivity provided by corridors and linkages is important in providing access to mates, food, and water,

allowing the dispersal of individuals away from high-density areas, and facilitating the exchange of genetic traits between populations (Beier and Loe 1992).

Both avian and terrestrial wildlife species are able to move freely throughout the gen-tie survey area and are not restricted to a specific corridor or linkage.

### **3.2.11 California Desert Conservation Area**

The Proposed Gen-Tie and Alternative Gen-Tie across BLM Land survey area lies within the California Desert Conservation Area (CDCA). This area is within a designated utility corridor (Utility Corridor N) and within the Yuha Basin Area of Critical Environmental Concern (ACEC) as designated by the CDCA. The Proposed Gen-Tie is entirely on private lands.



## **4.0 ENVIRONMENTAL CONSEQUENCES**

---

The proposed project would result in approximately 1,852 acres of permanent impacts and approximately 7.69 acres of temporary impacts. **Table 9** summarizes the expected impacts to vegetation communities from the various project alternatives/components.

The following impact sections describe the anticipated impacts on lands associated with the Campo Verde Solar Energy Facility and the gen-tie line alternatives separately.

Table 9 – Proposed Impacts to Vegetation Communities by Alternative/Project Component

Vegetation Community	Campo Verde Solar Site	Proposed Gen-Tie	Alternative Gen-Tie Across BLM Land	Private Land Gen-Tie Alternative
<b>Permanent Impacts</b>				
Active Agriculture (AG-A)	1677.45	--	--	0.09
Arrow Weed Thicket (AS)	0.08	--	--	--
Arrow Weed Thicket Disturbed (AS-D)	2.19	--	--	--
Athel Tamarisk Type Woodland (AW)	1.25	--	--	--
Common Reed Marsh- Disturbed (CRM-D)	--	--	--	--
Creosote Bush - White Bursage Scrub (CBS)	--	0.03	0.03	--
Creosote Bush - White Bursage Scrub - Disturbed (CBS-D)	--	--	--	--
Developed (DEV)	0.30	--	--	--
Fallow Agriculture (AG-F)	123.13	--	0.02	0.01
Quailbush Scrub (BSS)	31.68	--	--	--
Quailbush Scrub- Disturbed (BSS-D)	15.51	--	--	--
Tamarisk Thicket (TS)	0.40	--	--	--
Stabilized Desert Dunes- Disturbed (SDD-D)	--	0.02	--	--
<b>Total Permanent Impacts</b>	<b>1852</b>	<b>0.05</b>	<b>0.05</b>	<b>0.10</b>
<b>Temporary Impacts</b>				
Active Agriculture (AG-A)	--	--	--	9.08
Arrow Weed Thicket (AS)	--	0.21	--	--

Arrow Weed Thicket Disturbed (AS-D)	--	--	--	--
Athel Tamarisk Type Woodland (AW)	--	0.03	0.01	--
Common Reed Marsh- Disturbed (CRM-D)	--	--	--	--
Creosote Bush - White Bursage Scrub (CBS)	--	5.54	5.27	--
Creosote Bush - White Bursage Scrub - Disturbed (CBS-D)	--	--	0.20	--
Developed (DEV)	--	--	--	0.34
Disturbed Wetland (DW)	--	--	--	0.05
Fallow Agriculture (AG-F)	--	--	2.10	0.50
Open Water with Arrow Weed Thicket (OW)	--	--	--	--
Quailbush Scrub (BSS)	--	--	--	--
Quailbush Scrub- Disturbed (BSS-D)	--	--	--	--
Tamarisk Thicket (TS)	--	--	--	--
Stabilized Desert Dunes- Disturbed (SDD-D)	--	1.91	0.43	--
<b>Total Temporary Impacts</b>	<b>0</b>	<b>7.69</b>	<b>8.01</b>	<b>10.19</b>

## 4.1 Campo Verde Solar Energy Facility Site

Development of the proposed Campo Verde Solar Energy Facility Site would result in approximately 1,852 acres of permanent disturbance and no areas of temporary disturbance and the (Table 9).

### 4.1.1 Impact to Special Status Species

For purposes of this report, the proposed project would have a significant impact if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies or regulations, or by the CDFG or USFWS.

#### 4.1.1.1 Special Status and Priority Plant Species

No special status or priority plant species are expected to occur within the solar energy facility survey area. Therefore, no impacts to special status or priority plant species are expected to occur as a result of project implementation.

#### 4.1.1.2 Special Status Wildlife Species

##### 4.1.1.2.1 Federally Listed Species

#### Southwestern Willow Flycatcher

Construction of the proposed project is not likely to directly affect SWFL individuals, because there is no nesting habitat in the survey area and no habitat used during migration habitat will be removed. The Bird and Bat Conservation Strategy (BBCS) will be prepared by the Applicant and approved by the appropriate agencies prior to surface disturbing activities. It will outline conservation measures for construction, operation and maintenance activities to minimize potential impacts to bird populations, including SWFL migration and other important avian habitats.

Light and noise from heavy equipment during construction may result in short-term avoidance of small areas of foraging habitat that are located near construction activities. These would be short-term impacts given the brief amount of time (likely two weeks or less) this species may forage in the vicinity during migration. Work in the immediate vicinity of potentially suitable SWFL habitat will be conducted primarily during daylight hours; however, if it becomes necessary to conduct work at night, lighting will be needed for worker safety. This lighting will be directed toward the interior of the Campo Verde Solar Site or at the specific tower location being constructed in order to minimize effects. Generally, noise from the construction of solar facilities similar to the Campo Verde Solar Site may exceed 60 dB(A) for a distance of up to 1,280 feet from the source. Minimization and avoidance measures to reduce potential noise effects to avian species will be implemented following the BBCS, including timing construction to minimize effects to avian species and a seasonal nighttime construction buffer around potential SWFL

migratory habitat. Given the brief amount of time SWFL may be foraging within the action area during migration, and the implementation of impact avoidance and minimization measures, any effects to SWFL from noise and lighting would be minimal and short-term.

The O&M activities of the Campo Verde Project are unlikely to have more than a discountable effect on SWFL that may be foraging within the migration habitats (**Attachment 1: Figure 4a-c**) adjacent to the Campo Verde Solar Energy Facility Site during migration. Noise and lighting during operations will be minimal and directed toward the interior of the Campo Verde Solar Site where the operations facilities are located and would be similar in nature to noise associated with current agricultural activities. Therefore, O&M activities are not expected to provide a significant source of disturbance to avian species, including SWFL, outside of the Campo Verde Solar Energy Facility Site.

Suitable migration habitat in the survey area occurs in migrants in the vicinity of portions or all of Fig Drain, Diehl Drain, Wixom Drain, Dixie 3A Drain, Westside Drain, and Wormwood 7 Drain (**Attachment 1: Figures 4a-c**). The project will not directly disturb acreage inside these habitats. No project features will be built within, over or under any of the drains or wetlands containing potentially suitable migratory habitat for the SWFL. The solar panels will be installed in areas that are actively farmed and fencing will be installed near existing field edges to prevent equipment from entering drains and wetlands or associated riparian habitats during construction and operations.

Potential impacts to the SWFL would appear to be limited to the risk that night-migrating SWFL individuals could collide with the gen-tie line and temporal displacement of migrant willow flycatchers if construction activities adjacent to their habitat temporarily deter foraging. Bird flight diverters will be installed on the gen-tie line along the segments that cross the suitable migration habitat; therefore, impacts would be less than significant.

The Campo Verde Solar Energy Facility will include several earthen stormwater retention/detention basins to manage stormwater flows. Run-off flows from the Campo Verde Solar Energy Facility will be directed to these basins, where water will be allowed to percolate through the soil. The detention basins will be sized to meet county and RWQCB standards. The O&M building and delivery areas will also be designed to accommodate storm water runoff in accordance with County guidelines. No indirect effects to SWFL foraging habitat along the portions of Fig Drain, Diehl Drain, Wixom Drain, Dixie 3 Drain, Dixie 3A Drain, Dixie 3B Drain, Dixie 4 Drain, Westside Drain, Forget-Me-Not Drain 1, and Wormwood 7 Drain supporting potentially suitable SWFL migratory habitat are expected to occur resulting from run-off.

## Yuma Clapper Rail

Construction of the Campo Verde Solar Energy Facility is not likely to have more than a discountable effect on YCR individuals, as potential habitat is limited and isolated and this species is not expected to nest within the survey area. The BBCS will provide guidance on minimizing disturbance to all avian species during construction, and no potential foraging or wintering habitat will be removed during construction or grading.

Given the nearest known occurrence is approximately 0.5 miles north of the survey area and the poor quality of YCR habitat, there is a low potential for YCR to forage or winter in the cattail marsh or common reed marsh vegetation associated with Fig Drain, Wixom Drain, Dixie 3A Drain, an unnamed wetland adjacent to Dixie 3A Drain, Dixie 4 Drain, Westside Drain and Wormwood 7 Drain (**Attachment 1: Figures 4a-c**). Light and noise from heavy equipment during construction has a low probability of temporarily impacting YCR given the low potential for this species to forage or winter adjacent to and/or within the Campo Verde Solar Energy Facility. Work will be conducted primarily during daylight hours; however, if it becomes necessary to conduct work at night, lighting will be needed for worker safety. This lighting will be directed toward the interior of the Campo Verde Solar Energy Facility in order to minimize effects. Generally, noise from the construction of solar facilities similar to the Campo Verde Solar Energy Facility may exceed 60 dB(A) for a distance of up to 1,280 feet from the source. Minimization and avoidance measures to reduce potential noise effects to avian species, including YCR, will be implemented following the BBCS, including timing construction to minimize effects to avian species. Given the low likelihood that YCR forages or winters in these small habitat patches within the survey area and the implementation of impact avoidance and minimization measures, any effects to YCR from noise and lighting would be minimal and short-term.

The O&M activities of the Project will not affect YCR in the unlikely event that this species forages within the cattail marsh adjacent to and/or within the proposed Campo Verde Solar Energy Facility. Any noise and lighting during operations will be minimal, and the level of human disturbance is not expected to increase significantly above the agricultural practices that are currently taking place and will continue to take place. Therefore, O&M activities are not expected to affect YCR.

The low quality potential foraging and wintering habitat patches will not be removed during construction of the project, and no effects to YCR due to potential habitat loss will occur.

The Campo Verde Solar Energy Facility will include several earthen stormwater detention basins to manage stormwater flows, respectively. Run-off flows from the Campo Verde Solar Energy Facility will be directed to these basins, where water will be allowed to percolate through the soil. The detention basins will be sized to meet county and RWQCB standards. The O&M building and delivery areas, will be provided with storm water containment designed to accommodate runoff in accordance with County guidelines. No indirect effects to YCR foraging habitat or wintering habitat along the with Fig Drain, Wixom Drain, Dixie 3A Drain, an unnamed wetland adjacent to Dixie 3A Drain, Dixie 4 Drain, Westside Drain or Wormwood 7 Drain are expected to occur resulting from run-off.



Unpaved roads exist adjacent to the Fig Drain, Wixom Drain, Dixie 3A Drain, an unnamed wetland adjacent to Dixie 3A Drain, Dixie 4 Drain, Westside Drain and Wormwood 7 Drain, therefore, no additional grading beyond standard maintenance, of Campo Verde Solar Energy Facility access roads adjacent to potential foraging or winter habitat is anticipated. Indirect impacts to these habitats resulting from sedimentation are not expected to occur.

Flows to Wixom Drain may be reduced below current levels, which may indirectly impact YCR habitat downstream in Wixom Marsh. Implementation of **Mitigation Measure B9** will ensure that impacts to YCR are less than significant.

#### *4.1.1.2.2 State Listed Species*

As discussed in **Section 3.1.4.2.2**, the barefoot-banded gecko is not expected to occur in the survey area and is not discussed further in this document.

### **Greater Sandhill Crane**

Greater Sandhill Cranes may forage during the winter in the active agricultural habitats present within the survey area. Approximately 1,677.5 acres of agricultural land would be removed under the Proposed Action. Given the large amount of potentially suitable foraging habitat in the immediate vicinity of the Project Area and the Imperial Valley, it is unlikely that the loss of this potentially suitable foraging habitat would significantly impact wintering Greater Sandhill Cranes.

Light and noise from heavy equipment during construction is not expected to adversely modify the behavioral patterns of foraging Sandhill Cranes given the vast amount of foraging habitat in the immediate vicinity of the survey area. Work will be conducted primarily during daylight hours; however, if it becomes necessary to conduct work at night, lighting will be needed for worker safety. This lighting will be directed toward the interior of the Campo Verde Solar Site in order to minimize effects to Sandhill Cranes that may be roosting in adjacent fields. The Sandhill Crane is a diurnal species and is not expected to be active at night. Generally, noise from the construction of solar facilities similar to the Campo Verde Solar Energy Facility may exceed 60 dB(A) for a distance of up to 1,280 feet from the source. Minimization and avoidance measures to reduce potential noise effects to avian species, including Sandhill Crane, will be implemented following the BBCS, including timing construction to minimize effects to avian species. Because the Sandhill Crane is relatively tolerant of disturbance on its wintering grounds, the brief periods when they may forage within any given field in the vicinity of the action area, and the implementation of impact avoidance and minimization measures (see Mitigation Measures B4 and B7), disturbance to Sandhill Cranes from noise and lighting would be unlikely.

The O&M activities are unlikely to affect Sandhill Cranes that may be foraging adjacent to the Campo Verde Solar Energy Facility during the winter. Noise and lighting during operations will be minimal and directed toward the interior of the Campo Verde Solar Energy Facility, where the operations facilities are located. General O&M activities that may be conducted within the Campo Verde Solar Energy Facility include equipment inspection and/or repairs, solar panel

washing, weed abatement activities, and security guard duties involving the use of motor vehicles. Panel washing may also require a water truck access. These O&M activities are anticipated to be at the same level of intensity as the current agricultural operations and are not expected to affect the overall behavioral patterns of Sandhill Cranes within the survey area.

Sandhill Cranes are only active during daylight hours, and no collisions with the Proposed Gen-Tie Line, solar panels, or other facility structures are anticipated, as they will be visible, and therefore avoidable, if Sandhill Cranes are actively moving in and around the Campo Verde Project. In addition, Avian Power Line Interaction Committee (APLIC) measures to avoid and minimize potential collisions (APLIC 2006) will be detailed in the BBCS for implementation. Therefore, O&M activities would have an insignificant or discountable effect on Greater Sandhill Cranes foraging within or adjacent to the survey area.

#### 4.1.1.2.3 *BLM Sensitive Species*

##### **Burrowing Owl**

The 1995 California Department of Fish and Game's Staff Report on Burrowing Owl Mitigation (CDFG 1995) defines impact to Burrowing Owl as:

- Disturbance within 50 meters (approx. 160 feet.) which may result in harassment of owls at occupied burrows;
- Destruction of natural and artificial burrows (culverts, concrete slabs, and debris piles that provide shelter to Burrowing Owls); and
- Destruction and/or degradation of foraging habitat adjacent (within 100 meters) of an occupied burrow(s).

As discussed in **Section 3.1.4.2.3**, 55 occupied Burrowing Owl burrows were observed within the survey area. While direct removal of these burrows are not anticipated as the result of project implementation, adjacent agricultural fields, which represent suitable foraging habitat for these burrows will be graded during construction activities.

Impacts to any Burrowing Owl individuals and/or active Burrowing Owl burrows would be considered potentially significant, and mitigation in the form of avoidance and impact minimization would be required to reduce the impact to a level of less than significant. In accordance with the CDFG Staff Report on Burrowing Owl Mitigation (1995), impacts to foraging habitat within 100 meters (approximately 300 feet) of each active burrow would be considered significant and would require mitigation in order to reduce impacts to a level less than significant.

After construction is complete, Burrowing Owls may occur along the remaining earthen lined canals and drains in and around the Project Area.

All permanent lighting within the Campo Verde Solar Energy Facility will be low profile fixtures that point inward toward the Campo Verde Solar Energy Facility with directional hoods or shades to reduce light from shining into the adjacent habitat. In addition, any lighting not

required daily for security purposes will have motion sensor or temporary use capabilities. No significant impact due to lighting is expected to occur to this species, and no mitigation is required.

No equipment or components of the Campo Verde Solar Energy Facility or gen-tie Line are expected to produce noise that would exceed ambient noise in the vicinity. No significant impact due to noise is expected to occur to this species, and no noise mitigation is required.

Mitigation Measure B3 would be implemented in order to reduce impacts to Burrowing Owls to less than significant. These mitigation measures would include pre-construction clearance surveys, relocation of owls whose burrows would be directly removed by construction activities and compensatory mitigation acreage. Consultation with CDFG regarding on-site mitigation is ongoing and agency approval of the project Burrowing Owl Mitigation and Monitoring Plan would be required before the start of construction. Exact mitigation acreages will be determined in consultation with CDFG.

### **Mountain Plover**

The risk of death or injury to Mountain Plover resulting from the Campo Verde project is unlikely for the following reasons:

- This species does not nest within the survey area or in the Imperial Valley; therefore, there is no risk of destroying nests or eggs, harming chicks, or discouraging parents from returning to the nest.
- The species is naturally evasive and will readily move out of harm's way to avoid construction activities. They would likely find suitable fields nearby for foraging.
- Foraging habitat would be removed permanently on the Campo Verde Solar Site; therefore, Mountain Plovers would not attempt to forage on the site and there would be no risk of collision with solar panels and other components.

The Mountain Plover is protected under the MBTA. As such, it is unlawful to kill this species. Therefore, the Applicant must avoid killing Mountain Plover and employ avoidance measures necessary to avoid killing or injuring any Mountain Plover. The BBCS will include measures designed to minimize disturbance to all avian species during construction, including measures such as bird flight diverters, pre-construction nest surveys, nest buffers, etc., to prevent take of MBTA-protected birds during construction and operation of the Project.

Light and noise from heavy equipment during construction is expected to be of short duration and should not adversely modify the behavioral patterns of foraging Mountain Plover in the region given the vast amount of foraging habitat in the immediate vicinity of the survey area. Work will be conducted primarily during daylight hours; however, if it becomes necessary to conduct work at night, lighting will be needed for worker safety. This lighting will be directed toward the interior of the Campo Verde Solar Site in order to minimize effects to Mountain Plover that may be roosting in adjacent fields. However, Mountain Plover is a diurnal species and is not expected to be active at night. Generally, noise from the construction of solar facilities similar to the Campo Verde Solar Energy Facility Site may exceed 60 dB(A) for a distance of up

to 1,280 feet from the source. Minimization and avoidance measures to reduce potential noise effects to avian species, including Mountain Plover, will be implemented following the BBCS, including timing construction to minimize effects to avian species. Because the Mountain Plover is relatively tolerant of disturbance on its wintering grounds, the brief periods when plovers may forage within any given field in the vicinity of the survey area, and the implementation of impact avoidance and minimization measures, disturbance to Mountain Plover from noise and lighting would be unlikely.

The O&M activities are unlikely to affect Mountain Plovers that may be foraging adjacent to the Campo Verde Solar Energy Facility during the winter. Noise and lighting during operations will be minimal and directed toward the interior of the Campo Verde Solar Energy Facility, where the operations facilities are located. General O&M activities that may be conducted within the Campo Verde Solar Energy Facility include equipment inspection and/or repairs, solar panel washing, weed abatement activities, and security guard duties involving the use of motor vehicles. Panel washing may also require a water truck access. These O&M activities are anticipated to be at the same level of intensity as the current agricultural operations and are not expected to affect the overall behavioral patterns of Mountain Plovers within the survey area. Mountain Plover is only active during daylight hours, and no collisions with the Proposed Gen-Tie Line, solar panels, or other facility structures are anticipated, as they will be visible, and therefore avoidable, if Mountain Plovers are actively moving in and around the Campo Verde Project. In addition, Avian Power Line Interaction Committee (APLIC) measures to avoid and minimize potential collisions (APLIC 2006) will be detailed in the BBCS for implementation. Therefore, O&M activities would have an insignificant or discountable effect on Mountain Plover foraging within or adjacent to the survey area.

Approximately 1,677.5 acres of potential foraging habitat for Mountain Plover would be permanently removed. Conservatively assuming that entire acreage is suitable foraging habitat at any given time, this loss of foraging habitat would account for less than 0.8 percent of the estimated foraging habitat (using the five-year average of 214,962 acres) available in the Imperial Valley. This does not take into account the likely significant acreage of suitable foraging habitat in Mexico, just across the border. The permanent loss of less than 0.8 percent of suitable foraging habitat in the Imperial Valley is a discountable loss of habitat in the Imperial Valley.

Large avian predators such as ravens (genus *Corvus*), Loggerhead Shrikes (*Lanius ludovicianus*), and Prairie Falcon (*Falco mexicanus*) may be drawn to the Campo Verde Solar Energy Facility due to the increase in food sources such as garbage cans and nesting/perching areas such as the perimeter fence. This potential increase in avian predators may indirectly affect Mountain Plover within and adjacent to the Campo Verde Solar Energy Facility, but this effect would be minimized by implementation of a Raven Control Plan, which will focus on minimizing predator attractants, discouraging raptor nesting, etc.

No indirect effects to Mountain Plover due to herbicide use are anticipated. The timing and formula of any herbicide used for control of weeds will be in accordance with the Campo Verde Project Weed Management Plan, which will conform to resource agency standards to minimize impacts to sensitive biological resources.

### **Pallid Bat and California Leaf-nosed Bat**

These species may use all or portions of the Project Area for foraging, though neither is expected to roost within the Project Area or immediate vicinity. Project implementation would result in the permanent disturbance of approximately 1,852 acres of potentially suitable foraging habitat. This disturbance would reduce the quality of the foraging habitat, but is not expected to totally eliminate it. The potential for continued foraging following project implementation would be supported by the larger drains and canals within the Campo Verde Solar Energy Facility that would remain undisturbed and could continue to support prey populations for both species. Given the large amount of suitable foraging habitat in the immediate vicinity of the project and in the Imperial Valley (essentially all agricultural lands) and the continued foraging opportunities following project implementation, the proposed project is not expected to significantly impact either the pallid bat or the California leaf-nosed bat.

#### *4.1.1.2.4 Golden Eagle*

Suitable nesting habitat is not present within the survey area and the species is not expected to nest within or in the immediate vicinity of the survey area. The project vicinity contains habitat features that could be conducive to eagle use and foraging, and occasional foraging may occur on the Project site. Suitable foraging habitat would be removed by the project. However, based on the limited amount of habitat that would be removed compared to the amount of suitable foraging habitat available in and around the Imperial Valley, and the low prey availability in agricultural habitats as compared to the surrounding native desert, this loss of habitat is unlikely to disturb Golden Eagles that may occasionally use the project area for foraging. Incidental observations within the valley suggest that the most suitable foraging habitat within the agricultural lands may be the larger IID-maintained drains. No large drains would be removed as a result of project implementation.

Historical records and results of this analysis indicate that direct impacts to eagles are unlikely to result from the proposed project construction or operation, due to the low numbers of eagles that may use the area for foraging and the tubular steel structures that will be used which will decrease the potential for perching and nesting. Additionally, the amount of suitable foraging habitat (1,852 acres) that would be removed by the project is small relative to the amount of habitat available in and around the Imperial Valley. This would not represent a significant impact to this species given the vast amounts of suitable foraging habitat in the surrounding vicinity and in the Imperial Valley (essentially all agricultural lands) and the relative infrequency with which the species has been observed in the survey area and vicinity. Therefore, no take is anticipated, and an Eagle Conservation Plan is not necessary for the project. Specific avoidance and minimization measures for eagles are addressed within this document.

### 4.1.2 Impact to Riparian Habitat or Special Status Communities

For purposes of this report, special status vegetation communities (i.e., natural communities) are those communities “that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects” (State of California 2009b). The project would have a significant impact if it would:

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the CDFG or USFWS.

As discussed in Section 4.0 and shown on **Table 9**, arrow weed thicket is the only special status natural community potentially affected by the proposed project. This community is considered sensitive whether or not it has been disturbed.

Impacts to arrow weed thicket are detailed in **Table 9** and shown on **Attachment 1: Figure 6**. Though very limited in extent (2.27 acres of permanent impact), these impacts could be considered potentially significant and may require mitigation to offset this impact to sensitive habitats to reduce impacts to levels less than significant.

Soil disturbed due to grading during construction and continued use of the Campo Verde Solar Energy Facility Site and access roads along the gen-tie line may result in the introduction or increased density of non-native invasive plant species. These species can undermine the habitat quality and integrity of the native plant communities. The risk of non-native invasive species establishment in sensitive natural communities will be assessed as part of the Weed Risk Assessment, which is being prepared but has not yet been completed for the project.

Riparian habitats occur on the perimeters of surface or near-surface waters and provide a transition zone between aquatic and terrestrial zones. In the survey area, three communities would be characterized as riparian – arrow weed thicket, common reed marsh, and disturbed wetland. Arrow weed thicket would be the only one impacted by this alternative (2.27 acres permanently and 0.22 acres temporarily).

### 4.1.3 Impact to Jurisdictional Waters

The jurisdictional waters report for the proposed project has been submitted to the agencies in order to verify the jurisdictional status of the drainage features present within the Project Area. The ACOE agreed with the jurisdictional determinations and CDFG has indicated their concurrence as well. It is anticipated that one CDFG jurisdictional water (Feature #14 in the project Jurisdictional Waters Report) and no ACOE jurisdictional waters would be impacted by the solar energy facility (**Attachment 1: Figure 8**). The CDFG jurisdictional feature that would be impacted is a small agricultural tail ditch that supports a small amount of riparian vegetation (primarily arrow weed). This feature is approximately 6 feet wide (bank to bank) and could be removed entirely. This would result in the loss of approximately 0.26 acres of CDFG jurisdictional waters.



Mitigation for permanent impacts to CDFG riparian habitat is typically at a 2:1 ratio, while mitigation for temporary impacts to CDFG riparian habitat is typically at a 1:1 ratio. A Section 1600 Streambed Alteration Agreement would also need to be authorized for impacts to CDFG resources.

#### **4.1.4 Impact to Wildlife Movement and Nursery Sites**

Wildlife movement corridors are considered sensitive by resource and conservation agencies. The impact analysis provided below is based on the CEQA thresholds of significance. The project would have a significant impact if it would:

- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

A chain link perimeter fence will surround the proposed Campo Verde Solar Energy Facility Site, allowing small mammals and reptiles to move freely through the site. Although medium- and large- sized mammals will not be able to move through the Campo Verde Solar Energy Facility Site, it should not inhibit their movement through the Yuha Basin or surrounding agricultural lands.

The project will impact the ability of medium and large mammals to move through the project site, but it should not inhibit their movement through the Yuha Basin or surrounding agricultural lands; it is therefore considered a less than significant impact. There is no anticipated impact to nursery sites, and no additional mitigation would be required.

The Solar Generation Facility Site is composed of multiple parcels that make up the Project. Each parcel (unless contiguous with another) will be fenced. These parcels currently consist of hay crops that are in various stages of growth; they generally do not provide good cover or provide movement corridors or linkages for wildlife. The most valuable movement corridors and linkages are medium and large IID-maintained drains. The project would not impact any of these and would therefore not interfere substantially with wildlife movement or corridors. Most of the proposed and existing solar projects in the Imperial Valley are designed in a similar manner.

## **4.2 Gen-tie Line Alternatives**

### **4.2.1 Impact to Special Status and Priority Plant Species**

#### **4.2.1.1 *Proposed Gen-Tie***

##### Special Status Species

No federally listed, state-listed or BLM sensitive plant species are known or expected to occur within the Proposed Gen-Tie corridor based on spring surveys completed for projects in the same corridor; however, spring surveys have not been completed for this project. Based on survey results from other projects, there are no anticipated impacts to federally listed, state-listed or

BLM sensitive plant species as the result of project implementation. If special status or priority plants are located during the surveys, mitigation measures will be implemented to reduce impacts to less than significant.

#### Priority Plant Species

Abram's spurge (CNPS 2.2) has a low potential for occurrence within the Proposed Gen-Tie survey area. Brown turbans, Parish's desert-thorn and hairy stickleaf (CNPS 2.3 and CNDDDB special plants), and Utah vine milkweed (CNPS 4.2) have a low to moderate potential for occurrence.

Impacts to these species are not anticipated because they were not observed during surveys and habitat is of low quality. However, if impacts occur, they will be relatively minor based on the small impact areas (7.69 acres of temporary impacts and 0.05 acre of permanent impacts).

Though considered sensitive species, the relatively low ranking status of these species means that any mitigation requirements would be satisfied with mitigation for these species' habitats (e.g., mitigation for the creosote bush – white bursage scrub habitat would mitigate for impacts to the preferred habitats for these species). Species-specific mitigation requirements would not be necessary.

#### **4.2.1.2 Alternative Gen-Tie Across BLM Land**

#### Special Status Species

No federally listed, state-listed or BLM sensitive plant species are known or expected to occur within the Alternative Gen-Tie Across BLM Land corridor based on spring surveys completed for projects in the same corridor; however, spring surveys have not been completed for this project. Based on survey results from other projects, there are no anticipated impacts to federally listed, state-listed or BLM sensitive plant species as the result of project implementation. If special status or priority plants are located during the surveys, mitigation measures will be implemented to reduce impacts to less than significant.

#### Priority Plant Species

Abram's spurge (CNPS 2.2), glandular ditaxis (CNPS 2.2), and California ditaxis (CNPS 3.2) have a low potential for occurrence within the Proposed Gen-Tie survey area. Rock nettle (CNPS 2.2 and CNDDDB special plant), Brown turbans, Parish's desert-thorn and hairy stickleaf (CNPS 2.3 and CNDDDB special plants), and Utah vine milkweed (CNPS 4.2) have a low to moderate potential for occurrence.

Impacts to these species are not anticipated because they were not observed during surveys and habitat is of low quality. However, if impacts occur, they will be relatively minor based on the small impact areas (8.01 acres of temporary impacts and 0.05 acre of permanent impacts).

Though considered sensitive species, the relatively low ranking status of these species means that any mitigation requirements would be satisfied with mitigation for these species' habitats (e.g., mitigation for the creosote bush – white bursage scrub habitat would mitigate for impacts to the preferred habitats for these species). Species-specific mitigation requirements would not be necessary.

#### **4.2.1.3 Private Land Gen-Tie Alternative**

No special status or priority plant species are expected to occur within the Private Land Gen-Tie Alternative survey area. Therefore, no impacts to special status or priority plant species are expected to occur as a result of project implementation.

### **4.2.2 Impact to Special Status Wildlife Species**

#### **4.2.2.1 Proposed Gen-Tie**

##### *4.2.2.1.1 Federally Listed Species*

#### **Southwestern Willow Flycatcher**

Expected impacts to Southwestern Willow Flycatcher are discussed in **Section 4.1.1.2.1**. Construction of the Proposed Gen-Tie is not likely to directly affect Southwestern Willow Flycatcher (SWFL) individuals, because there is no nesting habitat in the survey area and no habitat used during migration will be impacted. An Avian and Bat Protection Plan (ABPP) will provide guidance designed to minimize disturbance and avoid project related impacts to migration and other important avian habitats.

Suitable SWFL migration habitat in the Proposed Gen-Tie survey area occurs only in the vicinity of Dixie 3B Drain, just west of the Westside Main crossing (**Attachment 1: Figure 4c**). The Proposed Gen-Tie will not disturb acreage inside these habitats, nor would the gen-tie line be built across this habitat. No project features will be built within, over or under any of the drains or wetlands containing potentially suitable migratory habitat for the SWFL.

Potential impacts to the SWFL would be limited to the risk that night-migrating SWFL individuals could collide with the gen-tie line and temporal displacement of migrant willow flycatchers if nearby construction activities temporarily deter foraging. Bird flight diverters will be installed on the gen-tie line along the segments that cross the Westside Main Canal. Therefore impacts would be less than significant.

#### **Peninsular Bighorn Sheep**

No effects to Peninsular bighorn sheep are anticipated because there is no suitable habitat for the species in the project area, the closest known habitat is approximately 11 miles away, and the nearest known occurrence is 16 miles west of the project area.

#### 4.2.2.1.2 State Listed Species

State listed species with the potential to occur within the Proposed Gen-Tie survey area include: Greater Sandhill Crane (*Grus canadensis tabida*) and Peninsular bighorn sheep. Potential impacts to Sandhill crane are discussed in **Section 4.1.1.2.2** and impacts to Peninsular bighorn sheep are discussed in **Section 4.2.2.1.1**.

#### 4.2.2.1.3 BLM Sensitive Species

##### **Colorado Desert Fringe-toed Lizard**

Direct impacts to Colorado Desert fringe-toed lizard may occur during construction of the Proposed Gen-Tie. Construction activities such as the movement of construction vehicles or heavy equipment and the installation of electric line towers may result in the direct mortality, injury, or harassment of Colorado Desert fringe-toed lizards. These impacts would be considered significant and mitigation would be required to reduce impacts below significance. Mitigation B5, that will be implemented for FTHL, would also act as mitigation for this species because suitable habitat for these species overlaps; therefore, no additional mitigation is anticipated and impacts to this species would be below significance. Refer to Mitigation B5 for specific details.

The creosote bush–white bursage scrub vegetation and stabilized desert dunes within the Gen-tie corridor provides habitat for this species, and impacts to this habitat could be potentially significant for the Colorado Desert fringe-toed lizard. Impacts to Colorado Desert fringe-toed lizard habitat would be reduced via the following measures:

- No new access roads will be constructed; disturbance would be limited to short overland travel extending from existing access roads.
- Extensive resource surveys have been conducted to facilitate the siting of the electric line components to insure they are located in a manner that creates the least amount of disturbance to resources.
- Whenever possible, any removal of vegetation will be in the form of trimming instead of root grubbing, to allow shrubs to readily re-sprout. The only soil removal necessary during Gen-tie Line construction will be during excavation of tower footings and trenching.

The Proposed Gen-Tie Alternative may permanently impact approximately 0.05 acres of suitable Colorado Desert fringe-toed lizard habitat and temporarily impact approximately 7.45 acres of suitable Colorado Desert fringe-toed lizard habitat.

Disturbance of soil and vegetation will take place during construction, which can encourage invasive, exotic plant species to encroach into Colorado Desert fringe-toed lizard habitat. In addition, construction vehicles and equipment can transport seeds and vegetation from other regions within their tires and other various parts under the vehicles. This potential increase in invasive, exotic plant species would be considered a significant impact to Colorado desert fringe-toed lizard due to construction of the proposed project and mitigation would be required to

reduce impacts below significance. Mitigation for FTHL would be considered sufficient mitigation for this species (refer to Mitigation B2 and B5) because these species occupy similar habitats; these would reduce impacts to a level less than significant.

General O&M activities that may be conducted along the Gen-tie Line include equipment inspection and/or repairs, tower washing, and weed abatement activities. These O&M activities will require vehicles to occasionally drive the existing access roads along the Gen-tie Line and travel overland.

Colorado Desert fringe-toed lizard injury or mortality could potentially occur due to occasional use of the transmission line access roads, weed abatement, or any other activities that may result in ground disturbance outside of the designated access roads. The anticipated frequency of travel along gen-tie access roads is expected to represent a negligible increase in traffic compared to the ongoing traffic associated with construction and maintenance of the IV Substation, Border Patrol activity and OHV use of the area.

### **Flat-tailed Horned Lizard**

Direct impacts to FTHL may occur during construction of the gen-tie line. Construction activities such as the movement of construction vehicles or heavy equipment and the installation of electric line towers or solar site components may result in the direct mortality, injury, or harassment of FTHLs. These impacts would be considered significant and mitigation would be required to reduce impacts to a level less than significant.

The proposed transmission corridor alternatives are within the Yuha Desert Flat-tailed Horned Lizard Management Area, as designated in the 2003 *Flat-tailed Horned Lizard Rangelwide Management Strategy* (RMS; ICC 2003). The creosote bush–white bursage scrub vegetation and stabilized desert dune habitat within the Management Area provides habitat for this species; impacts to these habitats are considered potentially significant and would require mitigation to reduce impacts to a level less than significant. In accordance with the *Flat-tailed Horned Lizard Rangelwide Management Strategy*, compensation would be required for impacts to FTHL habitat (see Mitigation B5). In accordance with the RMS, the proposed impacts to the MA are the minimum necessary to construct the project:

- The proposed Campo Verde Solar Site is located outside of the Yuha MA, within active agricultural fields.
- No new access roads will be constructed; disturbance would be limited to short overland travel extending from existing access roads.
- Extensive resource surveys have been conducted to facilitate the siting of the electric line components to insure they are located in a manner that creates the least amount of disturbance to resources.
- Whenever possible, any removal of vegetation will be in the form of trimming instead of root grubbing, to allow shrubs to readily re-sprout. The only soil removal necessary during gen-tie Line construction will be during excavation of tower footings and trenching.

Proposed impacts to FTHL habitat within the MA for the Proposed Gen-Tie are 0.05 acres of permanent impact and 7.45 acres of temporary impact. Disturbance of soil and vegetation will take place during construction, which can encourage invasive, exotic plant species to encroach into FTHL habitat. In addition, construction vehicles and equipment can transport seeds and vegetation from other regions within their tires and other various parts under the vehicles. This potential increase in invasive, exotic plant species would be considered a significant impact to FTHL due to construction of the proposed project and mitigation would be required to reduce impacts to a level less than significant. Refer to Mitigation B2 and B5.

General O&M activities that may be conducted along the gen-tie line include equipment inspection and/or repairs, tower washing, and weed abatement activities. These O&M activities will require vehicles to occasionally drive the existing access roads in the area and travel overland to structure sites if needed.

FTHL injury or mortality could potentially occur due to occasional travel to the structure sites, weed abatement, or any other activities that may result in ground disturbance outside of the designated access roads. The anticipated frequency of travel to gen-tie structure sites is expected to represent a negligible increase in traffic compared to the ongoing traffic associated with construction and maintenance of the IV Substation, Border Patrol activity and OHV use of the area.

The implementation of Mitigation Measure B5 would reduce impacts to FTHL to less than significant.

### **Burrowing Owl**

The Burrowing Owl is both a California Species of Special Concern and a BLM sensitive species. BLM generally uses CDFG guidance for impact assessment and mitigation for this species. The 1995 California Department of Fish and Game's Staff Report on Burrowing Owl Mitigation (CDFG 1995) defines impact to Burrowing Owl as:

- Disturbance within 50 meters (approx. 160 feet) which may result in harassment of owls at occupied burrows;
- Destruction of natural and artificial burrows (culverts, concrete slabs, and debris piles that provide shelter to Burrowing Owls); and
- Destruction and/or degradation of foraging habitat adjacent (within 100 meters) of an occupied burrow(s).

As discussed in **Section 3.2.7.1**, 49 suitable but unoccupied Burrowing Owl burrows were observed within the survey area, though most, but not all, are located within the unstable desert dunes and are regularly filled in because of the structural instability of the sand. Direct removal of these burrows is not anticipated to occur as the result of implementation of the Proposed Gen-Tie because the burrows would be spanned and adjacent suitable foraging habitat for these burrows would not be removed during construction activities.



No equipment or components of the gen-tie line are expected to produce noise either during construction or operation that would exceed ambient noise in the vicinity. Therefore, no significant impact is expected and no noise mitigation is required.

Mitigation Measure B3 would be implemented in order to minimize impacts to Burrowing Owls. These mitigation measures would include pre-construction clearance surveys, relocation of owls whose burrows would be directly removed by construction activities, and possibly the acquisition of compensatory mitigation acreage if required. Consultation with CDFG regarding on-site mitigation is ongoing and agency approval of a Burrowing Owl Mitigation Plan for the gen-tie would be obtained before the start of construction. The specific mitigation measures for Burrowing Owl will be determined in consultation with CDFG.

### **Mountain Plover**

Impacts to Mountain Plover are expected to be less than significant (**Section 4.1.1.2.3**).

### **California Leaf-nosed Bat and Pallid Bat**

These species may use the northern portion of the Proposed Gen-Tie survey area for foraging (along the Westside Main Canal), though neither is expected to roost in the vicinity. Construction of the Proposed Gen-Tie would not result in the temporary or permanent direct removal of potentially suitable foraging habitat because the canal would be spanned. Following construction, the span of the canal by the gen-tie line could pose a minor collision risk to foraging bats but this would be considered less than significant because of the distance to known populations of these species and the species' inherent ability to avoid obstructions through the use of echolocation. The potential for continued foraging following project implementation would continue to be supported by the larger drains and canals that support prey populations for both species. Given that the project will not remove any suitable habitat for either species, the large amount of suitable foraging habitat available throughout Imperial County, and the continued foraging opportunities following project implementation, the proposed project is not expected to significantly impact either the pallid bat or the California leaf-nosed bat.

#### *4.2.2.1.4 California Species of Special Concern and Fully Protected Species*

### **Loggerhead Shrike**

Loggerhead Shrikes are known to forage and may nest in the Proposed Gen-Tie survey area. Construction activities would be completed within 2 to 6 months but could result in temporary avoidance of the area by this species for that period. There is a large amount of suitable foraging habitat in the area surrounding this alternative that could be utilized by the species during and after construction so there would be no permanent impacts or significant impacts. Also, Mitigation B7 would be implemented to ensure there would be no impacts to nesting Loggerhead Shrikes. Therefore, impacts would be less than significant for this species.

### **Crissal Thrasher and LeConte's Thrasher**

The area crossed by the Proposed Gen-Tie line does not support suitable nesting or foraging habitat for these species. Therefore, there would be no impacts from construction or operation of this alternative.

### **Golden Eagle**

Potential impacts to Golden Eagle are discussed in **Section 4.1.1.2.4**. In addition, the Proposed Gen-Tie line would represent a potential impact to Golden Eagles by presenting a risk of collisions. Bird flight diverters will be installed on the gen-tie line along the segments that cross the Westside Main Canal, which would alleviate some of the risk. Given the relative infrequency within which Golden Eagles use the Project Area and the use of bird flight diverters and the implementation of a BBCS the impact to Golden Eagles from the construction of the gen-tie line is expected to be minimal.

#### *4.2.2.1.5 Other Species*

### **Desert Kit Fox**

Potential impacts to desert kit fox could include temporary displacement from the project area and/or surrounding vicinity, increased stress resulting from nearby construction activity, direct removal of burrows, vehicle collisions and habitat loss. The project area represents potentially suitable habitat for this species, though kit foxes have not been observed in or around the project area. Pre-construction burrow surveys would identify any potentially active kit fox burrows and burrows identified would be avoided by construction activities.

### **American Badger**

Potential impacts to the American badger could include temporary displacement from the project area and/or surrounding vicinity, increased stress resulting from nearby construction activity, direct removal of burrows, vehicle collisions and habitat loss. The project area represents potentially suitable habitat for this species, though American badgers have not been observed in or around the project area. Pre-construction burrow surveys would identify any potentially active American badger burrows and burrows identified would be avoided by construction activities.

## **4.2.2.2 Alternative Gen-Tie Across BLM Land**

### *4.2.2.2.1 Federally Listed Species*

#### **Southwestern Willow Flycatcher**

The impacts to this species resulting from implementation of this gen-tie alternative would generally be the same as that described for the Proposed Gen-Tie in **Section 4.2.2.1.1**. Suitable migration habitat in the vicinity of this alternative occurs along the Dixie 3B Drain, approximately 2,000 feet west of the Westside Main Canal crossing associated with this alternative (**Attachment 1 – Figure 4c**). Construction of this alternative will not directly disturb acreage inside these habitats nor would the gen-tie be built across any of the drains or wetlands containing potentially suitable migratory habitat for the SWFL.

Potential impacts to the SWFL would appear to be limited to the risk that night-migrating SWFL individuals could collide with the gen-tie line and temporal displacement of migrant willow flycatchers if construction activities temporarily deter foraging in nearby areas. Bird flight diverters will be installed on the gen-tie line along the segments that cross the Westside Main Canal to minimize the potential for collision. Therefore, impacts would be less than significant.

#### **Peninsular Bighorn Sheep**

Impacts to this species would not occur as described for the Proposed Gen-Tie in **Section 4.2.2.1.1**.

### *4.2.2.2.2 State Listed Species*

Potential impacts to Sandhill crane are discussed in **Section 4.1.1.2.2** and impacts to Peninsular bighorn sheep are discussed in **Section 4.2.2.1.1**.

### *4.2.2.2.3 BLM Sensitive Species*

#### **Colorado Desert Fringe-toed Lizard**

The impacts to this species resulting from implementation of this gen-tie alternative would generally be the same as that described for the Proposed Gen-Tie in **Section 4.2.2.1.3**. This alternative may temporarily impact approximately 5.90 acres of suitable Colorado Desert fringe-toed lizard habitat during construction and permanently impact approximately 0.03 acres of suitable Colorado Desert fringe-toed lizard habitat after construction. The mitigation that will be implemented for FTHL would also act as mitigation for this species because they use the same habitats. Therefore, no additional mitigation is anticipated and impacts to this species would be less than significant.

### **Flat-tailed Horned Lizard**

The impacts to this species resulting from implementation of this gen-tie alternative would be similar to but slightly less than that described for the Proposed Gen-Tie in **Section 4.2.2.1.3**. Impacts to FTHL habitat from implementation of this alternative would be 5.90 acres of temporary impacts during construction and 0.03 acres of permanent impacts. The mitigation described for the Proposed Gen-Tie for this species would be implemented, so impacts to this species would be less than significant.

### **Burrowing Owl**

The impacts to this species resulting from implementation of this gen-tie alternative would be similar to but slightly less than that described for the Proposed Gen-Tie in **Section 4.2.2.1.3**. As discussed in **Section 3.2.6.3**, two suitable but unoccupied Burrowing Owl burrows were observed within the survey area. Direct removal of these burrows is not anticipated as the result of project implementation (they would be spanned), and adjacent suitable foraging habitat for these burrows would not be removed during construction activities. Mitigation measure B3 (Section 4.4.2.3) would be implemented in order to reduce impacts to less than significant.

### **Mountain Plover**

The impacts to this species resulting from implementation of this gen-tie alternative would be similar to that described for the Proposed Gen-Tie in **Section 4.2.2.1.3**.

### **California Leaf-nosed Bat and Pallid Bat**

The impacts to this species resulting from implementation of this gen-tie alternative would be similar to that described for the Proposed Gen-Tie in **Section 4.2.2.1.3**.

#### *4.2.2.2.4 California Species of Special Concern and Fully Protected Species*

The impacts to these species resulting from implementation of this gen-tie alternative would generally be the same as that described for the Proposed Gen-Tie in **Section 4.2.2.1.4**. This alternative would affect small areas of the same habitats and the same mitigation measures would be implemented.

#### *4.2.2.2.5 Other Species*

The impacts to these species resulting from implementation of this gen-tie alternative would generally be the same as that described for the Proposed Gen-Tie in **Section 4.2.2.1.5**. This alternative would affect small areas of the same habitats and the same mitigation measures would be implemented.

### **4.2.2.3 Private Gen-Tie Alternative**

#### *4.2.2.3.1 Federally Listed Species*

##### **Southwestern Willow Flycatcher**

The impacts to this species resulting from implementation of this gen-tie alternative would be similar to that described for the Proposed Gen-Tie in **Section 4.2.2.1.1**. Suitable migration habitat in the vicinity of this alternative occurs along Dixie Drain 4 and Westside Drain (**Attachment 1 - Figure 4a**). Construction of the Private Gen-Tie Alternative will not directly disturb acreage inside these habitats, but the gen-tie would be built across this habitat.

Potential impacts to the SWFL would be limited to the risk that night-migrating SWFL individuals could collide with the gen-tie line and temporal displacement of migrant willow flycatchers if nearby construction activities temporarily deter foraging. Bird flight diverters will be installed on the gen-tie line along the segment that crosses Dixie Drain 4, Westside Drain, and the Westside Main Canal. Therefore, impacts would be less than significant.

##### **Yuma Clapper Rail**

Construction of the Private Gen-Tie Alternative is not likely to have an effect on YCR individuals. The nearest known occurrence of nesting YCR is approximately 1.8 miles east of the project area, however, there is no suitable nesting habitat in the survey area. There is a potential for YCR to forage or winter in the habitat associated with Dixie Drain 4 and Westside Drain (**Attachment 1 - Figure 4a**). Noise from equipment during construction would have a low probability of temporarily impacting YCR given the low potential for this species to occur within the Private Gen-Tie Alternative area. Minimization and avoidance measures to reduce potential effects to avian species, including YCR, will be implemented according to an approved ABPP, including timing construction to minimize effects to avian species.

Given the low likelihood that YCR forages or winters within the small habitat patches within the project area along with the implementation of impact avoidance and minimization measures, any effects to YCR from construction of this alternative would be minimal and short-term.

The O&M activities associated with the gen-tie are not expected to affect YCR. Any noise during operations will be minimal and the level of human disturbance is not expected to increase significantly above the agricultural practices that are currently taking place and will continue to take place.

##### **Peninsular Bighorn Sheep**

Impacts to this species would not occur because there is no suitable habitat in the Private Gen-Tie Alternative survey area.

#### 4.2.2.3.2 *State Listed Species*

As discussed in **Section 3.2.7.3**, the barefoot-banded gecko is not expected to occur in the survey area and will not be impacted by this alternative. Peninsular bighorn sheep is discussed above.

#### **Greater Sandhill Crane**

Greater Sandhill Cranes may forage during the winter in the active agricultural habitats adjacent to the Private Gen-Tie Alternative corridor. Approximately 0.1 acres of agricultural land would be affected by implementation of the alternative. Given that all of the agricultural lands in Imperial County provide potentially suitable foraging habitat including that in the vicinity of this alternative, it is unlikely that the loss of this small amount of potentially suitable foraging habitat would impact wintering Greater Sandhill Cranes.

Noise from heavy equipment during construction is not expected to adversely modify the behavioral patterns of foraging Sandhill Cranes because the vast amount of foraging habitat in the vicinity will allow them to utilize the area. The Sandhill Crane is a diurnal species and is not expected to be active at night. Minimization and avoidance measures to reduce potential noise effects to avian species, including Sandhill Crane, will be implemented in accordance the ABPP, including timing construction to minimize effects to avian species. Because the Sandhill Crane is relatively tolerant of disturbance on its wintering grounds (Zeiner et al. 1989), the brief periods when they may forage within any given field in the vicinity of the action area, and the implementation of impact avoidance and minimization measures (see Mitigation Measures B4 and B7), disturbance to Sandhill Cranes from noise would be unlikely.

Sandhill Cranes are only active during daylight hours, and no collisions with the proposed gen-tie line are anticipated, as they will be visible and avoidable. In addition, Avian Power Line Interaction Committee (APLIC) measures to avoid and minimize potential collisions (APLIC 2006) will be detailed in the ABPP for implementation.

#### 4.2.2.3.3 *BLM Sensitive Species*

#### **Colorado Desert Fringe-toed Lizard**

There is no habitat for this species in the Private Land Gen-Tie ROW. Therefore, no impacts to this species are anticipated from implementation of the alternative.

#### **Flat-tailed Horned Lizard**

There is no habitat for this species in the Private Land Gen-Tie ROW. Therefore, no impacts to this species are anticipated from implementation of the alternative.

#### **Burrowing Owl**

The impacts to this species resulting from implementation of this gen-tie alternative would generally be the same as that described for the Proposed Gen-Tie in **Section 4.2.2.1.3**. Three

suitable but unoccupied Burrowing Owl burrows were observed within the survey area for this alternative. Direct removal of these burrows would not occur as the result of construction of the gen-tie because they would be spanned and adjacent suitable foraging habitat for these burrows would not be removed as a result of construction activities. No impacts would occur during operation and maintenance activities because these activities would use the existing farm roads adjacent to the line. Mitigation measure B3 would be implemented to ensure impacts would be minor.

### **Mountain Plover**

This alternative traverses suitable habitat for the Mountain Plover in the area and this species does not nest within the project area or in the Imperial Valley. Approximately 0.1 acres of agricultural land would be affected by implementation of the alternative. Given that all of the agricultural lands in Imperial County provide potentially suitable foraging habitat including that in the vicinity of this alternative, it is unlikely that the loss of this small amount of potentially suitable foraging habitat would impact wintering Mountain Plovers, and impacts would be less than significant.

The Mountain Plover is protected under the MBTA. Therefore, the Applicant would employ avoidance measures as defined in the ABPP which will include measures designed to minimize disturbance to all avian species during construction, including measures to prevent take of MBTA-protected birds during construction and operation of the Project.

Avian predators such as ravens (genus *Corvus*), Loggerhead Shrikes (*Lanius ludovicianus*), and Prairie Falcon (*Falco mexicanus*) may be drawn to the area due to the increase in nesting/perching areas such as gen-tie structures. This potential increase in avian predators could potentially indirectly affect Mountain Plover within the vicinity of the Private Land Gen-Tie, but this effect would be minimized by implementation of a Raven Control Plan.

No indirect effects to Mountain Plover due to herbicide use are anticipated. The timing and formula of any herbicide used for control of weeds will be in accordance with the proposed project Weed Management Plan, which conforms to resource agency standards to minimize impacts to sensitive biological resources.

### **California Leaf-nosed Bat and Pallid Bat**

The impacts to this species resulting from implementation of this gen-tie alternative would be similar to that described for the Proposed gen-Tie in **Section 4.2.2.1.3**.

#### *4.2.2.3.4 California Species of Special Concern and Fully Protected Species*

The impacts to these species resulting from implementation of this gen-tie alternative would generally be the same as that described for the Proposed Gen-Tie in **Section 4.2.2.1.4**.



#### 4.2.2.3.5 *Other Species*

The impacts to these species resulting from implementation of this gen-tie alternative would generally be less than those described for the Proposed Gen-Tie in **Section 4.3.3.1.5** because this gen-tie alternative does not represent suitable habitat for either the desert kit fox or the American badger.

### **4.2.1 Impact to Riparian Habitat or Special Status Natural Communities**

For purposes of this report, sensitive vegetation communities (i.e., natural communities) are those identified by the CDFG (State of California 2010b) and CEQA. Reasons for the designation as “sensitive” include restricted range, cumulative losses throughout the region, and a high number of endemic sensitive plant and wildlife species that occur in the vegetation communities. Riparian habitats occur on the perimeters of surface or near-surface waters and provide a transition zone between aquatic and terrestrial zones. In this project area, three communities would be characterized as riparian – arrow weed thicket, common reed marsh, and disturbed wetland. None would be disturbed permanently and only one, arrow weed thicket, would be temporarily impacted by this alternative and it is discussed below.

As shown in **Table 9**, arrow weed thicket is the only special status natural community potentially affected by the gen-tie.

The project would have a significant impact if it would:

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the CDFG or USFWS.

#### **4.2.1.1 Proposed Gen-Tie**

The Proposed Gen-Tie would temporarily impact 0.21 acres of arrow weed thicket and none permanently. Though very limited in extent, these impacts would be mitigated through reclamation.

Soil disturbed during construction and continued use of the access roads along the gen-tie line may result in the introduction or increased density of non-native invasive plant species. The risk of non-native invasive species establishment in sensitive natural communities will be assessed as part of the Weed Management Plan that will be prepared for the project.

#### **4.2.3.2 Alternative Gen-Tie Across BLM Land**

There would be no impacts to riparian habitat or sensitive natural communities by this alternative.

#### **4.2.3.3 Private Land Gen-Tie Alternative**

There would be no impacts to riparian habitat or sensitive natural communities by this alternative.

#### **4.2.2 Impact to Jurisdictional Waters**

The final jurisdictional waters report for the proposed project was recently submitted to the agencies in order to verify the jurisdictional status of the drainage features present within the Project Area. Based on that report, all potentially state and federal jurisdictional waters will be spanned; therefore, there would be no impacts to state or federal jurisdictional waters by the Proposed Gen-Tie, Alternative Gen-Tie Across BLM Land, or the Private Land Gen-Tie Alternative.

#### **4.2.3 Impact to Wildlife Movement and Nursery Sites**

Wildlife movement corridors are considered sensitive by resource and conservation agencies. The impact analysis provided below is based on the CEQA Guidelines Appendix G thresholds of significance. The project would have a significant impact if it would:

- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

Neither the Proposed Gen-Tie Line, the Alternative Gen-Tie Across BLM Land, nor the Private Gen-Tie Alternative would inhibit the movement of wildlife in and around the gen-tie survey area. No fencing or other terrestrial obstructions would be installed. Moreover, the Proposed Gen-Tie Line and Alternative Gen-Tie Across BLM Land would be located in a designated utility corridor along with several other existing transmission lines and would not represent a novel feature on the landscape.

Thus, there is no anticipated impact to wildlife movement or nursery sites, and no additional mitigation would be required.

#### **4.2.4 Impact to California Desert Conservation Area**

Pursuant to CEQA, the project would have a significant impact if it would:

- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

The Proposed Gen-Tie Line and the Alternative Gen-Tie Across BLM Land is an allowable use under the CDCA, as the proposed ROW's fall within the CDCA designated "Utility Corridor N." This area is also designated as an ACEC and the BLM manages all land uses within the ACEC in order to minimize impact to this sensitive area. All proposed impacts to resources discussed

in Section 4 are in conformance with the CDCA and maintain the integrity and intent of the Conservation Plan.

The Private Gen-Tie Alternative is located entirely on private lands outside of the CDCA.

## 5.0

# RECOMMENDED MITIGATION

---

A number of general measures, designed to reduce potential indirect impact to resources in the Project Area as well as restore and/or improve the quality of habitat in the Project Area, will be implemented as part of the Project design. In addition, mitigation measures for specific sensitive biological resources would be implemented in order to further reduce the potential direct and indirect impacts of project implementation and are identified below.

### **B1 Vegetation Communities**

Mitigation for permanent and temporary impacts to creosote bush-white bursage scrub shall be accomplished via the mitigation for flat-tailed horned lizard (Mitigation Measure B5) because this native habitat is considered potentially suitable flat-tailed horned lizard habitat and is within a designated management area on BLM land. Mitigation for permanent and temporary impacts to arrow weed scrub would be accomplished separately at a 2:1 ratio. **Table 7** describes the proposed impacts to each vegetation community. Thus, disturbance to native vegetation communities will not require unique mitigation but will rely on the requirements of mitigation measure B5.

### **B2 Noxious, Invasive and Non-Native Weeds**

To minimize the introduction and spread of weed species, a Weed Management Plan will be developed and implemented. The weed management plan will include a discussion of specific weeds identified on site that will be targeted for eradication or control as well as a variety of measures that will be undertaken during construction and O&M activities to prevent the introduction and spread of new weed species as a result of the project.

General measures to prevent the spread of weeds include:

- Limiting disturbance areas during construction to the minimal required to perform work and limiting ingress and egress to defined routes
- Maintaining vehicle wash and inspection stations, and closely monitoring the types of materials brought onto the site to minimize the potential for weed introduction
- Use of certified weed free mulch, straw wattles, hay bales and seed mixes
- Reestablishing native vegetation along the Gen-tie line as quickly as practicable on disturbed sites is the most effective long-term strategy to avoid weed invasions
- Monitoring and rapid implementation of control measures to ensure early detection and eradication for need weed invasions

Weed control methods that may be used include both physical and chemical control. Physical control methods include manual hand pulling of weeds, or the use of hand and power tools to uproot, girdle, or cut plants. Herbicide applications are a widely used, effective control method for removing infestations of invasive weed species. However, inadvertent application of herbicide to adjacent native plants must be avoided, which can often be challenging when weeds are interspersed with native cover. Before applying herbicide, contractors will be required to obtain any required permits from state and local authorities. Only a State of California and federally certified contractor will be permitted to perform herbicide

applications. All herbicides will be applied in accordance with applicable laws, regulations, and permit stipulations. Only herbicides and adjuvants approved by the State of California and BLM for use on public lands will be used within or adjacent to the project site. Invasive plants species on BLM lands would be prevented, controlled, and treated through an Integrated Pest Management approach per the *Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Report (PER 2007)*. Only herbicides approved by BLM in California will be used on BLM lands. Herbicide application can only occur on BLM lands with an approved Pesticide Use Proposal (PUP).

### **B3 Burrowing Owl**

#### Mitigation Measures

Burrowing Owls are known to occur in and along the active agricultural fields within the proposed Campo Verde Solar Site. The following measures will avoid, minimize, or mitigate potential impact to Burrowing Owls during construction activities:

1. To the extent practicable, initial grading and clearing within the project footprint should take place between September 1 and January 31 to avoid impacts to any breeding Burrowing Owls. Occupied burrows should not be removed during the nesting season (February 1 through August 31) unless a qualified biologist approved by CDFG verifies through non-invasive methods that either (a) the birds have not begun egg-laying and incubation; or (b) that juveniles from the occupied burrows are foraging independently and are capable of independent survival. If initial grading and clearing within the project footprint is to begin during the breeding season (February 1 through August 31), the following measures (#2 through #4 below) will be implemented.
2. Within 14-days prior to initiation of initial grading and clearing, pre-construction clearance surveys for this species shall be conducted by qualified and agency-approved biologists to determine the presence or absence of this species within the grading area. The proposed grading areas shall be clearly demarcated in the field or via GPS by the project engineers and Designated Biologist prior to the commencement of the pre-construction clearance survey. The surveys shall follow the protocols provided in the *Burrowing Owl Survey Protocol and Mitigation Guidelines*.
3. When removal of occupied burrows is unavoidable, the following mitigation measures shall be implemented outside of the breeding season. Passive relocation methods are to be used by the biological monitors to move the owls out of the impact zone. This includes covering or excavating all burrows and installing one-way doors into occupied burrows. This will allow any animals inside to leave the burrow, but will exclude any animals from re-entering the burrow. A period of at least one week is required after the relocation effort to allow the birds to leave the impacted area before excavation of the burrow can begin. The burrows should then be excavated and filled in to prevent their reuse. The removal of active burrows on-site requires construction of new burrows or the enhancement of existing unsuitable burrows (i.e., enlargement or clearing of debris) at a mitigation ratio of 2:1 at least 50 meters from the impacted area and must be constructed as part of the above-described relocation efforts.
4. As the project construction schedule and details are finalized, an approved biologist shall prepare a Burrowing Owl Mitigation and Monitoring Plan that will detail the approved, site-specific methodology proposed to minimize and mitigate impacts to this

species. Passive relocation, destruction of burrows, and construction of artificial burrows can only be completed upon prior approval by and in cooperation with the CDFG.

#### Compensatory Mitigation

Consultation with CDFG intended to determine the amount and conditions of compensatory mitigation for foraging habitat lost as a result of project implementation is currently ongoing. The applicant is currently preparing a compensatory mitigation plan that could include a combination of (or one of) on-site mitigation or National Fish and Wildlife Foundation's Impact-Directed Environmental Accounts program. Exact mitigation acreages will be determined in consultation with CDFG and in accordance with CDFG's 2012 guidance for Burrowing Owl mitigation.

#### **B4 General O&M Mitigation Measures**

A number of general mitigation measures, designed to reduce potential direct and indirect impacts to resources in the project area will be implemented after construction as standard Operation and Maintenance protocols. In order to reduce the potential impact to biological resources during operations and maintenance, the following will be implemented:

- A brief Annual Report will be submitted to the relevant resource agencies documenting the implementation of the following general measures as well as any resource-specific measures such as habitat restoration and/or compensation:
  - Speed limits along all gen-tie Line access roads and unpaved roads within the solar energy facility will not exceed 15 miles per hour. Gen-tie line access for O&M activities shall be kept to the minimum necessary for operations and be accomplished during the winter months when feasible. This limited access and annual timing is designed to prevent FTHL mortality.
  - Annual formal Worker Education Training shall be established for all employees and any subcontractors at the Campo Verde Solar Site to provide instruction on sensitive species identification; measures to avoid contact, disturbance, and injury; and reporting procedures in the case of dead and/or injured wildlife species. The USFWS and the BLM shall be notified per approved guidelines and channels of authority if mortality should occur. Species requiring reporting will be decided in consultation with the BLM and USFWS and will be detailed in the *Wildlife Mortality Reporting Program*.
  - A *Raven Control Plan* will be prepared and implemented that details specific measures for storage and disposal of all litter and trash produced by the Campo Verde Solar Site and its employees. This plan is designed to discourage scavengers that may also prey on wildlife in the vicinity. All employees will be familiar with this plan and littering shall be prohibited. This plan will be approved by the BLM and CDFG.
  - A *Weed Management Plan* will be prepared and implemented that describes specific on-going measures to remove weedy plant species from the solar energy facility and encourages native plant growth. This plan should be prepared in conformance with herbicide and native seed/planting guidelines

outlined in the project's Site Reclamation and Revegetation Plan, and will be approved by the BLM.

- A *Wildlife Mortality Reporting Program* will be prepared and implemented to identify and report any dead or injured animals observed by personnel conducting O&M activities within the solar energy facility and along the gen-tie line. An appropriate reporting format for dead or injured special status wildlife observed within the solar energy facility and along the gen-tie line will be developed in coordination with the USFWS and the BLM. In addition, reporting of any dead or injured avian species found along the gen-tie line will follow the existing USFWS Bird Fatality/Injury Reporting Program (<https://birdreport.fws.gov/>). Species requiring reporting will be decided in consultation with the BLM and USFWS.
- A Bird and Bad Conservation Strategy (BBCS) will be prepared that will outline conservation measures for construction and O&M activities that might reduce potential impacts to bird populations. These measures incorporate APLIC (2006) design guidelines for overhead utilities by incorporating recommended or other methods that enhance the visibility of the lines to avian species. The BBCS will also address disturbance minimization, timing of construction, minimization of activities that would attract prey and predators, and incorporation of the Wildlife Mortality Reporting Program and Raven Control Plan discussed above.

### **B5 Flat-tailed Horned Lizard**

#### Mitigation Measures

In accordance with the *FTHL Rangewide Management Strategy* (ICC 2003), the measures proposed below are designed to avoid, minimize, and/or compensate for potential direct and indirect effects construction of the proposed project may have on FTHL. The following will be implemented when conducting construction activities within the creosote bush-white burr sage scrub and other native vegetation types vegetation in the gen-tie line ROW:

1. Prior to ground-disturbing activities, an individual shall be designated and approved by the BLM as the Designated Biologist<sup>1</sup> (i.e. field contact representative) along with approved Biological Monitors as needed for construction, particularly within the Yuha MA. The Designated Biologist will be designated for the period during which ongoing construction and post-construction monitoring and reporting by an approved biologist is required, such as annual reporting on habitat restoration. Each successive Designated Biologist will be approved by the BLM's Authorized Officer (i.e., BLM field manager, El Centro). The Designated Biologist will have the authority to ensure compliance with the conservation measures for the FTHL and will be the primary agency contact for the implementation of these measures. The Designated Biologist will organize and oversee the work of the biological monitors and have the authority

---

<sup>1</sup> A qualified Designated Biologist must have (1) a bachelor's degree with an emphasis in ecology, natural resource management, or related science; (2) three years of experience in field biology or current certification of a nationally recognized biological society, such as The Ecological Society of America or the Wildlife Society (3) previous experience with applying terms and conditions of a biological opinion; and, (4) the appropriate permit and/or training if conducting focused or protocol surveys for listed or proposed species.



and responsibility to halt activities that are in violation of the conservation measures. An organizational chart shall be provided to BLM prior to ground-disturbing activities with a clear chain of command and contact information (cell phones). A detailed list of responsibilities for the Designated Biologist is summarized below. To avoid and minimize impacts to biological resources, the Designated Biologist will:

- Notify BLM's Authorizing Officer at least 14 calendar days before initiating ground disturbing activities.
  - Immediately notify BLM's Authorized Officer in writing if the Project applicant is not in compliance with any conservation measures, including but not limited to any actual or anticipated failure to implement conservation measures within the time periods specified.
  - Conduct compliance inspections at a minimum of once per month during on-going construction after clearing, grubbing, and grading are completed, and submit a monthly compliance report to BLM's Authorized Officer until construction is complete.
2. The boundaries of all areas to be disturbed (including staging areas, access roads, and sites for temporary placement of spoils) will be delineated with stakes and flagging prior to construction activities. Where feasible, the areas shall be cleared of FTHL and fenced (according to the Strategy) to exclude FTHL from re-entering these construction areas, particularly in the MA and other high-use areas such as for staging of equipment or parking areas. Spoils will be stockpiled in disturbed areas lacking native vegetation or where habitat quality is poor, such as the agricultural fields rather than native desert. To the extent possible, disturbance of shrubs and surface soils due to stockpiling will be minimized. All disturbances, vehicles, and equipment will be confined to the flagged and cleared areas. To the extent possible, surface disturbance will be timed to minimize mortality to FTHL (see FTHL Construction Measure #7 below).
3. Approved Biological monitor(s) will assist the Designated Biologist in conducting pre-construction surveys and in monitoring of mobilization, ground disturbance, grading, construction, operation, closure, and restoration activities. The biological monitor(s) will have experience conducting FTHL field monitoring, have sufficient education and field experience to understand FTHL biology, be able to identify FTHL scat, and be able to identify and follow FTHL tracks. The Designated Biologist will submit the resume, at least three references, and contact information of the proposed biological monitors to the BLM for approval. To avoid and minimize impacts to biological resources, the Biological Monitors will assist the Designated Biologist with the following:
- Be present during construction (e.g., grubbing, grading, solar panel installation) activities that take place in FTHL habitat to avoid or minimize take of FTHL. Activities include, but are not limited to, ensuring compliance with all impact avoidance and minimization measures, monitoring for FTHLs and removing lizards from harm's way, and checking avoidance areas (e.g., washes) to ensure that signs, and stakes are intact and that human activities are restricted in these avoidance zones.
  - At the end of each work day, inspect all potential wildlife pitfalls (trenches, bores and other excavations) for wildlife and then backfill. If backfilling is not

- feasible, all trenches, bores, and other excavations will be contoured at a 3:1 slope at the ends to provide wildlife escape ramps, or completely and securely covered to prevent wildlife access.
- During construction, examine areas of active surface disturbance periodically, at least hourly, when surface temperatures exceed 29°Celsius (C; 85°F) for the presence of FTHL.
4. Prior to Project initiation, a worker environmental awareness program (WEAP) will be developed and implemented, and will be available in both English and Spanish. Wallet-sized cards summarizing this information will be provided to all construction, operation, and maintenance personnel. The education program will include the following aspects:
    - biology and status of the FTHL,
    - protection measures designed to reduce potential impact to the species,
    - function of flagging designating authorized work areas,
    - reporting procedures to be used if a FTHL is encountered in the field, and
    - driving procedures and techniques, for commuting to, and driving on, the Project site, to reduce mortality of FTHL on roads.
  5. FTHLs will be removed from harm's way during all construction activities, per item #6 below. To the extent feasible, methods to find FTHLs will be designed to achieve a maximal capture rate and will include, but not be limited to using strip transects, tracking, and raking around shrubs. During construction, the minimum survey effort will be 30 minutes per 0.40 ha (30 minutes per 1 ac). Persons that handle FTHLs will first obtain all necessary permits and authorization from the CDFG. If the species is federally listed, only persons authorized by both CDFG and USFWS will handle FTHLs. FTHL removal surveys will also include:
    - A Horned Lizard Observation Data Sheet and a Project Reporting Form, per Appendix 8 of the RMS, will be completed. During construction, quarterly reports describing FTHL removal activity, per the reporting requirements described in Mitigation Measure #1 above, will be submitted to the BLM.
  6. The removal of FTHLs out of harm's way will include relocation to nearby suitable habitat in low-impact (e.g., away from roads and solar panels) areas of the Yuha MA. Relocated FTHLs will be placed in the shade of a large shrub in undisturbed habitat. If surface temperatures in the sun are less than 24° Celsius (C) 75° Fahrenheit (F) or exceed 38°C (100° F), the Designated Biologist or biological monitor, if authorized, will hold the FTHL for later release. Initially, captured FTHLs will be held in a cloth bag, cooler, or other appropriate clean, dry container from which the lizard cannot escape. Lizards will be held at temperatures between 75° F and 90° F and will not be exposed to direct sunlight. Release will occur as soon as possible after capture and during daylight hours. The Designated Biologist or biological monitor will be allowed some judgment and discretion when relocating lizards to maximize survival of FTHLs found in the Project area.
  7. To the maximum extent practicable, grading in FTHL habitat will be conducted during the active season, which is defined as March 1 through September 30, or if ground temperatures are between 24°C (75° F) and 38 °C (100° F). If grading cannot be conducted during this time, any FTHLs found will be removed to low-impact areas

(see above) where suitable burrowing habitat exists, (e.g., sandy substrates and shrub cover).

8. Temporarily disturbed areas associated with gen-tie line construction and staging areas on federal lands, will be revegetated according to the Site Reclamation and Revegetation Plan (SRRP) approved by the BLM. The SRRP must be approved in writing by the BLM prior to any vegetation-disturbing activities. Restoration involves recontouring the land, replacing the topsoil (if it was collected), and maintaining (i.e., weeding, replacement planting, supplemental watering, etc.), and monitoring the restored area for a period of 5 years (or less if the restoration meets all success criteria). Components of the SRRP will typically include:
  - The incorporation of Desert Bioregion Revegetation/Restoration Guidance measures. These measures generally include alleviating soil compaction, returning the surface to its original contour, pitting or imprinting the surface to allow small areas where seeds and rain water can be captured, planting seedlings that have acquired the necessary root mass to survive without watering, planting seedlings in the spring with herbivory cages, broadcasting locally collected seed immediately prior to the rainy season, and covering the seeds with mulch.

#### Operations and Maintenance

In order to reduce the potential impact to FTHL during O&M, the following will be implemented when conducting O&M along the Gen-tie line:

9. At least 15 days prior to the commencement of construction and within 15 days following completion of construction activities, the Designated Biologist will provide the BLM a Project FTHL Status Report, which will include, at a minimum:
  - A general description of the status of the project site within the MA.
  - A copy of the table in the Project biological monitoring report with notes showing the current implementation status of each conservation measure.
  - An assessment of the effectiveness of each completed or partially completed measure in avoiding and minimizing project impacts
  - A completed a Project Reporting Form from the Flat-tailed Horned Lizard Rangelwide Management Strategy (RMS; ICC 2003)
  - A summary of information regarding any FTHL mortality in conjunction with the Project's Wildlife Mortality Reporting Program.
  - Recommendations on how conservation measures might be changed to more effectively avoid, minimize, and offset future project impacts on the FTHL.
10. The Designated Biologist or biological monitor(s) will evaluate and implement the best measures to reduce FTHL mortality along access and maintenance roads, particularly during the FTHL active season (March 1 through September 30). These measures will include:
  - A speed limit of 15 miles per hour when driving access roads within suitable FTHL habitat. The Designated Biologist may reduce this speed limit to 10 mph in areas identified as active wildlife corridors as needed to reduced mortality. All vehicles required for O&M within suitable FTHL habitat must remain on the designated access/maintenance roads. Cross country vehicle and equipment

use outside of designated work areas in suitable FTHL habitat shall be prohibited.

- O&M activities occurring within suitable FTHL habitat including weed abatement or any other O&M activity that may result in ground disturbance will be conducted outside of the FTHL active season whenever feasible. If any O&M activities must be conducted during the FTHL active season that may result in ground disturbance within suitable FTHL habitat, such as weed abatement or vehicles requiring access outside of a designated access road, a biological monitor will be present during activities to reduce FTHL impacts.

Implementation of these measures would be based on annual FTHL activity levels, the best professional judgment of the Designated Biologist, and site specific road utilization. FTHL found on access/maintenance roads will be relocated out of harm's way by the Designated Biologist or qualified FTHL monitor.

### ***Compensatory Mitigation***

In accordance with the *Flat-tailed Horned Lizard Rangewide Management Strategy*, mitigation would be required for impacts to FTHL habitat. FTHL are known to occur in the native vegetation along the Proposed Gen-Tie and Alternative Gen-Tie across BLM land ROWs. In accordance with the *Rangewide Management Strategy*, compensation for permanent impact to this habitat within the MA will be at a 6:1 ratio. Acreages of proposed disturbance to FTHL habitat by alternative can be found in **Table 8**.

No mitigation for FTHL is required for the active agricultural land within the Campo Vesolar energy facility or the gen-tie Line alternatives, as agricultural lands do not provide habitat for this species.

### **B6 Nesting Raptors**

Raptors and active raptor nests are protected under California Fish and Game Code 3503.5, 3503, 3513. In order to prevent direct and indirect noise impact to nesting raptors such as Red-tailed Hawk, the following measures should be implemented:

- To the extent practicable, initial grading and clearing within the project site should take place outside the raptors' breeding season of February 1 to July 15.
- If construction occurs between February 1 and July 15, an approved biologist shall conduct a pre-construction clearance survey for nesting raptors in suitable nesting habitat (e.g., tall trees or transmission towers) that occurs within 500 feet of the survey area. If any active raptor nest is located, the nest area will be flagged, and a 500-foot buffer zone delineated, flagged, or otherwise marked. No work activity may occur within this buffer area, until an approved biologist determines that the fledglings are independent of the nest.

### Operations and Maintenance Impact Mitigation

Mitigation for potential impact to raptors and other avian species due to collision with the Proposed Gen-Tie Line is discussed below in Mitigation Measure B7 (Mitigation for Migratory Birds and Other Sensitive Non-migratory Bird Species), including the development of an BBBS.

### **B7 Migratory Birds and Other Sensitive Non-migratory Bird Species**

In order to reduce the potential indirect impact to migratory birds, bats and raptors, a Bird and Bat Conservation Strategy (BBCS) will be prepared following the USFWS's guidelines and then implemented by the Project proponent. This BBCS will outline conservation measures for construction and O&M activities that might reduce potential impacts to bird populations and will be developed by the applicant in conjunction with and input from the USFWS.

#### Construction Conservation Measures

Construction conservation measures to be addressed in the BBCS include:

- Minimizing disturbance to vegetation to the maximum extent practicable.
- Clearing vegetation outside of the breeding season. If construction occurs between February 1 and September 15, an approved biologist shall conduct a pre-construction clearance survey for nesting birds in suitable nesting habitat that occurs within the proposed area of impact. Pre-construction nesting surveys will identify any active migratory birds (and other sensitive non-migratory birds) nests. Direct impact to any active migratory bird nest should be avoided.
- Minimize wildfire potential.
- Minimize activities that attract prey and predators.
- Control of non-native plants
- Apply APLIC design guidelines for overhead utilities (APLIC 2006) by incorporating recommended or other methods that enhance the visibility of the lines to avian species.

#### Operations and Maintenance Measures

Operations and maintenance conservation measures to be incorporated into the BBCS include:

- Preparation of a Raven Control Plan that avoids introducing water and food resources in the area surrounding the solar energy facility.
- Incorporate APLIC guidelines for overhead utilities as appropriate to minimize avian collisions with Gen-tie Line facilities (APLIC 2006).
- Minimize noise
- Minimize use of outdoor lighting.
- Implement post—construction avian monitoring that will incorporate the Wildlife Mortality Reporting Program

### **B8 Jurisdictional Waters**

The Proposed Action may impact CDFG jurisdictional riparian habitat. Mitigation for permanent impacts to CDFG riparian habitat is typically at a 2:1 ratio, while mitigation for temporary impacts to CDFG riparian habitat is typically at a 1:1 ratio. A Section 1600 Streambed Alteration Agreement would also need to be authorized for impact to CDFG resources.

### **B9 Yuma Clapper Rail**

The Applicant shall provide a habitat monitoring plan for the Wixom Marsh located at the terminus of Wixom Drain for Yuma clapper rail habitat. The monitoring plan section shall include dimensions and contours of Yuma clapper rail habitat features and describe the current plant species composition, density and percent cover. The plan approved by the Fish and Wildlife Service (FWS) will meet performance criteria for plant species survival and species composition. The performance criteria will ensure that the current habitat composition, density, and area is maintained. The

Applicant shall coordinate with FWS on any adaptive management changes needing to be incorporated into the plan.

The plan will ensure that plant species composition will be maintained at a level equal or greater than 50 percent of the existing plant species composition (those that are beneficial to YCR), equal to or greater than 60 percent of the existing plant density, and equal to or greater than 80 percent of the area that is currently suitable YCR habitat.

Project impacts shall not occur in potential southwestern willow flycatcher or Yuma Clapper Rail riparian habitat.

To mitigate disturbance to Yuma Clapper Rail during construction activities, environmentally sensitive area (ESA) shall be established and flagged within 250-feet of potential Yuma clapper rail habitat during the breeding season (Feb 15- Jun 30). No project-related construction, clearing or ground disturbing activities shall occur within 250-feet of potential Yuma Clapper Rail habitat during breeding season.

Project electric transmission lines spanning or running adjacent to Yuma Clapper Rail habitat shall be equipped with flight diverters for overhead crossings.

## **6.0**

# **CUMULATIVE EFFECTS**

---

The proposed project has the potential to result in impacts to sensitive vegetation communities, flat-tailed horned lizards, Burrowing Owls, Mountain Plovers, migratory birds, and jurisdictional water resources. However, with the implementation of the mitigation measures outlined in Section 5, these impacts would be reduced to a level of less than significant. As with the proposed project, each of the following projects would be required to provide mitigation for any impacts to biological resources; therefore, the proposed project would not contribute to a significant cumulative biological resources impact.



Table 10 – Approved and/or Proposed Projects In Imperial Valley Under BLM Jurisdiction

Project Name	Description of Project	Impacts	Size/Location	Assumptions	Status
Centinela Solar Energy, LLC	230-kV line. Develop electric-generating facility with normal capacity of 275 megawatts using photovoltaic solar power. Constructed on approximately 1,861 acres. Construction done in two phases and will include operation and administration building, maintenance building, control building, and utilities and services for ancillary facilities and structures.	Impacts to sensitive vegetation communities, the burrowing owl, mountain plovers, migratory birds, flat-tailed horned lizard, and jurisdictional waters. Mitigation reduces impacts to less than significant.	7.5 miles southwest of the City of El Centro in the Mt. Signal Area.	2.75 mile gen-tie line; 1.25 miles on BLM land. 1,861 acres of permanent impact on active ag land and 5 acres permanent impact in native desert.	ROW Grant and EIR Certification end of December 2012.
“S” Line Upgrade 230-kV Transmission Line Project (Imperial Irrigation District)	The “S” Line route runs the IID/San Diego Gas & Electric Imperial Valley Substation located on BLM lands. The project is located in Imperial County. The IID proposes to upgrade about 18 miles of the 230-kV overhead electrical transmission line by installing (+/-) 285 new double-circuit steel poles (including all existing polymer horizontal insulators) to replace the	Impacts to the burrowing owl, Yuma clapper rail, and flat-tailed horned lizard. Mitigation reduces impacts to less than significant.	18 miles various Composed segments. I-8, Hwy 86, 10 miles southwest of the City of El Centro, near Liebert and Wixom Toads, to the north and terminating at the EL Centro Switching Station on Dogwood Road new Villa Road.	For 18 miles of transmission line there are 108 acres of disturbance to BLM land (not all of this is BLM, 2.151 acres is on BLM land and the rest is on private land).	End review 12/17/2009; MND filed with mitigation measures. ROW amended/ Renewed 03/2010.

Project Name	Description of Project	Impacts	Size/Location	Assumptions	Status
	existing wood poles supporting a single 230-kV circuit. The execution plan is to complete the pole replacement and upgrades in three poles. The "S" Line would be upgraded at distinct locates with an assigned order of importance on the basis of system outages, structural reliability, risk, construction feasibility, and costs.				
Imperial Valley Solar (Stirling Energy Systems Two, LLC)	230-kV line (proposed in DEIS that is currently out on CEC website)-CACA-047740. Develop electric-generating facility with normal capacity of 709 megawatts using concentrated solar power. Constructed on approximately 6,500 acres (10 square miles). Construction done in two phases and will include operation and administration building, maintenance building, water treatment system, yard tanks, control building, and utilities and	Visual resources are significant and unavoidable. All others less than significance after mitigation. Biological resources impact to 92.8 acres of Sonoran creosote brush scrub. Compensatory mitigation for 6,619.9 acres of FTHL suitable habitat. Loss of approximately 165 acres of waters of the U.S. and 840 acres of CDFG jurisdictional streambeds. Impacts to 328 known prehistoric	Imperial Valley, 100 miles east of San Diego, 14 miles west of EL Centro, and 4 miles east of Ocotillo Wells.	Impacts of 6,571 acres of BLM lands and 93 acres of Yuha FTHL MA. Impacts to 840 acres of CDFG jurisdictional streambeds. Impacts to 328 known prehistoric and historical surface archaeological	BLM ROD signed on 9/28/10. CEQ decision on 9/29/10.

Project Name	Description of Project	Impacts	Size/Location	Assumptions	Status
	services for ancillary facilities and structures.	and historical surface archaeological resources. Paleontological resources are documented and are likely. DESCP would mitigate potential storm water and sediment project-related impacts. Potential surface and groundwater impacts. Conversion of approximately 6,500 acres of land-mitigation is required.		resources.	
Sunrise 500-kV Line IV West Solar Farm Interconnection to Imperial Valley Substation (authorized, parallels the South West Powerlink 500-kV Line-CACA-047658	The project also includes new 230-kV and 138-kV transmission lines and a 230-kV substation and rebuilt 138-kV substation. The U.S. Bureau of Reclamation is the lead agency with BLM as a cooperating agency. IB substation is completely surrounded by BLM land (5 miles of new transmission lines in the Yuha Desert). Project will be 120 feet wide and is proposed to run northwest of the Imperial	Primary issues include cultural (historic properties, Native American lands, and archeological resources), biological (Flat-tailed horned lizard and Western Burrowing Owl), and paleontological (fossils). 7.65 acres of permanent impact. 12.2 acres of temporary impact. 770 acres of BLM land.	Imperial Valley to Pecosquitos. Located in the Yuha Basin Area of Critical Habitat in the southwestern portion of Imperial County. 8/9 miles southwest of the town of El Centro. Map included.	Impact to 180.1 acres of Yuha FTHL MA.	POWER Engineers Final Environmental Impact Statement (EIS) complete. ROW authorized 02/2009

Project Name	Description of Project	Impacts	Size/Location	Assumptions	Status
	Valley Substation in the shortest route possible while retaining a buffer of a minimum of 500 feet away from private land in the area.				
C Solar Development LLC West	CSOLAR Development, LLC West proposed 230-kV line (follows the Dixieland Line alignment) CACA-051644. 250 megawatts of electricity on 1,100 acres of previously disturbed private farmland. Will cross 0.5 mile of public land and then aligns to the existing Southwest Powerlink.	Proposed ROW lies within the Yuha Basin ACEC and in the Yuha Desert Management Area for the flat-tailed horned lizard. Will fully mitigate impacts. Permanently impact 9 acres of public lands (will use existing access to minimize impact). 69.9 acres of BLM land	Follows the 230-kv lines from the international border going north alignment. Map in reference document.	Impacts to 13.7 acres of BLM Land and 3 acres of Yuha FTHL MA.	Draft plan for development complete 1/25/10. Currently working on NEPA analysis.
SDG&E Photovoltaic Solar Field	SDG&E proposed photovoltaic solar field. CACA-051625. Producing 12 to 14 megawatts of renewable energy.	To be determined in the plan of development (POD). 351.250 (this number will be reduced per their new POD) acres of impact to BLM land.	Located on approximately 100 acres of federal land directly adjacent to SDG&E's Imperial Valley substation.	Impacts to biological resources have yet to be assessed fully. Impacts to 100 acres of BLM Lands.	Application submitted for transportation and utility systems.
North Gila to Imperial Valley	Southwest Transmission Partners double-circuit 500-	Visual impacts would be minimized to the extent	Between North Gila Substation in	Impacts to 450	STP is preparing a

Project Name	Description of Project	Impacts	Size/Location	Assumptions	Status
#2 (Southwest Transmission Partners)	kV line coming in from the east. Project would provide high-voltage transmission capacity in the southeastern U.S. to facilitate the development and interconnection of renewable energy. The total ROW will be approximately 1,903 acres of BLM Land. Project will be approximately 75 miles long. CACA51575.	possible by locating the structures of the new line adjacent to and with the same spacing as existing structures. Impacts to biological resources will result. 13,881.02 acres of BLM land.	Yuma County, Arizona and the Imperial Valley Substation in Imperial County. Project will follow the same route as existing Southwest Powerlink 500-kV line.	acres of BLM Lands and approximately 3 acres of Yuha FTHL MA disturbed.	Plan of Development. Have not started on the NEPA analysis.
Dixieland Connection to IID Transmission System	Interconnection of IID's "S" Line from the IID Substation to the Imperial Valley Substation Route.	Lies in the Yuha Basin ACEC in the Yuha Desert Management Area for flat-tailed horned lizards and Western burrowing owl (impacts will be mitigated). Potential impacts to cultural and paleontological resources.	Follows the 230-kV lines from the international border going north alignment. Approximately 10 to 12 miles southwest of the City of El Centro, Imperial County.	20 acres of impacts to FTHL and Western burrowing owl. 34.2 acres of land disturbed.	Application filed and currently still in planning phases.
C Solar Development LLC	CSOLAR Development, LLC West proposed solar energy facility consisting of three primary components: 1) the construction and operation of a 200 Megawatt Imperial Solar Energy Center	The proposed 120-foot ROW for the electrical transmission line corridor and an existing dirt access road that would be widened by five feet to provide	The proposed access road traverses both BLM lands and private land, and is located on the west side of the Westside Main Canal. The	Impacts to 10.1 acres of disturbed lands under the jurisdiction of BLM.	Final EA, April 2011.

Project Name	Description of Project	Impacts	Size/Location	Assumptions	Status
	South solar energy facility; 2) the construction and operation of electrical transmission lines that would connect the solar power facility to the existing Imperial Valley Substation; and, 3) the improvement and use of an existing dirt access road, a portion of which traverses BLM lands. As part of the project, the facility would interconnect to the utility grid at the 230 kV side of the Imperial Valley Substation via a 230 kV electrical transmission line and associated access.	secondary access are both located in the Yuha Basin ACEC in the Yuha Desert Management Area for flat-tailed horned lizards. Potential impacts to cultural and paleontological resources.	proposed transmission lines and a portion of the access road would be located within the Yuha Desert, and within BLM's Utility Corridor "N" of the California Desert Conservation Area plan (the CDCA Desert Plan).		
Mount Signal Solar Farm	Proposed 82-LV line (follows the C Solar Imperial Solar Energy Center South alignment). Project would create 200 megawatts of electricity on 1,375 acres of private farmland in the Imperial Valley. Proposed transmission line route would parallel existing 230 kV lines and share transmission line with C Solar Imperial Valley Energy	Lies in the Yuha Basin ACEC in the Yuha Desert Management Area for flat-tailed horned lizards and Western burrowing owl (impacts will be mitigated). Potential impacts to cultural and paleontological resources.	Located on 1,375 acres of privately owned land located 2.5 to 7.5 miles west of Calexico in southern Imperial County. Right-of-Way is located within BLM lands.		Application filed and currently working on NEPA Analysis.

---

<b>Project Name</b>	<b>Description of Project</b>	<b>Impacts</b>	<b>Size/Location</b>	<b>Assumptions</b>	<b>Status</b>
	South project.				



Table 11 – Approved and/or Proposed Projects In Imperial Valley Under Imperial County Jurisdiction

ID	Project Name/Agency ID	Location	Ownership	Status	Project Description
1	Las Aldeas Specific Plan	North of Adams Avenue, east of Austin Road and west of La Brucheri Road	Las Aldeas Specific Plan Westshore (Lerno) Development	City of El Centro working on staff report and condition of approval.	The Las Aldeas Specific Plan project is a mixed-use project of 2,156 single-family residential units, 84 multifamily residential units, 467 4-plex residential units, 27.95 acres of commercial zoning, 10.79 acres of light manufacturing zoning, 21.78 acres of park, 48.18 acres of retention basin, and 23.09 acres for two school sites.
2	Linda Vista	West side of Clark Road and I-8 and McCabe Road	City of El Centro Brent Grizzle		The Linda Vista project is a mixed-use project consisting of 182 single-family homes and a 6-acre commercial lot.
3	Desert Village #6	West of Clark Road between I-8 and Home Road	City of El Centro	Approved granted extension of 2 years for filing final map of subdivision (Aug. 2008)	The Desert Village Project #6 consists of 95 single-family homes, 260 apartments, and 7.3 acres of commercial.
4	Commons	East side of Dogwood Avenue between I-8 and	City of El Centro		The Commons is a regional shopping center of 780,000

ID	Project Name/Agency ID	Location	Ownership	Status	Project Description
		Danenberg Drive			square feet.
5	Imperial Valley Mall	Southeast corner of Dogwood Road and Danenberg Road	City of El Centro		The Imperial Valley Mall consists of a regional shopping center of 1,460,000 square feet and 306 single-family houses
6	Miller Burson	South of Ross Road and east of Austin Road	Miller Burson Development Design and Engineering	Responses to Draft EIR under preparation.	The Miller Burson project consists of a 570 single-family residential project.
7	Courtyard Villas	Northwest of I-8 and Austin Road	City of El Centro	EIR in Process	The Courtyard Villas is a project consisting of 54 single-family homes.
8	Willow Bend (East) & Willow Bend (West)	Northeast corner of Clark Road and McCabe Road	City of El Centro		The Willow Bend (East) and Willow Bend (West) is a combined project of 216 single-family homes.
9	Lotus Ranch	Southwest corner of I-8 and La Brucheri Road.	Gary McPhetridge	On hold per applicant request (June 2008)	The Lotus Ranch project is a residential project of 616 single-family homes and a 600-student elementary school.
10	Mosaic	South of SR-86 and bisected by Dogwood Ranch		EIR in Process	The Mosaic project is a residential project of 1,156 single-family units and 2.7 acres of commercial.

ID	Project Name/Agency ID	Location	Ownership	Status	Project Description
11	Hallwood/Calexico Place 111 & Casino	Southwest corner of SR-111 and Jasper Road	City of Calexico	Approved	The Calexico Place 111 and Casino project is a mixed-use project of residential, commercial, and casino.
12	Calexico Mega Park	Southeast corner of SR-111 and Jasper Road			The Calexico Mega Park project is a mixed-use project of a commercial and regional shopping center.
13	County Center II Expansion	Southwest corner of McCabe Road and Clark Road (8th Street in the City of El Centro)	County and ICOE	EIR in Process	mixed-use project of a commercial center, expansion of the Imperial County Office of Education, a Joint-use Teacher Training and Conference Center, Judicial Center, County Park, Jail Expansion, County Administrative Complex, Public Works Administration, and a County Administration Complex.
14	Desert Springs Oasis	Northwest of the Boley Road and Westmoreland Road	Rob and Don Preston of the Barone Group	EIR in Process	The project components include the construction of a geothermal brine processing facility, a 49.9-MW (net) turbine-generator facility, 230-

ID	Project Name/Agency ID	Location	Ownership	Status	Project Description
					kV switchyard, power distribution centers, and a short interconnection transmission line to the IID electrical transmission grid exporting generated power.
15	Mt. Signal	Eight miles southwest of the City of El Centro	MMR Power Solutions, LLC		The Mt. Signal project is a proposed 49.4 megawatt solar hybrid power station on roughly 974 acres.
16	Coyote Wells (Wind Zero)	Ocotillo/Nomirage Area	Wind Zero Group, Inc.	Approved	The project is a 944+/- acre privately owned law enforcement training facility to meet the needs of local and regional law enforcement and public safety agencies. This project includes several closed circuit road tracts, shooting ranges, tactical training buildings, classrooms, temporary housing, RV park, 2 heliports, airstrip, along with a number of support facilities
17	Granite Carroll Sand and	4 miles northwest of	Granite	Approved	The Granite Carroll

ID	Project Name/Agency ID	Location	Ownership	Status	Project Description
	Gravel Mine	Ocotillo			Sand and Gravel Mine is a mining operation project.
18	Imperial Valley Solar Project (Formerly SES Solar Two)	4 miles east of Ocotillo	BLM	BLM's Record of Decision Signed	The Imperial Valley Solar Project is an electric generating facility capable of producing approximately 750 megawatts of electricity on approximately 6,500 acres.
19	Imperial Solar Energy Center West	8 miles west of the City of El Centro		EIR/EA in Process	The Imperial Solar Energy Center West project is a photovoltaic solar facility capable of producing approximately 250 megawatts of electricity on approximately 1,130 acres.
20	Imperial Solar Energy Center South	Mt. Signal area of unincorporated Imperial County, approximately eight miles west of the City of Calexico.	CSOLAR Development, LLC	Final EIR, April 2011.	The proposed solar energy facility consists of three primary components: 1) the construction and operation of a 200 Megawatt Imperial Solar Energy Center South solar energy facility; 2) the

ID	Project Name/Agency ID	Location	Ownership	Status	Project Description
					construction and operation of electrical transmission lines that would connect the solar power facility to the existing Imperial Valley Substation; and, 3) the improvement and use of an existing dirt access road, a portion of which traverses BLM lands. As part of the project, the facility would interconnect to the utility grid at the 230 kV side of the Imperial Valley Substation via a 230 kV electrical transmission line and associated access.
21	Superstition Solar 1	Westmorland	Superstition Sunpeak	EIR in Process	The Superstition Solar 1 project is a photovoltaic solar energy facility capable of producing 500 megawatts of electricity on approximately 5,516 acres.
22	Mount Signal Solar	Mt. Signal	8 Minute	In Process	The Mount Signal Solar project is a solar energy

ID	Project Name/Agency ID	Location	Ownership	Status	Project Description
					project located on approximately 1,375 acres of agriculture land and will produce approximately 200 megawatts of electricity.
23	Bethel Solar X, Inc	Calexico	Jim Doyle	In Process	The Bethel Solar X, Inc project is a solar hybrid energy project that will produce approximately 49.40 megawatts of electricity on approximately 571 acres of land.
24	Energy Solar Source I, LLC	Niland	Energy Source	In process	The Energy Solar Source I project is a solar energy project that will produce 80 megawatts of electricity on approximately 480 acres of land.
25	Energy Solar Source II, LLC	Niland	Energy Source	In process	The Energy Solar Source II project is a solar energy project that will produce 80 megawatts of electricity on 480 acres of land.
26	Salton Sea Solar Farm I	Calipatria	8 minute/81BM	County of Imperial just received	The Salton Sea Solar Farm I project is a solar energy project that will produce approximately



ID	Project Name/Agency ID	Location	Ownership	Status	Project Description
					49.9 megawatts of electricity on approximately 320 acres of land.
27	Salton Sea Solar Farm Ii	Calipatria	8 minute/81BM	County of Imperial just received	The Salton Sea Solar Farm II project is a solar energy project that will produce approximately 100 megawatts of electricity on approximately 623 acres of land.
28	Calipat Solar Farm I	Calipatria	8 minute energy	County of Imperial just Received	The Calipat Solar Farm I project is a solar energy project that will produce approximately 50 megawatts of electricity on approximately 280 acres of land.
29	Calipat Solar Farm II	Calipatria	8 minute energy	County of Imperial just received	The Calipat Solar Farm II project is a solar energy project that will produce approximately 50 megawatts of electricity on approximately 280 acres of land.
30	Frink Road Solar Power	Niland	Granite Construction	County of Imperial in process	The applicant Granite Construction Company proposes to construct a

ID	Project Name/Agency ID	Location	Ownership	Status	Project Description
					Solar Power Generator Farm. It will be comprised of 436 Integrated High Concentration Photovoltaic Solar Power Generators, 200 Square foot single story equipment building, twenty three (23) concrete transformer pads, onsite water storage tank, and an all weather fire access road. Additionally, a 10-acre substation is proposed to be constructed in the northern portion of the project site.
31	Keystone Solar Power	Mesquite SPA	Granite Construction	County of Imperial in process	The Applicant, Granite Construction Company, is proposing to operate a 6.06 megawatt photovoltaic solar plant. The project would include a 200-square foot single story equipment building five (5) concrete transformer pads, an all-weather fire access

ID	Project Name/Agency ID	Location	Ownership	Status	Project Description
					road, a water storage tank and 88 high-concentration photovoltaic (HCPV) Solar Power Generators (Machines).
32	Midway Solar Farm I	Calipatria	8 minute	County of Imperial just received	The Midway Solar Farm I project is a solar photovoltaic project that will produce approximately 50 megawatts of electricity on approximately 326 acres of land.
33	Midway Solar Farm II	Calipatria	8 minute	County of Imperial just received	The Midway Solar Farm II project is a solar photovoltaic energy project that will produce approximately 155 megawatts of electricity on approximately 803 acres of land.
34	IV Solar Company	Niland	Sun Peak Solar	Approved	The IV Solar Company project is a solar photovoltaic energy project that will produce approximately 23 megawatts of electricity on approximately 123

ID	Project Name/Agency ID	Location	Ownership	Status	Project Description
					acres of land.
35	Chocolate Mountain	Niland	8minute Energy	Approved	The Chocolate Mountain is a solar photovoltaic energy project that will produce approximately 49.9 megawatts of electricity on approximately 320 acres of land.
36	Ocotillo Express	Ocotillo	Pattern Energy	EIR/EIS in progress	The Ocotillo Express Wind Project consists of the construction and operation of wind turbine generators and associated facilities necessary to successfully generate up to 550 megawatts of electrical energy.
37	Hudson Ranch II	Niland	HR Power II	EIR to be prepared	The Hudson Ranch II project is a geothermal energy project that will produce approximately 49.9 megawatts of electricity on approximately 326.26 acres of land.
38	Black Rock Unit # 1 2 3 Geothermal Project	Niland	Calenergy	Approved by Imperial County Planning	Black Rock Unit # 1 2 3 project is a

ID	Project Name/Agency ID	Location	Ownership	Status	Project Description
				Department and California Energy Commission	geothermal energy project that will produce approximately 159 megawatts of electricity on approximately 160 acres of land.
39	Wister Project	Niland	Ormat	EIR in process	The Wister Project is a 49.9 net MW geothermal power plant that will includes up to 50 geothermal water wells. This project is located in within the Salton Sea Known Geothermal Resource Area (KGRA). The project site is currently agricultural.
40	Ram Power/Overlay	Brawley	Ram Power	EIR in process	Ram Power Overlay is a geothermal energy project that will produce approximately 50 megawatts of electricity on approximately 27,875 acres of land.
41	Orni 19	Brawley	Ormat	EIR in Process	ORNI 19, LLC/Ormat Nevada Inc. proposes to permit, construct, operate and maintain

ID	Project Name/Agency ID	Location	Ownership	Status	Project Description
					<p>the East Brawley Geothermal Development Project that would consist of the following facilities. A 49.9 net MW geothermal power plant consisting of up to six (6) OEC binary generation units (12.5 MW gross each) with vaporizers, turbines, generators, condensers, pre-heaters, pumps and piping, motive fluid (isopentene) storage, a motive fluid vapor recovery system, a gas scrubber and a regenerative thermal oxidizer (RTO) and related equipment.</p>
42	USS Mount Signal	7 miles southwest of the community of El Centro, California	USS MSS Permits, LLC	CUP Application Received/EIR to be prepared	<p>The proposed project is a photovoltaic (PV) solar generating facility located approximately 7 miles southwest of the community of El Centro, California. The approximately 2,267 acre project site is located south of</p>

ID	Project Name/Agency ID	Location	Ownership	Status	Project Description
					Interstate 8 and west of Drew Road and is currently private land used for agriculture.
43	Mayflower Solar Farm Project	5.5 mile south southeast of the town of Calipatria	Solar Gen 2, LLC	CUP Application Received 6/24/11	The project is a nominal 50 megawatt alternating current (MWAC) solar photovoltaic (PV) energy generation project on approximately 482 acres.
44	Arkansas	2.5 miles east of the town of Calipatria	Solar Gen 2, LLC	CUP Application Received 6/24/11	The project is a nominal 50 megawatt alternating current (MWAC) solar photovoltaic (PV) energy generation project on approximately 481 acres.
45	Sonora	4.5 miles north northeast of the town of Calipatria	Solar Gen 2, LLC	CUP Application Received 6/27/11	The project is a nominal 50 megawatt alternating current (MWAC) solar photovoltaic (PV) energy generation project on approximately 488 acres.
46	Alhambra	3.5 miles south southeast	Solar Gen 2, LLC	CUP Application	The project is a



ID	Project Name/Agency ID	Location	Ownership	Status	Project Description
		of the town of Calipatria		Received 6/24/11	nominal 50 megawatt alternating current (MWAC) solar photovoltaic (PV) energy generation project on approximately 482 acres.
47	Acorn Greenworks	9.7 miles southwest of El Centro just west of the Westside Main Canal.	Silverado Power, LLC dba Acorn Greenworks, LLC	CUP Application Received 6/30/11.	The project is a 150 megawatt alternating current solar photovoltaic (PV) project with 5,280 feet of transmission line. The project site is comprised of seven parcels (APN 051-380-032, 033, 052-170-027, 072, 073, 01 & 051-390-023) on 693 acres.
48	Silverleaf Solar Energy	Approximately 7 Miles southwest of El Centro	Agile Energy	Applications pending to County and BLM	Project is 160 MW PV solar project with 230-kV transmission gen-tie crossing same BLM land as Campo Verde Project. Solar site is on approximately 1,096 acres of private land currently in active agricultural production

## 7.0

## REFERENCES CITED

---

- Andres, B. A., and K. L. Stone. 2009. *Conservation Plan for the Mountain Plover (Charadrius montanus), Version 1.0*. Manomet Center for Conservation Sciences, Manomet, Massachusetts. May, 2009.
- Baldwin, B., S. Boyd, B. Ertter, R. Patterson, T. Rosatti, and D. Wilken (editors). 2002. *The Jepson Desert Manual*. University of California Press, Berkeley.
- Bartok, N., and C. J. Conway. 2010. Factors affecting the presence of nesting burrowing owls in an agricultural landscape. *Journal of Raptor Research* 44:286-293.
- Beier, P., and S. Loe. 1992. *A Checklist for Evaluating Impacts to Wildlife Movement Corridors*. *Wildlife Society Bulletin* 20:434-440.
- Bureau of Land Management (BLM). 2009a. Survey Protocols Required for NEPA/ESA Compliance for BLM Special Status Plant Species. 7 pp.
- BLM. 2009b. BLM Solar Facility Point Count Protocol. March 9, 2009. Provided by the BLM El Centro Field Office. Unpublished guidance. 1 page.
- California Burrowing Owl Consortium (CBOC). 1993. *Burrowing Owl Survey Protocol and Mitigation Guidelines*. The California Burrowing Owl Consortium. April, 1993.
- California Department of Fish and Game (CDFG). 1995. Staff Report on Burrowing Owl Mitigation. Department of Fish and Game, Sacramento, California. October 17, 1995. 10 pages.
- California, State of. 2009. *Special Animals*. California Department of Fish and Game. July, 2009
- California, State of. 2009b. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities. California Department of Fish and Game. November 24, 2009.
- California, State of. 2010a. State and Federally Listed Endangered, Threatened, and Rare Plants of California. California Department of Fish and Game. April, 2010.
- California, State of. 2011. California Natural Diversity Database (CNDDDB). 2011. California Natural Diversity Database: Electronic Database with Annual Updates. Wildlife & Habitat Data Analysis Branch, Department of Fish and Game.
- California Native Plant Society (CNPS). 2001. *Inventory of Rare and Endangered Plants of California*. California Native Plant Society Special Publication No. 1, 5th edition. Sacramento, CA.

- Cylinder, P., K. Bogdan, E. Davis, A. Herson. 1995. *Wetlands Regulation: A Complete Guide to Federal and California Programs*. Solano Press Books. Point Arena, California. 363pp.
- DeSante, D. F., E. D. Ruhlen, S. L. Adamany, K. M. Burton, and S. Amin. 1997. A census of burrowing owls in central California in 1991. *Journal of Raptor Research Report* 9:38-48.
- Ericsson-Grant Inc. (EGI). 2011. Draft Environmental Impact Report/Environmental Assessment for the Centinela Solar Energy Project. October 2011.
- Flat-tailed Horned Lizard Interagency Coordinating Committee (ICC). 2003 *Flat-tailed Horned Lizard Rangeland Management Strategy*, 2003 Revision: 2008 Annual Progress Report: Implementation of the Flat-tailed Horned Lizard Rangeland Management Strategy: January 1, 2007- December 31, 2007. March.
- Garrett, Kimball, and Jon Dunn. 1981. *Birds of Southern California*. Artisan Press, Los Angeles, CA.
- Haug, E.A., B.A. Millsap, and M.S. Martell. 1993. Burrowing Owl (*Speotyto cunicularia*). In *The Birds of North America*, no. 61, edited by A. Poole and F. Gill. The Birds of North America, Inc., Philadelphia.
- Heritage Environmental Consultants (Heritage). 2012. Campo Verde Solar Project Protocol Burrowing Owl Survey Phase I, II and III Survey Report. February, 2012. 26 pages.
- Heritage. 2011a. Campo Verde Solar Project Avian Survey Report 2011-2012. May. 11 pages.
- Heritage. 2011b. Post Survey Notification of Focused Survey Results for the Mountain Plover on the CSE Project. 10 pages.
- Heritage 2011c. Biological Technical Report for the Centinela Solar Energy Project (and Addendums 1 and 2). August 2011. 272 pages.
- Holland, R. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Unpublished report. CDFG. Natural Heritage Division, Sacramento, CA.
- Hund, G. W. 2011. Personal communication [Feb 23 e-mail to D. Clinton, Bureau of Land Management, El Centro Field Office, El Centro, California. RE: SWFL Protocol-level Surveys for the Centinela Solar Energy Project]. Fish and Wildlife Biologist, U.S. Fish and Wildlife Service, Carlsbad Field Office, Inland Suboffice, Carlsbad, California. 1 page.
- Imperial County. 2006. Imperial County Agricultural Crop and Livestock Report 2005. June.
- Imperial County. 2007 Imperial County Agricultural Crop and Livestock Report 2006. June.
- Imperial County. 2008 Imperial County Agricultural Crop and Livestock Report 2007. June 10.
- Imperial County. 2009 Imperial County Agricultural Crop and Livestock Report 2008. June 9.

- Imperial County. 2010 Imperial County Agricultural Crop and Livestock Report 2009. June 8.
- Jennings, Mark R., and Marc P. Hayes. 1994. Amphibian and Reptile Species of Special Concern in California. Final report submitted to the California Department of Fish and Game, Inland Fisheries Division. Contract number 8023.
- Molina, Kathy. 2011 Kathy Molina of the Los Angeles County Natural History Museum, personal electronic communication with BLM Wildlife Biologist Donna Clinton. February 9.
- Munz, P. A. 1974. *A Flora of Southern California*. University of California Press, Berkeley, CA.
- Natural Resources Conservation Service/United States Department of Agriculture (NRCS). 2006. Digital General Soil Map of U.S., tabular digital data and vector digital data. Published July 5. Based on State Soil Survey Geographic (STATSGO) database, published 1994. Accessed from <http://SoilDataMart.nrcs.usda.gov/>.
- NRCS. 2011. Official Soil Series Descriptions [Online WWW]. Available URL: <http://soils.usda.gov/technical/classification/osd/index.html>. Accessed April 20. Soil Survey Staff, Lincoln, NE.
- RECON. 2010a. Biological Technical Report for the Imperial Solar Energy Center West Project, Imperial County, CA. RECON #5726. October, 2010.
- RECON. 2010b. Post-Survey Notification of Focused Survey Results for the Southwestern Willow Flycatcher on the Imperial Solar Energy Center West Project. RECON No. 5726. July 30, 2010.
- RECON. 2010c. Post-Survey Results for Burrowing Owl Nesting Season Surveys for the Imperial Solar Energy Center West Project. RECON No. 5726. July 29, 2010.
- RECON. 2010d. Biological Assessment for the Imperial Solar Energy Center South Project. December 14. 312 pages.
- RECON. 2010e. Biological Assessment for the Imperial Solar Energy Center West Project. December 13. 272 pages.
- RECON. 2010f. Biological Technical Report for the Imperial Solar Energy Center South Project, Imperial County, CA. November 9, 2010. 392 pages.
- Reiser, C. H. 2001. Rare Plants of San Diego County. Aquafir Press. July, 2001.
- Sawyer, J. O., and T. Keeler-Wolf, and Evens. 2009. *Manual of California Vegetation*. California Native Plant Society Press, Sacramento, CA. 1,300 pages.
- Sedgwick, J. A...2000. Willow Flycatcher (*Empidonax traillii*). In *The Birds of North America*, no. 533, edited by A. Poole and F. Gill. The Birds of North America, Inc., Philadelphia.
- Shuford, W. D., N. Warnock, K. C. Molina, B. Mulrooney, and A. E. Black. 2000. *Avifauna of the Salton Sea: Abundance, distribution, and annual phenology*. Contribution No. 931 of Point Reyes Bird Observatory. Final report for EPA Contract No. R826552-01-0

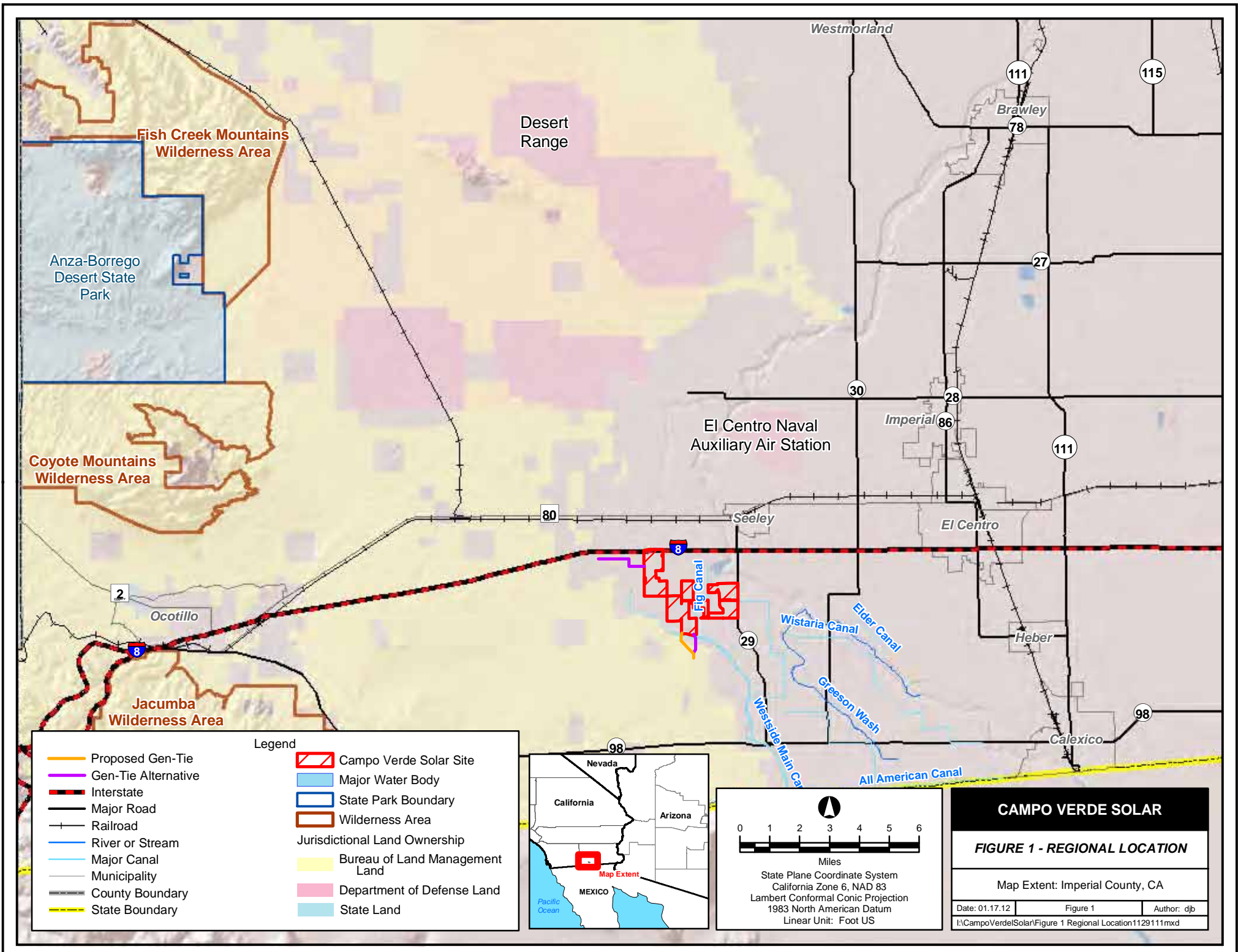
- Sogge, M.K., Ahlers, Darrell, and Sferra, S.J.,. 2010. A natural history summary and survey protocol for the southwestern willow flycatcher: U.S. Geological Survey Techniques and Methods 2A-10, 38 pp.
- Tibbitts, T. J., M. K. Sogge, and S. J. Sferra. 1994. A Survey Protocol for the Southwestern Willow Flycatcher (*Empidonax traillii extimus*). National Park Service Tech. Rep. NPS/NAUCPRS/NRTR-94/04.
- Unitt, P. A. 2004. *San Diego County Bird Atlas*. San Diego Natural History Museum.
- USFWS. 1999. Endangered and Threatened Wildlife and Plants: Proposed Threatened Status for the Mountain Plover. *Federal Register*. 64(30): 7587-7601
- USFWS. 2000. Recovery Plan for Bighorn Sheep in the Peninsular Ranges, California. U.S. Fish and Wildlife Service, Portland, OR. Xv + 251 pp.
- USFWS. 2001. Endangered and Threatened Wildlife and Plants; Final Determination of Critical Habitat for Peninsular Bighorn Sheep; Final Rule. *Federal Register* 66(22):8649-8677, February 1.
- USFWS. 2002. Southwestern Willow Flycatcher Recovery Plan. Albuquerque, New Mexico. i-ix + 210 pp., Appendices A-O.
- USFWS. 2005. Endangered and Threatened Wildlife and Plants; Final Determination of Critical Habitat for Southwestern Willow Flycatcher; Final Rule. *Federal Register* 70(201):60886-60934, October 19, 2005.
- USFWS. 2006. Five Year Review for the Yuma Clapper Rail. May 30.
- USFWS. 2010a. Endangered and Threatened Wildlife and Plants; Draft Yuma Clapper Rail (*Rallus longirostris yumanensis*) Recovery Plan, First Revision. February, 2010.
- USFWS. 2010b. Carlsbad Field Office Electronic Database for Species' Occurrences. Accessed April 21, 2011.
- USFWS. 2010c. Endangered and Threatened Wildlife and Plants; Listing the Mountain Plover as Threatened. *Federal Register*. 75(124): 37353-37358.
- USFWS. 2010d Interim Golden Eagle Technical Guidance: Inventory and Monitoring Protocols; and Other Recommendations in Support of Golden Eagle Management and Permit Issuance. Division of Migratory Bird Management. February, 2010.
- USFWS. 2010e Endangered and Threatened Wildlife and Plants; Listing the Flat-tailed Horned Lizard as Threatened; Proposed Rule. *Federal Register* 75(40): 9377-9379, March 2.
- U.S. Fish and Wildlife Service. 2011. Interim Survey Guidance for Wintering Mountain Plover (*Charadrius montanus*) in the Imperial Valley. Unpublished guidance. 1 page.
- United States Geological Survey (USGS). 1976a Mount Signal quadrangle 7.5-minute topographic map.

- URS. 2008. Environmental Impact Statement for the SES Solar Two Project. Biological Resources Section C.2.
- URS. 2009. Solar 2 Biological Assessment. December 23.
- URS. 2010. *Early Spring 2010 Botanical Surveys for Imperial Valley Solar*. Report submitted to California Energy Commission and BLM April 26, 2010.
- Zeiner, D. C., W. F. Laudenslayer, Jr., K. E. Mayer, and M. White, eds. 1988. *Amphibians and Reptiles*. California's Wildlife, vol. 1. State of California, The Resources Agency, Department of Fish and Game, Sacramento, CA.
- Zeiner, D. C., W. F. Laudenslayer, Jr., K. E. Mayer, and M. White, eds. 1989. *Birds*. California's Wildlife, vol. 2. State of California, The Resources Agency, Department of Fish and Game, Sacramento, CA.
- Zeiner, D. C., W. F. Laudenslayer, Jr., K. E. Mayer, and M. White, eds. 1990. *Mammals*. California's Wildlife, vol. 3. State of California, The Resources Agency, Department of Fish and Game, Sacramento, CA.

# **ATTACHMENTS**



## **ATTACHMENT 1 - FIGURES**



Proposed Gen-Tie	Campo Verde Solar Site	
Gen-Tie Alternative	Major Water Body	
Interstate	State Park Boundary	
Major Road	Wilderness Area	
Railroad	<b>Jurisdictional Land Ownership</b>	
River or Stream	Bureau of Land Management Land	
Major Canal	Department of Defense Land	
Municipality	State Land	
County Boundary		
State Boundary		



0 1 2 3 4 5 6  
Miles

State Plane Coordinate System  
California Zone 6, NAD 83  
Lambert Conformal Conic Projection  
1983 North American Datum  
Linear Unit: Foot US

**CAMPO VERDE SOLAR**

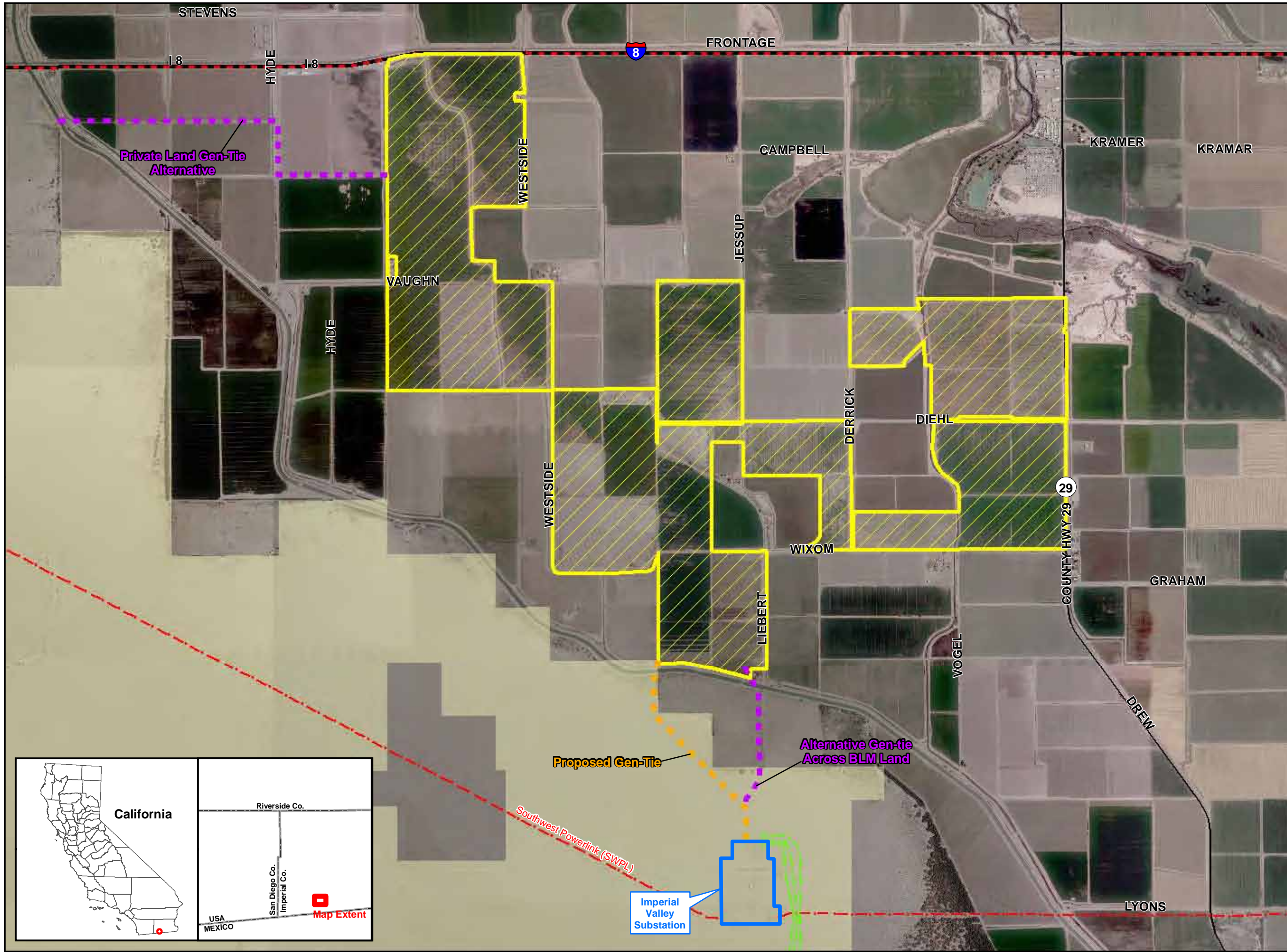
**FIGURE 1 - REGIONAL LOCATION**

Map Extent: Imperial County, CA

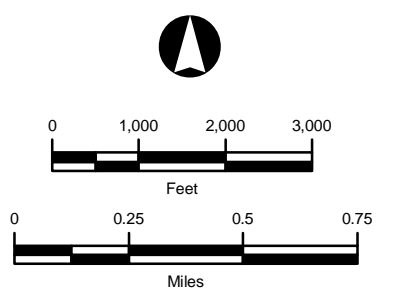
Date: 01.17.12	Figure 1	Author: djb
----------------	----------	-------------

I:\CampoVerdeSolar\Figure 1 Regional Location\1129111.mxd





- Legend**
- Existing 500 kV Transmission Line
  - Existing 230 kV Transmission Line
  - Proposed Gen-Tie
  - Gen-Tie Alternative
  - Interstate
  - Major Road
  - County Boundary
  - Campo Verde Solar Site
- Jurisdictional Land Ownership**
- Bureau of Land Management Land



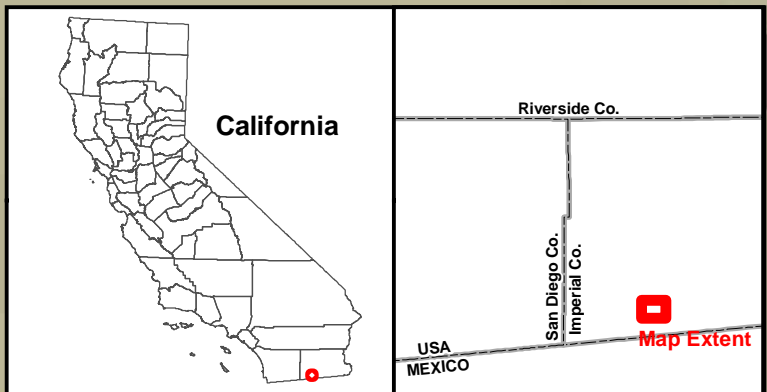
State Plane Coordinate System  
 California Zone 6, NAD 83  
 Lambert Conformal Conic Projection  
 1983 North American Datum  
 Linear Unit: Foot US

**CAMPO VERDE SOLAR PROJECT**

**FIGURE 2 - PROJECT LOCATION**

Map Extent: Imperial County, California

Date: 02.15.12 Author: djb  
 ...Maps\Figure2BTRProjectLocation.mxd



Imperial Valley Substation

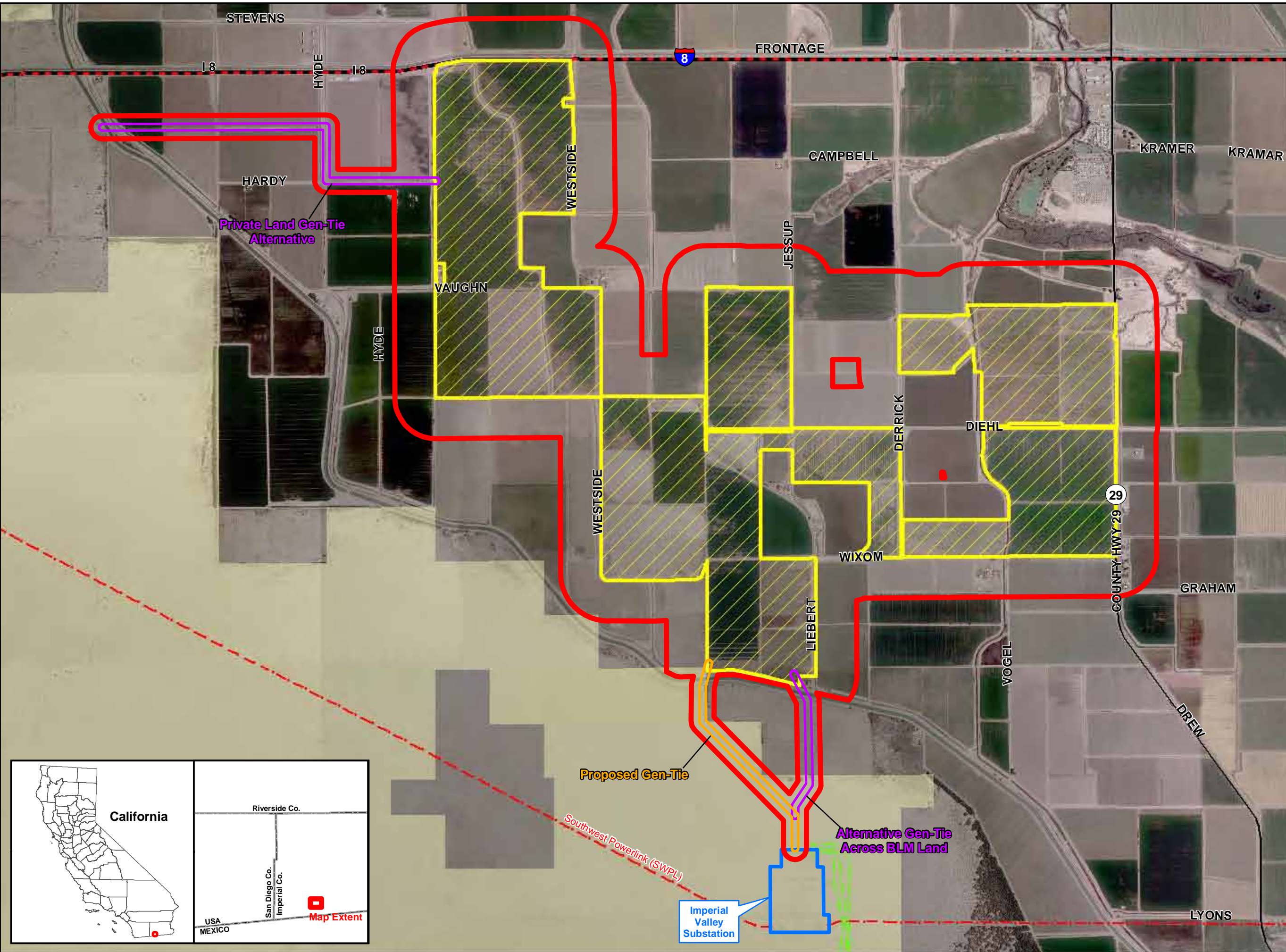
Southwest Powerlink (SWPL)

Proposed Gen-Tie

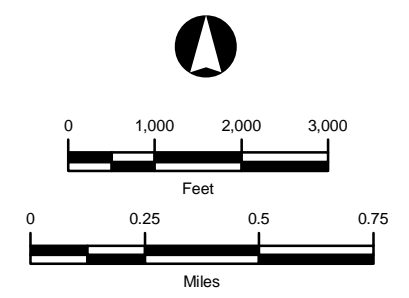
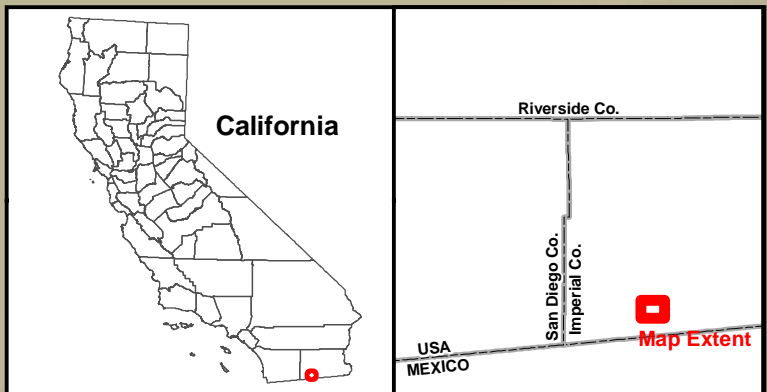
Alternative Gen-tie Across BLM Land

Private Land Gen-Tie Alternative





- Legend**
- - - Existing 500 kV Transmission Line
  - - - Existing 230 kV Transmission Line
  - = Interstate
  - = Major Road
  - = County Boundary
  - Campo Verde Solar Site
  - Campo Verde Study Area
- Gen-tie Alternatives**
- Proposed Gen-Tie 160' ROW
  - Gen-Tie Alternative 160' ROW
- Jurisdictional Land Ownership**
- Bureau of Land Management Land



State Plane Coordinate System  
 California Zone 6, NAD 83  
 Lambert Conformal Conic Projection  
 1983 North American Datum  
 Linear Unit: Foot US

**CAMPO VERDE SOLAR PROJECT**

**FIGURE 3 - SURVEY AREA**

Map Extent: Imperial County, California

Date: 02.15.12 Author: djb

...Maps\Figure3SurveyAreas.mxd

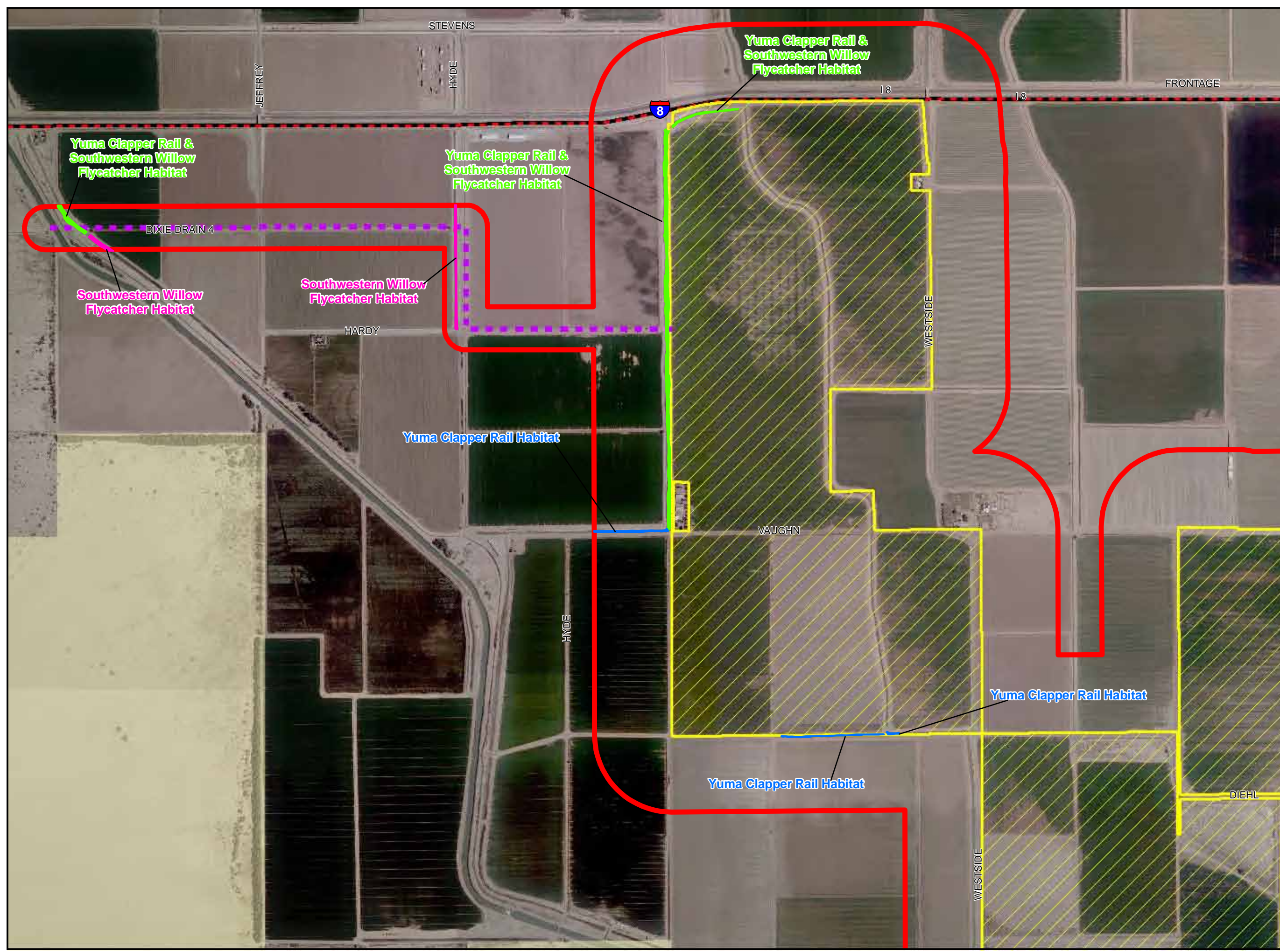
Imperial Valley Substation

Proposed Gen-Tie

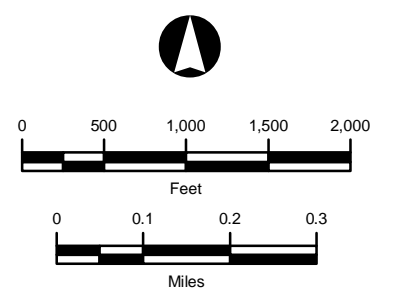
Alternative Gen-Tie Across BLM Land

Southwest Powerlink (SWPL)





- Legend**
- Existing 500 kV Transmission Line
  - Existing 230 kV Transmission Line
  - Proposed Gen-Tie
  - Gen-Tie Alternative
  - Interstate
  - Major Road
  - County Boundary
  - Campo Verde Solar Site
  - Campo Verde Study Area
  - Yuma Clapper Rail (YCR) Habitat
  - Southwestern Willow Flycatcher (SWFL) Habitat
  - SWFL and YCR Habitat
- Jurisdictional Land Ownership**
- Bureau of Land Management Land



State Plane Coordinate System  
 California Zone 6, NAD 83  
 Lambert Conformal Conic Projection  
 1983 North American Datum  
 Linear Unit: Foot US

**CAMPO VERDE SOLAR PROJECT**

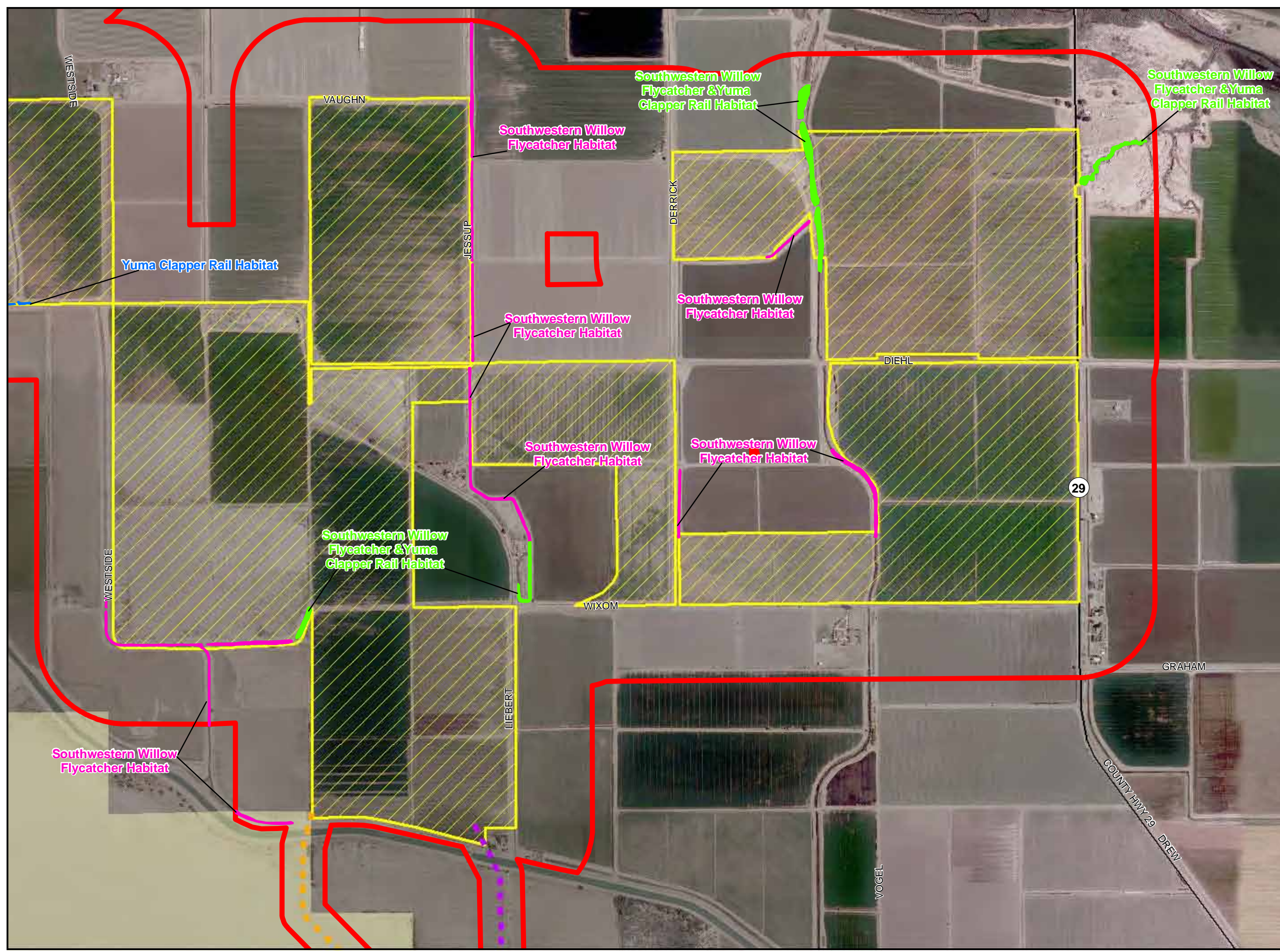
**FIGURE 4A -SOUTHWESTERN WILLOW FLYCATCHER AND YUMA CLAPPER RAIL HABITAT**

Map Extent: Imperial County, California

Date: 01.17.12 Author: djb

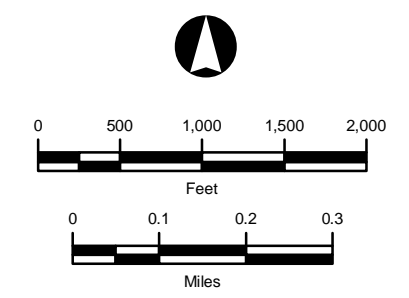
...Maps\SWFL and YCR Habitat.mxd





**Legend**

- - - Existing 500 kV Transmission Line
- - - Existing 230 kV Transmission Line
- - - Proposed Gen-Tie
- - - Gen-Tie Alternative
- = Interstate
- = Major Road
- = County Boundary
- Campo Verde Solar Site
- Campo Verde Study Area
- Yuma Clapper Rail (YCR) Habitat
- Southwestern Willow Flycatcher (SWFL) Habitat
- SWFL and YCR Habitat
- Jurisdictional Land Ownership**
- Bureau of Land Management Land



State Plane Coordinate System  
 California Zone 6, NAD 83  
 Lambert Conformal Conic Projection  
 1983 North American Datum  
 Linear Unit: Foot US

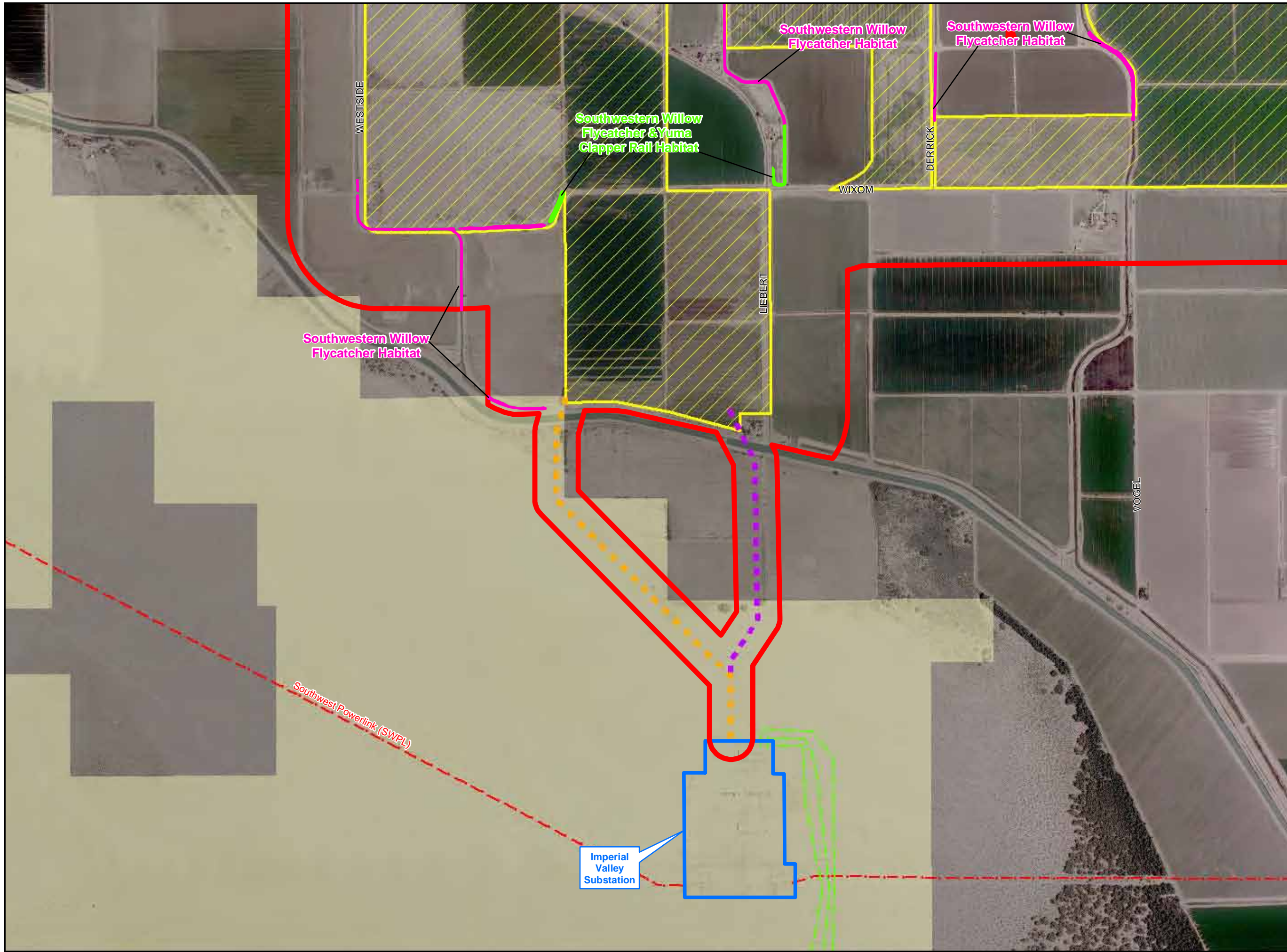
**CAMPO VERDE SOLAR PROJECT**

**FIGURE 4B -SOUTHWESTERN WILLOW FLYCATCHER AND YUMA CLAPPER RAIL HABITAT**

Map Extent: Imperial County, California

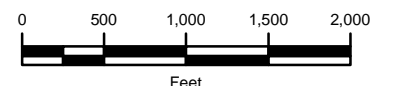
Date: 01.17.12	Author: djb
...Maps\SWFL and YCR Habitat.mxd	





**Legend**

- - - Existing 500 kV Transmission Line
- - - Existing 230 kV Transmission Line
- - - Proposed Gen-Tie
- - - Gen-Tie Alternative
- = Interstate
- = Major Road
- = County Boundary
- Campo Verde Solar Site
- Campo Verde Study Area
- Yuma Clapper Rail (YCR) Habitat
- Southwestern Willow Flycatcher (SWFL) Habitat
- SWFL and YCR Habitat
- Jurisdictional Land Ownership**
- Bureau of Land Management Land



State Plane Coordinate System  
 California Zone 6, NAD 83  
 Lambert Conformal Conic Projection  
 1983 North American Datum  
 Linear Unit: Foot US

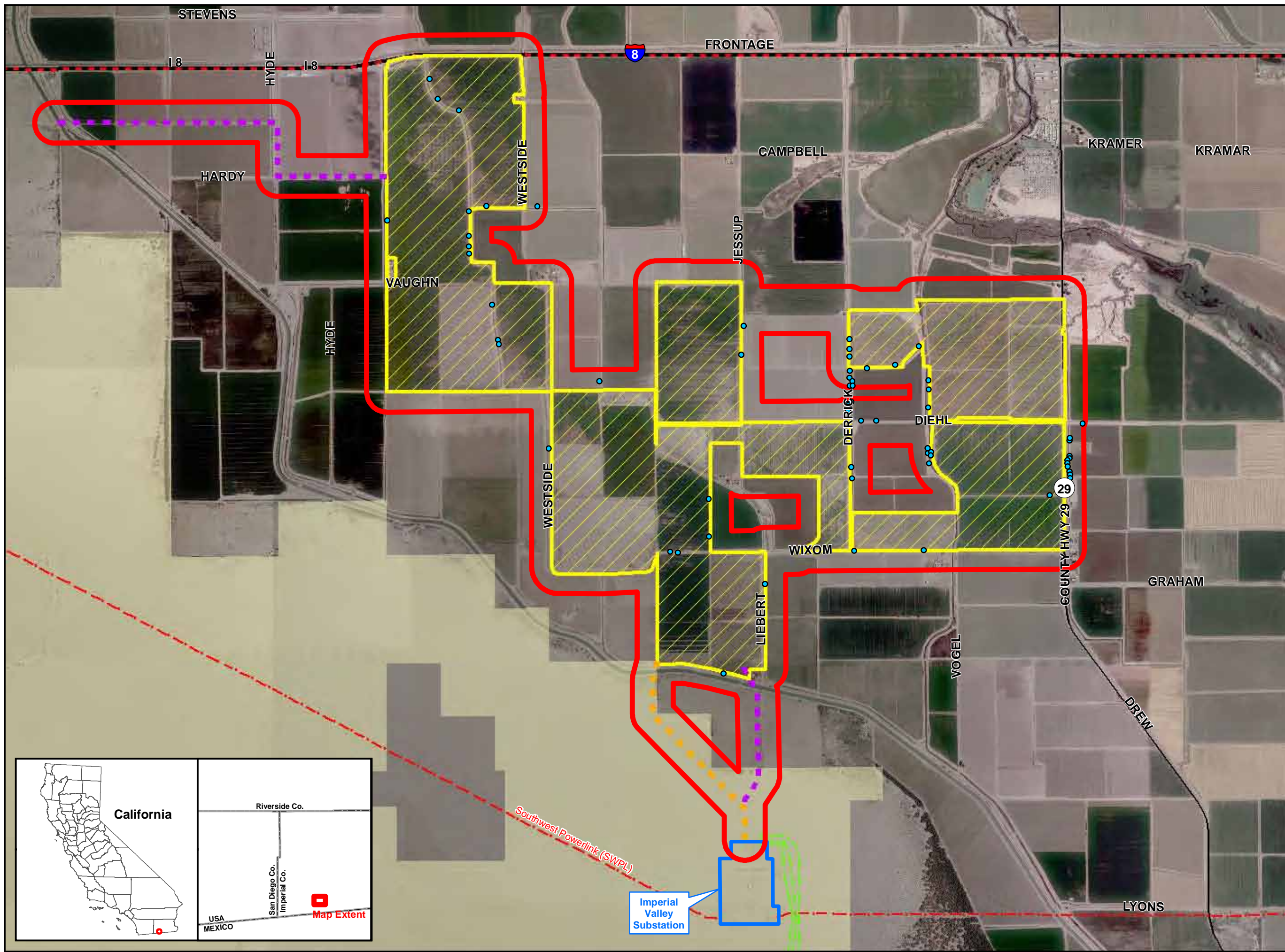
**CAMPO VERDE SOLAR PROJECT**

**FIGURE 4C -SOUTHWESTERN WILLOW FLYCATCHER AND YUMA CLAPPER RAIL HABITAT**

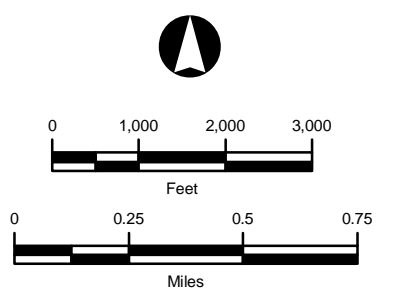
Map Extent: Imperial County, California

Date: 01.17.12	Author: djb
...Maps\SWFL and YCR Habitat.mxd	





- Legend**
- Active Burrow
  - - - Existing 500 kV Transmission Line
  - - - Existing 230 kV Transmission Line
  - - - Proposed Gen-Tie
  - - - Gen-Tie Alternative
  - Interstate
  - Major Road
  - County Boundary
  - ▨ Campo Verde Solar Site
  - ▭ Burrowing Owl Survey Area
- Jurisdictional Land Ownership**
- ▭ Bureau of Land Management Land



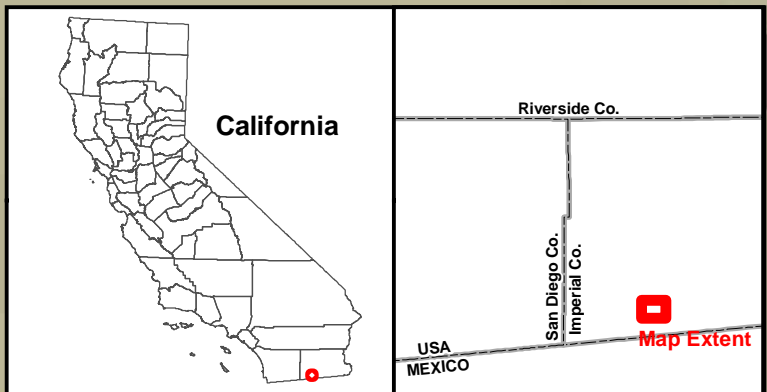
State Plane Coordinate System  
 California Zone 6, NAD 83  
 Lambert Conformal Conic Projection  
 1983 North American Datum  
 Linear Unit: Foot US

**CAMPO VERDE SOLAR PROJECT**

**FIGURE 5 - BURROWING OWL OCCURRENCES**

Map Extent: Imperial County, California













Date: 01.17.12 Author: djb  
 ...Maps\Figure5BurrowingOwlOccurrences.mxd

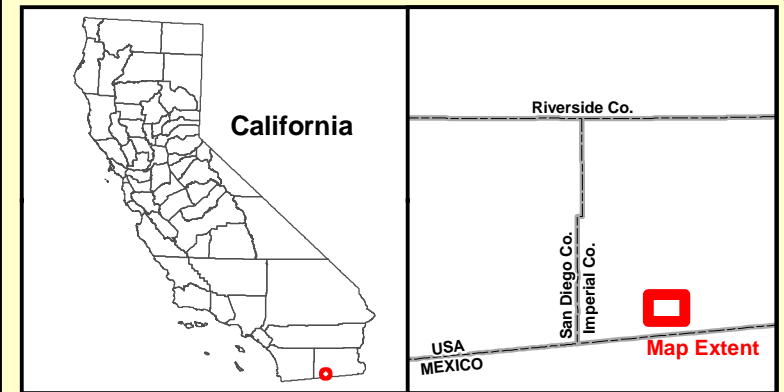
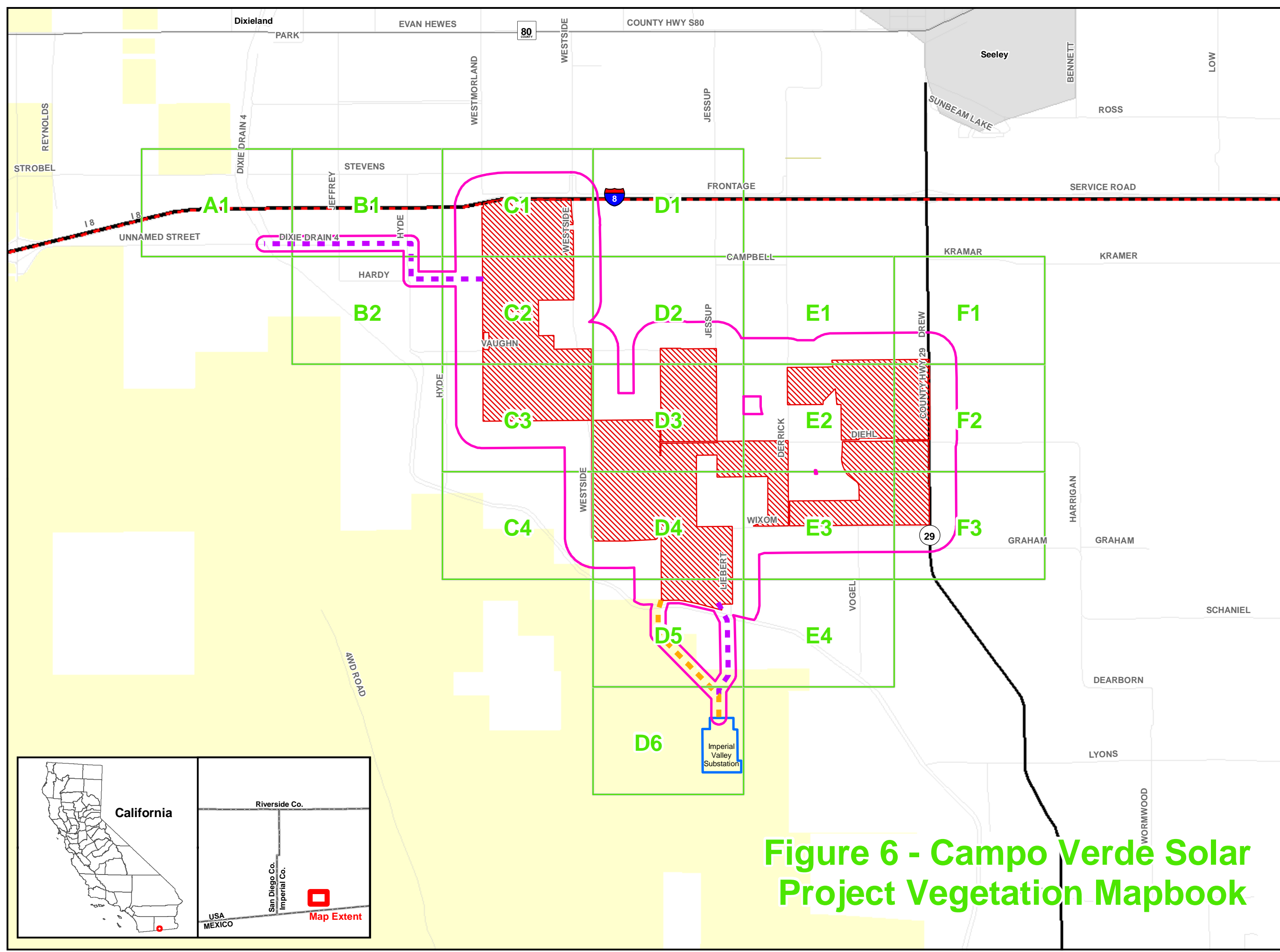


Imperial Valley Substation


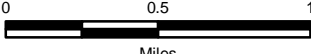


# MAP SHEET INDEX

-  Proposed Gen-tie
-  Gen-tie Alternative
-  Interstate
-  Major Road
-  Road
-  International Boundary
-  Map Sheet Boundary
-  Approximate Campo Verde Solar Site
-  Campo Verde Study Area
-  Imperial Valley Substation
-  Unincorporated City
- Jurisdictional Land Ownership**
-  Bureau of Land Management Land



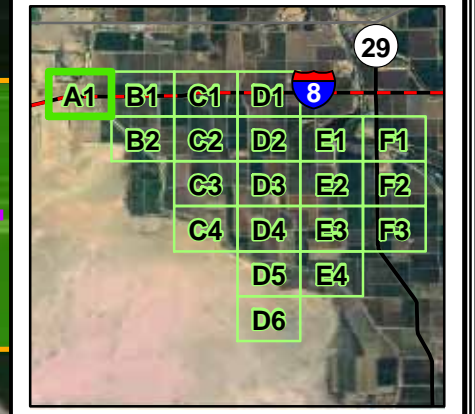
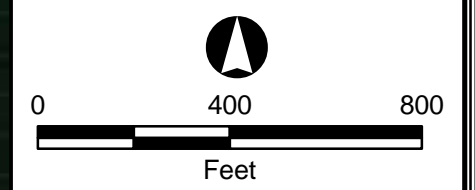
**Figure 6 - Campo Verde Solar Project Vegetation Mapbook**

  
  
 0 0.5 1  
 Miles

State Plane Coordinate System  
 California Zone 6, NAD 83  
 Lambert Conformal Conic Projection  
 1983 North American Datum  
 Linear Unit: Foot US

# Campo Verde Solar Site Vegetation Mapbook










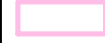











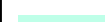
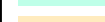
- Legend**
- Existing 500 kV Transmission Line
  - Existing 230 kV Transmission Line
  - Proposed Gen-tie
  - Gen-tie Alternative
  - Interstate
  - Major Road
  - International Boundary
  - Approximate Campo Verde Facility Boundary
  - Campo Verde Study Area
  - Bureau of Land Management Land
- Vegetation Classification**
- Active Agriculture
  - Arrow Weed Thicket
  - Athel Tamarisk Type Woodland
  - Cattail Marsh
  - Common Reed Marsh
  - Creosote Bush - White Bursage Scrub
  - Developed
  - Disturbed Wetland
  - Fallow Agriculture
  - Open Water with Arrow Weed Thicket
  - Quailbush Scrub
  - Stabilized Desert Dunes
  - Tamarisk Thicket

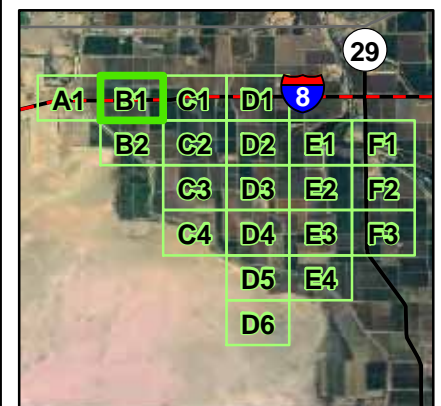
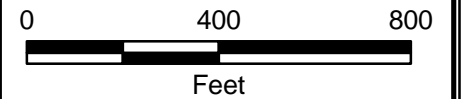




# Campo Verde Solar Site Vegetation Mapbook

## Legend

-  Existing 500 kV Transmission Line
  -  Existing 230 kV Transmission Line
  -  Proposed Gen-tie
  -  Gen-tie Alternative
  -  Interstate
  -  Major Road
  -  International Boundary
  -  Approximate Campo Verde Facility Boundary
  -  Campo Verde Study Area
  -  Bureau of Land Management Land
- ### Vegetation Classification
-  Active Agriculture
  -  Arrow Weed Thicket
  -  Athel Tamarisk Type Woodland
  -  Cattail Marsh
  -  Common Reed Marsh
  -  Creosote Bush - White Bursage Scrub
  -  Developed
  -  Disturbed Wetland
  -  Fallow Agriculture
  -  Open Water with Arrow Weed Thicket
  -  Quailbush Scrub
  -  Stabilized Desert Dunes
  -  Tamarisk Thicket

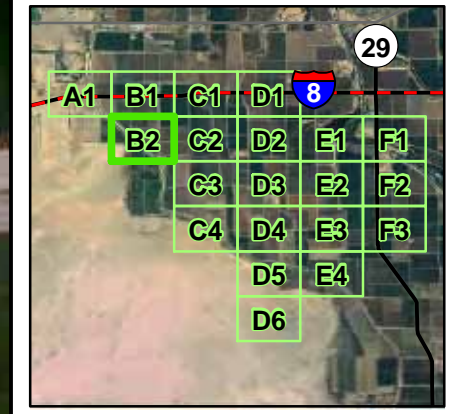
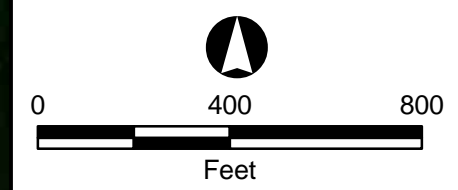




# Campo Verde Solar Site Vegetation Mapbook



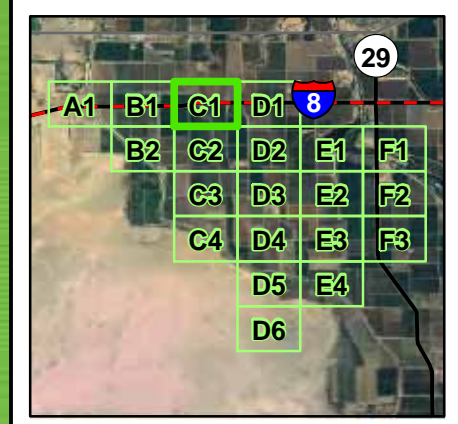
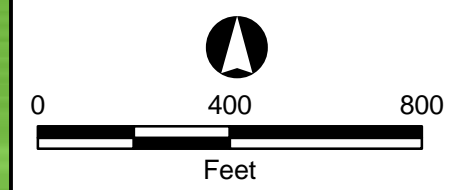
- Legend**
- . . . Existing 500 kV Transmission Line
  - . . . Existing 230 kV Transmission Line
  - - - Proposed Gen-tie
  - - - Gen-tie Alternative
  - - - Interstate
  - - - Major Road
  - - - International Boundary
  - Approximate Campo Verde Facility Boundary
  - Campo Verde Study Area
  - Bureau of Land Management Land
- Vegetation Classification**
- Active Agriculture
  - Arrow Weed Thicket
  - Athel Tamarisk Type Woodland
  - Cattail Marsh
  - Common Reed Marsh
  - Creosote Bush - White Bursage Scrub
  - Developed
  - Disturbed Wetland
  - Fallow Agriculture
  - Open Water with Arrow Weed Thicket
  - Quailbush Scrub
  - Stabilized Desert Dunes
  - Tamarisk Thicket





# Campo Verde Solar Site Vegetation Mapbook

- Legend**
- Existing 500 kV Transmission Line
  - Existing 230 kV Transmission Line
  - Proposed Gen-tie
  - Gen-tie Alternative
  - Interstate
  - Major Road
  - International Boundary
  - Approximate Campo Verde Facility Boundary
  - Campo Verde Study Area
  - Bureau of Land Management Land
- Vegetation Classification**
- Active Agriculture
  - Arrow Weed Thicket
  - Athel Tamarisk Type Woodland
  - Cattail Marsh
  - Common Reed Marsh
  - Creosote Bush - White Bursage Scrub
  - Developed
  - Disturbed Wetland
  - Fallow Agriculture
  - Open Water with Arrow Weed Thicket
  - Quailbush Scrub
  - Stabilized Desert Dunes
  - Tamarisk Thicket

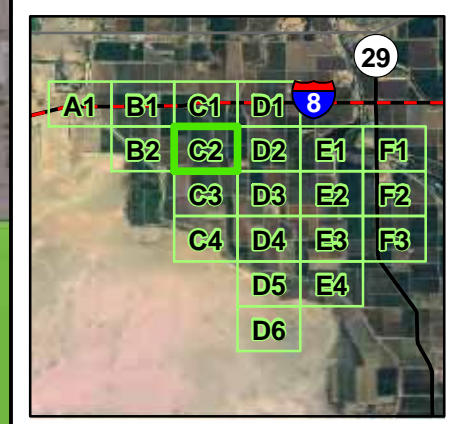
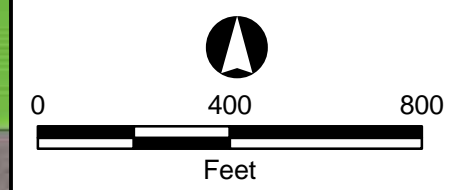




# Campo Verde Solar Site Vegetation Mapbook










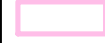











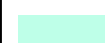
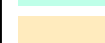


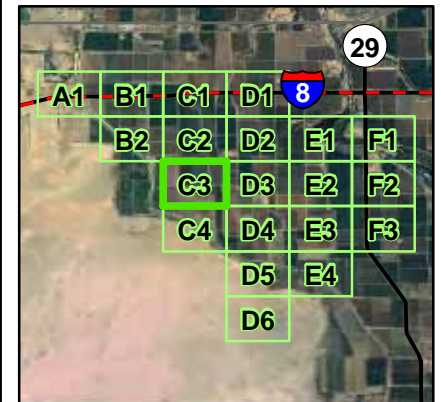
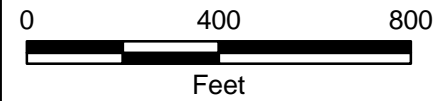
- Legend**
- . - . Existing 500 kV Transmission Line
  - . - . Existing 230 kV Transmission Line
  - - - - Proposed Gen-tie
  - - - - Gen-tie Alternative
  - - - - Interstate
  - - - - Major Road
  - - - - International Boundary
  - Approximate Campo Verde Facility Boundary
  - Campo Verde Study Area
  - Bureau of Land Management Land
- Vegetation Classification**
- Active Agriculture
  - Arrow Weed Thicket
  - Athel Tamarisk Type Woodland
  - Cattail Marsh
  - Common Reed Marsh
  - Creosote Bush - White Bursage Scrub
  - Developed
  - Disturbed Wetland
  - Fallow Agriculture
  - Open Water with Arrow Weed Thicket
  - Quailbush Scrub
  - Stabilized Desert Dunes
  - Tamarisk Thicket



# Campo Verde Solar Site Vegetation Mapbook

## Legend

-  Existing 500 kV Transmission Line
  -  Existing 230 kV Transmission Line
  -  Proposed Gen-tie
  -  Gen-tie Alternative
  -  Interstate
  -  Major Road
  -  International Boundary
  -  Approximate Campo Verde Facility Boundary
  -  Campo Verde Study Area
  -  Bureau of Land Management Land
- 
- ## Vegetation Classification
-  Active Agriculture
  -  Arrow Weed Thicket
  -  Athel Tamarisk Type Woodland
  -  Cattail Marsh
  -  Common Reed Marsh
  -  Creosote Bush - White Bursage Scrub
  -  Developed
  -  Disturbed Wetland
  -  Fallow Agriculture
  -  Open Water with Arrow Weed Thicket
  -  Quailbush Scrub
  -  Stabilized Desert Dunes
  -  Tamarisk Thicket

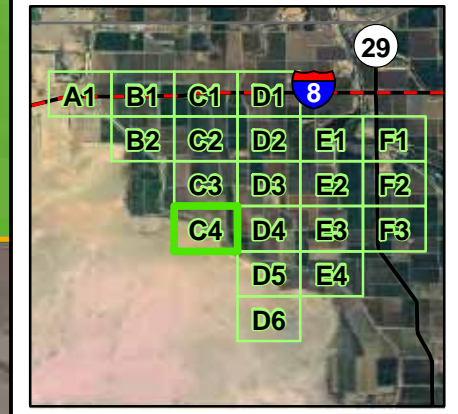
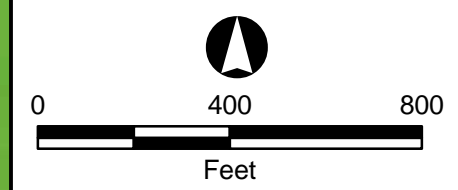




# Campo Verde Solar Site Vegetation Mapbook



- Legend**
- . - . Existing 500 kV Transmission Line
  - . - . Existing 230 kV Transmission Line
  - - - - Proposed Gen-tie
  - - - - Gen-tie Alternative
  - - - - Interstate
  - - - - Major Road
  - - - - International Boundary
  - Approximate Campo Verde Facility Boundary
  - Campo Verde Study Area
  - Bureau of Land Management Land
- Vegetation Classification**
- Active Agriculture
  - Arrow Weed Thicket
  - Athel Tamarisk Type Woodland
  - Cattail Marsh
  - Common Reed Marsh
  - Creosote Bush - White Bursage Scrub
  - Developed
  - Disturbed Wetland
  - Fallow Agriculture
  - Open Water with Arrow Weed Thicket
  - Quailbush Scrub
  - Stabilized Desert Dunes
  - Tamarisk Thicket

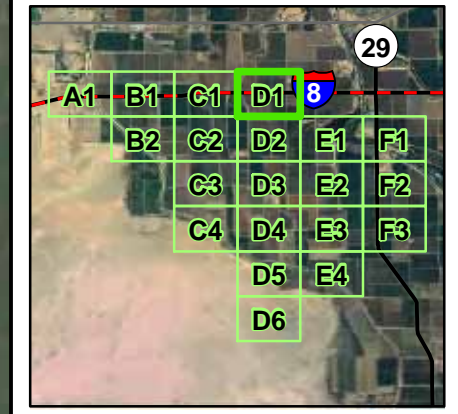
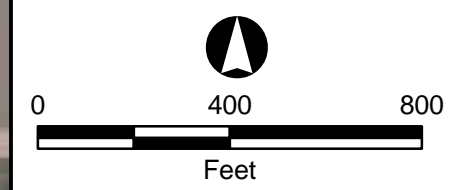




# Campo Verde Solar Site Vegetation Mapbook



- Legend**
- - - Existing 500 kV Transmission Line
  - - - Existing 230 kV Transmission Line
  - - - Proposed Gen-tie
  - - - Gen-tie Alternative
  - - - Interstate
  - Major Road
  - - - International Boundary
  - Approximate Campo Verde Facility Boundary
  - Campo Verde Study Area
  - Bureau of Land Management Land
- Vegetation Classification**
- Active Agriculture
  - Arrow Weed Thicket
  - Athel Tamarisk Type Woodland
  - Cattail Marsh
  - Common Reed Marsh
  - Creosote Bush - White Bursage Scrub
  - Developed
  - Disturbed Wetland
  - Fallow Agriculture
  - Open Water with Arrow Weed Thicket
  - Quailbush Scrub
  - Stabilized Desert Dunes
  - Tamarisk Thicket

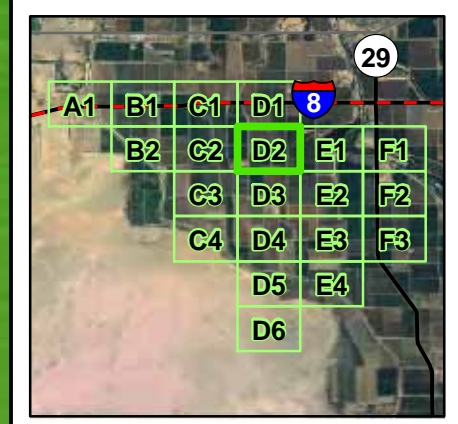
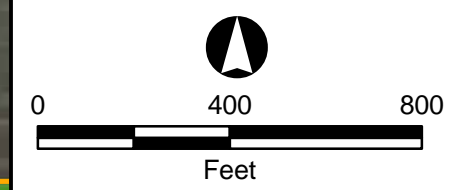




# Campo Verde Solar Site Vegetation Mapbook



- Legend**
- - - - Existing 500 kV Transmission Line
  - - - - Existing 230 kV Transmission Line
  - - - - Proposed Gen-tie
  - - - - Gen-tie Alternative
  - - - - Interstate
  - - - - Major Road
  - - - - International Boundary
  - Approximate Campo Verde Facility Boundary
  - Campo Verde Study Area
  - Bureau of Land Management Land
- Vegetation Classification**
- Active Agriculture
  - Arrow Weed Thicket
  - Athel Tamarisk Type Woodland
  - Cattail Marsh
  - Common Reed Marsh
  - Creosote Bush - White Bursage Scrub
  - Developed
  - Disturbed Wetland
  - Fallow Agriculture
  - Open Water with Arrow Weed Thicket
  - Quailbush Scrub
  - Stabilized Desert Dunes
  - Tamarisk Thicket

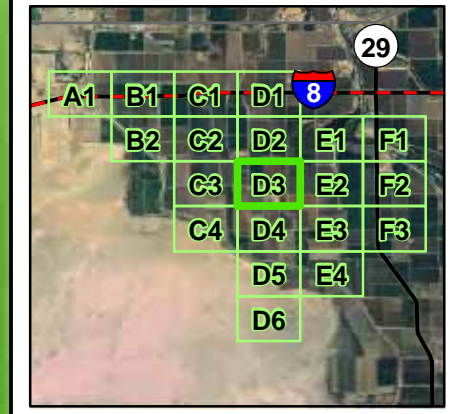
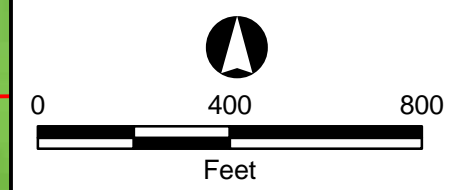




# Campo Verde Solar Site Vegetation Mapbook



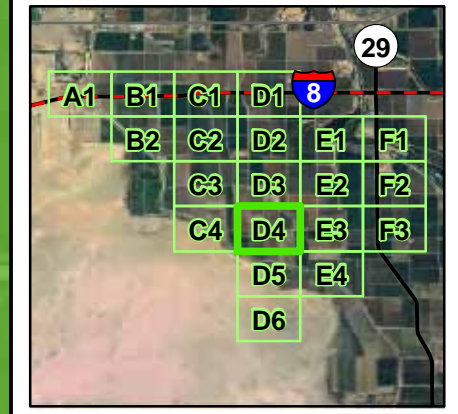
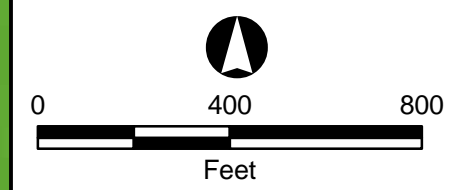
- Legend**
- Existing 500 kV Transmission Line
  - Existing 230 kV Transmission Line
  - Proposed Gen-tie
  - Gen-tie Alternative
  - Interstate
  - Major Road
  - International Boundary
  - Approximate Campo Verde Facility Boundary
  - Campo Verde Study Area
  - Bureau of Land Management Land
- Vegetation Classification**
- Active Agriculture
  - Arrow Weed Thicket
  - Athel Tamarisk Type Woodland
  - Cattail Marsh
  - Common Reed Marsh
  - Creosote Bush - White Bursage Scrub
  - Developed
  - Disturbed Wetland
  - Fallow Agriculture
  - Open Water with Arrow Weed Thicket
  - Quailbush Scrub
  - Stabilized Desert Dunes
  - Tamarisk Thicket



# Campo Verde Solar Site Vegetation Mapbook

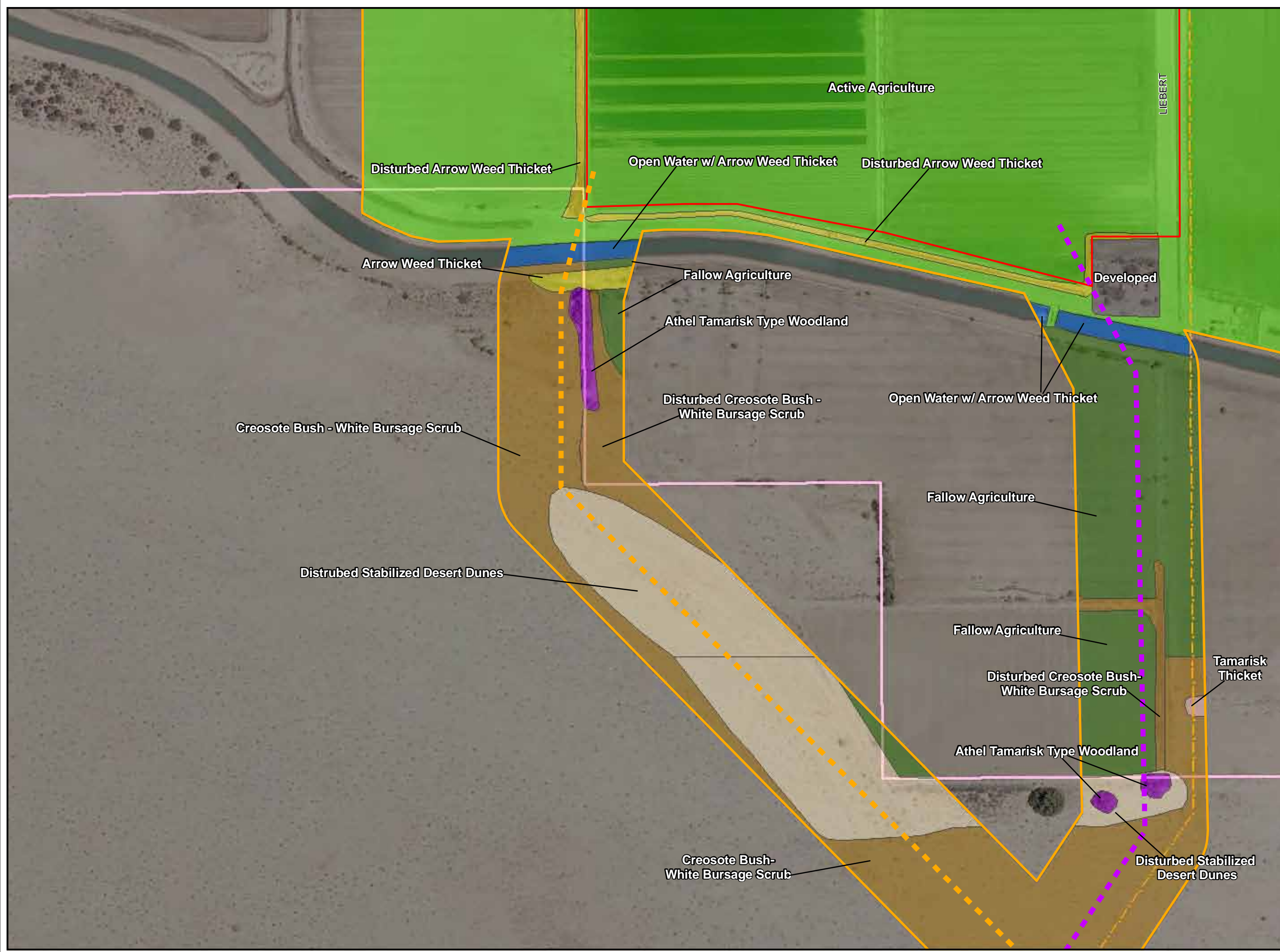


- Legend**
- Existing 500 kV Transmission Line
  - Existing 230 kV Transmission Line
  - Proposed Gen-tie
  - Gen-tie Alternative
  - Interstate
  - Major Road
  - International Boundary
  - Approximate Campo Verde Facility Boundary
  - Campo Verde Study Area
  - Bureau of Land Management Land
- Vegetation Classification**
- Active Agriculture
  - Arrow Weed Thicket
  - Athel Tamarisk Type Woodland
  - Cattail Marsh
  - Common Reed Marsh
  - Creosote Bush - White Bursage Scrub
  - Developed
  - Disturbed Wetland
  - Fallow Agriculture
  - Open Water with Arrow Weed Thicket
  - Quailbush Scrub
  - Stabilized Desert Dunes
  - Tamarisk Thicket

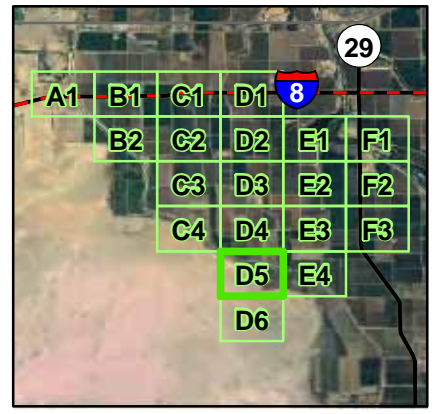
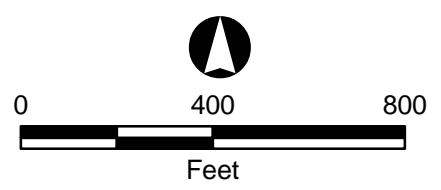




# Campo Verde Solar Site Vegetation Mapbook












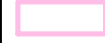








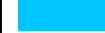


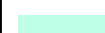
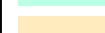
- Legend**
- - - Existing 500 kV Transmission Line
  - - - Existing 230 kV Transmission Line
  - - - Proposed Gen-tie
  - - - Gen-tie Alternative
  - - - Interstate
  - - - Major Road
  - - - International Boundary
  - Approximate Campo Verde Facility Boundary
  - Campo Verde Study Area
  - Bureau of Land Management Land
- Vegetation Classification**
- Active Agriculture
  - Arrow Weed Thicket
  - Athel Tamarisk Type Woodland
  - Cattail Marsh
  - Common Reed Marsh
  - Creosote Bush - White Bursage Scrub
  - Developed
  - Disturbed Wetland
  - Fallow Agriculture
  - Open Water with Arrow Weed Thicket
  - Quailbush Scrub
  - Stabilized Desert Dunes
  - Tamarisk Thicket

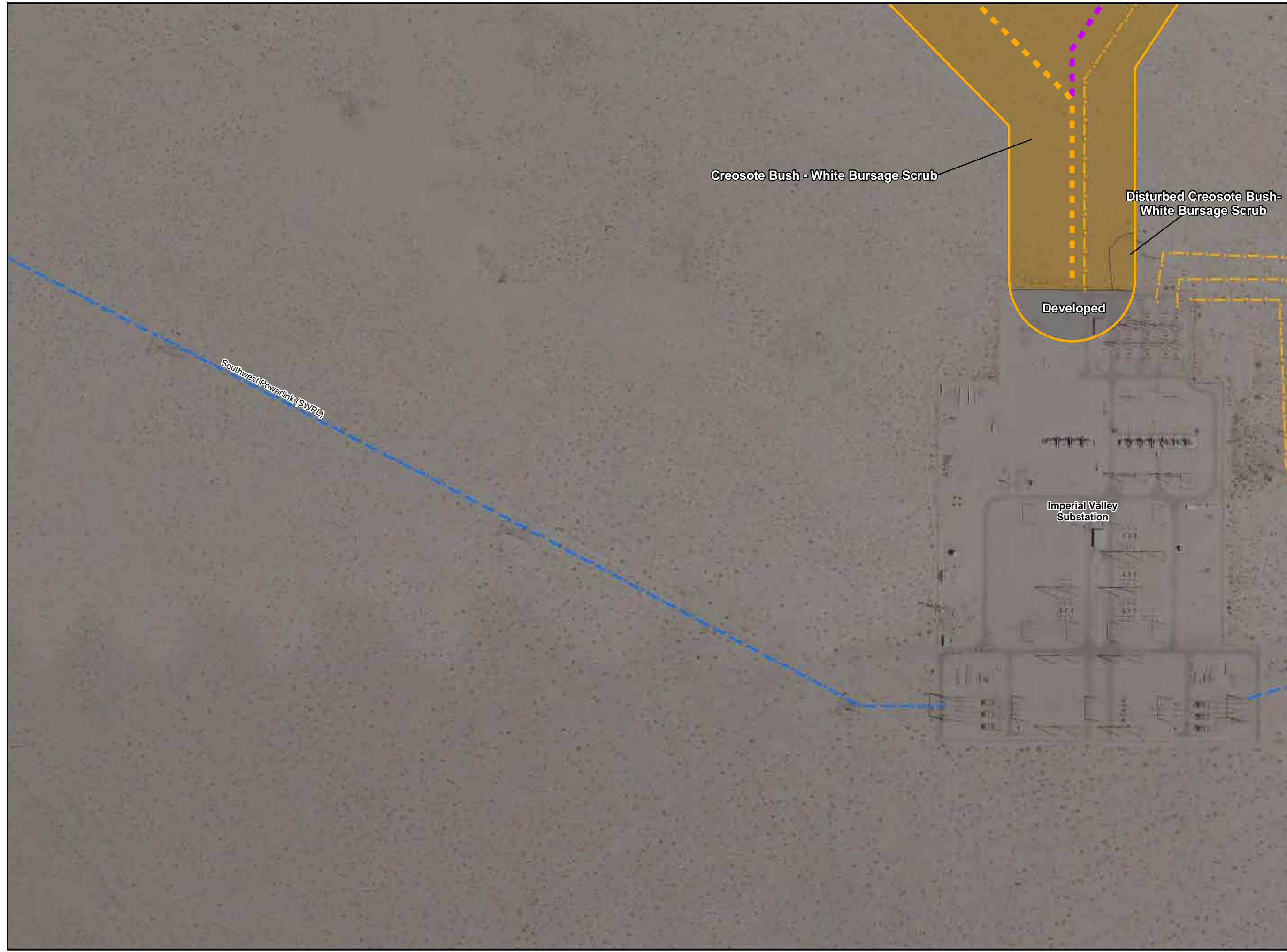
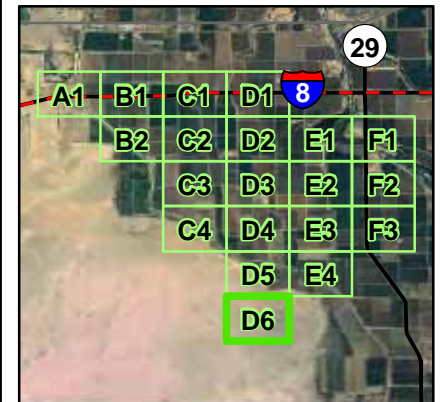
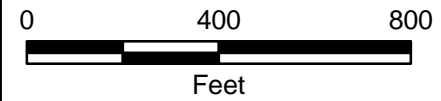




# Campo Verde Solar Site Vegetation Mapbook

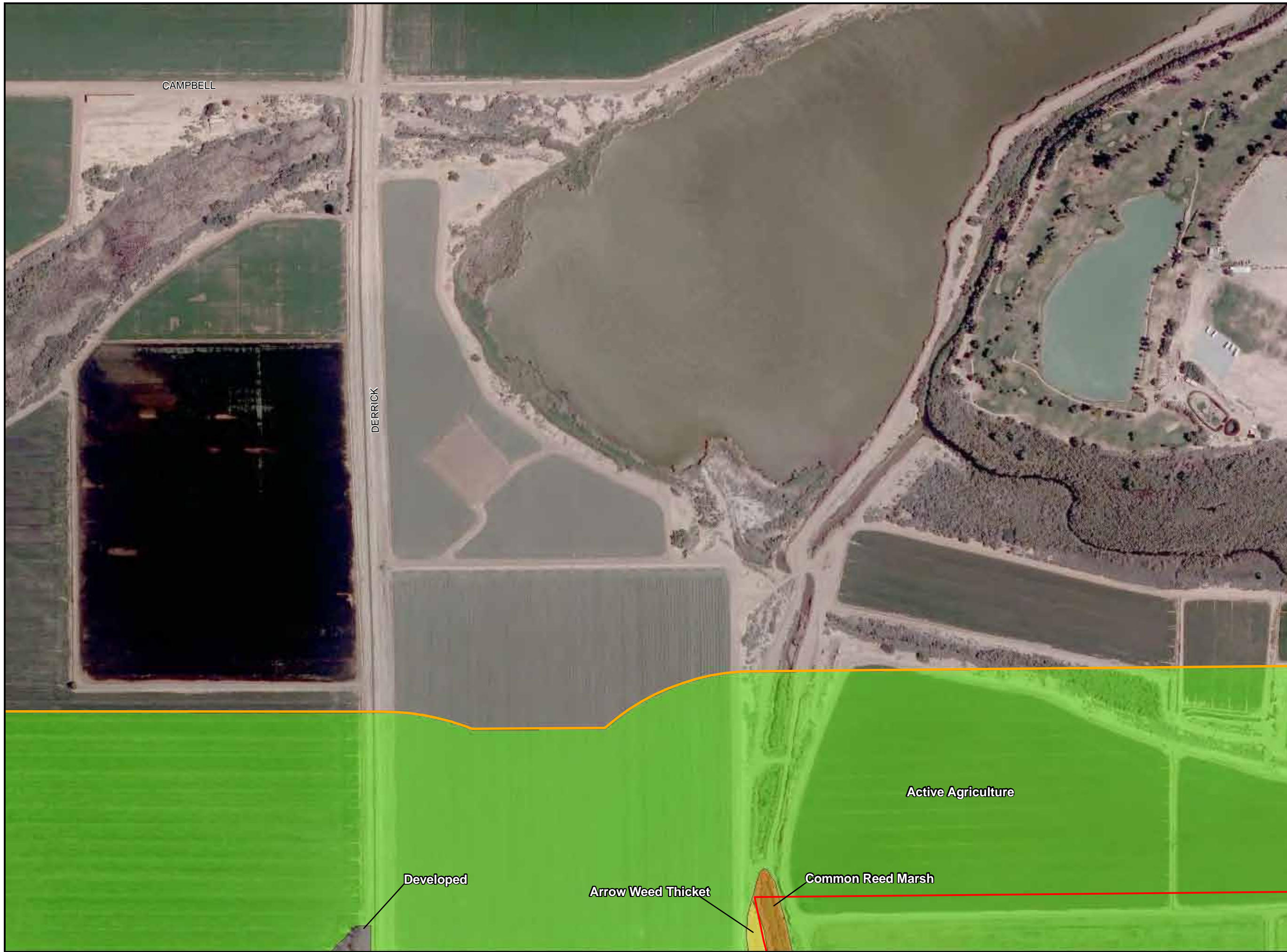
## Legend

-  Existing 500 kV Transmission Line
  -  Existing 230 kV Transmission Line
  -  Proposed Gen-tie
  -  Gen-tie Alternative
  -  Interstate
  -  Major Road
  -  International Boundary
  -  Approximate Campo Verde Facility Boundary
  -  Campo Verde Study Area
  -  Bureau of Land Management Land
- 
- ### Vegetation Classification
-  Active Agriculture
  -  Arrow Weed Thicket
  -  Athel Tamarisk Type Woodland
  -  Cattail Marsh
  -  Common Reed Marsh
  -  Creosote Bush - White Bursage Scrub
  -  Developed
  -  Disturbed Wetland
  -  Fallow Agriculture
  -  Open Water with Arrow Weed Thicket
  -  Quailbush Scrub
  -  Stabilized Desert Dunes
  -  Tamarisk Thicket

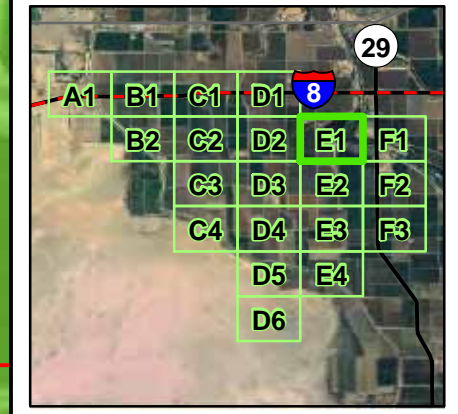
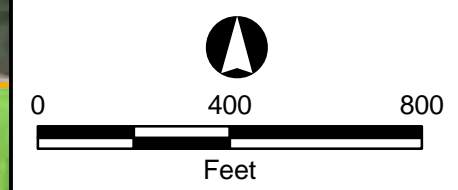




# Campo Verde Solar Site Vegetation Mapbook



- Legend**
- - - - Existing 500 kV Transmission Line
  - - - - Existing 230 kV Transmission Line
  - - - - Proposed Gen-tie
  - - - - Gen-tie Alternative
  - - - - Interstate
  - - - - Major Road
  - - - - International Boundary
  - Approximate Campo Verde Facility Boundary
  - Campo Verde Study Area
  - Bureau of Land Management Land
- Vegetation Classification**
- Active Agriculture
  - Arrow Weed Thicket
  - Athel Tamarisk Type Woodland
  - Cattail Marsh
  - Common Reed Marsh
  - Creosote Bush - White Bursage Scrub
  - Developed
  - Disturbed Wetland
  - Fallow Agriculture
  - Open Water with Arrow Weed Thicket
  - Quailbush Scrub
  - Stabilized Desert Dunes
  - Tamarisk Thicket

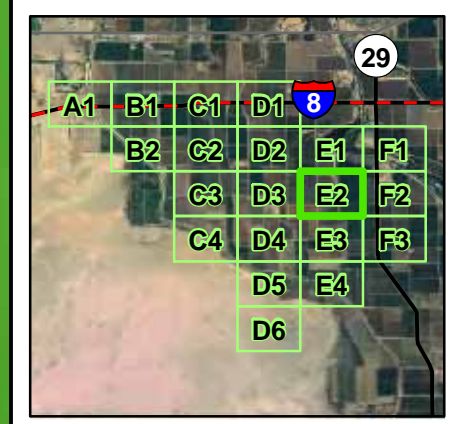
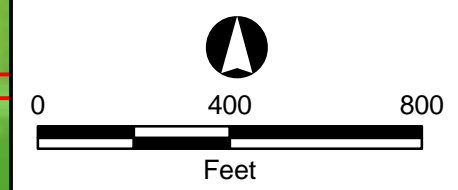




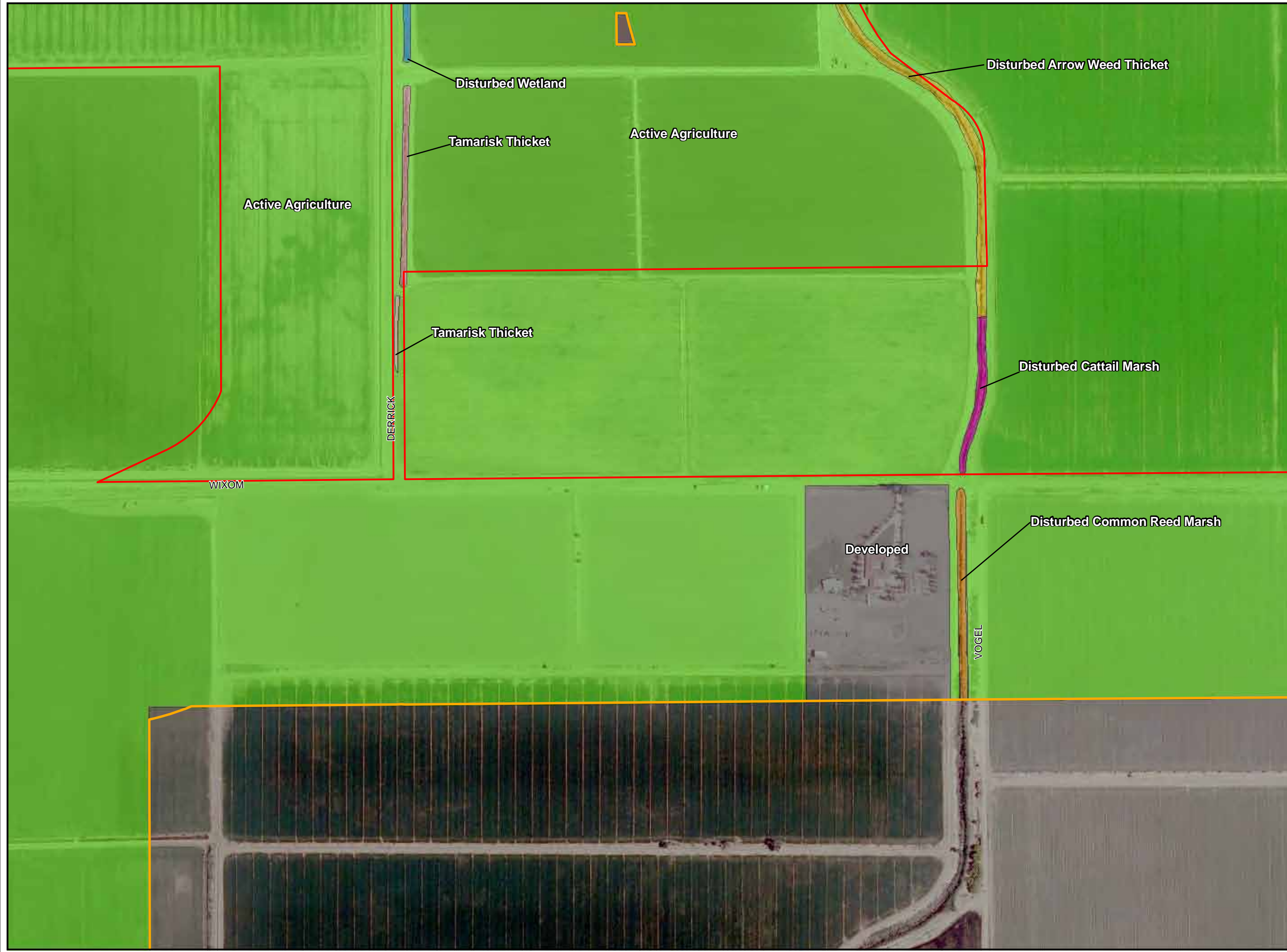
# Campo Verde Solar Site Vegetation Mapbook



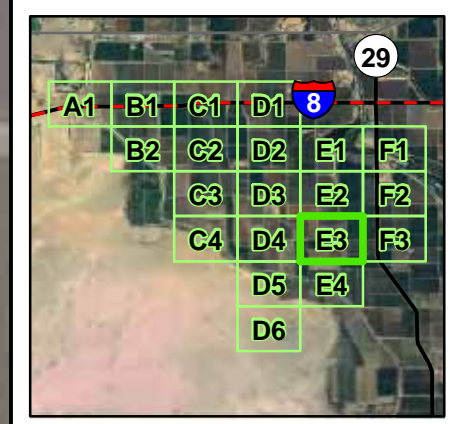
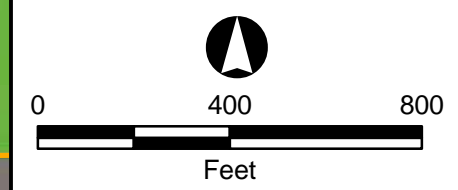
- Legend**
- - - Existing 500 kV Transmission Line
  - - - Existing 230 kV Transmission Line
  - - - Proposed Gen-tie
  - - - Gen-tie Alternative
  - - - Interstate
  - - - Major Road
  - - - International Boundary
  - Approximate Campo Verde Facility Boundary
  - Campo Verde Study Area
  - Bureau of Land Management Land
- Vegetation Classification**
- Active Agriculture
  - Arrow Weed Thicket
  - Athel Tamarisk Type Woodland
  - Cattail Marsh
  - Common Reed Marsh
  - Creosote Bush - White Bursage Scrub
  - Developed
  - Disturbed Wetland
  - Fallow Agriculture
  - Open Water with Arrow Weed Thicket
  - Quailbush Scrub
  - Stabilized Desert Dunes
  - Tamarisk Thicket



# Campo Verde Solar Site Vegetation Mapbook



- Legend**
- . - . Existing 500 kV Transmission Line
  - . - . Existing 230 kV Transmission Line
  - - - - Proposed Gen-tie
  - - - - Gen-tie Alternative
  - - - - Interstate
  - - - - Major Road
  - - - - International Boundary
  - Approximate Campo Verde Facility Boundary
  - Campo Verde Study Area
  - Bureau of Land Management Land
- Vegetation Classification**
- Active Agriculture
  - Arrow Weed Thicket
  - Athel Tamarisk Type Woodland
  - Cattail Marsh
  - Common Reed Marsh
  - Creosote Bush - White Bursage Scrub
  - Developed
  - Disturbed Wetland
  - Fallow Agriculture
  - Open Water with Arrow Weed Thicket
  - Quailbush Scrub
  - Stabilized Desert Dunes
  - Tamarisk Thicket





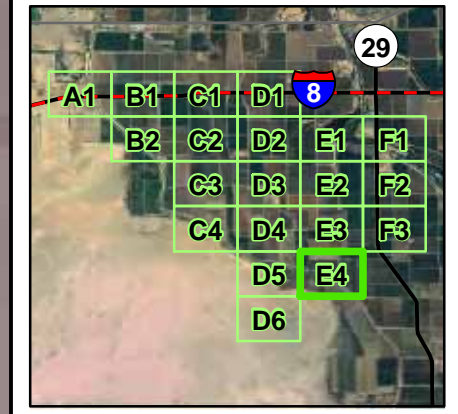
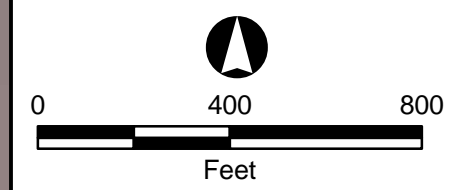
# Campo Verde Solar Site Vegetation Mapbook



Active Agriculture

VOGEL

- Legend**
- Existing 500 kV Transmission Line
  - Existing 230 kV Transmission Line
  - Proposed Gen-tie
  - Gen-tie Alternative
  - Interstate
  - Major Road
  - International Boundary
  - Approximate Campo Verde Facility Boundary
  - Campo Verde Study Area
  - Bureau of Land Management Land
- Vegetation Classification**
- Active Agriculture
  - Arrow Weed Thicket
  - Athel Tamarisk Type Woodland
  - Cattail Marsh
  - Common Reed Marsh
  - Creosote Bush - White Bursage Scrub
  - Developed
  - Disturbed Wetland
  - Fallow Agriculture
  - Open Water with Arrow Weed Thicket
  - Quailbush Scrub
  - Stabilized Desert Dunes
  - Tamarisk Thicket

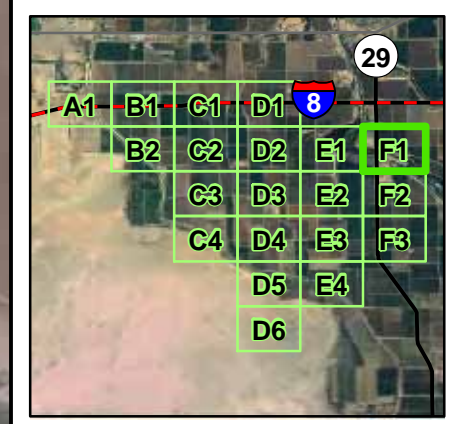
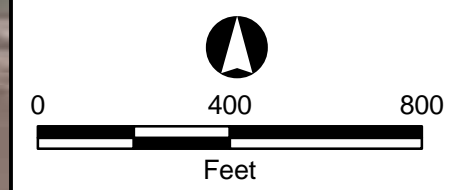




# Campo Verde Solar Site Vegetation Mapbook



- Legend**
- . - . - Existing 500 kV Transmission Line
  - . - . - Existing 230 kV Transmission Line
  - - - - - Proposed Gen-tie
  - - - - - Gen-tie Alternative
  - - - - - Interstate
  - - - - - Major Road
  - - - - - International Boundary
  - Approximate Campo Verde Facility Boundary
  - Campo Verde Study Area
  - Bureau of Land Management Land
- Vegetation Classification**
- Active Agriculture
  - Arrow Weed Thicket
  - Athel Tamarisk Type Woodland
  - Cattail Marsh
  - Common Reed Marsh
  - Creosote Bush - White Bursage Scrub
  - Developed
  - Disturbed Wetland
  - Fallow Agriculture
  - Open Water with Arrow Weed Thicket
  - Quailbush Scrub
  - Stabilized Desert Dunes
  - Tamarisk Thicket



Active Agriculture

Quailbush Scrub

Disturbed Arrow Weed Thicket

Developed










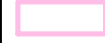











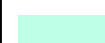
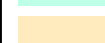
Arrow Weed Thicket

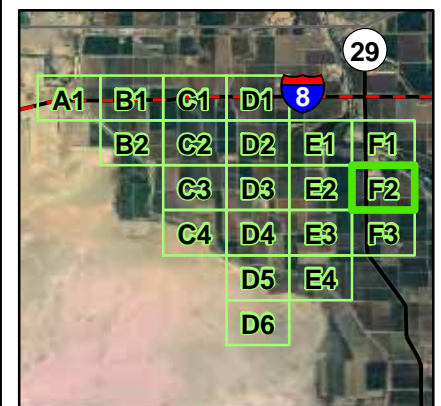
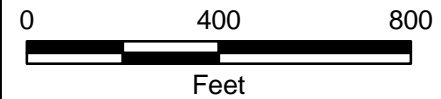
Common Reed Marsh



# Campo Verde Solar Site Vegetation Mapbook

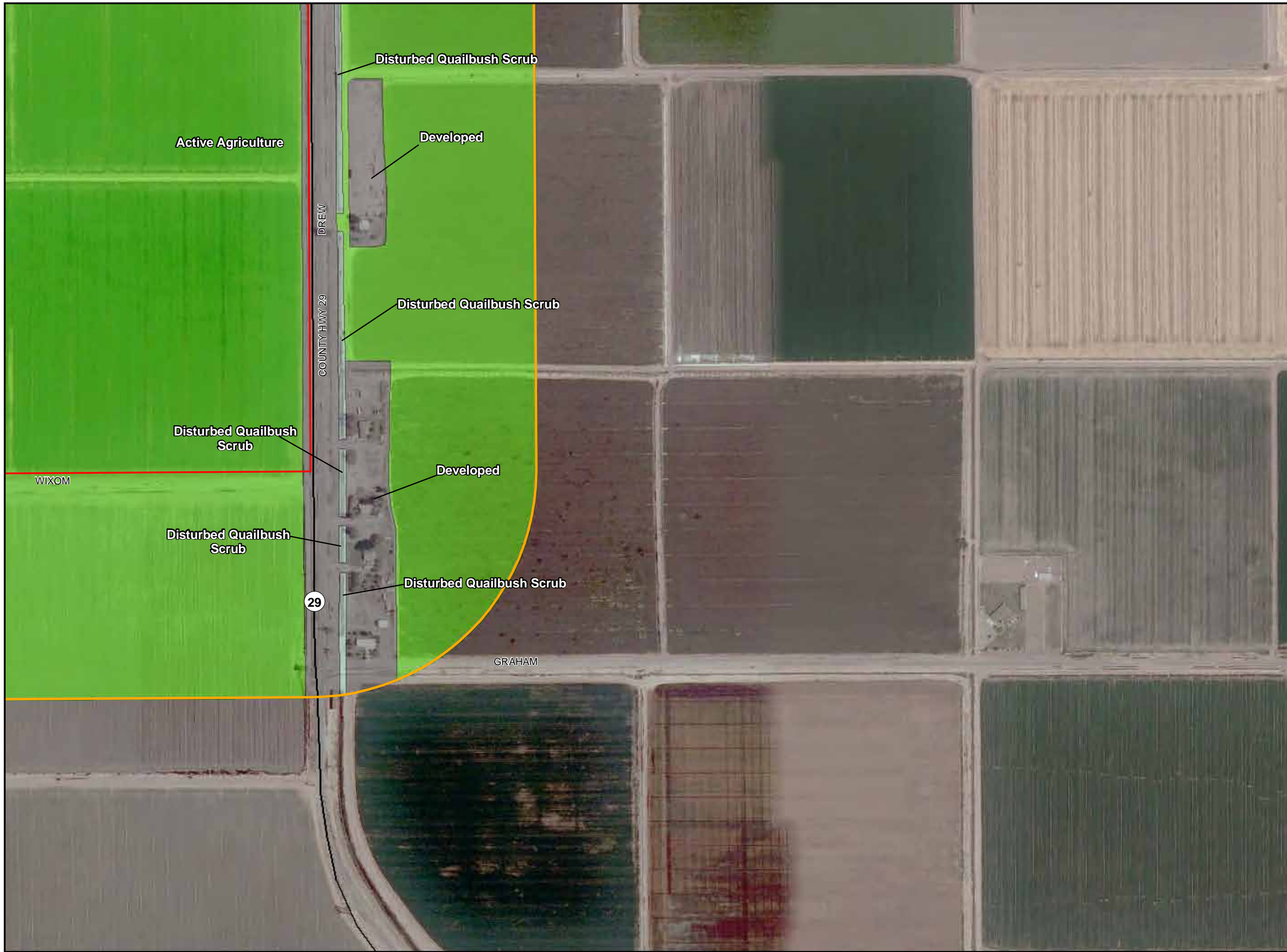
## Legend

-  Existing 500 kV Transmission Line
  -  Existing 230 kV Transmission Line
  -  Proposed Gen-tie
  -  Gen-tie Alternative
  -  Interstate
  -  Major Road
  -  International Boundary
  -  Approximate Campo Verde Facility Boundary
  -  Campo Verde Study Area
  -  Bureau of Land Management Land
- 
- ## Vegetation Classification
-  Active Agriculture
  -  Arrow Weed Thicket
  -  Athel Tamarisk Type Woodland
  -  Cattail Marsh
  -  Common Reed Marsh
  -  Creosote Bush - White Bursage Scrub
  -  Developed
  -  Disturbed Wetland
  -  Fallow Agriculture
  -  Open Water with Arrow Weed Thicket
  -  Quailbush Scrub
  -  Stabilized Desert Dunes
  -  Tamarisk Thicket

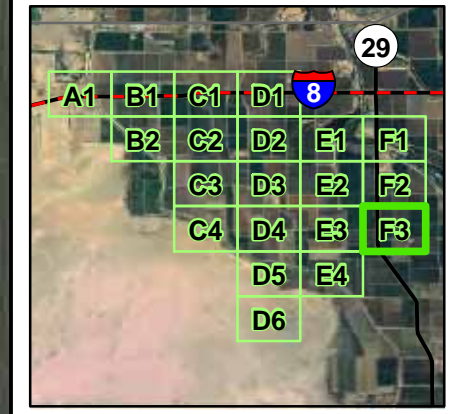
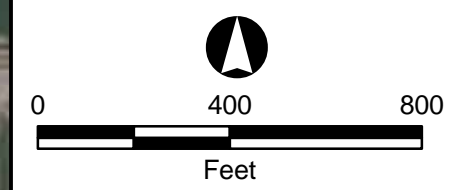




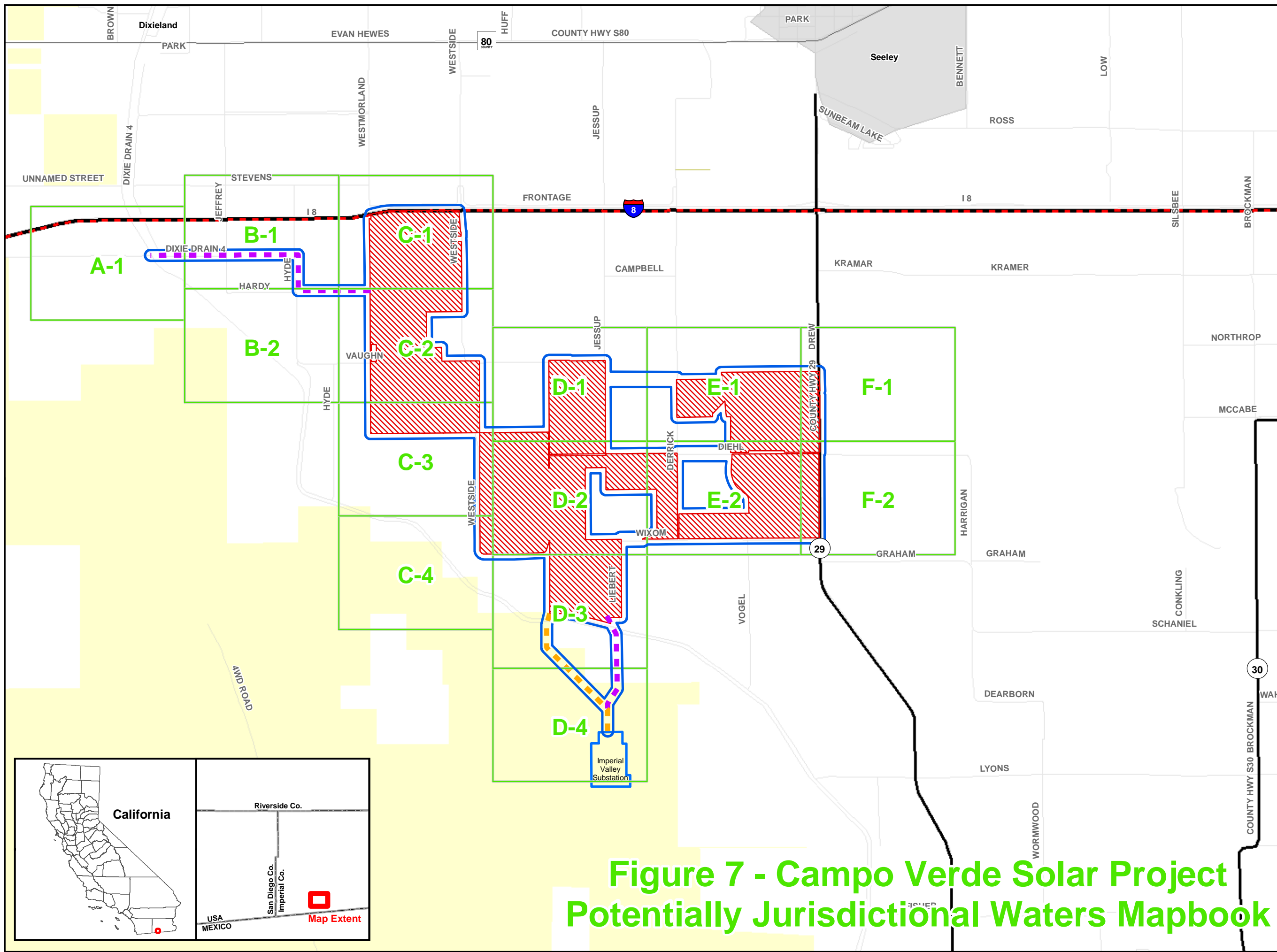
# Campo Verde Solar Site Vegetation Mapbook



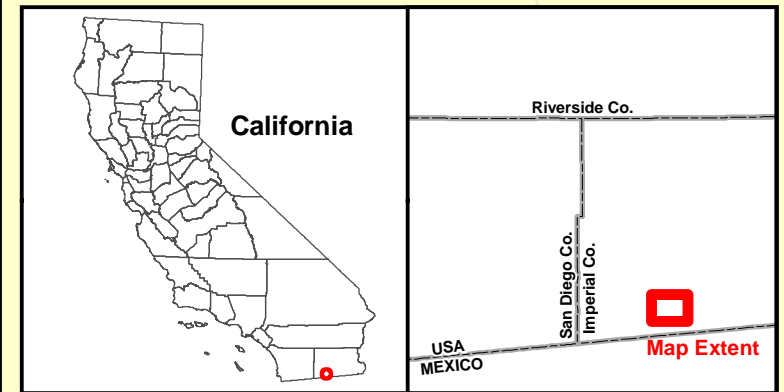
- Legend**
- . - . - Existing 500 kV Transmission Line
  - . - . - Existing 230 kV Transmission Line
  - - - - - Proposed Gen-tie
  - - - - - Gen-tie Alternative
  - - - - - Interstate
  - - - - - Major Road
  - - - - - International Boundary
  - Approximate Campo Verde Facility Boundary
  - Campo Verde Study Area
  - Bureau of Land Management Land
- Vegetation Classification**
- Active Agriculture
  - Arrow Weed Thicket
  - Athel Tamarisk Type Woodland
  - Cattail Marsh
  - Common Reed Marsh
  - Creosote Bush - White Bursage Scrub
  - Developed
  - Disturbed Wetland
  - Fallow Agriculture
  - Open Water with Arrow Weed Thicket
  - Quailbush Scrub
  - Stabilized Desert Dunes
  - Tamarisk Thicket



# MAP SHEET INDEX



- Proposed Gen-tie
- Gen-tie Alternative
- Interstate
- Major Road
- Road
- International Boundary
- Map Sheet Boundary
- Approximate Campo Verde Solar Site
- 200 Foot Buffer of Campo Verde Boundary
- Unincorporated City
- Jurisdictional Land Ownership**
- Bureau of Land Management Land



**Figure 7 - Campo Verde Solar Project Potentially Jurisdictional Waters Mapbook**

0 0.5 1  
Miles

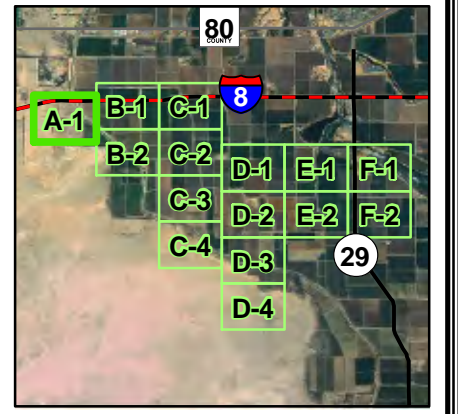
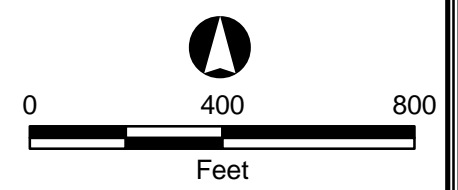
State Plane Coordinate System  
California Zone 6, NAD 83  
Lambert Conformal Conic Projection  
1983 North American Datum  
Linear Unit: Foot US



# Campo Verde Solar Site Potentially Jurisdictional Waters



- Legend**
- Photo Location
  - ▲ Culvert
  - Gate
  - Proposed Gen-tie
  - Gen-tie Alternative
  - Existing 500 kV Transmission Line
  - Existing 230 kV Transmission Line
  - Interstate
  - Major Road
  - International Boundary
  - Potentially Jurisdictional Surface Water Conveyance Feature
    - ▶ Canal (with Flow Direction)
    - ▶ Drain (with Flow Direction)
    - ▶ Head Ditch (with Flow Direction)
    - ▶ Tail Ditch (with Flow Direction)
  - ▨ Wetland
  - ▨ Approximate Campo Verde Facility Boundary
  - ▨ 200 Foot Buffer of Campo Verde Boundary
  - ▨ Bureau of Land Management Land



UNNAMED STREET

Feature 91

Photo# 141 To North  
Photo# 142 To South

Lat 3

Feature 114

17 16  
19

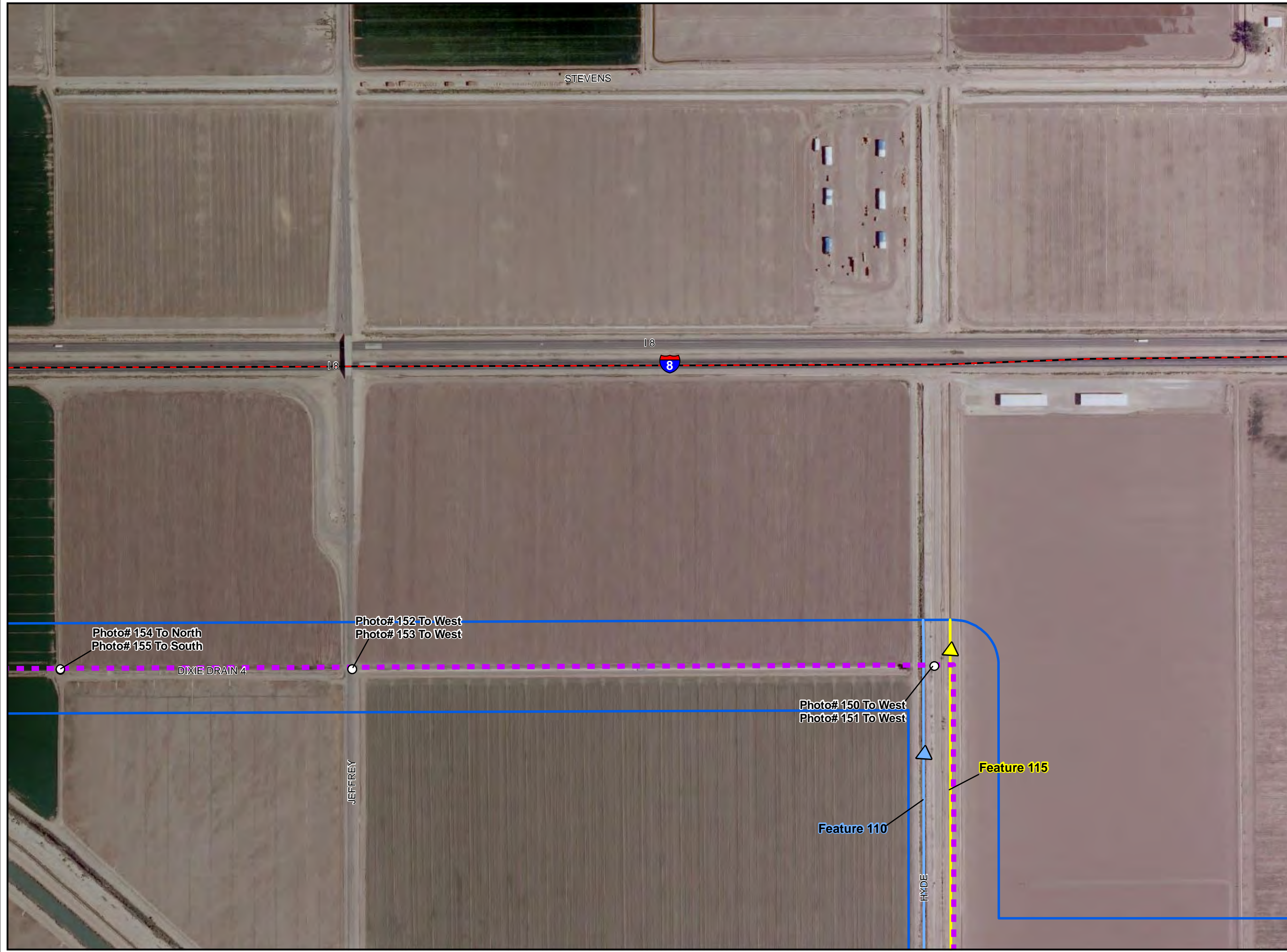
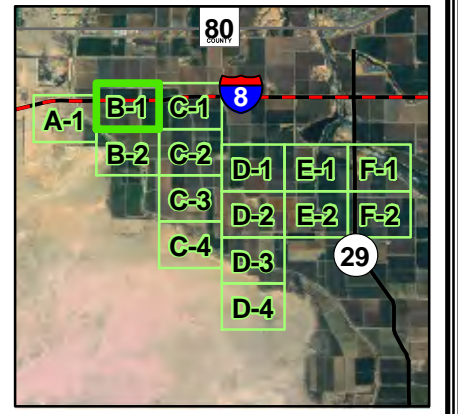
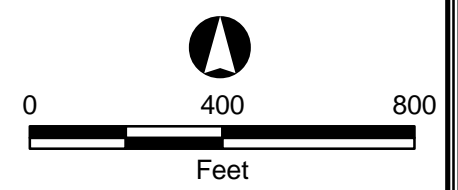
Photo# 156  
To Northwest

Feature 111



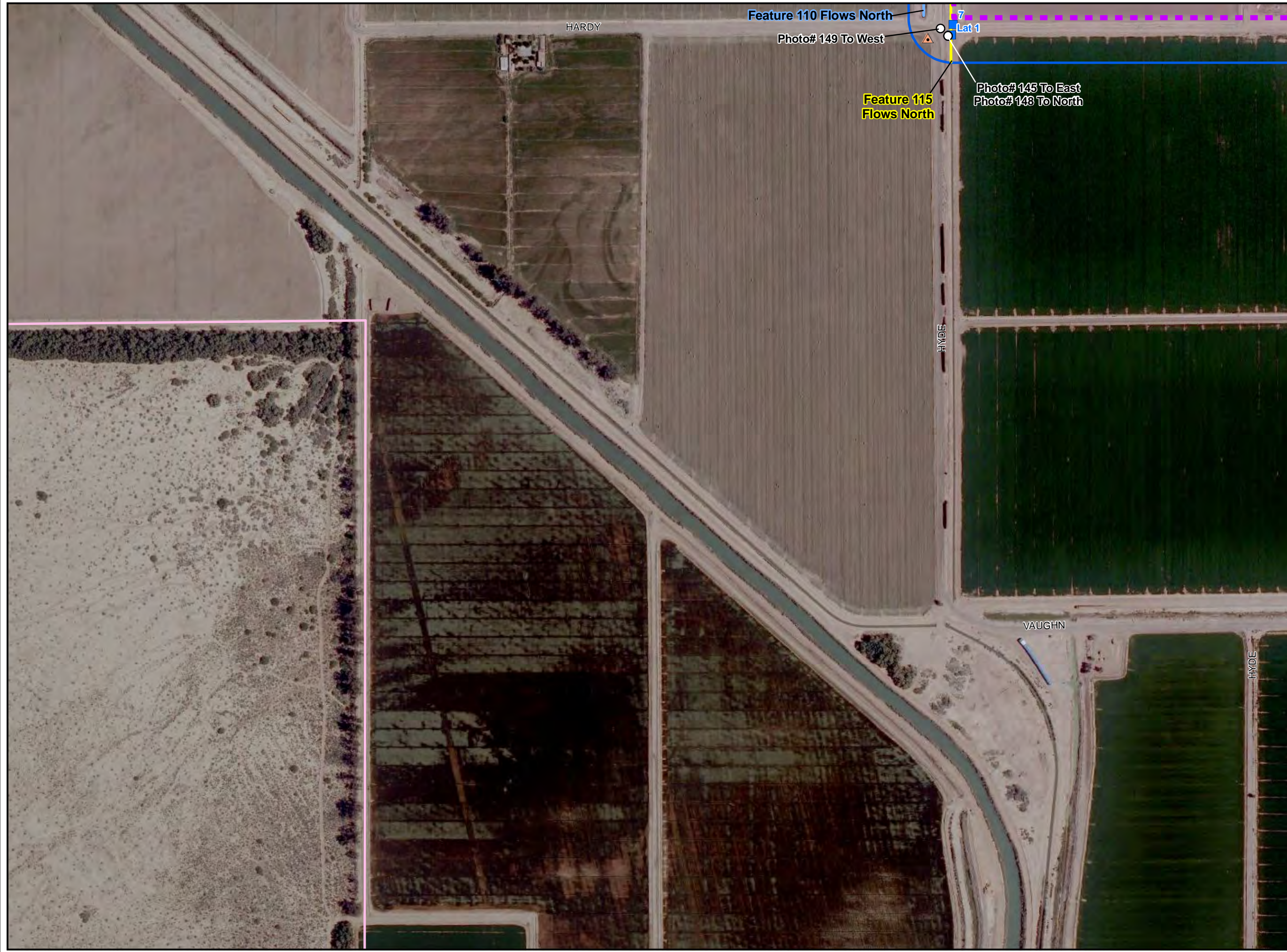
# Campo Verde Solar Site Potentially Jurisdictional Waters

- Legend**
- Photo Location
  - ▲ Culvert
  - Gate
  - Proposed Gen-tie
  - Gen-tie Alternative
  - Existing 500 kV Transmission Line
  - Existing 230 kV Transmission Line
  - Interstate
  - Major Road
  - International Boundary
  - Potentially Jurisdictional Surface Water Conveyance Feature**
  - ▶ Canal (with Flow Direction)
  - ▶ Drain (with Flow Direction)
  - ▶ Head Ditch (with Flow Direction)
  - ▶ Tail Ditch (with Flow Direction)
  - ▨ Wetland
  - Approximate Campo Verde Facility Boundary
  - 200 Foot Buffer of Campo Verde Boundary
  - Bureau of Land Management Land

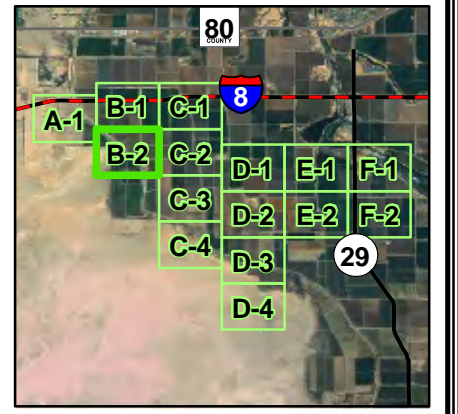
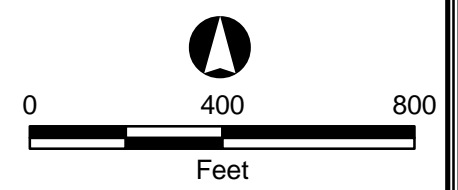




# Campo Verde Solar Site Potentially Jurisdictional Waters

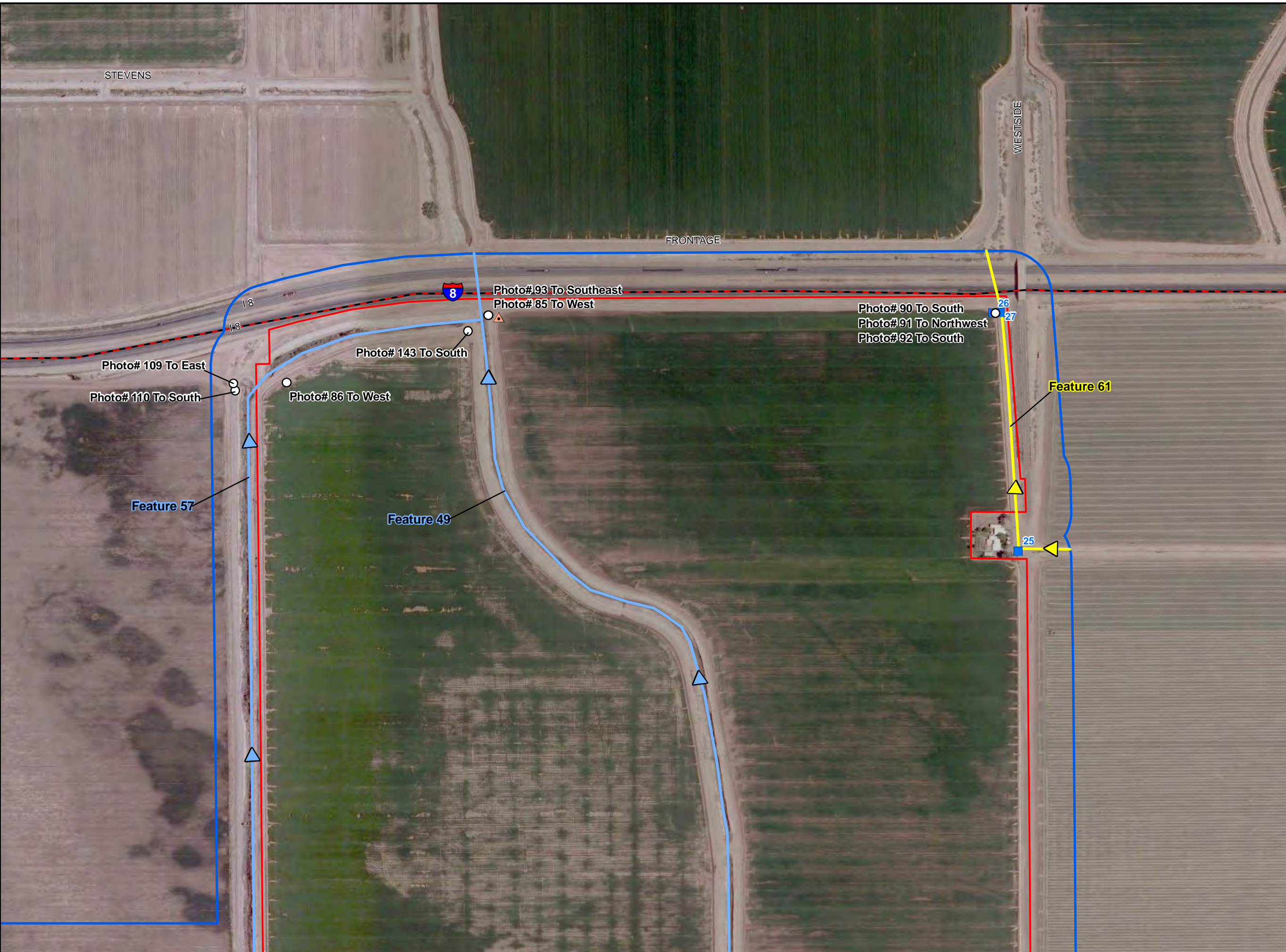


- Legend**
- Photo Location
  - ▲ Culvert
  - Gate
  - Proposed Gen-tie
  - Gen-tie Alternative
  - Existing 500 kV Transmission Line
  - Existing 230 kV Transmission Line
  - Interstate
  - Major Road
  - International Boundary
  - Potentially Jurisdictional Surface Water Conveyance Feature**
  - ▶ Canal (with Flow Direction)
  - ▶ Drain (with Flow Direction)
  - ▶ Head Ditch (with Flow Direction)
  - ▶ Tail Ditch (with Flow Direction)
  - ▨ Wetland
  - Approximate Campo Verde Facility Boundary
  - 200 Foot Buffer of Campo Verde Boundary
  - Bureau of Land Management Land

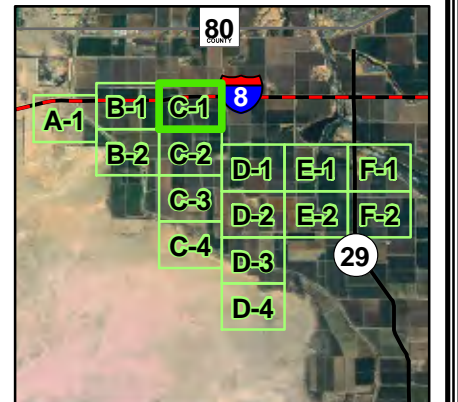
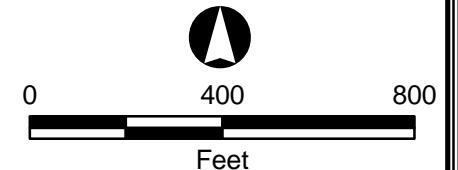




# Campo Verde Solar Site Potentially Jurisdictional Waters

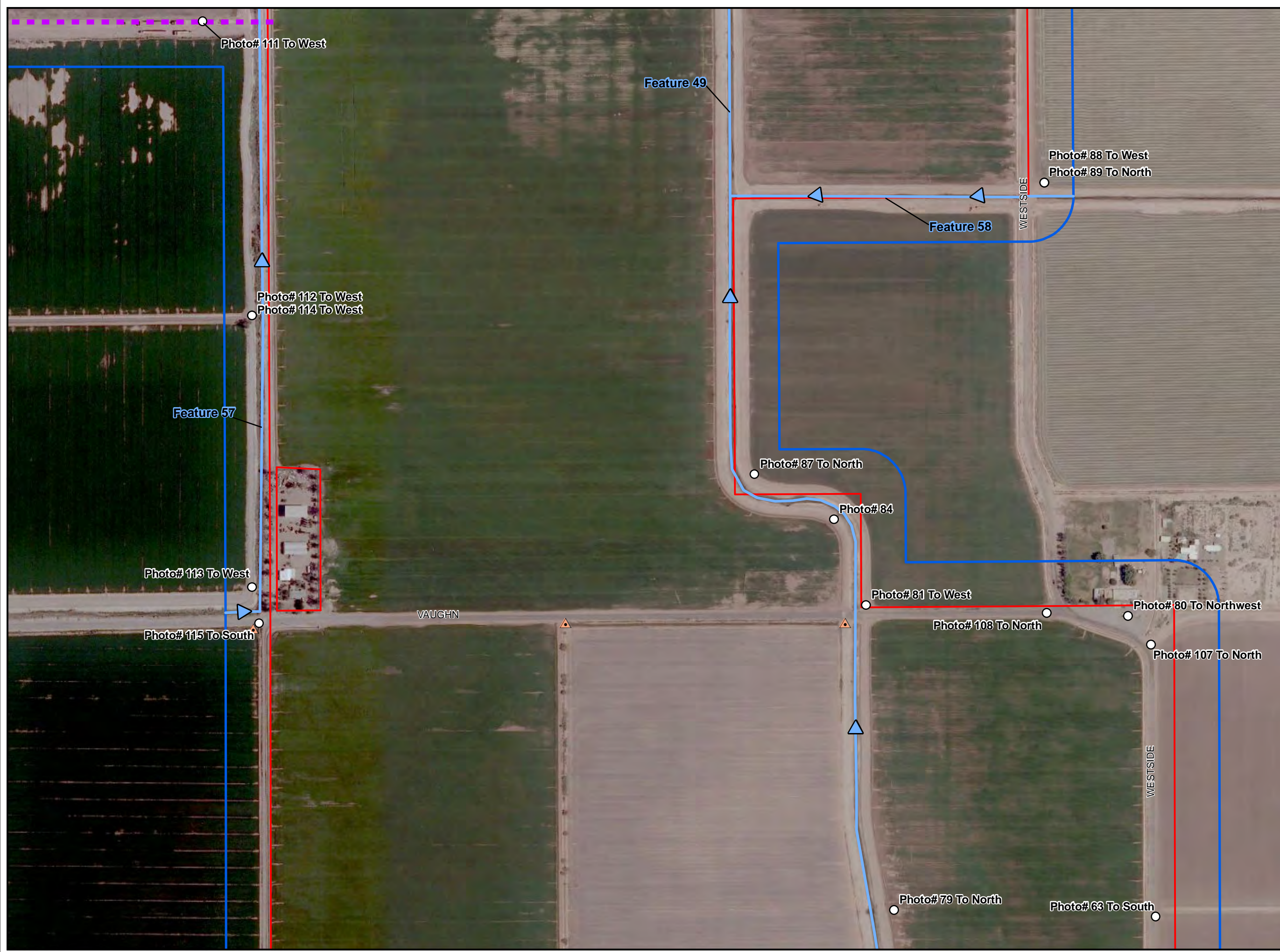


- Legend**
- Photo Location
  - ▲ Culvert
  - Gate
  - Proposed Gen-tie
  - Gen-tie Alternative
  - Existing 500 kV Transmission Line
  - Existing 230 kV Transmission Line
  - - - Interstate
  - Major Road
  - International Boundary
  - Potentially Jurisdictional Surface Water Conveyance Feature
  - ▶ Canal (with Flow Direction)
  - ▶ Drain (with Flow Direction)
  - ▶ Head Ditch (with Flow Direction)
  - ▶ Tail Ditch (with Flow Direction)
  - ▨ Wetland
  - ▭ Approximate Campo Verde Facility Boundary
  - ▭ 200 Foot Buffer of Campo Verde Boundary
  - ▭ Bureau of Land Management Land

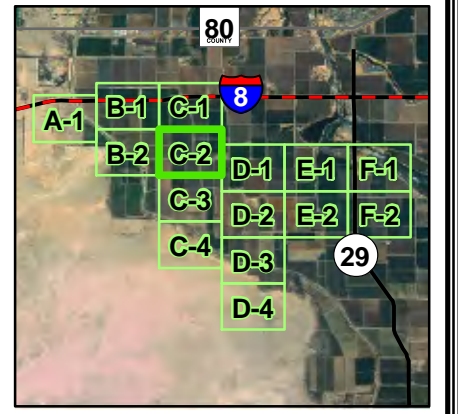
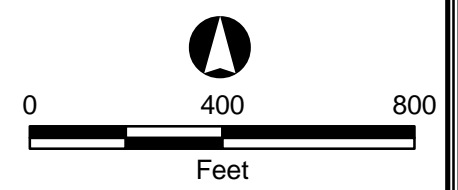




# Campo Verde Solar Site Potentially Jurisdictional Waters



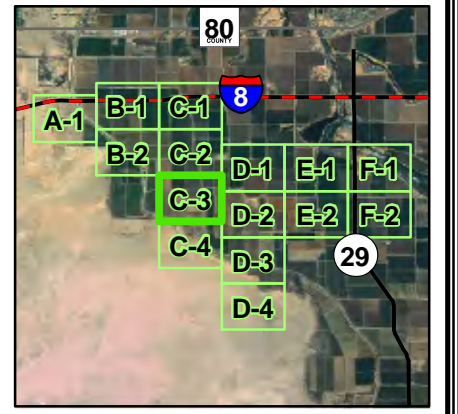
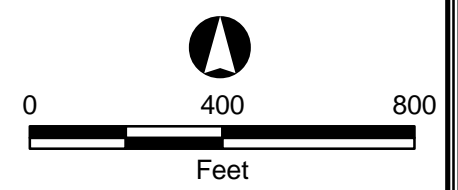
- Legend**
- Photo Location
  - ▲ Culvert
  - Gate
  - ▬ Proposed Gen-tie
  - ▬ Gen-tie Alternative
  - ▬ Existing 500 kV Transmission Line
  - ▬ Existing 230 kV Transmission Line
  - ▬ Interstate
  - ▬ Major Road
  - ▬ International Boundary
  - Potentially Jurisdictional Surface Water Conveyance Feature**
  - ▶ Canal (with Flow Direction)
  - ▶ Drain (with Flow Direction)
  - ▶ Head Ditch (with Flow Direction)
  - ▶ Tail Ditch (with Flow Direction)
  - ▨ Wetland
  - ▭ Approximate Campo Verde Facility Boundary
  - ▭ 200 Foot Buffer of Campo Verde Boundary
  - ▭ Bureau of Land Management Land





# Campo Verde Solar Site Potentially Jurisdictional Waters

- Legend**
- Photo Location
  - ▲ Culvert
  - Gate
  - ▬ Proposed Gen-tie
  - ▬ Gen-tie Alternative
  - ▬ Existing 500 kV Transmission Line
  - ▬ Existing 230 kV Transmission Line
  - ▬ Interstate
  - ▬ Major Road
  - ▬ International Boundary
- Potentially Jurisdictional Surface Water Conveyance Feature**
- ▶ Canal (with Flow Direction)
  - ▶ Drain (with Flow Direction)
  - ▶ Head Ditch (with Flow Direction)
  - ▶ Tail Ditch (with Flow Direction)
  - ▨ Wetland
  - ▭ Approximate Campo Verde Facility Boundary
  - ▭ 200 Foot Buffer of Campo Verde Boundary
  - ▭ Bureau of Land Management Land

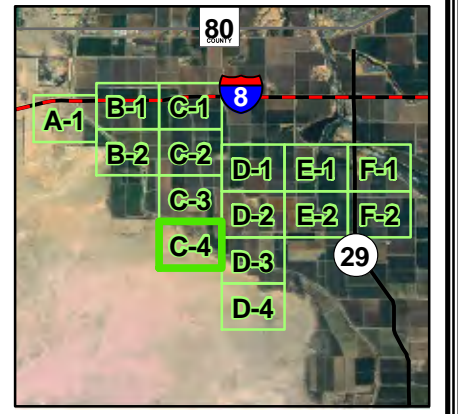
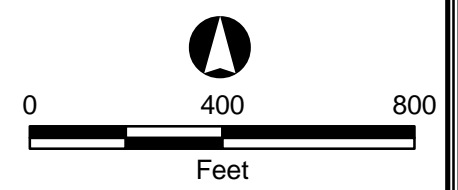




# Campo Verde Solar Site Potentially Jurisdictional Waters



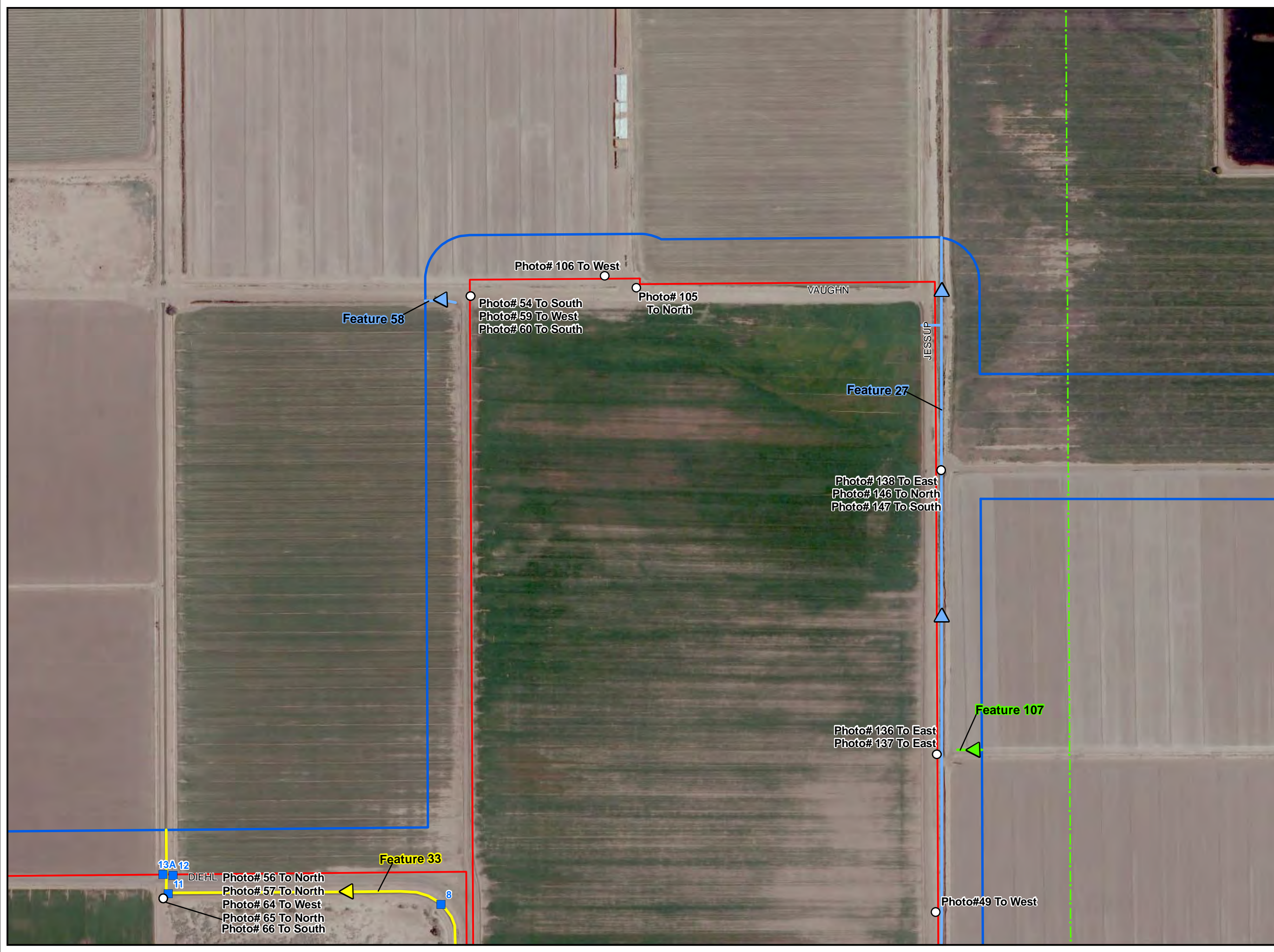
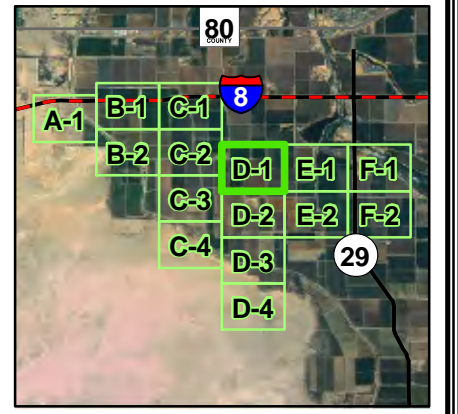
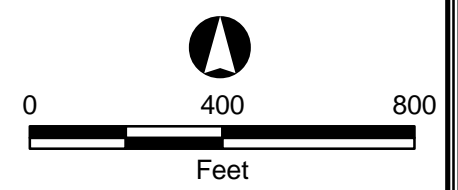
- Legend**
- Photo Location
  - ▲ Culvert
  - Gate
  - Proposed Gen-tie
  - Gen-tie Alternative
  - Existing 500 kV Transmission Line
  - Existing 230 kV Transmission Line
  - Interstate
  - Major Road
  - International Boundary
- Potentially Jurisdictional Surface Water Conveyance Feature**
- ▶ Canal (with Flow Direction)
  - ▶ Drain (with Flow Direction)
  - ▶ Head Ditch (with Flow Direction)
  - ▶ Tail Ditch (with Flow Direction)
- Other Features**
- ▨ Wetland
  - Approximate Campo Verde Facility Boundary
  - 200 Foot Buffer of Campo Verde Boundary
  - Bureau of Land Management Land





# Campo Verde Solar Site Potentially Jurisdictional Waters

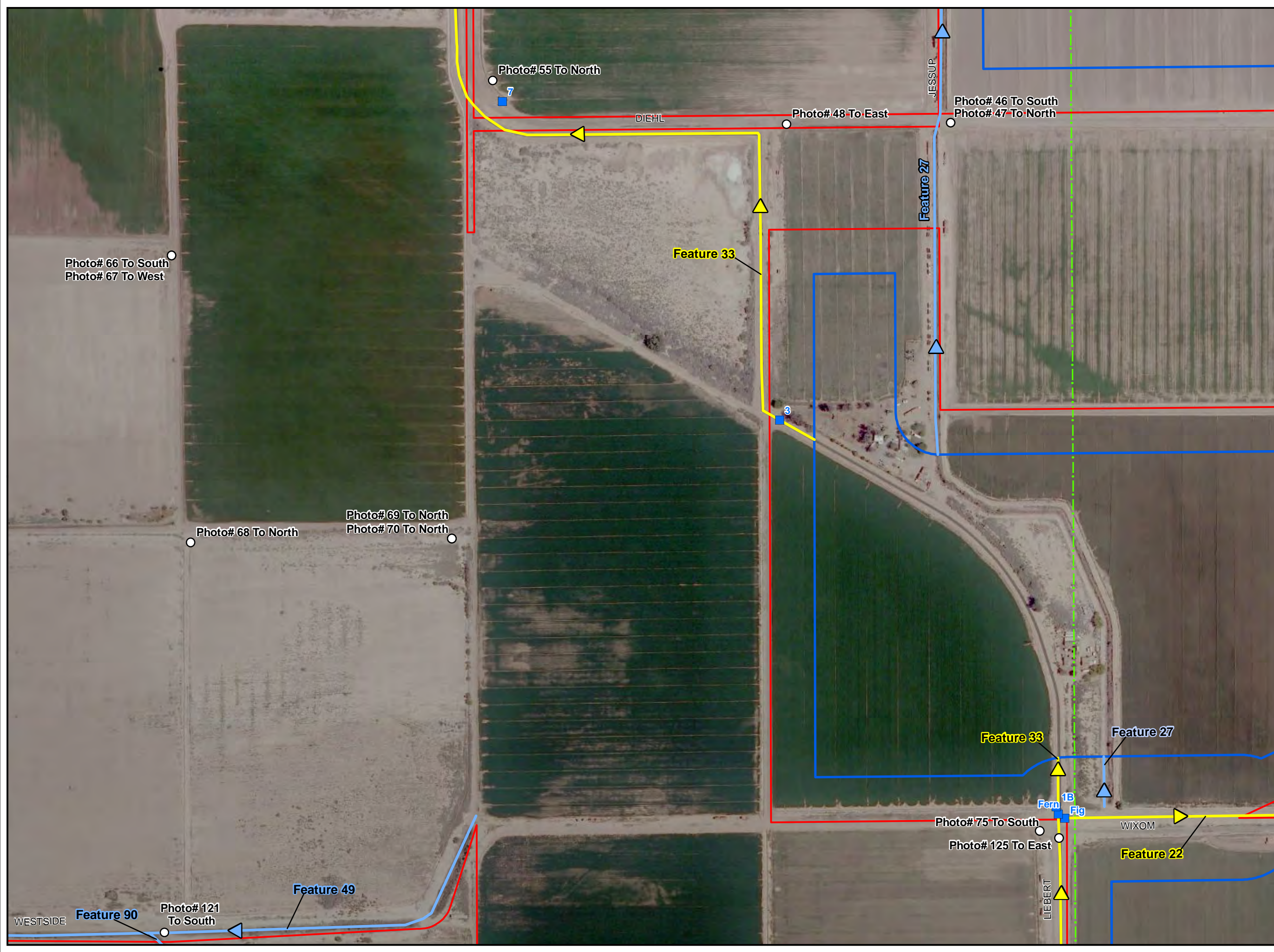
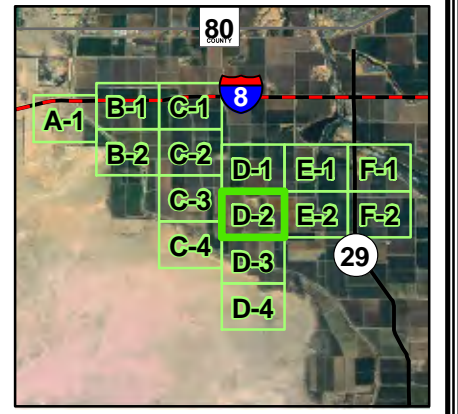
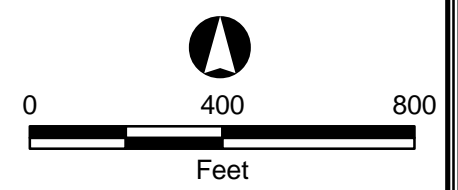
- Legend**
- Photo Location
  - ▲ Culvert
  - Gate
  - Proposed Gen-tie
  - Gen-tie Alternative
  - Existing 500 kV Transmission Line
  - Existing 230 kV Transmission Line
  - Interstate
  - Major Road
  - International Boundary
  - Potentially Jurisdictional Surface Water Conveyance Feature
    - ▶ Canal (with Flow Direction)
    - ▶ Drain (with Flow Direction)
    - ▶ Head Ditch (with Flow Direction)
    - ▶ Tail Ditch (with Flow Direction)
  - ▨ Wetland
  - Approximate Campo Verde Facility Boundary
  - 200 Foot Buffer of Campo Verde Boundary
  - Bureau of Land Management Land





# Campo Verde Solar Site Potentially Jurisdictional Waters

- Legend**
- Photo Location
  - ▲ Culvert
  - Gate
  - Proposed Gen-tie
  - Gen-tie Alternative
  - Existing 500 kV Transmission Line
  - Existing 230 kV Transmission Line
  - Interstate
  - Major Road
  - International Boundary
  - Potentially Jurisdictional Surface Water Conveyance Feature**
  - ▶ Canal (with Flow Direction)
  - ▶ Drain (with Flow Direction)
  - ▶ Head Ditch (with Flow Direction)
  - ▶ Tail Ditch (with Flow Direction)
  - ▨ Wetland
  - ▭ Approximate Campo Verde Facility Boundary
  - ▭ 200 Foot Buffer of Campo Verde Boundary
  - ▭ Bureau of Land Management Land

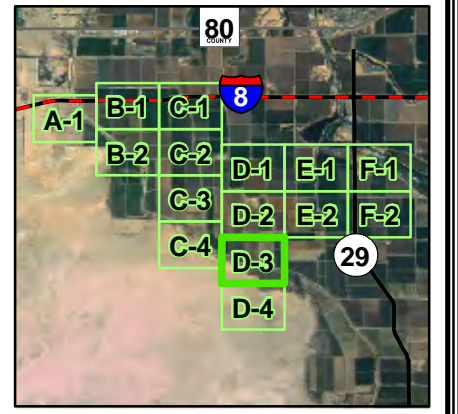
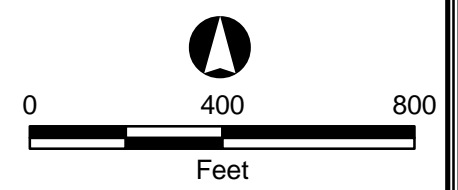




# Campo Verde Solar Site Potentially Jurisdictional Waters



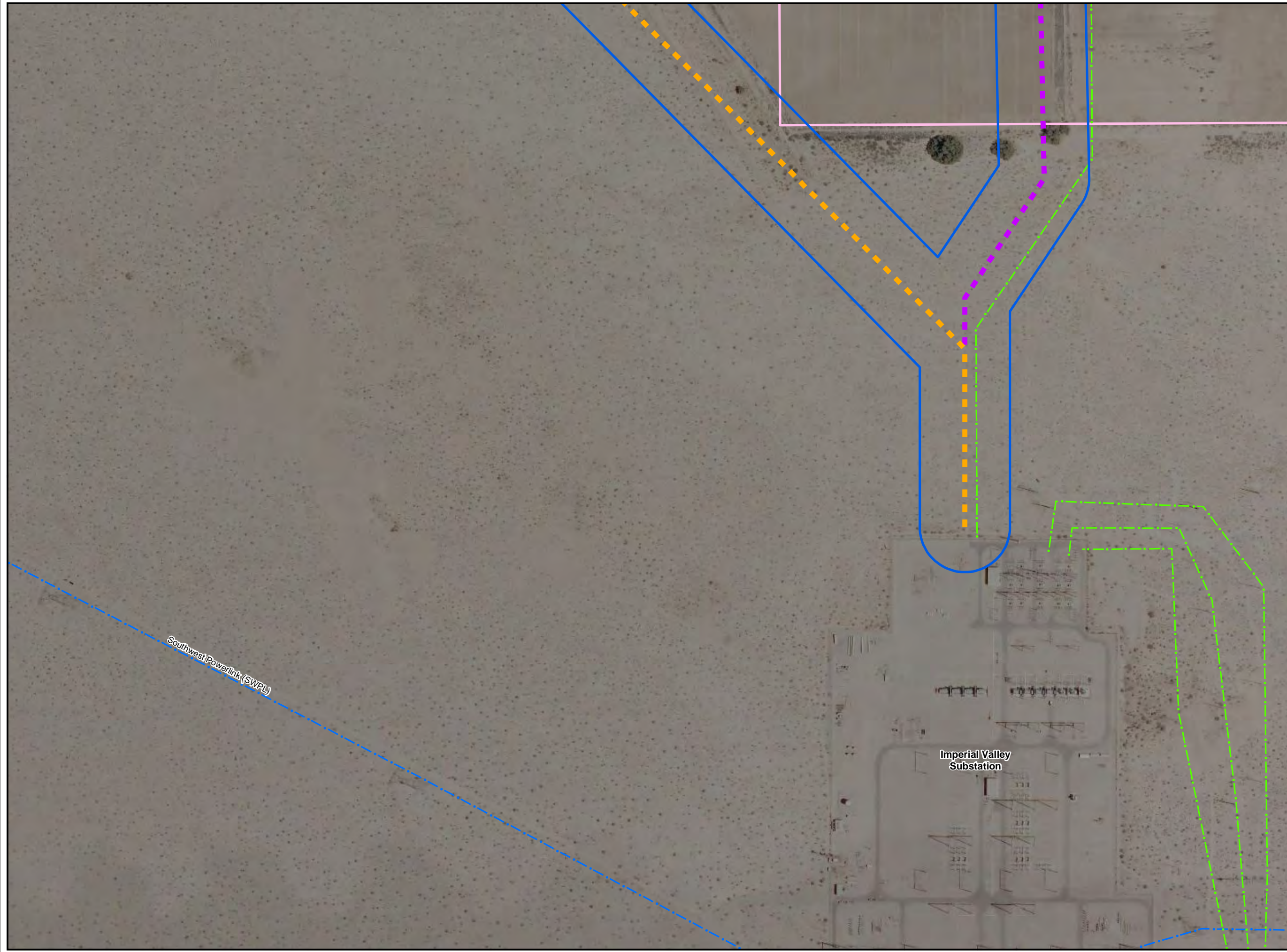
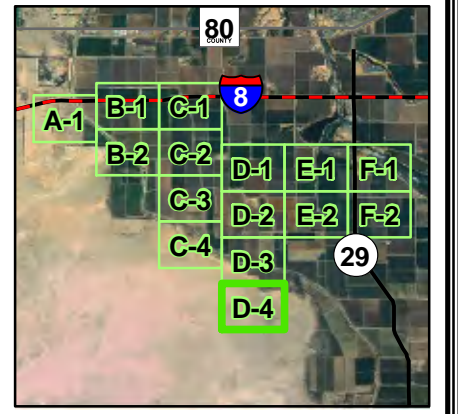
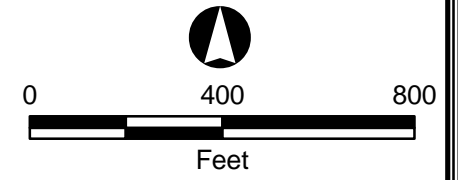
- Legend**
- Photo Location
  - ▲ Culvert
  - Gate
  - Proposed Gen-tie
  - - - Gen-tie Alternative
  - - - Existing 500 kV Transmission Line
  - - - Existing 230 kV Transmission Line
  - Interstate
  - Major Road
  - International Boundary
  - Potentially Jurisdictional Surface Water Conveyance Feature**
  - ▶ Canal (with Flow Direction)
  - ▶ Drain (with Flow Direction)
  - ▶ Head Ditch (with Flow Direction)
  - ▶ Tail Ditch (with Flow Direction)
  - ▨ Wetland
  - ▭ Approximate Campo Verde Facility Boundary
  - ▭ 200 Foot Buffer of Campo Verde Boundary
  - ▭ Bureau of Land Management Land





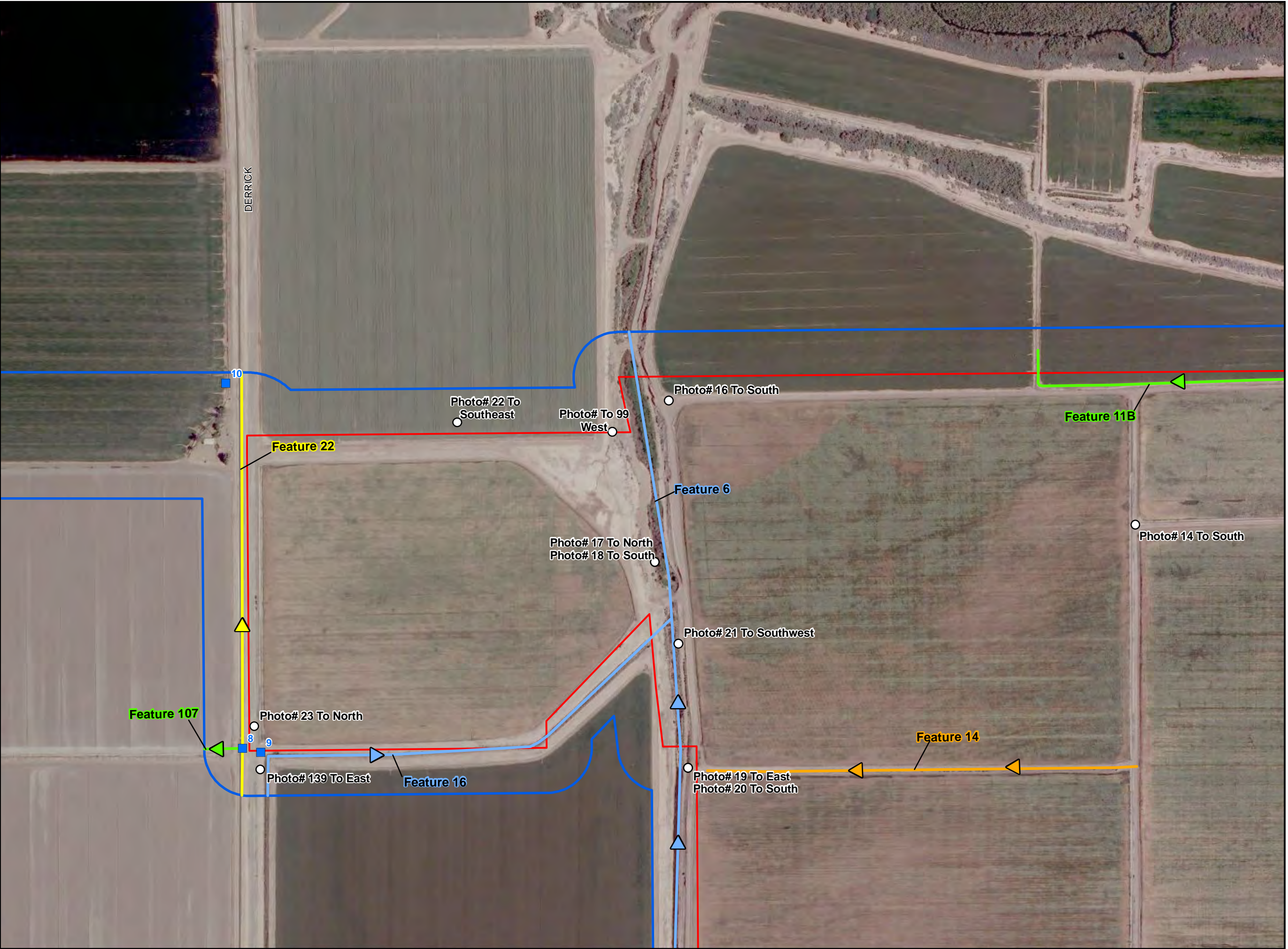
# Campo Verde Solar Site Potentially Jurisdictional Waters

- Legend**
- Photo Location
  - ▲ Culvert
  - Gate
  - Proposed Gen-tie
  - Gen-tie Alternative
  - Existing 500 kV Transmission Line
  - Existing 230 kV Transmission Line
  - Interstate
  - Major Road
  - International Boundary
  - Potentially Jurisdictional Surface Water Conveyance Feature**
  - ▶ Canal (with Flow Direction)
  - ▶ Drain (with Flow Direction)
  - ▶ Head Ditch (with Flow Direction)
  - ▶ Tail Ditch (with Flow Direction)
  - ▨ Wetland
  - Approximate Campo Verde Facility Boundary
  - 200 Foot Buffer of Campo Verde Boundary
  - Bureau of Land Management Land

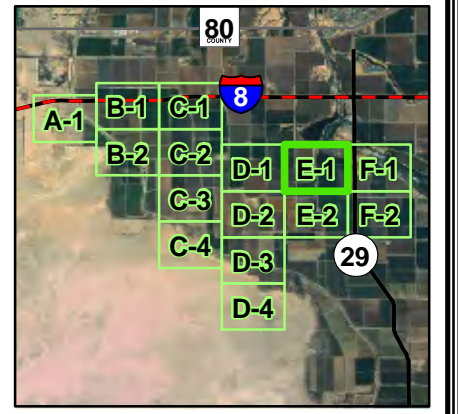
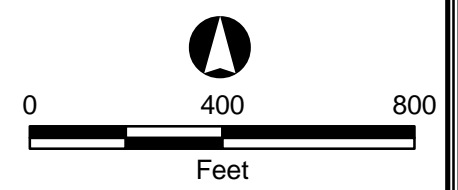




# Campo Verde Solar Site Potentially Jurisdictional Waters



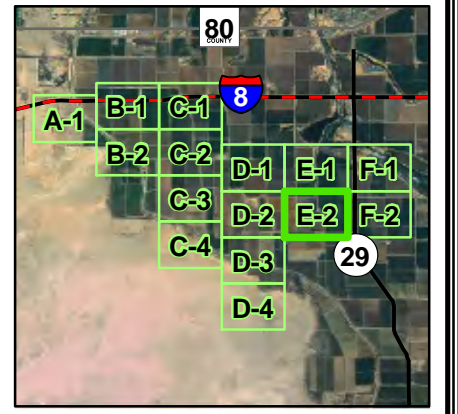
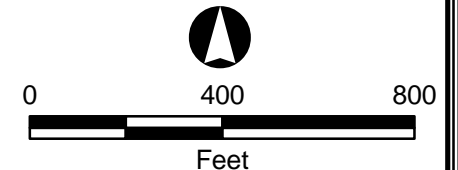
- Legend**
- Photo Location
  - ▲ Culvert
  - Gate
  - Proposed Gen-tie
  - Gen-tie Alternative
  - Existing 500 kV Transmission Line
  - Existing 230 kV Transmission Line
  - Interstate
  - Major Road
  - International Boundary
  - Potentially Jurisdictional Surface Water Conveyance Feature**
  - ▶ Canal (with Flow Direction)
  - ▶ Drain (with Flow Direction)
  - ▶ Head Ditch (with Flow Direction)
  - ▶ Tail Ditch (with Flow Direction)
  - ▨ Wetland
  - ▭ Approximate Campo Verde Facility Boundary
  - ▭ 200 Foot Buffer of Campo Verde Boundary
  - ▭ Bureau of Land Management Land





# Campo Verde Solar Site Potentially Jurisdictional Waters

- Legend**
- Photo Location
  - ▲ Culvert
  - Gate
  - Proposed Gen-tie
  - Gen-tie Alternative
  - Existing 500 kV Transmission Line
  - Existing 230 kV Transmission Line
  - Interstate
  - Major Road
  - International Boundary
  - Potentially Jurisdictional Surface Water Conveyance Feature
    - ▶ Canal (with Flow Direction)
    - ▶ Drain (with Flow Direction)
    - ▶ Head Ditch (with Flow Direction)
    - ▶ Tail Ditch (with Flow Direction)
  - ▨ Wetland
  - Approximate Campo Verde Facility Boundary
  - 200 Foot Buffer of Campo Verde Boundary
  - Bureau of Land Management Land

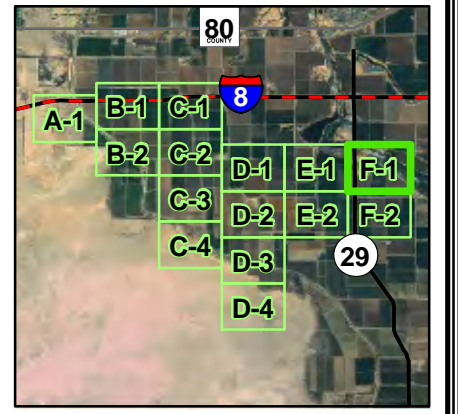
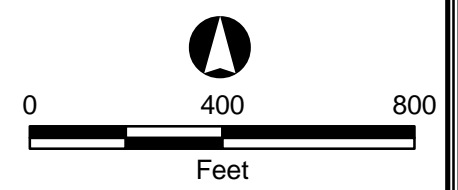




# Campo Verde Solar Site Potentially Jurisdictional Waters



- Legend**
- Photo Location
  - ▲ Culvert
  - Gate
  - ▬ Proposed Gen-tie
  - ▬ Gen-tie Alternative
  - ▬ Existing 500 kV Transmission Line
  - ▬ Existing 230 kV Transmission Line
  - ▬ Interstate
  - ▬ Major Road
  - ▬ International Boundary
- Potentially Jurisdictional Surface Water Conveyance Feature
- ▶ Canal (with Flow Direction)
  - ▶ Drain (with Flow Direction)
  - ▶ Head Ditch (with Flow Direction)
  - ▶ Tail Ditch (with Flow Direction)
  - ▨ Wetland
  - ▭ Approximate Campo Verde Facility Boundary
  - ▭ 200 Foot Buffer of Campo Verde Boundary
  - ▭ Bureau of Land Management Land

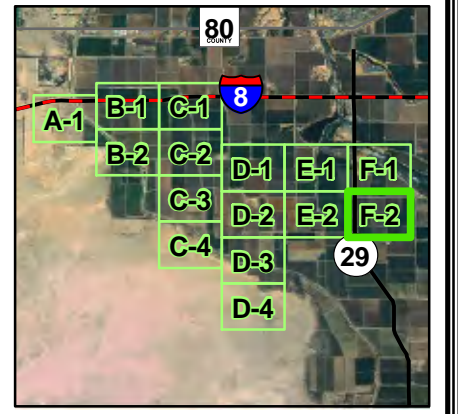
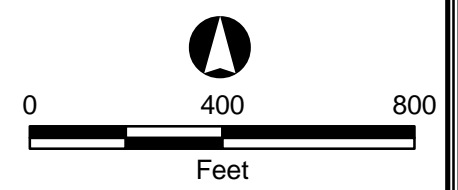




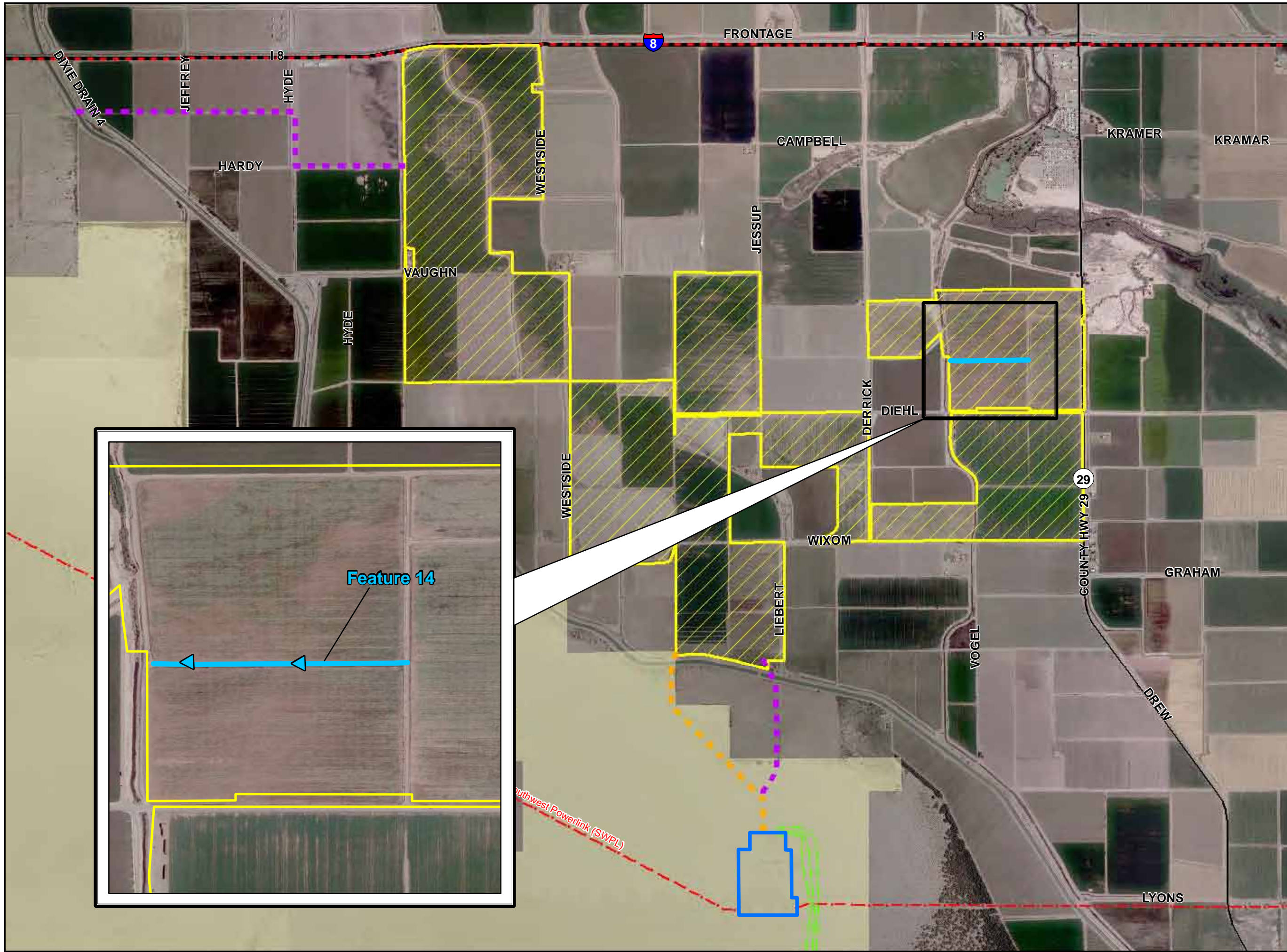
# Campo Verde Solar Site Potentially Jurisdictional Waters



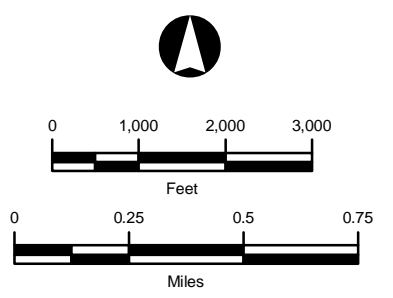
- Legend**
- Photo Location
  - ▲ Culvert
  - Gate
  - Proposed Gen-tie
  - Gen-tie Alternative
  - Existing 500 kV Transmission Line
  - Existing 230 kV Transmission Line
  - Interstate
  - Major Road
  - International Boundary
  - Potentially Jurisdictional Surface Water Conveyance Feature**
  - ▶ Canal (with Flow Direction)
  - ▶ Drain (with Flow Direction)
  - ▶ Head Ditch (with Flow Direction)
  - ▶ Tail Ditch (with Flow Direction)
  - ▨ Wetland
  - Approximate Campo Verde Facility Boundary
  - 200 Foot Buffer of Campo Verde Boundary
  - Bureau of Land Management Land







- Legend**
- - - Existing 500 kV Transmission Line
  - - - Existing 230 kV Transmission Line
  - - - Proposed Gen-Tie
  - - - Gen-Tie Alternative
- Potentially Jurisdictional Surface Water Conveyance Feature
- ▶ Tail Ditch (With Flow Direction)
  - - - Interstate
  - Major Road
  - ▨ Campo Verde Solar Site
- Jurisdictional Land Ownership
- Bureau of Land Management Land



State Plane Coordinate System  
 California Zone 6, NAD 83  
 Lambert Conformal Conic Projection  
 1983 North American Datum  
 Linear Unit: Foot US

**CAMPO VERDE SOLAR PROJECT**

**FIGURE 8 POTENTIALLY IMPACTED JURISDICTIONAL WATERS**

Map Extent: Imperial County, California

Date: 01.19.12 Author: djb

...Maps\Figure 8 Potentially Impacted Jurisdictional Waters.mxd



**ATTACHMENT 2 – PLANT SPECIES OBSERVED IN  
THE CAMPO VERDE SURVEY AREA**

## Campo Project - Plant Species Observed in Study Area

Family/Scientific Name	Common Name	Habitat	Observed in Campo Verde Project Area (BLM Lands)
<b>Ephedraceae</b>			
<i>Ephedra trifurca</i>	Three-fork ephedra	DS	Yes
<b>Agavaceae</b>			
<i>Hesperocallis undulata</i>	Desert lily	DS	Yes
<b>Poaceae</b>			
<i>Cynodon dactylon</i>	Bermuda grass	AD	Yes
<i>Distichlis spicata</i>	Salt grass	Canals	No
<i>Phragmites australis</i>	Common reed	Canals	No
<i>Schismus arabicus</i>	Arabian schismus	DS	Yes
<i>Sorghum bicolor</i>	Sorghum	AD	No
<b>Typhaceae</b>			
<i>Typha latifolia</i>	Cattails	Canals	No
<i>Atriplex lentiformis</i>	Quailbush	Fallow Ag	No
<b>Asteraceae</b>			
<i>Ambrosia dumosa</i>	White Bursage	DS	Yes
<i>Chaenactis stevioides</i>	Desert pincushion	DS	Yes
<i>Encelia frutescens</i>	Rayless encelia	DS	Yes
<i>Geraea canescens</i>	Desert sunflower	DS	Yes
<i>Isocoma acradenia</i>	Goldenbush	DS	Yes
<i>Malacothrix glabrata</i>	Desert dandelion	DS	Yes
<i>Palafoxia arida</i> var. <i>arida</i>	Spanish needles	DS	Yes
<i>Pluchea odorata</i> var. <i>odorata</i>	Salt marsh fleabane	Canals	No
<i>Pluchea sericea</i>	Arrow-weed	Canal Banks	No
<i>Rafinesquia neomeicana</i>	Desert chicory	DS	Yes
<b>Boraginaceae</b>			
<i>Cryptantha angustifolia</i>	Narrow-leaf cryptantha	DS	Yes
<i>Cryptantha maritima</i>	White-hair cryptantha	DS	Yes
<i>Cryptantha micrantha</i>	Purple-root micrantha	DS	Yes
<i>Pectocarya heterocarpa</i>	Mixed-nut pectocarya	DS	Yes
<i>Tiquilia palmeri</i>	Palmer's coldenia	DS	Yes
<b>Brassicaceae</b>			
<i>Brassica tournefortii</i>	Sahara mustard	DS	Yes
<i>Sisymbrium irio</i>	London rocket	DS	Yes
<b>Chenopodiaceae</b>			
<i>Atriplex canescens</i>	Shadscale	DS	Yes
<i>Atriplex lentiformis</i>	Quailbush	DS	Yes
<i>Bassia hyssopifolia</i>	Five-hook bassia	AD	No
<i>Chenopodium murale</i>	Nettle-leaf goosefoot	AD	No
<i>Salsola paulsenii</i>	Barbwire Russian thistle	DS	Yes
<i>Salsola tragus</i>	Russina thistle	AD	No
<b>Fabaceae</b>			
<i>Dallea mollissima</i>	Soft prairie clover	DS	Yes
<i>Melilotus indicus</i>	Indian sweetclover	AD	No
<i>Prosopis glandulosa</i> var. <i>torreyana</i>	Honey mesquite	Wash	Yes
<i>Prosopis pubescens</i>	Screw bean mesquite	Wash	No

<i>Psorothamnus emoryi</i>	White dalea	DS	Yes
<b>Nyctaginaceae</b>			
<i>Abronia villosa</i> var. <i>villosa</i>	Desert sand verbena	DS	Yes
<b>Onagraceae</b>			
<i>Chylismia brevipes</i>	Sun cup	DS	Yes
<i>Oenothera deltooides</i> ssp. <i>deltooides</i>	Basket evening-primrose	DS	Yes
<b>Plantaginaceae</b>			
<i>Plantago ovata</i>	Woolly plantain	DS	Yes
<i>Plantago patagonica</i>	Desert plantain	DS	Yes
<b>Polygonaceae</b>			
<i>Eriogonum thomasi</i>	Thomas' wild buckwheat	DS	Yes
<b>Resedaceae</b>			
<i>Oligomeris linifolia</i>	Narrow-leaf oligomeris	DS	Yes
<b>Solanaceae</b>			
<i>Lycium</i> sp.	Desert box- thorn	DS	Yes
<b>Tamaricaceae</b>			
<i>Tamarix ramosissima</i>	Tamarisk	Ditch, Canal	Yes
<i>Tamarix aphylla</i>	Athel	DS	Yes
<b>Zygophyllaceae</b>			
<i>Larrea tridentata</i>	Creosote bush	DS	Yes



**ATTACHMENT 3 – WILDLIFE SPECIES  
OBSERVED IN THE CAMPO VERDE SURVEY  
AREA**

**Campo Verde Project - Wildlife Species Observed/Detected in Study Area**

<i>Common Name</i>	<i>Scientific Name</i>
<b>Birds</b>	
American Coot	<i>Fulica americana</i>
American Kestrel	<i>Falco sparverius</i>
Barn Swallow	<i>Hirundo rustica</i>
Black Phoebe	<i>Sayornis nigricans</i>
Blue-gray Gnatcatcher	<i>Polioptila caerulea</i>
Burrowing Owl	<i>Athene cunicularia</i>
California Gull	<i>Larus californicus</i>
Cattle Egret	<i>Bubulcus ibis</i>
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>
Common Ground Dove	<i>Columbia passerina</i>
Common Raven	<i>Corvus corax</i>
European Starling	<i>Sturnus vulgaris</i>
Gambel's Quail	<i>Callipepla gambelii</i>
Great-tailed Grackle	<i>Quiscalus mexicanus</i>
Greater Roadrunner	<i>Geococcyx californianus</i>
Horned Lark	<i>Eremophila alpestris</i>
Killdeer	<i>Charadrius vociferus</i>
Loggerhead Shrike	<i>Lanius ludovicianus</i>
Long-billed Curlew	<i>Numenius americanus</i>
Mourning Dove	<i>Zenaida macroura</i>
Northern Harrier	<i>Circus cyaneus</i>
Northern Mockingbird	<i>Mimus polyglottos</i>
Prairie Falcon	<i>Falco mexicanus</i>
Red-tailed Hawk	<i>Buteo jamaicensis</i>
Red-winged Blackbird	<i>Agelaius phoeniceus</i>
Rock Dove	<i>Columbia livia</i>
Rufous-crowned Sparrow	<i>Aimophila ruficeps</i>
Savannah Sparrow	<i>Passerculus sandwichensis</i>
Say's Phoebe	<i>Sayornis saya</i>
Snowy Egret	<i>Egretta thula</i>
Song Sparrow	<i>Melospiza melodia</i>
Turkey Vulture	<i>Cathartes aura</i>
Western Kingbird	<i>Tyrannus verticalis</i>
Western Meadowlark	<i>Sturnella neglecta</i>
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>

<i>Common Name</i>	<i>Scientific Name</i>
White-faced Ibis	<i>Plegadis chihi</i>
White-winged Dove	<i>Zenaida asiatica</i>
Yellow-rumped Warbler (Audubon's)	<i>Dendroica coronata auduboni</i>
<b>Mammals</b>	
Bobcat	<i>Lynx rufus</i>
Coyote	<i>Canis latrans</i>
Desert cottontail	<i>Sylvilagus audubonii</i>
Kangaroo rat	<i>Dipodomys sp.</i>
Round-tailed Ground Squirrel	<i>Xerospermophilus tereticaudus</i>
<b>Reptiles</b>	
Desert Iguana	<i>Dipsosaurus dorsalis</i>
Flat-tailed Horned Lizard	<i>Phrynosoma mcallii</i>
Gecko	<i>Coleonix sp.</i>
Western whiptail	<i>Cnemidophorus tigris</i>



# **APPENDICES**

**APPENDIX 1 – BURROWING OWL SURVEY  
REPORT**

# Campo Verde Solar Energy Project Protocol Burrowing Owl Survey Report

---

*Phase I, II and III Survey Report (2012 Breeding Season)*

*Prepared for:*

*First Solar  
1111 Broadway, Fourth Floor  
Oakland, California 94607*

*Prepared by:*

*Heritage Environmental Consultants, LLC  
2870 Emporia Court  
Denver, Colorado 80238*



*April 2012*



# Table of Contents

---

<b>TABLE OF CONTENTS</b> .....	<b>I</b>
<b>1.0 PROJECT OVERVIEW</b> .....	<b>1</b>
<b>2.0 INTRODUCTION</b> .....	<b>2</b>
<b>3.0 STUDY AREA</b> .....	<b>3</b>
<b>4.0 SURVEY METHODS</b> .....	<b>4</b>
4.1 PHASE I AND PHASE II SURVEYS .....	4
4.2 PHASE III SURVEYS .....	4
<b>5.0 SURVEY RESULTS</b> .....	<b>6</b>
5.1 PHASE I AND II SURVEYS .....	6
5.2 PHASE III SURVEYS .....	6
<b>7.0 REFERENCES</b> .....	<b>14</b>
<b>APPENDIX A – ACTIVE BURROWS - OWL DATA</b> .....	<b>15</b>

## List of Tables

Table 1	Phase I and Phase II Survey Details
Table 2	Phase III Survey Details
Table 3	Phase III Burrow Status Summary

## List of Figures

Figure 1	Project Location
Figure 2	Study Area
Figure 3	Suitable Burrow Locations
Figure 4	Active Burrow Locations

# 1.0 PROJECT OVERVIEW

---

Western Burrowing Owls (*Athene cunicularia hypugea*) are common in Imperial County (DeSante et al. 2004) and were identified as a species of interest during the early planning stages for the Campo Verde Solar Project (Project). The Project is a proposed 1,990 acre solar photovoltaic (PV) energy-generating facility (solar energy facility site) located in Imperial County approximately 7 miles southwest of the community of El Centro, California. **Figure 1** shows the general location of the project.

The Project would use First Solar PV modules that are generally non-reflective and convert sunlight into direct current (DC) electricity. The DC output of multiple rows of PV modules is collected through one or more combiner boxes and directed to an inverter that converts the DC electricity to alternating current (AC) electricity. From the inverter, the generated energy flows to a transformer where it is stepped up to distribution level voltage (approximately 34.5 kV). Multiple transformers are connected in parallel via 34.5 kV lines to the Project substation, where the power will be stepped up to 230 kV.

The Project will be interconnected to the regional transmission system via a new gen-tie line constructed to the Imperial Valley Substation. This interconnection will be accomplished via one of three potential options – two requiring rights-of-way across federal lands managed by the Bureau of Land Management (BLM) and one located entirely on private lands (**Figure 2**).

The two gen-tie line alternatives that would cross BLM lands would originate at the Project substation/switchyard at the southern end of the Project site and would go south to the Imperial Valley Substation. Either of these two alternatives would be built as a double-circuit 230 kV line.

- The Alternative Gen-Tie across BLM land would follow the existing IID S-line and would be approximately 0.75 miles long (including about 0.4 miles of BLM land) crossing fallow agricultural land and native desert.
- The Proposed Gen-Tie Alternative would follow existing roads and would cross about one mile native desert (all BLM land). Both of these options are located entirely within a BLM-designated utility corridor.

The Private Land Gen-tie Alternative being considered is to develop a single-circuit 230 kV line originating on the western side of the Project site. It would cross approximately 1.75 miles of private lands to the west and would utilize available capacity on a line that has an approved right-of-way to the Imperial Valley Substation.

This report presents the results of protocol Burrowing Owl Surveys conducted during the 2012 breeding season. Previous surveys were conducted during the 2011 breeding season and the 2011/2012 winter (Heritage 2012).

## 2.0 Introduction

---

The Burrowing Owl is a California Species of Special Concern and a BLM sensitive species. It is protected by the MBTA and California Fish & Game Code §§ 3503, 3503.5, 3513. Nesting occurs from March through August (Haug et al. 1993). Burrowing Owls typically form a pair-bond for more than 1 year and exhibit high site fidelity, reusing the same burrow year after year (Haug et al. 1993). The female remains inside the burrow during most of the egg laying and incubation period and is fed by the male throughout brooding. Burrowing Owls are opportunistic feeders, consuming a diet that includes arthropods (typically insects), small mammals, small birds, and occasionally amphibians and reptiles (Haug et al. 1993). Urbanization has greatly reduced the amount of suitable habitat for this species. Other contributions to the decline of this species include the poisoning of squirrels and prairie dogs, and collisions with automobiles. A survey effort carried out between 1991 and 1993 indicated that major population densities in California remain in the Central and Imperial Valleys (DeSante et al. 1996; DeSante et al. 2004). This species is a year-round resident in Imperial County. Up to 70% of California's Burrowing Owls reside in the Imperial Valley (Wilkerson et al. 2011). Recent survey efforts have indicated a slight population decline in the Imperial Valley (-2.5%; Wilkerson et al. 2011).

The Burrowing Owl is primarily restricted to the western United States and Mexico. Habitat for the Burrowing Owl includes dry, open, short-grass areas often associated with burrowing mammals (Haug et al. 1993). In Imperial County, it is found in desert scrub, grasslands, and agricultural areas. Agricultural areas may benefit the species and appear to represent preferred habitat in Imperial County (DeSante et al. 1996; DeSante et al. 2004; Wilkerson et al. 2011; Bartok and Conway 2010).

The California Burrowing Owl Consortium (CBOC) developed the *Survey Protocol and Mitigation Guidelines* (CBOC 1993) document to meet the need for uniform standards when surveying Burrowing Owl populations and evaluating impacts from development projects. These guidelines are generally accepted by the California Department of Fish and Game (CDFG) and are intended to provide a decision-making process that should be implemented wherever there is potential for an action or project to adversely affect Burrowing Owls or the resources that support them.

The CBOC guidelines suggest Burrowing Owl surveys be conducted in three phases. The purpose of a Phase I survey is to assess the presence of Burrowing Owl habitat in the project area. Phase II surveys are necessary to determine if suitable burrows occur on the site. Phase III surveys are intended to characterize owl presence during the nesting season and/or during winter. This report presents the findings of the Phase I, II, and III surveys within the proposed Campo Verde Solar Project Site and associated buffers and within the proposed Gen-tie Line corridors and associated buffers (see **Section 3.0**).



## 3.0 Study Area

---

The study area is comprised of five main components: (1) the 1,990-acre Campo Verde Solar Site; (2) the Proposed Gen-tie; (3) the Alternative Gen-tie across BLM land; (4) the Private Land Gen-tie Alternative; and (5) a 500-foot buffer surrounding the Campo Verde Solar Energy Facility Site and the Gen-tie Corridors (**Figure 2**).

The Campo Verde Solar Energy Facility Site is primarily active agricultural lands growing crops such as alfalfa, Sudan grass, and Bermuda grass. Native vegetation on the site is generally absent with a few exceptions. The fields on the site are ringed by a series of earthen and concrete canals and drains that provide irrigation and drainage for the fields. Sporadic and limited riparian and wetland vegetation occur along portions of the earthen canals and berms. This vegetation is a mixture of native and non-native species and includes tamarisk (*Tamarix ramosissima*), cattails (*Typha* sp.), common reed (*Phragmites australis*), salt grass (*Distichlis spicata*), arrow weed (*Pluchea serricea*) and salt marsh fleabane (*Pluchea odorata*). Routine maintenance of these drains and canals by the Imperial Irrigation District (IID) involves the periodic removal of vegetation to maintain uninhibited water flow. Since vegetation clearing is a routine activity, the wetland vegetation is usually sparse and not well developed. Removal of this vegetation also provides suitable Burrowing Owl habitat once mammals return to these areas and excavate burrows (Bartok and Conway 2010); therefore, Burrowing Owl habitat in the project area is regularly changing, including creation of new burrow sites and loss of existing burrow sites. Topography in the study area is generally flat.

The Private Land Gen-tie Alternative would cross approximately 1.75-miles of active agricultural land that is similar to the Campo Verde Solar Energy Facility. The Proposed Gen-tie would follow existing roads and would cross about 1.0 mile of native desert. The Alternative Gen-Tie Across BLM land would follow the existing IID S-line and would cross about 0.4 miles of native desert and 0.3 miles of fallow agriculture. Both of these options are located entirely within a BLM-designated utility corridor. This area is generally flat Colorado Desert dominated by creosote bush (*Larrea tridentata*) scrub, athel (*Tamarix aphylla*) windbreaks, stabilized desert dune complex and arrow weed thicket.

# 4.0 Survey Methods

---

## 4.1 PHASE I AND PHASE II SURVEYS

Phase I surveys were conducted in the spring of 2011 and determined that most of the study area contained suitable Burrowing Owl habitat. While initial Phase II surveys had been performed during the 2011 breeding season and the winter of 2011/2012, Phase II surveys were redone in the entire survey area in order to account for burrow loss and recruitment that may have occurred. Phase II surveys of the study area were conducted by qualified biologists during the 2012 breeding season (March).

Phase II surveys covered the entire study area and potentially suitable burrows were recorded. Transects at 10-meter spacing were walked within the Proposed Gen-Tie and Alternative Gen-tie Across BLM land (including a 500-foot buffer around the project area and gen-tie corridors) to ensure that all suitable burrows were identified. Within agricultural lands, a combination of vehicular and pedestrian surveys was conducted within suitable habitat, mainly along roads and irrigation infrastructure (per Bartok and Conway 2010).

Burrows that had the potential to be used by Burrowing Owls were marked using a handheld global positioning system (GPS) unit. Photos were taken of representative potential burrows and owl observations were noted when present. “Burrow Clusters” were recorded in areas that supported high densities of burrow entrances that were either (1) multiple entrances associated with a single burrow; or (2) separate burrows that were located too close together to support more than one breeding pair of owls (burrows within 5 meters of each other).

## 4.2 PHASE III SURVEYS

The Burrowing Owl nesting season begins as early as February 1 and continues through August 31 (Thomsen 1971, Zam 1974). The timing of nesting activities varies with latitude and climatic conditions. Phase III surveys at the project were conducted during the breeding season, beginning March 1 and ending August 31. All Burrowing Owl sightings were recorded (including occupied burrows and burrows with sign) and mapped. Numbers of adults and juveniles were recorded (**Appendix A**), as well as behavior such as courtship and copulation. Territory boundaries and foraging areas were not mapped, mainly because of the difficulty posed by the active nests being so close together where home-ranges potentially overlap.

Surveys were conducted in the morning and evening (one-half hour before to two hours after sunrise and two hours before to one-half hour after sunset). Burrows were examined for owl sign during the first observation of suitable burrows (typically during Phase II surveys). Subsequent observations were conducted from fixed points further from the burrows that provided visual coverage of the burrows using spotting scopes or binoculars. When possible, observers remained in vehicles to minimize disturbance to the birds.

## Methods

Surveys were conducted at each burrow on four separate days in order to minimize the likelihood of false-negative results (CBOC 1993).



# 5.0 Survey Results

## 5.1 PHASE I AND II SURVEYS

In its current condition, the study area and surrounding areas were observed to contain suitable nesting habitat for Burrowing Owls. The site contains both natural and artificial burrows. The natural burrows were most commonly associated with slopes along berms, canals, or drains where soil conditions are apparently more suitable for burrow construction. In the absence of suitable natural burrows, Burrowing Owls have been known to nest in man-made features. Numerous man-made features in the study area also provide suitable artificial burrow opportunities, including concrete and metal culverts and irrigation pipes.

Phase II surveys were conducted during the spring of 2012. **Table 1** lists dates, times, weather, and the project components evaluated for the Phase II surveys. Two-hundred and fifty-seven (248) potentially suitable burrows were initially identified during the Phase II surveys. Over the course of the Phase III surveys, 40 of these burrows had been collapsed, filled in or otherwise made unsuitable. Therefore, the final count of potentially suitable burrows within the project area was 208. The final 208 potentially suitable burrows are depicted in **Figure 3**.

**Table 1. Phase I and Phase II Survey Details**

Date	Time	Weather Conditions	Project Component
March 5, 2012	1300-1750	75-81°F; mostly clear, wind <5mph	Solar Energy Facility Site and Buffer
March 6, 2012	0935-1801	57-68°F; clear, wind 5-15mph	Solar Energy Facility Site, Non-BLM ROW Gen-tie and Buffers
March 7, 2012	0943-1630	52-63°F; mostly cloudy-clear, wind 0-10mph	BLM ROW Gen-tie Corridors and Buffers

## 5.2 PHASE III SURVEYS

**Table 2** lists dates, times, weather, and visibility for the Phase III surveys. Due to the number of active burrows and individuals observed, data for each active burrow have been included in **Appendix A**. **Table 3** summarizes the results of the Phase III survey and breaks down results by project component. **Figure 4** shows the location of the active burrows. To the maximum extent practicable, active burrows were surveyed in reverse order during each round of Phase III surveys so that owls could be observed at different times of the day during each survey period.

**Table 2. Phase III Survey Details**

Date	Time	Weather Conditions
March 6, 2012	0540-0800	45-57°F; clear, wind <10mph
March 7, 2012	0625-0816	50-52°F; mostly cloudy, wind 10-15mph
	1603-1721	63-64°F; clear, calm
March 13, 2012	1640-1843	71-82°F; clear, wind <10mph
March 14, 2012	1645-1836	76-83°F; clear, calm
March 15, 2012	0634-0824	48-55°F; clear, calm
March 20, 2012	1657-1908	60-71°F; clear, calm
March 21, 2012	1635-1908	74-81°F; clear, calm
March 22, 2012	0638-0856	47-64°F, clear, calm
April 4, 2012	1700-1916	73-84°F, mostly clear, calm
April 5, 2012	1706-1856	77-84°F, clear, wind 10-15mph
April 6, 2011	0620-0815	46-62°F, clear, calm

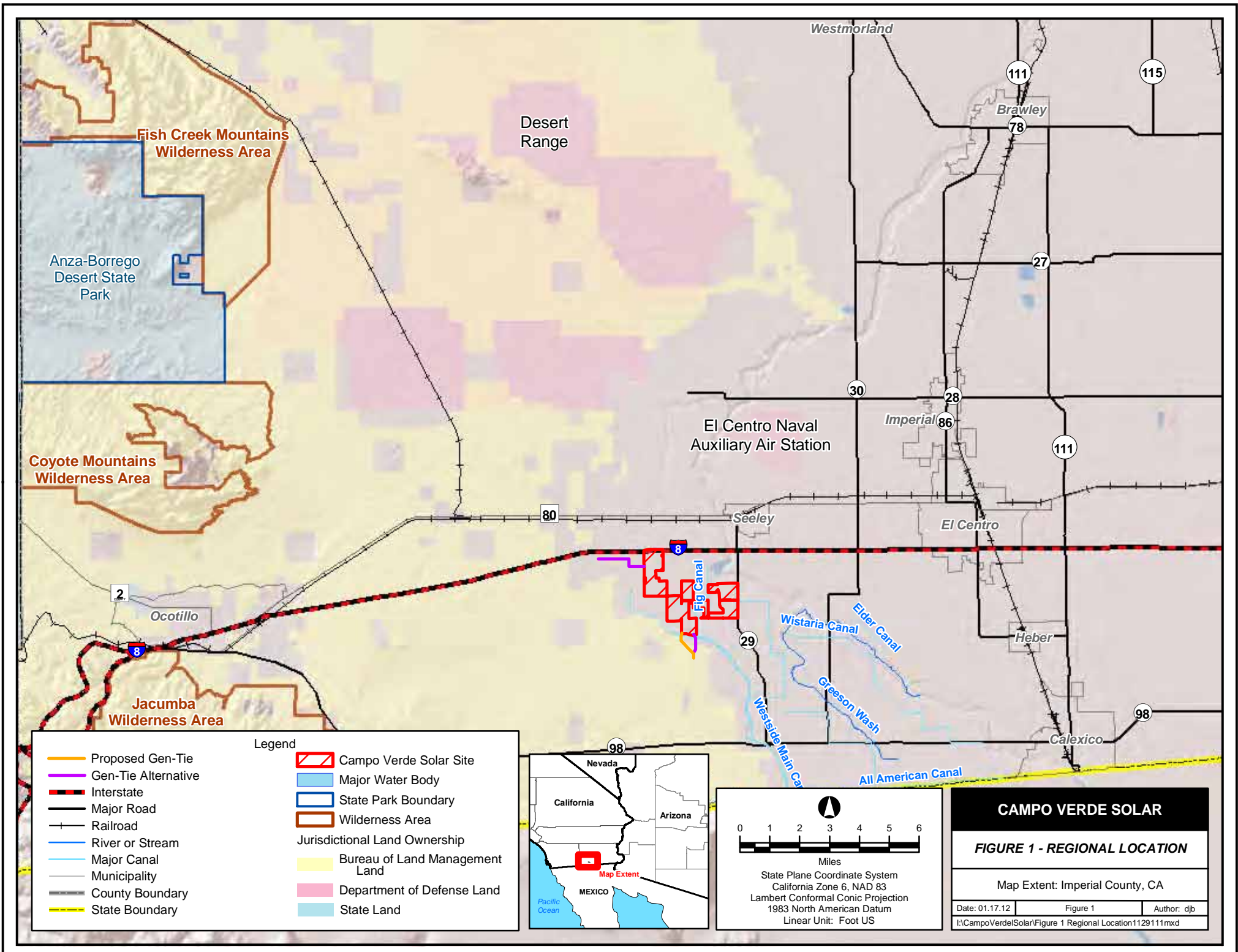
There were a total of 55 active burrows identified in the study area. There were 27 active burrows within the solar energy facility and 28 active burrows within the 500-foot buffer area. There were no active burrows identified within the Gen-tie Line corridors or associated buffers (**Table 3; Figure 4**).

For the purposes of this report, all active burrows are assumed to be attended by a pair (2) of Burrowing Owls. Cooperative breeding has not been observed in the species (Haug et al. 1993). Three owls were observed at burrow #230 on both March 6 and March 13. Subsequent surveys at this burrow (March 21 and April 4) identified only one adult owl. The third bird observed in the vicinity of burrow #230 could have been a wintering individual (>2 adults per burrow were more commonly observed during winter surveys). Alternatively, burrow #230 is located in an area of dense Burrowing Owl occupancy and this 3<sup>rd</sup> bird could have been associated with a nearby burrow. In several cases, only one adult was ever observed at a given burrow. However, without a mark-recapture or color banding study, it is not possible to confirm that these represent instances of an unpaired adult. Therefore, for the purposes of this report, all adult owls within the project area are assumed to be paired. “Active burrow” should be interpreted to represent a “breeding pair” throughout this document.

**Table 3. Phase III Burrow Status Summary**

Burrow Status	Campo Verde Facility	Campo Verde Facility Buffer	Proposed Gen-tie Corridor	Proposed Gen-tie Corridor Buffer	Gen-tie Alternative Corridor	Gen-tie Alternative Corridor Buffer	Private Gen-tie Corridor	Private Gen-tie Corridor Buffer	Total
Active	27	28	0	0	0	0	0	0	55
Inactive	51	53	5	26	14	4	0	0	153
<b>Total</b>	<b>78</b>	<b>81</b>	<b>5</b>	<b>26</b>	<b>14</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>208</b>

A table enumerating all active burrows and listing the survey results by date can be found in **Appendix A**.



Proposed Gen-Tie	Campo Verde Solar Site	
Gen-Tie Alternative	Major Water Body	
Interstate	State Park Boundary	
Major Road	Wilderness Area	
Railroad	<b>Jurisdictional Land Ownership</b>	
River or Stream	Bureau of Land Management Land	
Major Canal	Department of Defense Land	
Municipality	State Land	
County Boundary		
State Boundary		



0 1 2 3 4 5 6  
Miles

State Plane Coordinate System  
California Zone 6, NAD 83  
Lambert Conformal Conic Projection  
1983 North American Datum  
Linear Unit: Foot US

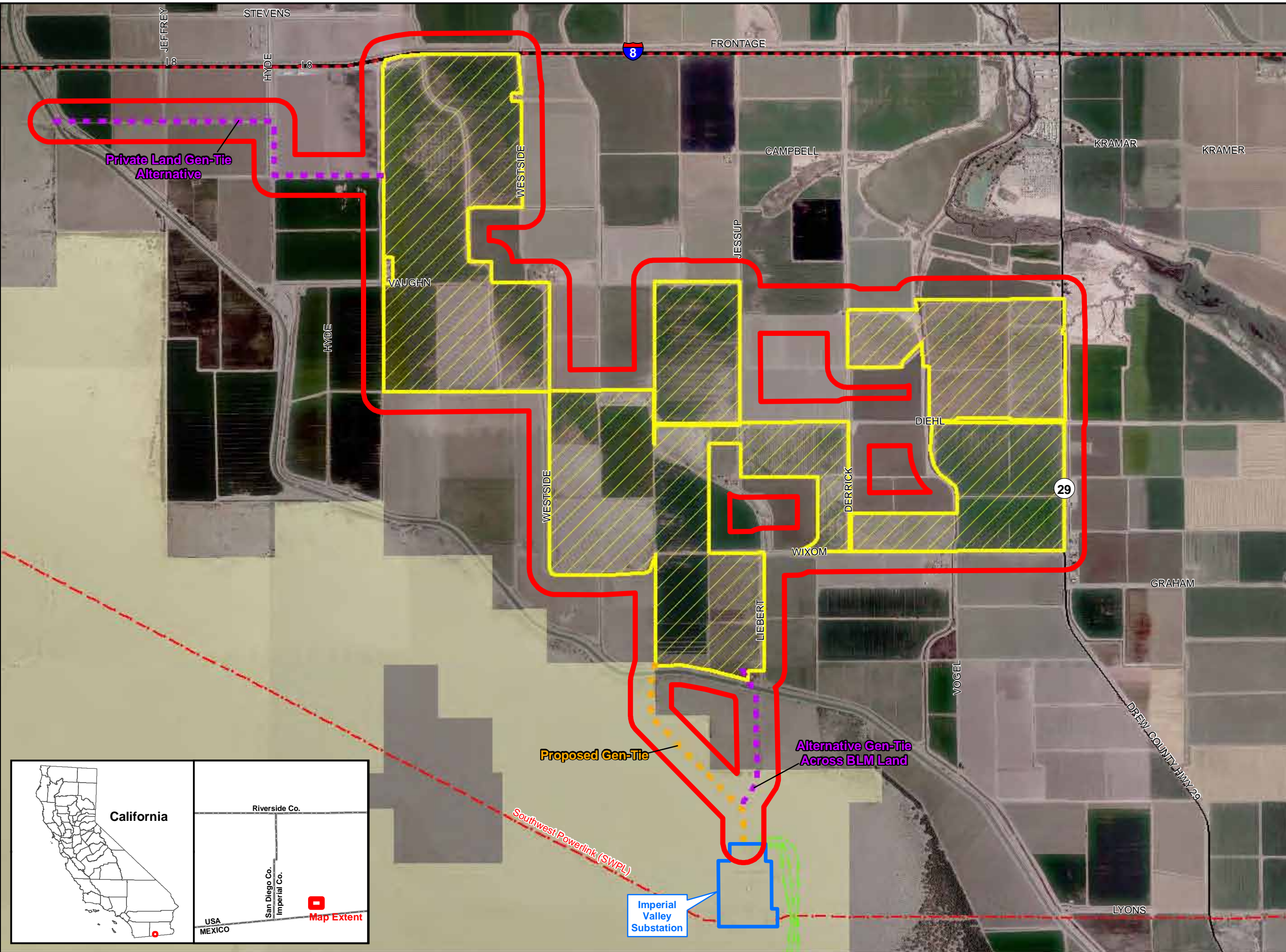
**CAMPO VERDE SOLAR**

**FIGURE 1 - REGIONAL LOCATION**

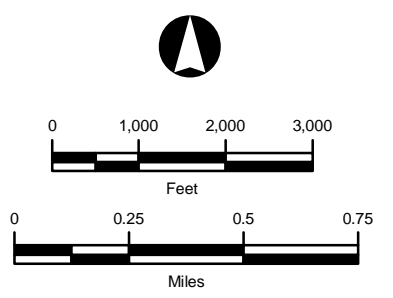
Map Extent: Imperial County, CA

Date: 01.17.12	Figure 1	Author: djb
I:\CampoVerdeSolar\Figure 1 Regional Location\1129111.mxd		





- Legend**
- Existing 500 kV Transmission Line
  - Existing 230 kV Transmission Line
  - Proposed Gen-Tie
  - Gen-Tie Alternative
  - Interstate
  - Major Road
  - County Boundary
  - Campo Verde Solar Site
  - Burrowing Owl Survey Area
  - Jurisdictional Land Ownership**
  - Bureau of Land Management Land



State Plane Coordinate System  
 California Zone 6, NAD 83  
 Lambert Conformal Conic Projection  
 1983 North American Datum  
 Linear Unit: Foot US

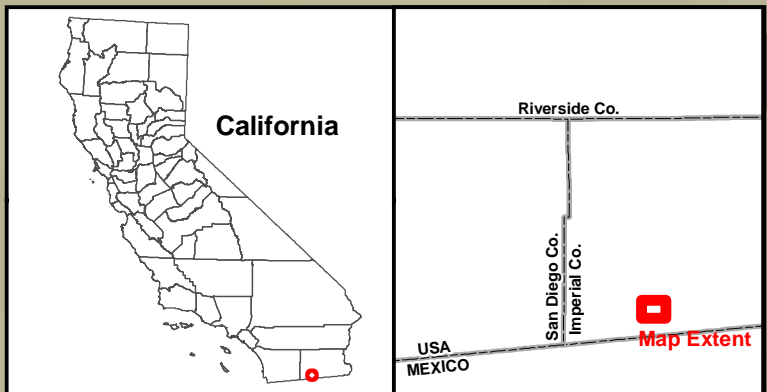
**CAMPO VERDE SOLAR PROJECT**

**FIGURE 2 - STUDY AREA**

Map Extent: Imperial County, California

Date: 02.15.12 Author: djb

...Maps\Figure2BUOWStudyArea.mxd



Imperial Valley Substation

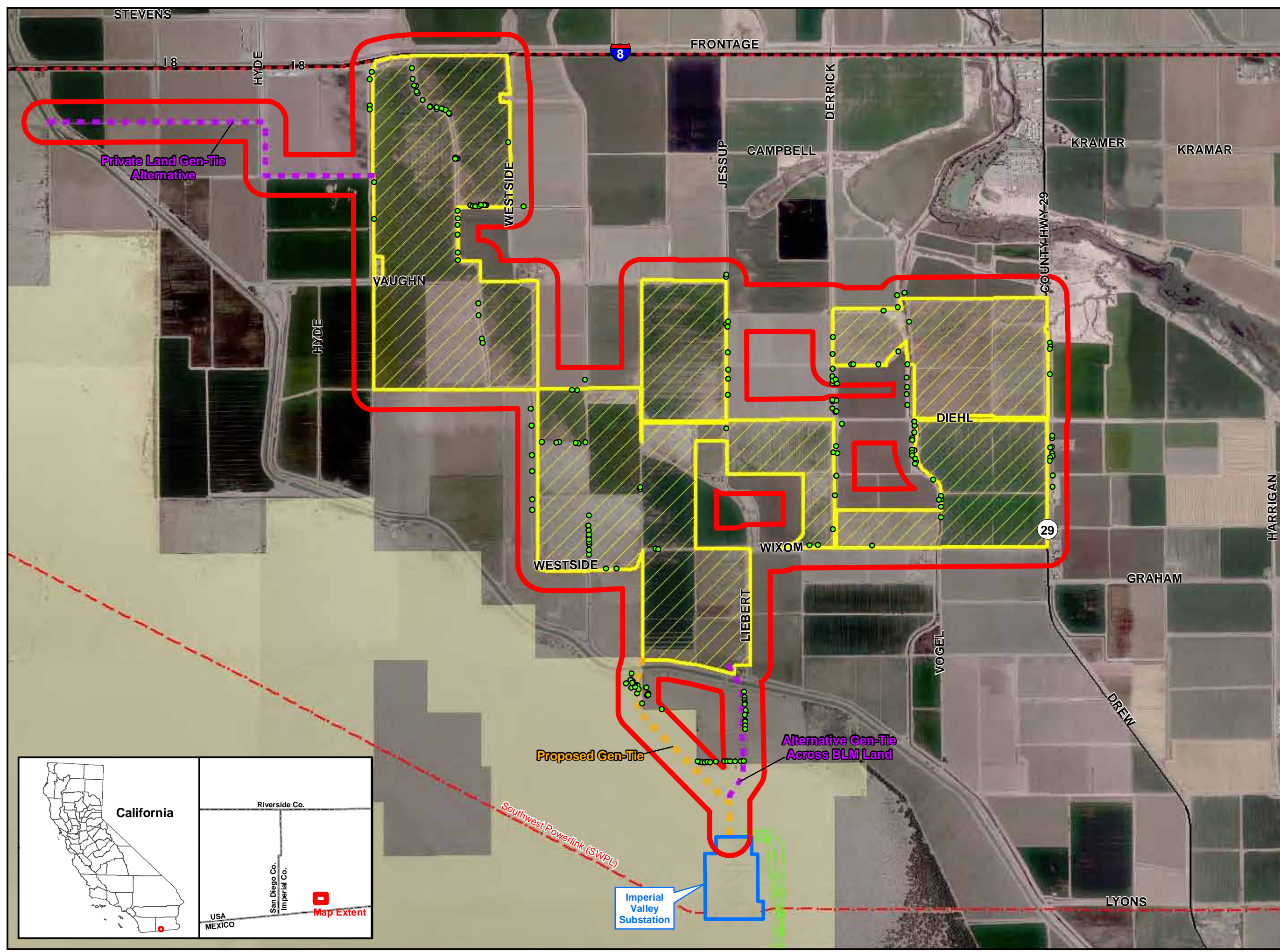
Proposed Gen-Tie

Alternative Gen-Tie Across BLM Land

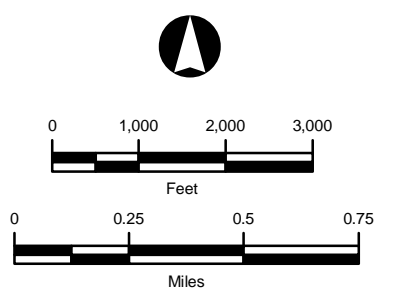
Private Land Gen-Tie Alternative

Southwest Powerlink (SWPL)

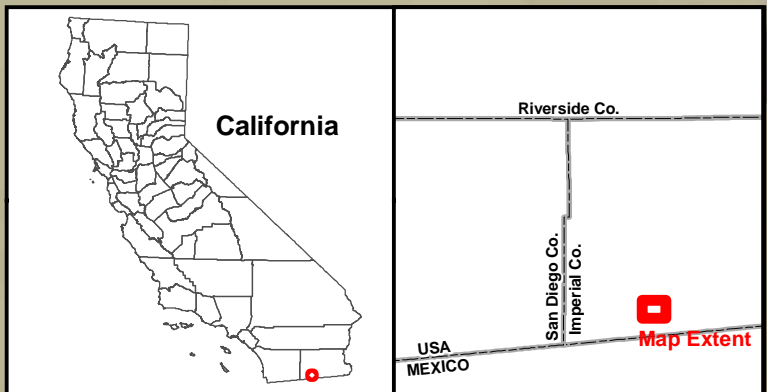




- Legend**
- Suitable Burrow
  - Existing 500 kV Transmission Line
  - Existing 230 kV Transmission Line
  - Proposed Gen-Tie
  - Gen-Tie Alternative
  - Interstate
  - Major Road
  - County Boundary
  - Campo Verde Solar Site
  - Burrowing Owl Survey Area
- Jurisdictional Land Ownership
- Bureau of Land Management Land



State Plane Coordinate System  
 California Zone 6, NAD 83  
 Lambert Conformal Conic Projection  
 1983 North American Datum  
 Linear Unit: Foot US



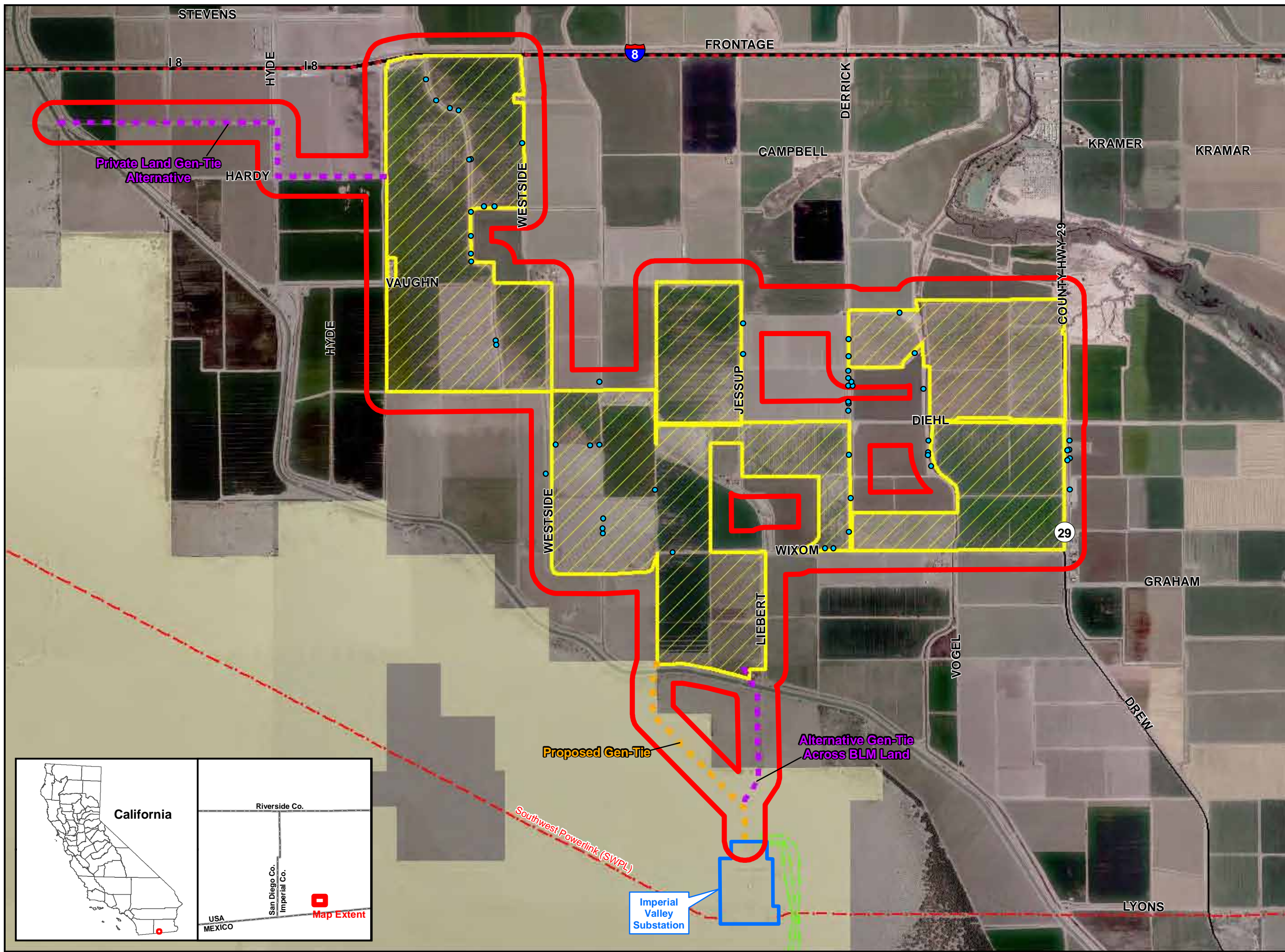
**CAMPO VERDE SOLAR PROJECT**

**FIGURE 3 - BURROWING OWL SUITABLE BURROW LOCATIONS**

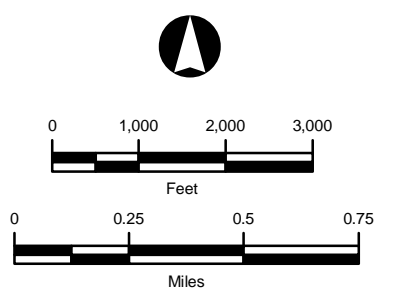
Map Extent: Imperial County, California

Date: 04.18.12	Author: djb
...Maps\Figure3SuitableBurrows_Final Locations_041312.mxd	

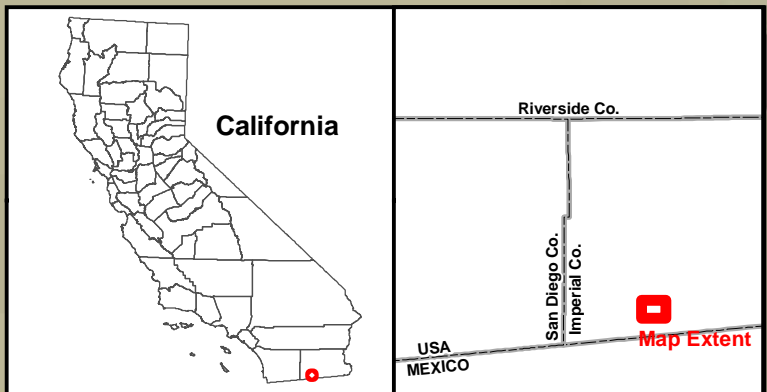




- Legend**
- Active Burrow
  - Existing 500 kV Transmission Line
  - Existing 230 kV Transmission Line
  - Proposed Gen-Tie
  - Gen-Tie Alternative
  - Interstate
  - Major Road
  - County Boundary
  - Campo Verde Solar Site
  - Burrowing Owl Survey Area
- Jurisdictional Land Ownership
- Bureau of Land Management Land



State Plane Coordinate System  
 California Zone 6, NAD 83  
 Lambert Conformal Conic Projection  
 1983 North American Datum  
 Linear Unit: Foot US



**CAMPO VERDE SOLAR PROJECT**

**FIGURE 4 - BURROWING OWL ACTIVE BURROW LOCATIONS**

Map Extent: Imperial County, California

Date: 04.18.12	Author: djb
...Maps\Figure4ActiveBurrows_Final Locations_041312.mxd	



**Selected Photos**

Adult Burrowing Owl and representative active burrow with pellets, whitewash, and other debris.



Representative potentially suitable man-made burrow (Alternative Gen-Tie Across BLM Land).





Representative potentially suitable natural burrow (Proposed Gen-Tie Alternative).



Representative potentially suitable natural burrow with sign (whitewash)(Proposed Gen-Tie Alternative).



# 7.0 References

---

- Bartok, N. D. and C. J. Conway. 2010. Factors affecting the presence of nesting Burrowing Owls in and agricultural landscape. *J. Raptor Res.* 44(4): 286-293.
- California Burrowing Owl Consortium (CBOC). 1993. Burrowing Owl Survey Protocol and Mitigation Guidelines. 15 pages.
- DeSante, D. F., E. D. Ruhlen and D. K. Rosenberg. 2004. Density and abundance of Burrowing Owls in the agricultural matrix of the Imperial Valley, California. *Studies in Avian Biology* 27: 116-119.
- DeSante, D. F., Burton, K. M., and O'Grady, D. R. 1996. The Monitoring Avian Productivity and Survivorship (MAPS) Program fourth and fifth annual report (1993 and 1994). *Bird Populations* 3:67-120.
- Haug, E. A., B. A. Millsap and M. S. Martell. 1993. Burrowing Owl (*Athene cunicularia*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu.bnaproxy.birds.cornell.edu/bna/species/061doi:10.2173/bna.61>
- Heritage Environmental Consultants, LLC (Heritage). 2012. Campo Verde Solar Energy Project Protocol Burrowing Owl Survey Report, Phase I, II and III Survey Report (2011 Breeding and 2011/2012 Winter Resident). 26pp.
- Thomsen, L. 1971. Behavior and Ecology of Burrowing Owls on the Oakland Municipal Airport. *Condor* 73: 177-192.
- Wilkerson, B., R. Siegel, J. L. Lincer and D. Palmer. 2011. An overview of Burrowing Owls in the western United States. Presentation at the Western Raptor Symposium, Riverside California. February 8-9, 2011.
- Zam, M. 1974. Burrowing Owl. U. S. Department of Interior, Bureau of Land Management. Technical Note T-N 250. Denver, Colorado. 25pp.



# Appendix A – Active Burrows - Owl Data

Burrow ID	Project Component	2012 Breeding Season	
		Date	# Owls
1	500-foot Facility Buffer	3/6/2012	0
		3/13/2012	0
		3/21/2012	0
		4/4/2012	1
3	500-foot Facility Buffer	3/6/2012	2
		3/13/2012	0
		3/21/2012	0
		4/4/2012	0
7	500-foot Facility Buffer	3/6/2012	0
		3/13/2012	0
		3/21/2012	2
		4/4/2012	1
9	500-foot Facility Buffer	3/5/2012	1
		3/6/2012	0
		3/13/2012	0
		3/21/2012	0
		4/4/2012	0
10	500-foot Facility Buffer	3/5/2012	1
		3/6/2012	0
		3/13/2012	0
		3/21/2012	0
		4/4/2012	0
13	500-foot Facility Buffer	3/6/2012	1
		3/13/2012	0
		3/21/2012	2
		4/4/2012	2
30	500-foot Facility Buffer	3/6/2012	0
		3/13/2012	0
		3/21/2012	2
		4/4/2012	2
33	500-foot Facility Buffer	3/6/2012	1
		3/13/2012	0
		3/21/2012	0
		4/4/2012	0
35	500-foot Facility Buffer	3/6/2012	1
		3/13/2012	2
		3/21/2012	2
		4/4/2012	2

Burrow ID	Project Component	2012 Breeding Season	
		Date	# Owls
49	500-foot Facility Buffer	3/6/2012	2
		3/13/2012	2
		3/21/2012	2
		4/4/2012	1
52	500-foot Facility Buffer	3/6/2012	0
		3/13/2012	1
		3/21/2012	0
		4/4/2012	0
53	500-foot Facility Buffer	3/6/2012	2
		3/13/2012	2
		3/21/2012	2
		4/4/2012	2
54	500-foot Facility Buffer	3/5/2012	1
		3/6/2012	0
		3/13/2012	0
		3/21/2012	0
55	500-foot Facility Buffer	4/4/2012	0
		3/6/2012	2
		3/13/2012	2
		3/21/2012	2
60	500-foot Facility Buffer	4/4/2012	0
		3/6/2012	0
		3/13/2012	0
		3/21/2012	0
72	500-foot Facility Buffer	4/4/2012	0
		3/6/2012	2
		3/13/2012	2
		3/21/2012	1
74	Solar Facility	4/4/2012	2
		3/6/2012	0
		3/13/2012	0
		3/21/2012	2
85	500-foot Facility Buffer	4/4/2012	2
		3/6/2012	1
		3/7/2012	0
		3/13/2012	0
103	500-foot Facility Buffer	3/21/2012	0
		4/4/2012	0
		3/7/2012	0
		3/14/2012	2
		3/20/2012	0
		4/5/2012	1

Burrow ID	Project Component	2012 Breeding Season	
		Date	# Owls
108	500-foot Facility Buffer	3/7/2012	0
		3/14/2012	2
		3/20/2012	1
		4/5/2012	0
109	Solar Facility	3/7/2012	0
		3/14/2012	1
		3/20/2012	0
		4/5/2012	1
110	Solar Facility	3/7/2012	1
		3/14/2012	1
		3/20/2012	0
		4/5/2012	1
112	Solar Facility	3/7/2012	1
		3/14/2012	1
		3/20/2012	1
		4/5/2012	0
115	Solar Facility	3/7/2012	0
		3/14/2012	1
		3/20/2012	1
		4/5/2012	2
118	500-foot Facility Buffer	3/7/2012	0
		3/14/2012	0
		3/20/2012	2
		4/5/2012	0
120	Solar Facility	3/6/2012	1
		3/7/2012	0
		3/14/2012	0
		3/20/2012	0
		4/5/2012	0
127	Solar Facility	3/7/2012	0
		3/14/2012	0
		3/20/2012	1
		4/5/2012	1
129	Solar Facility	3/7/2012	0
		3/14/2012	1
		3/20/2012	2
		4/5/2012	1



Burrow ID	Project Component	2012 Breeding Season	
		Date	# Owls
132	Solar Facility	3/7/2012	1
		3/14/2012	2
		3/20/2012	0
		4/5/2012	1
133	Solar Facility	3/7/2012	1
		3/14/2012	2
		3/20/2012	2
		4/5/2012	0
137	Solar Facility	3/6/2012	1
		3/7/2012	0
		3/20/2012	0
		4/5/2012	0
154	500-foot Facility Buffer	3/6/2012	0
		3/13/2012	1
		3/21/2012	1
		4/4/2012	1
215	500-foot Facility Buffer	3/6/2012	0
		3/13/2012	0
		3/21/2012	0
		4/4/2012	1
226	Solar Facility	3/5/2012	1
		3/6/2012	0
		3/13/2012	0
		3/21/2012	0
		4/4/2012	0
227	500-foot Facility Buffer	3/6/2012	2
		3/13/2012	2
		3/21/2012	2
		4/4/2012	2
229	Solar Facility	3/6/2012	1
		3/13/2012	0
		3/21/2012	2
		4/4/2012	1
232	Solar Facility	3/6/2012	2
		3/13/2012	2
		3/21/2012	2
		4/4/2012	2
234	500-foot Facility Buffer	3/6/2012	2
		3/13/2012	2
		3/21/2012	0
		4/4/2012	1

Burrow ID	Project Component	2012 Breeding Season	
		Date	# Owls
237	Solar Facility	3/7/2012	0
		3/14/2012	2
		3/20/2012	2
		4/5/2012	0
239	Solar Facility	3/7/2012	1
		3/14/2012	2
		3/20/2012	2
		4/5/2012	1
259	Solar Facility	3/7/2012	0
		3/14/2012	1
		3/20/2012	1
		4/5/2012	1
263	Solar Facility	3/7/2012	1
		3/14/2012	1
		3/20/2012	0
		4/5/2012	0
264	Solar Facility	3/7/2012	1
		3/14/2012	1
		3/20/2012	1
		4/5/2012	0
265	Solar Facility	3/7/2012	1
		3/14/2012	0
		3/20/2012	0
		4/5/2012	0
268	Solar Facility	3/7/2012	0
		3/14/2012	1
		3/20/2012	0
		4/5/2012	0
269	Solar Facility	3/7/2012	1
		3/14/2012	0
		3/20/2012	0
		4/5/2012	1
276	Solar Facility	3/7/2012	0
		3/14/2012	0
		3/20/2012	1
		4/5/2012	0
324	Solar Facility	3/14/2012	1
		3/20/2012	0
		4/5/2012	0

Burrow ID	Project Component	2012 Breeding Season	
		Date	# Owls
327	500-foot Facility Buffer	3/20/2012	1
		4/5/2012	0
328	Solar Facility	3/20/2012	1
		4/5/2012	1
329	500-foot Facility Buffer	3/21/2012	2
		4/4/2012	2
330	Solar Facility	3/21/2012	2
		4/4/2012	1
331	500-foot Facility Buffer	4/4/2012	1
332	Solar Facility	4/4/2012	1
334	500-foot Facility Buffer	4/5/2012	1



**APPENDIX 2 – JURISDICTIONAL WATERS  
REPORT**

# Campo Verde Solar Project Jurisdictional Waters Report

---

*January 2012*

**Contents**

INTRODUCTION ..... 1

    Campo Verde Solar Project..... 1

    Transmission Interconnection: Gen-tie Line Alternatives ..... 1

    Field Surveys..... 4

PHYSICAL SETTING ..... 4

    Campo Verde Solar Project..... 4

    Gen-tie Line ..... 4

ARMY CORPS OF ENGINEERS JURISDICTION..... 5

    Jurisdictional Features..... 6

CALIFORNIA DEPARTMENT OF FISH AND GAME JURISDICTION ..... 6

    Jurisdictional Features..... 6

DRAINAGE DESCRIPTIONS..... 7

REFERENCES..... 52

**Figures**

- Figure 1 – Regional Location
- Figure 2 – Project Location

**Appendices**

- Appendix A – Drainage Data Table
- Appendix B – Photographs
- Appendix C – Drainage Mapbook
- Appendix D – OHWM Forms



## INTRODUCTION

### ***Campo Verde Solar Project***

The Campo Verde Solar Project (Project) is a proposed solar photovoltaic (PV) energy-generating facility located in Imperial County approximately 7 miles southwest of the community of El Centro, California. **Figure 1** shows the general location of the project.

The Project is being developed to sell its electricity and all renewable and environmental attributes to an electric utility purchaser under a long-term contract to help meet California RPS goals. The applicant has a long-term Power Purchase Agreement (PPA) with San Diego Gas and Electric (SDG&E) to purchase output from the Project.

The Project Site is south of I-8, west of Drew Road, and northeast of the Westside Main Canal. **Figure 2** shows the boundary of the Site and the included parcels which total approximately 1,990 acres. These private lands are currently used for agriculture.

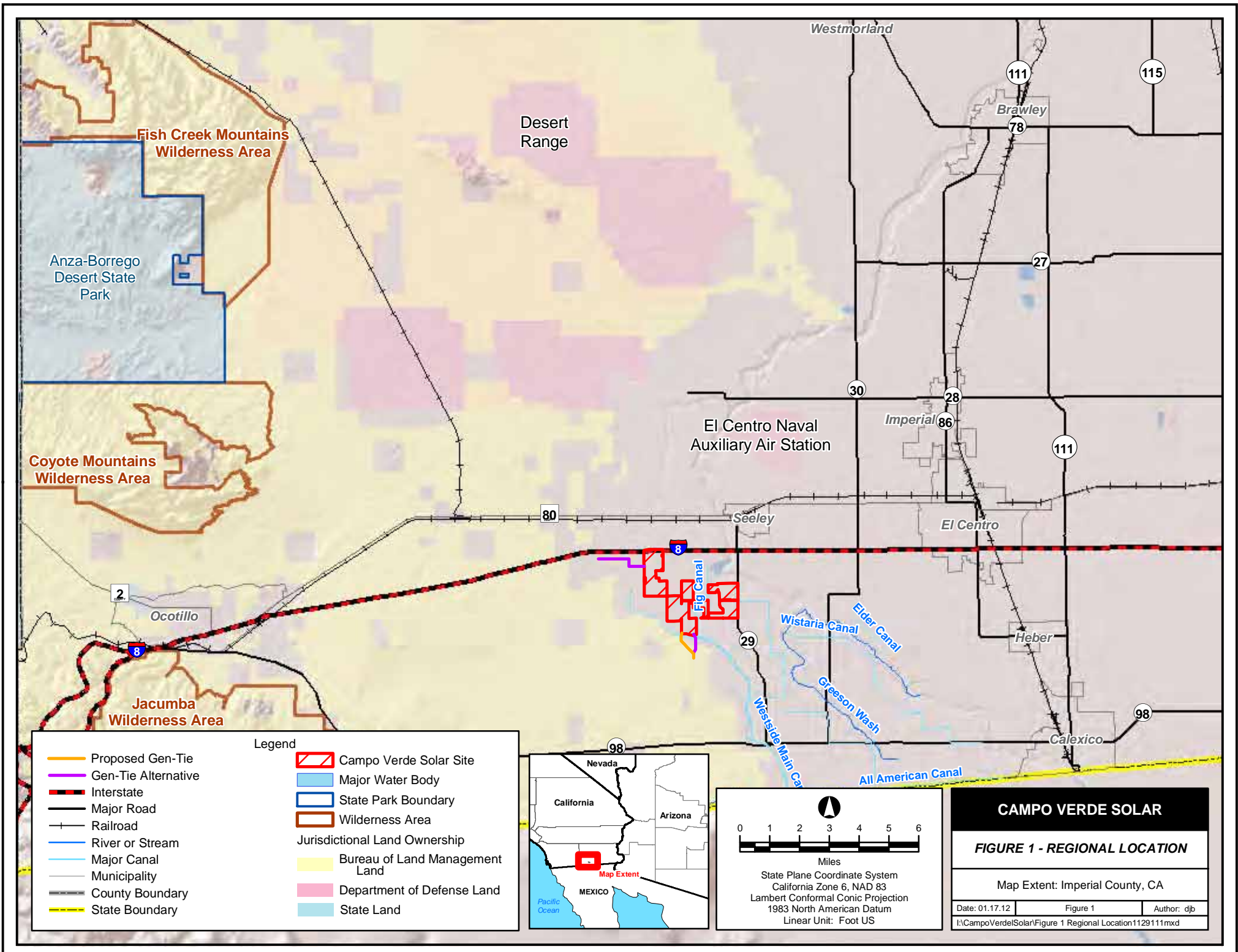
The Project would use First Solar PV modules that are generally non-reflective and convert sunlight into direct current (DC) electricity. The DC output of multiple rows of PV modules is collected through one or more combiner boxes and directed to an inverter that converts the DC electricity to alternating current (AC) electricity. From the inverter, the generated energy flows to a transformer where it is stepped up to distribution level voltage (approximately 34.5 kV). Multiple transformers are connected in parallel via 34.5 kV lines to the Project substation, where the power will be stepped up to 230 kV.

The Project is proposed to be constructed on lands that are presently farmed using flood irrigation. Water is delivered to fields using a series of delivery canals. Excess irrigation water and storm water are drained from the site by a series of ditches and drains that ultimately flow to the Salton Sea by way of the New River. Specific characteristics of the man-made irrigation features in the Project Area may cause some of them to be subject to federal jurisdiction under Section 404 of the Clean Water Act and/or subject to state jurisdiction under Sections 1600 *et seq.* of the Fish and Game Code, as described below. This report documents the occurrence of all drainages within the Project area, including gen-tie line alternatives, to determine their jurisdictional status under these federal and state authorities (**Figure 2**). For purposes of this report, drainages include all ephemeral, seasonal and permanent water bodies, including man-made canals and drains used for agricultural irrigation.

### ***Transmission Interconnection: Gen-tie Line Alternatives***

The Project will be interconnected to the regional transmission system via a new gen-tie line constructed to the Imperial Valley Substation. This interconnection will be accomplished via one of three potential gen-tie options – two requiring rights-of-way (ROWs) across federal lands managed by the Bureau of Land Management (BLM) and one private land gen-tie alternative that would provide the necessary interconnection without requiring ROW authorization from BLM.

The two gen-tie line alternatives that would cross BLM lands would be located entirely within a BLM-designated utility corridor. Each alternative would originate at the Project substation/switchyard at the southern end of the Project site and would go south to the Imperial Valley Substation. Either of these two



- |                     |                                |  |
|---------------------|--------------------------------|--|
| Proposed Gen-Tie    | Campo Verde Solar Site         |  |
| Gen-Tie Alternative | Major Water Body               |  |
| Interstate          | State Park Boundary            |  |
| Major Road          | Wilderness Area                |  |
| Railroad            | Jurisdictional Land Ownership  |  |
| River or Stream     | Bureau of Land Management Land |  |
| Major Canal         | Department of Defense Land     |  |
| Municipality        | State Land                     |  |
| County Boundary     |                                |  |
| State Boundary      |                                |  |



0 1 2 3 4 5 6  
Miles

State Plane Coordinate System  
California Zone 6, NAD 83  
Lambert Conformal Conic Projection  
1983 North American Datum  
Linear Unit: Foot US

**CAMPO VERDE SOLAR**

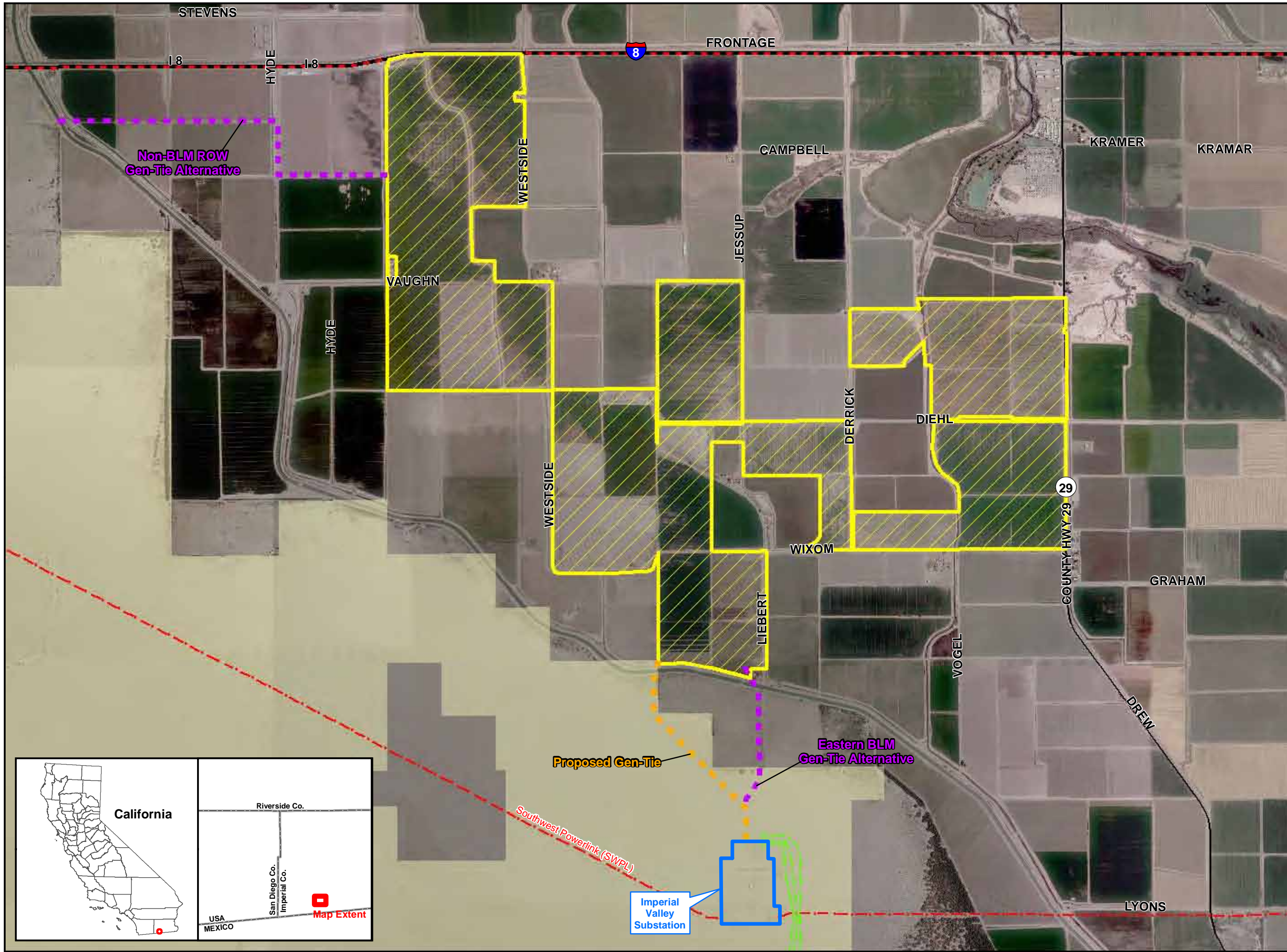
**FIGURE 1 - REGIONAL LOCATION**

Map Extent: Imperial County, CA

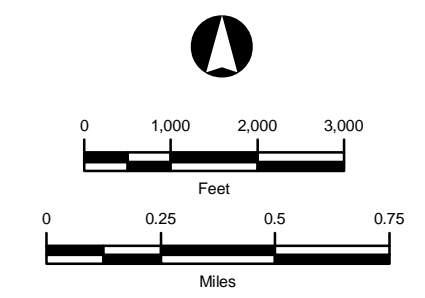
Date: 01.17.12	Figure 1	Author: djb
----------------	----------	-------------

I:\CampoVerdeSolar\Figure 1 Regional Location\1129111.mxd





- Legend**
- - - Existing 500 kV Transmission Line
  - - - Existing 230 kV Transmission Line
  - - - Proposed Gen-Tie
  - - - Gen-Tie Alternative
  - - - Interstate
  - Major Road
  - - - County Boundary
  - Campo Verde Solar Site
- Jurisdictional Land Ownership**
- Bureau of Land Management Land



State Plane Coordinate System  
 California Zone 6, NAD 83  
 Lambert Conformal Conic Projection  
 1983 North American Datum  
 Linear Unit: Foot US

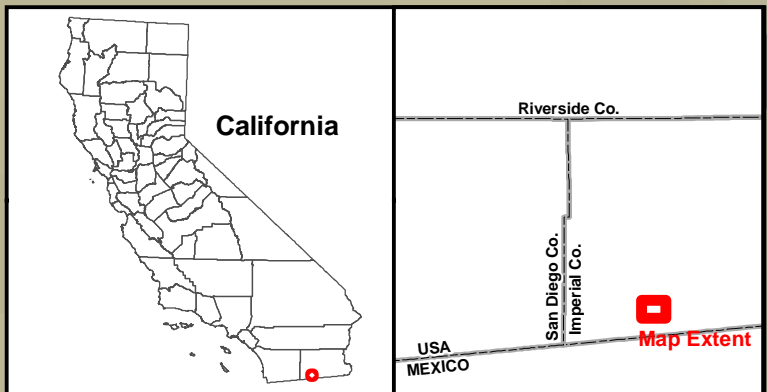
**CAMPO VERDE SOLAR PROJECT**

**FIGURE 2 - PROJECT LOCATION**

Map Extent: Imperial County, California

Date: 01.17.12      Author: djb

...Maps\Figure2BTRProjectLocation.mxd



Imperial Valley Substation

Non-BLM ROW Gen-Tie Alternative

Eastern BLM Gen-Tie Alternative

Proposed Gen-Tie

Southwest Powerlink (SWPL)



alternatives would be built as a double-circuit 230 kV line. The right-of-way (ROW) width would be 160 feet (**Figure 2**).

- The Eastern BLM Alternative would follow the existing IID S-line and would cross about 0.4 miles of BLM land.
- The Western BLM Alternative would follow existing roads and would cross about 0.9 miles of BLM land.

The Non-BLM Gen-tie Alternative being considered is to develop a single-circuit 230 kV line originating from the western side of the Project site. It would cross approximately 2.25 miles of private lands to the west and would utilize available capacity on a line that has an approved right-of-way to the Imperial Valley Substation (**Figure 2**).

In addition to any of the long-term interconnection solutions described above, a short-term electrical interconnection solution may be implemented that would involve an interconnection to IID's S Line that crosses the site. If this solution is utilized, it would provide temporary interconnection to the grid and would be replaced by the permanent interconnection into the Imperial Valley Substation when completed.

### ***Field Surveys***

The Project area was evaluated for drainage features during field visits performed on April 4-5, 2011, October 25-27, 2011 and December 19-20, 2011. Additional information was gathered using a Geographic Information System (GIS) and aerial imagery. Determinations regarding the potential jurisdictional status of the various features located within the Project area are based on the applicable federal and state laws and regulations and associated guidance documents.

## **PHYSICAL SETTING**

### ***Campo Verde Solar Project***

The parcels on which the Project would be constructed are currently active agriculture lands growing crops such as wheat, alfalfa, and Bermuda grass. Irrigation water is supplied by a complex, engineered system of concrete-lined canals and lateral canals operated and maintained by the Imperial Irrigation District (IID). The concrete-lined canals and lateral canals are used to deliver water to multiple farm fields and typically contain water at all times except during maintenance periods.

The farm fields are large (typically 80 acres) flat fields graded for flood irrigation. When a field is irrigated, an allocated quantity of water is allowed to flow from the IID delivery canal to a smaller ditch (locally referred to as a "head ditch"), which distributes the water evenly across the field. The head ditches are either earthen or concrete-lined. Another ditch (locally referred to as a "tail ditch") is located at the opposite, lower elevation side of the field. The tail ditch collects any excess irrigation water and directs it to an IID-operated and maintained drain. All of the tail ditches on the Project site are earthen and are frequently rebuilt after the fields are plowed and disked.

### ***Gen-tie Line***

The two BLM Gen-tie line alternatives (eastern and western) would originate on the south end of the Campo Verde Solar Facility and extend to the Imperial Valley Substation.

The Eastern BLM Alternative would be approximately 0.8 miles in length. The northern 0.4 miles of this alternative would cross fallow agricultural lands between the Westside Main Canal and the northern boundary of BLM managed lands. Approximately 0.4 miles of this alternative would cross disturbed native desert lands managed by the BLM. These lands are primarily dominated by Creosote Bush (*Larrea tridentata*)–White Bursage (*Ambrosia dumosa*) Scrub, with small inclusions of Disturbed Stabilized Desert Dunes and Athel (*Tamarix aphylla*) Tamarisk (*Tamarix ramosissima*) Type Woodland.

The Western BLM Alternative would be approximately 1.0 mile in length and would cross approximately 0.9 miles of disturbed native desert lands managed by the BLM (immediately after crossing the Westside Main Canal). These lands are dominated by disturbed and undisturbed Creosote Bush–White Bursage Scrub, Disturbed Stabilized Desert Dunes, Athel Tamarisk Type Woodland, and Fallow Agriculture.

Only one drainage feature was identified on lands managed by the BLM (#91; Westside Main Canal). No features were identified in native (non-agricultural) habitats and, for this reason, these areas are not discussed further in this document.

The Private Gen-tie Alternative would cross approximately 1.75 miles of active agricultural lands similar in nature to the Campo Verde Solar Facility project area. These lands contain a mix of active agriculture, roads, and irrigation infrastructure, as described above.

## **ARMY CORPS OF ENGINEERS JURISDICTION**

The U.S. Army Corps of Engineers (ACOE) has jurisdiction over wetlands and other “waters of the United States” that are subject Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act. Typically, these waters include naturally occurring traditional navigable waters (TNWs), relatively permanent waters (RPWs), and/or ephemeral waters with a significant nexus to a TNW. Man-made drainages constructed wholly in uplands are typically only considered jurisdictional if they are RPWs. The most recent guidance on the topic states that “relatively permanent waters typically flow year-round or have continuous flow at least seasonally (e.g. typically three months)” (EPA and ACOE 2008). Conversely, man-made drainages constructed solely in uplands that are not RPWs are generally not federally jurisdictional.

With respect to non-tidal waters, federal jurisdiction over non-wetlands extends to the “Ordinary High Water Mark” (OHWM). 33 C.F.R. § 328.4(c)(1). The Ordinary High Water (OHW) zone in low-gradient, alluvial ephemeral/intermittent channel forms in the Arid West is defined as the active floodplain. The dynamics of arid channel forms and the transitory nature of traditional OHWM indicators in arid environments render the limit of the active floodplain the only reliable and repeatable feature in terms of OHW zone delineation. The extent of flood model outputs for effective discharges (5 to 10 year events in arid channels) aligns well with the boundaries of the active floodplain (ACOE 2008).

OHWM indicators identified during visits to the Project area and on aerial photography were used to determine the potential jurisdictional status of drainage features in the project area. Changes in particle size, water staining, changes in vegetation cover/species, changes in slope from the active floodplain to the low terrace, shelving, and discernible bed and bank were the most common indicators used to delineate OHWMs in the Project area. OHWM forms were completed for all non-ephemeral features in the project area (i.e., RPWs). Because the potentially jurisdictional features in the Project area are man-