Draft
Environmental Impact Statement

Panoche Valley Solar Facility
San Benito County, CA

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Title: Draft Environmental Impact Statement for Panoche Valley Solar Facility, San Benito County, California

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Abstract: Panoche Valley Solar, LLC (the applicant) is proposing to construct the Panoche Valley Solar Facility, a 247-megawatt, photovoltaic, solar generating facility in eastern unincorporated San Benito County, California. The proposed project site contains ephemeral drainages that have been determined to be jurisdictional waters of the U.S.

Construction of the proposed project requires a Department of the Army permit from the US Army Corps of Engineers to discharge fill material into these waters, in accordance with Section 404 of the Clean Water Act. The US Army Corps of Engineers, as the lead agency responsible for complying with the National Environmental Policy Act, made a preliminary determination that the proposed project constitutes a major federal action that may result in significant impacts on the environment and that the preparation of an environmental impact statement was required.

The proposed facility would consist of a solar field of ground-mounted photovoltaic modules; an electrical collection system that converts generated power from direct current to alternating current and delivers it to a project substation; and a project substation that collects and converts the generated power from 34.5 to 230 kilovolts. The electricity would then be delivered, via a new on-site Pacific Gas and Electric Company switching station, to its existing Moss Landing-Panoche 230-kilovolt transmission line. Generated electricity would be sold to Southern California Edison under a long-term power purchase agreement.

Comments: Written comments on this draft environmental impact statement may be sent to Ms. Lisa Gibson at the address above. Comments may also be submitted via e-mail to Lisa.M.Gibson2@usace.army.mil. Please refer to identification number SPN–2009–00443S in all correspondence. Comments must be postmarked no later than 45 days from the US Environmental Protection Agency's notice of availability of this environmental impact statement in the *Federal Register*.

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ACRONYMS AND ABBREVIATIONS

	Full Phrase
AADT	Average Annual Daily Traffic
AB	Assembly Bill
ACEC	Area of Critical Environmental Concern
ACHP	Advisory Council on Historic Preservation
ADSS	All-Dielectric Self-Supporting fiber
AFY	acre-feet per year
AMM	Avoidance and Minimization Measures
ANSI	American National Standards Institute
APCD	Monterey Bay Unified Air Pollution Control District
APE	area of potential effect
APLIC	Avian Power Line Interaction Committee
APM	Applicant-Proposed Measures
bgs	below ground surface
BLM	United States Department of the Interior, Bureau of Land Management
BMP	best management practice
BNLL	blunt-nosed leopard lizard
CAA	Clean Air Act
CalTrans	California Department of Transportation
CAISO	California independent system operator
CAL FIRE	California Department of Forestry and Fire Protection
CBC	California Building Code
CCR	California Code of Regulations
CDF	California Department of Forestry
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act of 1970
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CHP	California Highway Patrol
CNDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
CO	carbon monoxide
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CREZ	Competitive Renewable Energy Zone
CWA	Clean Water Act of 1972
dB	decibel
dBA	decibel on the A-weighted scale
DPH	California Department of Public Health
DPS	distinct population segment
DWR	California Department of Water Resources

	Full Phrase
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EO	executive order
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FEMA	Federal Emergency Management Agency
FLPMA	Federal Land Policy and Management Act
g	ground acceleration
GIS	geographic information system
HMBP	Hazardous Materials Business Plan
HMP	Habitat Management Plan
HRRP	Habitat Restoration and Revegetation Plan
HUC	hydrologic unit code
KOP	key observation point
kV	kilovolt
lb	pound
Ldn	day-night average sound level
LEDPA	Least Environmentally Damaging Alternative
Leq	equivalent sound level
LLC	Limited Liability Corporation
LOS	level of service
LSAA	Lake and Streambed Alteration Agreement
M	moment magnitude
MBTA	Migratory Bird Treaty Act
$MMTCO_2e$	million metric tons carbon dioxide equivalent
MOA	memorandum of agreement
MPAC	Modular Protection Automation and Control building
$MTCO_2e$	metric tons of carbon dioxide equivalent
MW	megawatt
MW_{AC}	megawatt (alternating current)
MW_{DC}	megawatt (direct current)
MWh	megawatt hour
NAAQS	national ambient air quality standards
NAHC	California Native American Heritage Commission

	Full Phrase
NAS	Naval Air Station
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act of 1966
NMFS	National Marine Fisheries Service
NOI	Notice of Intent
NOx	mono-nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NRCS	United States Department of Agriculture, Natural Resources Conservation Service
NRHP	National Register of Historic Places
O&M	operation and maintenance
OHWM	ordinary high water mark
OPGW	optical ground wire
OSHA	Occupational Safety and Health Administration
PG&E	Pacific Gas & Electric
PLC	power line carrier
PM_{10}	particulate matter with an aerodynamic diameter of 10 microns or less
$PM_{2.5}$	particulate matter with an aerodynamic diameter of 2.5 microns or less
ppb	parts per billion
ppm	parts per million
PSD	prevention of significant deterioration
PV	photovoltaic
PVSF	Panoche Valley Solar Farm
RCRA	Resource Conservation and Recovery Act of 1976
RMP	resource management plan
ROW	right-of-way
RPS	Renewable Portfolio Standard
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCADA	Supervisory Control and Data Acquisition equipment
SF	sulfur hexafluoride
SHPO	State Historic Preservation Officer
SJKF	San Joaquin kit fox
SO_2	sulfur dioxide
SPCC	Spill Prevention, Control, and Countermeasure
SRA	State Responsibility Area
SR	State Route
SSC	species of special concern
SWPPP	Storm Water Pollution Prevention Plan

ACRONYMS AND ABBREVIATIONS *(continued)*

	Full Phrase
TCP	Traffic Control Plan
TDS	total dissolved solids
TMDL	total maximum daily load
TSP	tubular steel pole
ug/m^3	micrograms per cubic meter
US	United States
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VOC	volatile organic compound
VRM	visual resources management
WCP	Weed Control Plan
WEEP	Worker Environmental Education Program
WMMP	Wetland Mitigation and Monitoring Plan
WSA	wilderness study area

EXECUTIVE SUMMARY

ES.1 INTRODUCTION

Panoche Valley Solar, LLC (the applicant) is proposing to construct the Panoche Valley Solar Facility, a photovoltaic (PV) generating facility in eastern unincorporated San Benito County, California (see **Figure ES-1**). The proposed project site contains drainages that have been determined to be jurisdictional waters of the U.S. Construction of the proposed project requires a Department of the Army permit from the US Army Corps of Engineers (USACE) to discharge fill material into these waters, in accordance with Section 404 of the Clean Water Act.

In 2012, the USACE, as the lead agency responsible for complying with the National Environmental Policy Act (NEPA; 42 United States Code [USC], Sections 4321-4370h), made a preliminary determination that the proposed project constitutes a major federal action that may result in significant impacts on the environment and that the preparation of an environmental impact statement (EIS) was required.

This EIS has been prepared in accordance with NEPA, the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 Code of Federal Regulations [CFR], Parts 1500-1508), US Army Corps of Engineers Procedures for Implementing NEPA (33 CFR, Part 230), and Processing of Department of the Army Permits (33 CFR, Part 325, Appendix B, NEPA Regulation).

The US Fish and Wildlife Service (USFWS) is a cooperating agency for this EIS. It has responsibility for issuing a biological opinion on the proposed project under Section 7 of the Endangered Species Act.

The applicant has applied for a Department of the Army Section 404 permit from the USACE to allow the discharge of fill into 0.122 acre of ephemeral

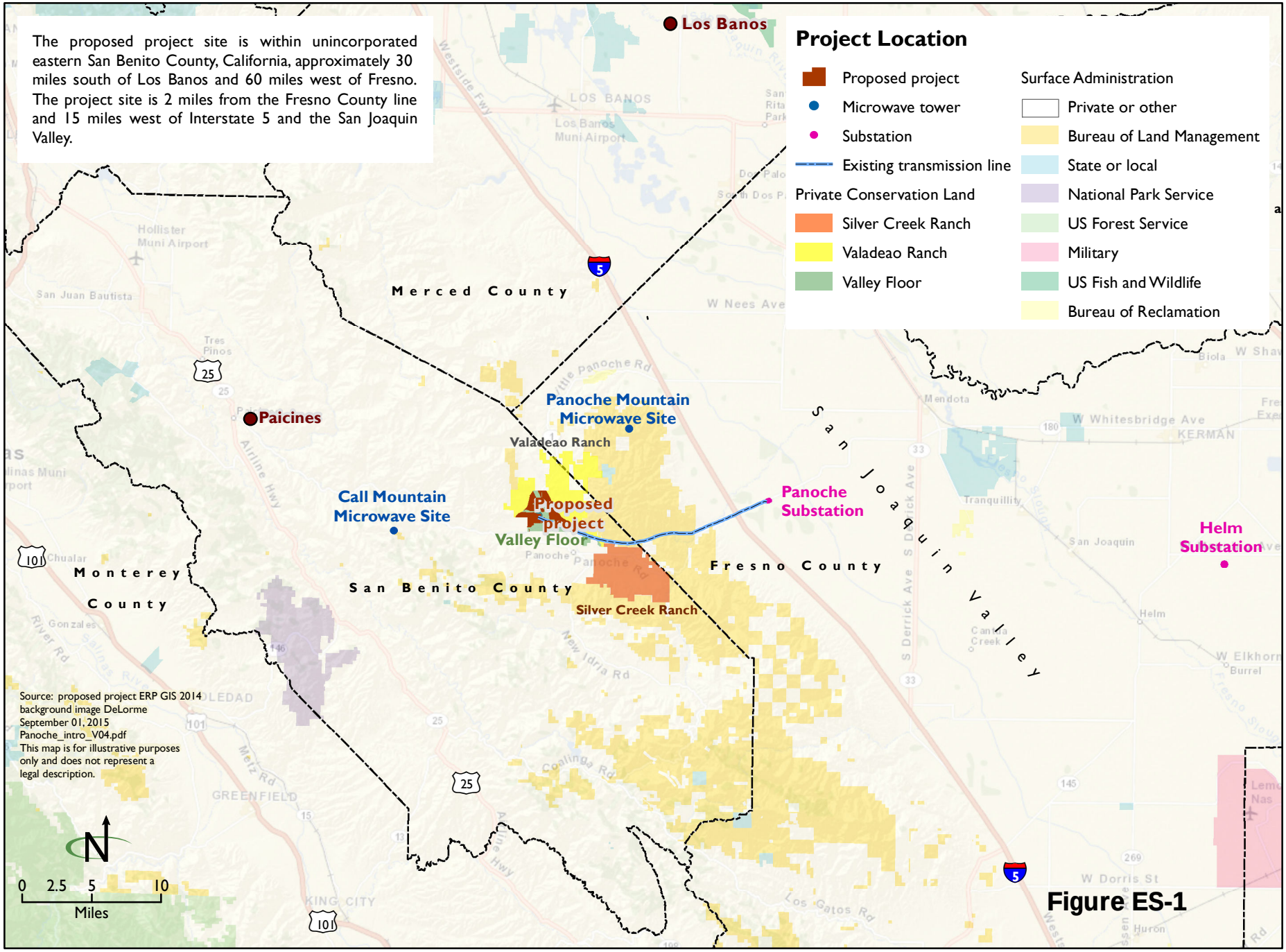
The proposed project site is within unincorporated eastern San Benito County, California, approximately 30 miles south of Los Banos and 60 miles west of Fresno. The project site is 2 miles from the Fresno County line and 15 miles west of Interstate 5 and the San Joaquin Valley.
Project Location
Proposed project
Microwave tower
Substation
Existing transmission line
Private Conservation Land
Silver Creek Ranch
Valadeao Ranch
Valley Floor
Surface Administration
Private or other
Bureau of Land Management
State or local
National Park Service
US Forest Service
Military
US Fish and Wildlife
Bureau of Reclamation
Los Banos
Paicines
Merced County
Monterey County
San Benito County
Fresno County
San Joaquin Valley
Panoche Mountain Microwave Site
Call Mountain Microwave Site
Proposed project
Valley Floor
Valadeao Ranch
Silver Creek Ranch
Panoche Substation
Helm Substation
Source: proposed project ERP GIS 2014
background image DeLorme
September 01, 2015
Panoche_intro_V04.pdf
This map is for illustrative purposes only and does not represent a legal description.
N
0 2.5 5 10
Miles

Figure ES-1

stream channels classified as waters of the U.S. The areas affected are Panoche Creek and Las Aguilas Creek on the western side of the project footprint and three unnamed drainages on the eastern side of the project footprint.

ES.2 PROJECT PURPOSE AND NEED

In accordance with NEPA, an EIS must briefly specify the underlying purpose and need that the agency is responding to (40 CFR, Part 1502.13). When considered together, the purpose and need establish the basic parameters for identifying the reasonable range of alternatives to be considered in the EIS.

Under the USACE regulatory program, if the scope of analysis for the NEPA document covers only the proposed activity that requires a permit, then the underlying purpose and need for that activity should be stated. However, if the scope of analysis covers a more extensive project, only part of which requires a Department of the Army permit, then the underlying purpose and need of the entire project should be stated (33 CFR, Part 325, Appendix B[9][b][4]).

The applicant submitted a permit application to the USACE to construct a utility-scale, solar PV energy generating facility in the Panoche Valley region of San Benito County. The power generated by this project would assist the State of California and its retail suppliers of electricity meet California's mandatory Renewable Portfolio Standard (RPS). This law (2011 Senate Bill SBX 1-2) requires electricity providers to procure 33 percent of their electricity from renewable energy sources by 2020.

The project would also assist the state of California meet targeted reductions in greenhouse gas emissions to 1990 levels by 2020 (California Global Warming Solutions Act of 2006 [Assembly Bill 32]).

The applicant executed a power purchase agreement with Southern California Edison in August 2014. Under this agreement, the applicant is obligated to deliver 247 MW_{AC} of power annually for 20 years beginning in 2019.

The USACE takes an applicant's purpose and need statement into account when defining the purpose and need of a proposed action under NEPA; however, in all cases it exercises independent judgment in defining the purpose and need.

As part of the requirements of the US Environmental Protection Agency's (EPA's) Section 404 (b)(1) Guidelines for the Specification of Disposal Sites for Dredged or Fill Material, the USACE may identify a basic project purpose and an overall project purpose to identify practicable alternatives to a proposed action. The basic project purpose is identified in those cases where a proposed project would result in a discharge into a special aquatic site (i.e., sanctuaries and refuges, wetlands, mudflats, vegetated shallows, coral reefs, and riffle and pool complexes). Because the proposed project would not result in a discharge into a special aquatic site, the basic project purpose has not been identified.

The USACE has determined the purpose of the proposed project under NEPA, and the overall project purpose under Section 404(b)(1) of the Clean Water Act to be as follows:

> The overall project purpose is to construct an approximately 247 MW_{AC} solar PV energy generating facility and associated transmission and support facilities in the west-central portion of California's Central Valley (generally encompassing portions of San Benito, Merced, Madera, Fresno, and Kings Counties).

The USACE uses the overall project purpose to define alternatives for evaluation in an EIS and to determine if the applicant's proposed project is the least environmentally damaging practicable alternative (LEDPA) under the Section 404(b)(1) Guidelines. According to USACE guidance in its 2009 Standard Operating Procedures, "The overall project purpose should be specific enough to define the applicant's needs, but not so restrictive as to constrain the range of alternatives that must be considered under the Section 404(b)(1) Guidelines."

ES.3 Scope and Focus of this Environmental Impact Statement

This EIS presents information on the potential impacts of issuing a permit to construct the proposed project. The USACE's decision on whether to issue a Clean Water Act Section 404 permit requires compliance with NEPA and the interpretive guidelines established by CEQ and the USACE's NEPA implementing procedures.

This EIS achieves the following:

- Describes the affected environment relevant to potential impacts of the proposed project and alternatives
- Analyzes potential significant environmental impacts from the proposed project and alternatives
- Identifies ways that environmental impacts could be avoided, reduced, or mitigated
- Identifies and characterizes cumulative impacts that could result from the proposed project and alternatives in relation to other past, present, or reasonably foreseeable future actions
- Provides the USACE with environmental information for use in decision making to protect, preserve, and enhance the human environment and natural ecosystems
- Discloses to the public the environmental information and analyses that the USACE will base its decisions on

The focus of the environmental analysis for each alternative includes the direct and indirect effects of constructing a solar facility. This includes short-term

effects from construction activities and long-term effects from the presence of a solar facility. It also includes the effects from operational and maintenance activities associated with operating the facility, which are considered an indirect effect of the construction of the solar facility. Impacts associated with operational and maintenance activities are included within the NEPA scope of analysis, as they may affect federally listed threatened and/or endangered species. However, these activities, because they would not result in the discharge of dredged and/or fill material into waters of the U.S., do not require a Section 404 permit and are not within USACE jurisdiction.

ES.4 Project Description and Alternatives

The USACE's proposed action is to make a permit decision on the permit application submitted by Panoche Valley Solar, LLC to construct the Panoche Valley Solar Facility in eastern San Benito County, California (the applicant's proposed project, described below). The USACE is neither an opponent nor a proponent of the applicant's proposal. Decision options available to the USACE are to issue the permit, issue the permit with modifications or conditions, or deny the permit.

ES.4.1 Evaluation of Alternatives

The alternatives analysis is the heart of an EIS, and agencies must rigorously explore and objectively evaluate all reasonable alternatives. For alternatives that were eliminated from detailed study, agencies must briefly discuss the reasons for their having been eliminated (40 CFR, Part 1502.14).

Reasonable alternatives are those that are practical or feasible from a technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant (46 *Federal Register* 18026 [Question 2a]). Reasonable alternatives do not include those that are remote or speculative or that do not achieve the project purpose and need.

During the analysis, the alternatives developed for the EIS took into consideration the following:

- Applicant requirements in siting a utility-scale solar generating facility
- The overall project purpose, as defined by the USACE
- Criteria related to cost, logistics, and existing technology, including the RPS and other federal, state, and local requirements
- Section 404(b)(1) alternatives information submitted by the applicant
- Agency and public input obtained during public noticing of the project by the USACE in 2010 and public scoping for the EIS in 2012

- Input from the USFWS and CDFW on project configurations to reduce impacts on federal and state listed species

The USACE considered alternative on-site configurations, alternative off-site locations, and alternative technologies. Alternatives carried forward for detailed analysis were a no action (no build) alternative, a no action (no USACE permit) alternative, the applicant's proposed project for which it applied for a Department of the Army (Alternative A), one on-site alternative (Alternative B), and one off-site alternative (Alternative C). All are described below.

ES.4.2 No Action Alternative

CEQ regulations implementing NEPA require consideration of a no action alternative (40 CFR 1502.14d). In accordance with USACE NEPA regulations, the no action alternative is one that results in no construction requiring a USACE permit. This could be accomplished either by the applicant modifying the project to eliminate work under the jurisdiction of the USACE or by the USACE denying the permit (33 CFR, Part 325, Appendix B). Therefore, the no action alternative could result in one of two potential scenarios:

- The applicant would not build the proposed project
- The applicant would build the proposed project, but in a manner that did not require a USACE permit

To account for either possible outcome, the USACE has determined that it is appropriate to evaluate both no action scenarios in the EIS. To differentiate between the two no action scenarios, they are referred to as the no action (no build) alternative and the no action (no permit) alternative and are described below.

No Action (No Build) Alternative

Under the no build alternative, a solar facility would not be developed at the proposed project site. Environmental conditions would remain in the status quo, and current land uses would continue.

No Action (No USACE Permit) Alternative

Due to the location of waters of the U.S. on the project site, the USACE determined that it is appropriate to analyze a no permit alternative that constructs a 247 MW solar facility in a manner that avoids waters of the U.S. and the subsequent need for a Department of the Army permit from the USACE. The USACE has not yet made a determination on whether this alternative is practicable under the Section 404(b)(1) Guidelines or whether it would result in other significant adverse impacts, including impacts on sensitive biological resources.

Under the no action (no permit) alternative, Panoche Valley Solar, LLC would construct a 247 MW, PV solar generating facility within a 2,506-acre project

footprint. This facility would be similar to the applicant's proposed project described under Alternative A, below, except that it would construct free-span bridge crossings over Las Aguilas and Panoche Creeks. This would eliminate the need to discharge fill into these waters of the U.S. but would still allow for adequate emergency access to the site required by the Hollister Fire Chief (Hollister Fire Department 2014). It would also avoid impacts on the three ephemeral drainages on the eastern side of the project footprint that are waters of the U.S.

Applicant-proposed measures, mitigation measures developed through the San Benito County EIR process, and PG&E avoidance and minimization measures for telecommunication network upgrades that are part of the applicant's proposed project would also be part of the no action (no permit) alternative evaluated in this EIS.

ES.4.3 Alternative A (Applicant's Proposed Project)

The applicant is proposing to construct an approximately 247 MW PV generating facility on 2,506 acres (project footprint). The project footprint is in unincorporated eastern San Benito County, California, approximately 30 miles south of Los Banos and 60 miles west of Fresno. The site is 2 miles from the Fresno County line and 15 miles west of Interstate 5 and the San Joaquin Valley. The solar facility and all associated land would be on property that is controlled by the applicant.

The proposed solar facility would consist of the following:

- A solar field of ground-mounted PV modules
- An underground electrical collection system that converts generated power from direct current to alternating current
- A project substation that collects and converts the alternating current from 34.5 kilovolts to 230 kilovolts
- A switching station that delivers the generated power to the state electrical grid

Key features of the proposed project are described in **Table ES-1**.

In addition, the applicant is proposing to conserve all lands in the project site that are outside of the project footprint to maintain and enhance habitat conditions for federal and state listed species. Approximately 2,514 acres interspersed throughout and next to the project footprint would be left undisturbed. This area would be designated as Valley Floor Conservation Lands. It would include areas with dense populations of wildlife that are being avoided, wildlife movement corridors within on-site drainages and 100-year floodplains, and open space in the southern portion of the project site.

Table ES-1
Project Features

Project Feature	Area Impacted
Solar arrays	1,629 acres[1]
Project perimeter roads (including pullouts))	30 acres
Substation, switching station, and O&M building	12 acres
Graded areas (outside of other project features)[2]	106.5 acres
230 kV loop-in tubular steel poles (TSPs)	250 square feet
Trenching and foundations next to arrays	12.41 acres
Perimeter fencing	0.06 acre
Vasquez County Road[3]	4 acres
Permanent impact areas	1,794 acres
Temporary impact areas	712 acres
Total project footprint	**2,506 acres**

[1] Includes 2.33 acres for foundations, 26.64 acres of direct current trench, 8.84 acres of alternating current trench, 205.47 acres of grading, and 1,385.72 acres of solar array work areas. Solar panels and associated electrical equipment would be installed on approximately 185,000 support post foundations. Posts would be steel I-shaped sections with a cross sectional area of 4.5 square inches each.
[2] Limited grading is expected to be required because of the nearly flat terrain. Grading would be required on slopes greater than 3 percent for PV power blocks. Final grading plans for the project are under development; however, the proposed project includes approximately 358 acres of proposed area that would be graded: 205.47 acres for arrays, 30 acres for roads, 4 acres for Vasquez County Road, 106.53 acres for other grading areas, and 12 acres for the substation, switching station, and O&M building.
[3] Vasquez County Road would be replaced with a new road that would run outside of the project fence line south of Las Aguilas Creek.

The applicant is also proposing to permanently preserve and manage two large ranches: the Valadeao Ranch Conservation Lands (10,772 acres) and the Silver Creek Ranch Conservation Lands (10,890 acres). These ranchlands are contiguous with the project footprint and with each other. Conservation lands are being proposed as mitigation to offset potential impacts on listed species from constructing and operating the proposed solar facility.

In total, the applicant would conserve 24,176 acres. The lands, which are part of the applicant's proposed project, would be preserved and managed in perpetuity through a conservation easement. Most of these lands are in eastern San Benito County; a small portion is in western Fresno County.

The current project output is approximately 339 megawatts of direct-current (MW_{DC}) power, or 247 megawatts of alternating current (MW_{AC}) power. This output is based on the current project design and current PV panel technology. The actual output at the time the facility is brought online would depend on PV technology and uncertainties, such as line losses. Actual output may be greater than the estimated output at project startup or over the life of the facility as solar technology improves.

Power from the project would be delivered via the Pacific Gas & Electric Company (PG&E) Moss Landing-Panoche 230 kilovolt (kV) transmission line. It runs in an east-west direction through the project site. The applicant and PG&E signed a large generator interconnection agreement for the project in January 2014. This agreement confirms that the project's electricity output would be deliverable to the transmission grid; it also specifies the facilities that would be required to interconnect the project with the PG&E Moss Landing-Panoche 230 kV transmission line.

The applicant and Southern California Edison executed a power purchase agreement for the project in August 2014. Under this agreement, Southern California Edison is obligated to purchase and the applicant is obligated to deliver 247 MW_{AC} of power annually for 20 years beginning in 2019.

In order to interconnect the proposed project, PG&E would make the following telecommunication upgrades to ensure reliability of the system before interconnecting the proposed project:

- Primary Telecommunication Upgrades. PG&E proposes to install optical ground wire (OPGW) along 17 miles of its Panoche-Moss Landing 230 kV transmission line, between the new substation on the project site and the PG&E Panoche Substation in Fresno County. Where the existing 230 kV transmission line crosses under two existing 500 kV transmission lines, about 1.5 miles west of the Interstate 5 crossing, PG&E would install all-dielectric self-supporting (ADSS) fiber for approximately 4,650 feet on 12 existing wood distribution poles north of the 230 kV transmission line. OPGW and ADSS would provide telecommunication services between electrical substations and generating facilities or other substations.
- Secondary Telecommunication Upgrades. PG&E proposes to establish a secondary telecommunication path to ensure system reliability. This secondary system would be a microwave communication system that would include constructing a new 100-foot microwave tower at the project site and at PG&E's Helm Substation in Fresno County and collocating microwave equipment on existing microwave towers on Call Mountain and Panoche Mountain.

The applicant's proposed project includes applicant-proposed measures, mitigation measures developed through the San Benito County EIR process, and PG&E avoidance and minimization measures for telecommunication network upgrades. These measures were developed to avoid and minimize impacts on the environment from constructing the proposed project.

The measures described in this EIS have been committed to by the project applicant and are required as conditions of approval as part of the project's approval and CEQA clearance by San Benito County. These measures will be included in a mitigation monitoring and reporting plan prepared by the project applicant, implemented as required under CEQA, and enforced by San Benito County, as the lead agency under CEQA. As such, these measures are considered part of the applicant's proposed project evaluated in this EIS.

Under the applicant's proposed project, emergency egress and access roads for the proposed project would cross Panoche Creek, Las Aguilas Creek, and three unnamed ephemeral drainages on the eastern side of the project footprint that are subject to Department of the Army permitting under Section 404(b)(1) of the Clean Water Act. Under Alternative A, the applicant would use single-span bridges to cross Las Aguilas Creek and Panoche Creek. The three unnamed drainages would be crossed using a pipe arch culvert, low water crossings, and roadside drainage features, respectively. The perimeter fence and the grading for solar panel installation would also occur within these eastern drainages.

In total, the proposed project would discharge fill material into 0.122 acre (approximately 3,504 linear feet) of jurisdictional ephemeral stream channels on the project footprint. The applicant has avoided impacts to all other waters of the U.S. within the project footprint and has proposed measures to avoid, minimize, and compensate for impacts to waters of the U.S.

ES.4.4 Alternative B (On-Site Alternative)

Under Alternative B, the applicant would construct the proposed Panoche Valley Solar Facility and PG&E would perform primary and secondary telecommunication network upgrades, as described under Alternative A. Emergency egress and access roads for the project would cross Panoche Creek, Las Aguilas Creek, and three unnamed drainages on the eastern side of the project footprint that are subject to permitting under Section 404(b)(1) of the Clean Water Act. Under Alternative B, the applicant would use multi-span bridges to cross Las Aguilas Creek and Panoche Creek. Crossings for the three unnamed drainages would be the same as described under Alternative A.

Under Alternative B, the applicant would discharge fill material into approximately 0.002 acre of Las Aguilas Creek, approximately 0.002 acre of Panoche Creek, and approximately 0.12 acre within three unnamed drainages on the eastern side of the project site, for a total discharge of fill into 0.124 acre. The bridge construction would temporarily disturb adjacent upland areas during construction. Applicant-proposed measures, mitigation measures developed through the San Benito County EIR process, and PG&E avoidance and minimization measures for telecommunication network upgrades that are part of the applicant's proposed project would also be part of the action evaluated under Alternative B.

ES.4.5 Alternative C (Off-Site Alternative, Westlands CREZ)

Under Alternative C, a 247 MW photovoltaic solar facility with project features similar to those described under Alternatives A and B would be constructed on 2,500 acres within the Westlands Competitive Renewable Energy Zone (CREZ) in Fresno and Kings Counties.

ES.4.6 Alternatives Considered but Rejected

The USACE evaluated a range of reasonable alternatives to the proposed project using alternatives screening criteria described in detail in **Section 2.3**. The alternatives that were considered but not carried forward for detailed analysis are listed below. **Section 2.8** describes each alternative and the reason it was eliminated from detailed consideration.

- Alternative On-Site Configurations. The USACE evaluated on-site alternatives greater than 247 MW, on-site alternatives less than 247 MW, CDFW's No Fill Alternative, and two alternative technologies for crossing Las Aguilas Creek and Panoche Creek. None of these alternatives met the overall project purpose, so they were eliminated from detailed consideration.
- Alternative Site Locations. The USACE evaluated five off-site alternatives, including the Brownfield-Kettleman City Alternative, Moss Landing-Panoche Alternative, Panoche Ranch Alternative, Firebaugh Alternative, and Panoche Substation Alternative. None of these alternatives met the overall project purpose, so they too were eliminated from detailed consideration.
- Alternative Technologies. The USACE evaluated alternative technologies for providing renewable energy, including distributed solar generation, alternative solar technologies, and conservation and efficiency measures. None of these alternatives met the overall project purpose, so they were eliminated from detailed consideration as well.

ES.5 Agency and Public Coordination and Scoping Process

Public participation is an important part of NEPA and the Section 404 permitting process. Federal public participation activities conducted in support of this EIS are described below.

ES.5.1 Scoping

Project scoping identifies issues of concern early in the EIS process. NEPA requires that the lead agency invite affected federal, state, and local agencies, any affected Native American tribes, and other interested organizations and persons to participate in the scoping process. Scoping provides the public with the opportunity to identify environmental issues, concerns, and opportunities to be analyzed in the EIS.

In the *Federal Register* on July 19, 2012 (*Fed. Reg*. Vol. 77, No. 139, p. 42488), the USACE initiated a 30-day scoping period for this EIS; this period was extended by nearly 20 days to end on September 7, 2012. The NOI was published in the *Hollister Free Lance* on July 31 and August 3, 2012. Also, it was mailed to federal, state, and local agencies, organizations, and individuals known to have an interest in the project. The NOI invited the public to provide information on environmental impacts that could occur as a result of the proposed project. Copies of these materials are in **Appendix A** of this EIS.

Public scoping meetings were held on August 21, 2012, at the Panoche School in Paicines, California, and on August 22, 2012, at the Veterans Memorial Building in Hollister, California. The meetings began with an open house that served as an informal question and answer session, followed by a formal presentation and oral comments. Eleven people attended the scoping meeting in Paicines, and six entered comments into the public record; thirty people attended the scoping meeting in Hollister, and nine entered comments into the public record. A court reporter recorded the formal presentations and oral comments to accurately capture the information presented at the meetings.

The scoping period ended on September 7, 2012. Twenty written comment letters were submitted by the following agencies, tribes, and organizations and by 12 individuals (in all, 21 individuals commented with either written or oral comments):

- EPA
- Valentin Lopez, Amah Mutsun Tribal Band of Costanoan/Ohlone Indians
- Luis Alejo, Assembly Member, 28th District
- California Audubon Society
- Center for Biological Diversity
- Defenders of Wildlife
- Santa Clara Valley Audubon Society
- Citizens Committee to Complete the Refuge
- Sierra Club, Loma Prieta Chapter

The issues raised in the oral and written comments are presented in **Table ES-2**. Approximately a third of the comments focused on biological resource issues. The comments received during scoping were similar in substance and nature to those received during the USACE public noticing periods in 2010 and 2011.

Table ES-2
Summary of Scoping Issues

Issue	Summary of Comments by Issue
Biological resources	Most of the scoping comments focused on biological issues, especially impacts on sensitive and protected species, migratory birds, and grassland ecosystems. Commenters requested a full accounting of sensitive species, a thorough analysis of project and cumulative impacts, a description of measures to avoid, minimize, and mitigate project impacts, and provisions of mitigation, monitoring, and translocation plans. The EPA and other commenters requested an analysis of the potential for habitat fragmentation, identification and analysis of compensatory mitigation proposals, and consultation with the USFWS and CDFW to incorporate lessons learned from other renewable projects and recent guidance to avoid and minimize adverse effects on sensitive species. Commenters also requested that the EIS analyze impacts from shading and alteration of rainfall on vegetation and species due to panel installation and impacts on species from pile installation and construction noise. The EPA also asked that the EIS include an invasive weed management plan. Several environmental conservation organizations identified the Panoche Valley as an important bird area, and some expressed concern that the quality and quantity of mitigation lands would not compensate for the loss of core habitat.
Water resources	The EPA and other commenters requested an estimation of the quantity of water required during construction and operation, the proposed source of the water, a description of water rights permitting and the status of water rights in the basin, the potential impact on other water users in the area, and the potential impacts on surface and groundwater. The EPA also requested an analysis of technologies that can be used to minimize or recycle water and whether it would be feasible to use other sources of water. The agency requested that the impacts on waters of the U.S. be identified and floodplains and stormwater flow be analyzed. Some commenters expressed concern over potential contaminants leaching from solar facility equipment.
Alternatives	The EPA indicated that the EIS should include a robust discussion of alternatives, including alternative sites, capacities, and technologies, and that an environmentally preferable alternative be identified. It requested that the EIS provide a clear discussion of the reasons for eliminating alternatives not discussed in detail, how each alternative was developed, how it addresses each project objective, and how it will be implemented. Both local commenters and nonprofit organizations asked to see alternative locations for the site, including in the Westlands Competitive Renewable Energy Zone; alternatives to utility-scale solar, including rooftop solar and smaller facilities located closer to users; and more efficient solar panels. Some commenters requested an alternative that avoided all stream crossings.
Socioeconomics	A number of individuals had concerns over the impact the facility would have on the value of their property, local businesses, tourism, Panoche schoolchildren, and the community. One commenter expressed concerns about housing impacts during construction due to the number of temporary workers. Some commenters expressed support of the project for the potential economic benefits it could have on the regional economy.

Table ES-2
Summary of Scoping Issues

Issue	Summary of Comments by Issue
Public health and safety/hazardous materials and waste	The EPA requested that the EIS identify hazardous waste types and volumes, applicability of state and federal hazardous waste requirements, and mitigations that include minimizing generation of hazardous waste. Commenters expressed concern about naturally occurring arsenic, pesticide residue, and potential for valley fever from construction-generated dust. Some expressed concern over potential soil and water contamination from the project. Commenters requested that the EIS address impacts on emergency service providers and waste disposal at the end of solar panel life.
Noise	Individual commenters expressed concerns over the levels and duration of construction-related noise, including that from post installation and traffic, the change in background noise levels in a rural environment, impacts on Panoche schoolchildren, and impacts on livestock and domestic and wild animals. One commenter requested that the EIS evaluate operational noise levels.
Air quality	The EPA requested that the EIS estimate construction and operational air emissions, identify measures to minimize emissions, and include a draft construction emissions mitigation plan. A number of individual commenters expressed concerns over construction-related impacts on air quality, primarily fugitive dust impacts from soil disturbance.
Cumulative impacts	The EPA requested an in-depth cumulative impacts analysis, including identification of cumulative projects, geographic area, and temporal boundaries; current conditions, trends, and future conditions; parties responsible for minimizing impacts; and opportunities to minimize impacts. The agency also requested that the EIS evaluate impacts from the additional power supply and cumulative impacts associated with the transmission needs of other reasonably foreseeable projects. Commenters requested that the EIS analyze cumulative impacts on sensitive species from solar development in the region. Some commenters requested the EIS analyze cumulative impacts on waters of the U.S. and on species that depend on those waters.
Project description and design	Several commenters requested details on the applicant's proposed project, made suggestions about the design and implementation of the project, or provided opinions on solar technology. Commenters requested that information on interconnection and transmission be included in the EIS, including requirements for upgrades. One commenter requested an accounting of acreage required for roads and conduit. Some commenters suggested the use of a more efficient photovoltaic panel to reduce the project footprint.
Fire	Commenters requested that the EIS analyze the potential fire risks from the proposed project and measures that would be taken to minimize this risk. Individuals expressed concern that the project would increase the risk of fire and expressed concern over firefighter response times.
Cultural resources	The EPA requested that the EIS describe the process and outcome of government-to-government consultation with tribal governments, address the existence of sacred sites in the area, and provide a summary of coordination with tribes and the state historic preservation office (SHPO), including identification of sites eligible for

Table ES-2
Summary of Scoping Issues

Issue	Summary of Comments by Issue
	listing on the National Register of Historic Places (NRHP) and development of a cultural resource management plan. The Amah Mutsun Tribal Band of Costanoan/Ohlone Indians expressed concerns that the proposed project would negatively affect sacred lands and damage resources with ecological and cultural significance. The tribe expressed specific concerns on impacts on subsurface resources and requested that the applicant hire a tribal representative to monitor all ground disturbance activities, including the removal, repair, or replacement of any solar panel pole.
Traffic and transportation	Individual commenters expressed concerns about construction-related traffic on area roadways, specifically the volume of traffic, hazardous road conditions, and degradation of already poor roads.
Purpose and need	The EPA indicated that the EIS should include a strong rationale for the proposed project. The agency, along with several other commenters, requested identification of power purchasers and how the proposed project would help meet California's renewable portfolio standards.
Mitigation (general)	The EPA requested that the EIS adopt a formal adaptive management plan. Other commenters expressed concern that the project lacks a suitable restoration plan. Commenters requested that lands be identified to fully mitigate project impacts and that deferred mitigation not be allowed, that the EIS analyze the impacts of the mitigations imposed by the EIR, and that funding assurances and an enforceable schedule for restoration be included.
Agriculture	Individual commenters expressed concerns about impacts the project would have on local agriculture. They requested that the EIS evaluate impacts on local farmers, impacts from loss of grazing, and impacts on soils from solar panels. One commenter also stated that the valley was not farmed because of property owner choice, not because of irrigation inefficiencies or poor water quality.
Visual resources	Commenters expressed concern over impacts on the visual character of the area in general and impacts from light pollution on the night sky specifically.
Climate change	The EPA requested that the EIS evaluate how water reliability might be affected by climate change, how climate change could influence the project, and how impacts from the project might be exacerbated by climate change. The agency also requested that the EIS quantify and disclose potential benefits on climate change from solar energy and quantify greenhouse gas emissions from different types of generating facilities. One organization requested that the EIS address the effects of global climate change on plants, animals, and habitats in the Panoche Valley as part of the future environmental baseline.
Decommissioning	Individual commenters requested more information and commitment on the decommissioning of the proposed project, including setting aside funds for restoration. One commenter expressed the opinion that the facility not be decommissioned after 30 years but that the technology be updated.
Impact analysis (general)	The EPA requested that the EIS clearly describe the rationale used to determine whether impacts of an alternative are significant. One organization described elements to be considered when evaluating the intensity of an impact.

Table ES-2
Summary of Scoping Issues

Issue	Summary of Comments by Issue
Land use and recreation	The EPA requested that the EIS describe the current condition of the land, if it is disturbed, and to what extent the land could be used for other purposes. It also requested that the EIS discuss how the project would support or conflict with the objectives of federal, state, tribal, or local land use plans and policies. One commenter requested that the EIS evaluate impacts on recreationists, particularly bird watchers.
Environmental justice	The EPA requested an evaluation of environmental justice populations within the geographic scope of the project and the potential for disproportionate impacts on these populations. One commenter expressed concern over access to information by the Hispanic community.
Soils and geology	One commenter requested that the EIS analyze impacts from the project on Class I soils. Another commenter expressed concern over soil erosion.
Section 404 permitting process	Two commenters asked that comments provided to the USACE through the Section 404 public noticing process be included and addressed in the EIS.

ES.6 SUMMARY OF ENVIRONMENTAL IMPACTS

Table ES-3 provides a summary of the potential environmental effects that could result from implementing the no action (no build) alternative, the no action (no permit) alternative, and Alternatives A, B, and C. The on-site alternatives evaluated in the EIS incorporate applicant-proposed measures, EIR mitigation measures, and PG&E avoidance and minimization measures to avoid and reduce impacts resulting from construction and operation of the proposed solar facility. These measures have been committed to by the project applicant and are required as conditions of approval as part of the project's approval and CEQA clearance by San Benito County. These measures are detailed in **Tables C-1**, **C-2**, and **C-3**, respectively, in **Appendix C** of the EIS.

Table ES-3
Summary of Environmental Impacts

No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's Proposed Project)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
		Aesthetics		
No impacts. The proposed project would not be constructed and no telecommunication upgrades would occur. The existing aesthetic environment of the project site and telecommunication facilities would remain the same.	Less than significant impacts. The major visual change during construction activities would be the removal of vegetation during grading, new perimeter road development, lighting required for night-time construction activities, placement and movement of construction equipment and materials, and varying levels of dust creation during ground-disturbing activities. Grading would reveal the brown layers of soil, which could range from a low to moderate short-term contrast. Measures included as part of the no action (no permit) alternative would require revegetation following grading. Vegetation removal during grading would be a temporary, less than significant direct impact. Surface disturbance on the project site and traffic on unpaved roadways would cause dust to be mobilized in the air. Dust produced on the project site can travel off-site during windy conditions or when occurring near the boundary of the project site. Measures included as part of the no action (no permit) alternative would minimize dust produced on-site. This would result in less than significant direct and indirect impacts during the construction phase.	Less than significant impacts. Impacts associated with construction of the applicant's proposed project would have the same temporary and short-term direct and indirect less than significant impacts described for the no action (no permit) alternative. Measures included as part of the no action (no permit) alternative to reduce aesthetic impacts would also be part of Alternative A. Under Alternative A, additional grading would occur in the eastern portion of the project site associated with the three drainages considered waters of the U.S.; however, this area would not be in the foreground views. Impacts would be direct and less than significant. Long-term indirect impacts on aesthetics from construction of the applicant's proposed project would be the same as described under the no action (no permit) alternative. Impacts would be less than significant due to the intermittent or low visibility of the solar panels, the short viewing time of solar	Less than significant impacts. Short-term and long-term direct and indirect impacts under Alternative B would be the same as those described under Alternative A. Measures included as part of the no action (no permit) alternative to reduce aesthetic impacts would also be part of Alternative B. Impacts would be less than significant. Direct and indirect less than significant impacts associated with PG&E primary and secondary telecommunication network upgrades would be the same as described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	Less than significant impacts. Direct visual impacts during construction would be varied and changing based on the type and location of the construction activities. Where grading occurs, removing vegetation would reveal the brown layers of soil, which could range from a low to moderate short-term contrast, depending on the size and location of grading activities and their visibility from surrounding roadways. Such grading would not contrast with the relatively flat landscape and the already disturbed nature of the lands within the CREZ and would be a less than significant direct impact. Use of heavy construction equipment could be visible from Interstate 5, Highway 41, South Lassen Avenue, Avenal Cutoff Road, and West Jayne Avenue/Nevada Avenue moving in the direction of the CREZ. Construction would cause dust to be mobilized in the air. This would create dust plumes around these activities similar to those created by agricultural equipment now used in the area. Because of the temporary nature of these impacts and because these impacts would be similar to those

Table ES-3
Summary of Environmental Impacts

No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's Proposed Project)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	Night sky impacts from lighting would be direct and less than significant given the limited nighttime activities allowed during construction. Long-term indirect impacts on aesthetics from construction of the solar facility would be less than significant due to the intermittent or low visibility of the solar panels, the short viewing time of solar facility features, the low frequency of use of adjacent roadways, the use of dulled finishes and colors to blend with the landscape, and maintenance of the visual quality of the background views of the Panoche Hills, Tumey Hills, Griswold Hills, and the Coast Range Mountains. Measures included as part of the no action (no permit) alternative would reduce dust generated and the impacts of lighting on aesthetics during operational and maintenance activities. As a result, long-term impacts on aesthetics would be less than significant. New microwave equipment would be collocated on existing towers or new towers would be constructed in already developed areas and would not change the overall characteristic of the landscapes, resulting in less than significant long-term impacts. Cumulative impacts would be less than significant.	facility features, the low frequency of use of adjacent roadways, the use of dulled finishes and colors to blend with the landscape, and maintenance of the visual quality of the background views of the Panoche Hills, Tumey Hills, Griswold Hills, and the Coast Range Mountains. Impacts from operational and maintenance activities would be the same as described for the no action (no permit) alternative. Impacts would be less than significant. Direct and indirect less than significant impacts associated with PG&E primary and secondary telecommunication network upgrades would be the same as described under the no action (no permit) alternative. Cumulative impacts would be less than significant.		already occurring on surrounding agricultural lands, aesthetic impacts from the creation of dust plumes would be less than significant. Development of a proposed solar facility would create a moderate contrast to the generally matte white agricultural structures that are distributed across the landscape in the CREZ. Overall, indirect impacts would be less than significant due to the topography and visual character of the Westlands CREZ area. Dust plumes from travel on unpaved surfaces and operational lighting would be the primary impacts from operational and maintenance activities. Given the low viewer sensitivity and the more developed nature of the area near the Westlands CREZ, aesthetic impacts would be less than significant. Cumulative impacts would be less than significant.

Table ES-3
Summary of Environmental Impacts

No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's Proposed Project)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
		Agricultural Resources		
No impacts. The proposed project would not be constructed and no telecommunication upgrades would occur. Current agricultural uses on the proposed project site would continue.	Less than significant impacts. The no action (no permit) alternative would convert the 2,506-acre project footprint from grazing land to solar development, converting this acreage to a nonagricultural use. Project site lands are not considered prime farmland, unique farmland, or farmland of statewide importance due primarily to the lack of irrigation. Measures included as part of the no action (no permit) alternative would provide funding for 4,563 acres of conservation easement(s) on grazing land, or 285 acres of conservation easement(s) on high quality cropland classified as prime farmland in the San Juan Valley. This would offset the loss of grazing lands in San Benito County. Conservation of the 10,772-acre Valadeao Ranch and 10,890-acre Silver Creek Ranch would further offset the impact of conversion of the project site out of agricultural use. Because San Benito County cancelled the Williamson Act, unique farmland, or farmland of statewide importance, the proposed project would have no direct impact associated with conversion of farmland as defined by these agencies. Measures included as part of the no action (no permit) alternative would ensure a less than significant short-term indirect impact on surrounding cultivated	Less than significant impacts. Direct and indirect impacts on agricultural resources would be the same as described for the no action (no permit) alternative. The measures identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. Less than significant direct impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	Less than significant impacts. Direct and indirect impacts on agricultural resources would be the same as described for the no action (no permit) alternative. The measures identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. Less than significant direct impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	Less than significant long-term impacts. Potentially significant short-term impacts on surrounding agricultural uses. Development of a solar facility would convert cultivated farmlands out of agricultural use. Depending upon the location of the project, it could also occur on lands that are now subject to Williamson Act contracts or Farmland Security Zone contracts. These contracts would need to be cancelled prior to issuance of a conditional use permit. Lands within the CREZ are formally recognized as drainage impaired by the US Bureau of Reclamation and are eligible for conversion to Solar Access Easements for a term no less than 20 years. Therefore, the Westlands CREZ alternative would have a less than significant direct impact on agricultural resources. Construction would have a potentially significant indirect effect on surrounding cultivated agricultural land uses by depositing particulate matter on row crops, altering drainage and flow patterns during site construction, and impeding agricultural-related traffic on area roadways. Measures are recommended to mitigation this

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Summary of Environmental Impacts

No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's Proposed Project)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	agricultural land uses during construction. Operational and maintenance activities would not disrupt agricultural uses on surrounding lands, would not produce excessive dust that could travel off-site, and would not cause high levels of traffic. As a result, operational and maintenance activities would have no impacts on agricultural resources. Because telecommunication upgrade activities would occur within PG&E's right-of-way, they would not conflict with any applicable land use plan, policy, or regulation pertaining to agriculture or with the Williamson Act. Therefore, impacts would be less than significant. Cumulative impacts would be less than significant.			impact. However, USACE has no jurisdiction over these mitigation measures. It is uncertain whether these measures would be required as conditions of approval in the conditional use permit process of Fresno or Kings Counties; therefore, the level of impact would remain potentially significant. Operational and maintenance activities would not disrupt agricultural uses on surrounding lands, would not produce excessive dust that could travel off-site, and traffic would be low. As a result, operational and maintenance activities would have no impacts. Cumulative impacts would be less than significant.
		Air Quality		
No new impacts. The proposed project would not be constructed and no telecommunication upgrades would occur. No change in existing air emissions would occur; existing emissions from agricultural-related use of the project site would continue.	Less than significant impacts. With incorporation of measures included as part of the no action (no permit) alternative to minimize fugitive dust and equipment exhaust-related emissions, construction-related emissions would not exceed Monterey Bay Unified APCD construction thresholds. Impacts would be direct and less than significant. Construction would produce fugitive dust that could affect surrounding sensitive land uses. The closest residence	Less than significant impacts. Direct and indirect impacts on air quality under Alternative A would be the same as described for the no action (no permit) alternative. The measures identified as part of the no action (no permit) alternative to minimize air quality impacts are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect	Less than significant impacts. Direct and indirect impacts on air quality under Alternative B would be the same as described for the no action (no permit) alternative. The measures identified as part of the no action (no permit) alternative to minimize air quality	Less than significant impacts. The Westlands CREZ is in an extreme nonattainment area for the federal ozone standard and a moderate nonattainment area for the federal $PM_{2.5}$ standard. Comparing the emissions from the no action (no permit) alternative to the San Joaquin Valley APCD construction emissions thresholds and the Clean Air Act conformity threshold for NOx, a similar 247 MW project within the CREZ would

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Summary of Environmental Impacts

No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's Proposed Project)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
Potential impacts from offsetting fossil-fuel power generation with renewable energy generation would not be realized.	is approximately 1,700 feet southwest of the southwest corner of the project footprint; all other residences are at least 0.5 mile from the project footprint boundary. The Panoche Elementary School is over 1 mile south of the project footprint boundary. Because measures included as part of the no action (no permit) alternative require that the applicant's contractor designate a person or persons to monitor the fugitive dust emissions and enhance the implementation of the measures as necessary to minimize dust complaints, reduce visible emissions below 20 percent opacity, and prevent the transport of dust off-site, indirect impacts would be less than significant. Operational-related project emissions would not exceed Monterey Bay Unified APCD operational thresholds or Prevention of Significant Deterioration thresholds. The alternative would be consistent with applicable plans by implementing measures to reduce dust and minimize exhaust-related emissions. Overall impacts on air quality from operational and maintenance activities would be less than significant. Production of renewable electricity could indirectly benefit regional air quality by offsetting criteria pollutant and toxic emissions that would otherwise be emitted from fossil fuel-fired power plants.	impacts would be less than significant. Less than significant direct impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	impacts are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. Less than significant direct impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	exceed the San Joaquin Valley APCD construction emissions threshold and the Clean Air Act conformity threshold for NOx. This would be a direct significant impact on air quality. Enhanced mitigation measures would be required to mitigate NOx emissions and reduce air quality impacts to less than significant levels. The USACE does not have the authority to require or implement these mitigation measures; however, it is likely that these measures would be required and implemented through the Fresno County or Kings County conditional use permitting process for a project constructed within the Westlands CREZ in order to bring project emissions to below the required CEQA threshold established by the San Joaquin Valley APCD. The nature of operational air quality impacts under the Westlands CREZ alternative are similar to those discussed under no action (no permit) alternative. Impacts would be less than significant. Potentially significant short-term cumulative impact on air quality. Individual project impacts, however, would be reduced by implementing mitigation measures required through the Kings County

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Summary of Environmental Impacts

No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's Proposed Project)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	Emissions associated with PG&E telecommunication upgrade actions would result in temporary, short-term, and localized emissions associated with primary and secondary upgrade activities over the 16-month construction period. Emissions would not exceed applicable Monterey Bay Unified APCD or San Joaquin Valley APCD significance thresholds or Clean Air Act conformity thresholds for emission-generating activities in Fresno County. Impacts would be less than significant. Cumulative impacts would be less than significant.			permitting processes. Long-term impacts on air quality would be incrementally and cumulatively less than significant because prior sources of emissions related to cultivated agricultural practices would be replaced with a more passive use.
		Climate Change		
No new impacts. The proposed project would not be constructed and no telecommunication upgrades would occur. No changes in greenhouse gas emissions or carbon sequestration associated with project site would occur.	Less than significant impacts. Construction of the no action (no permit) alternative would result in a short-term increase in greenhouse gas emissions from vehicle and equipment activity. Construction activities would emit an estimated 22,390 metric tons of carbon dioxide equivalents ($MTCO_{2e}$), which is comparable to 0.005 percent of California's annual greenhouse gas emissions in 2012. The no action (no permit) alternative would not be a locally, regionally, or nationally significant source of greenhouse gases. Impacts would be less than significant and direct impact.	Less than significant impacts. Impacts under Alternative A would be the same as those described under the no action (no permit) alternative. As described for the no action (no permit) alternative, impacts would be less than significant. Less than significant direct impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative.	Less than significant impacts. Impacts under Alternative B would be the same as those described under the no action (no permit) alternative. As described for the no action (no permit) alternative, impacts would be less than significant. Less than significant direct impacts associated with PG&E primary and secondary	Less than significant impacts. Greenhouse gas emissions associated with constructing a 247 MW solar facility would be similar to those described under the no action (no permit) alternative. The level of greenhouse gases produced would not be a locally, regionally, or nationally significant source of greenhouse gases, and impacts would be direct and less than significant. Depending on the site selected, the Westlands CREZ alternative could result in the removal of vegetation. However, much of the land in the CREZ has rotational crops that do

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No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's Proposed Project)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	Removal of vegetation would remove a carbon sink; this would be a less than significant impact because the carbon uptake of existing soils and vegetation is low and would be offset with preservation of conservation lands in perpetuity. Operational and maintenance activities would generate about 480 $MTCO_{2e}$ per year but overall would save approximately 155,460 $MTCO_{2}e$ per year, compared to a fossil fuel-fired power plant. The no action (no permit) alternative would therefore help meet California's Renewable Portfolio Standard and would contribute to the implementation of the California Global Warming Solutions Act. PG&E telecommunication upgrades would produce minor amounts of greenhouse gases from vehicles, helicopters, and construction equipment. The level of greenhouse gases produced would be less than for construction of the solar facility and would not be a locally, regionally, or nationally significant source of greenhouse gases. These upgrades would have a less than significant impact. Cumulative impacts would be less than significant.	Cumulative impacts would be less than significant.	telecommunication network upgrades are the same as those described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	not provide a high level of carbon sequestration. This would be a direct and less than significant impact. Impacts from operation of a proposed solar facility are the same as those described for the no action (no permit) alternative. Cumulative impacts would be less than significant.

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No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's Proposed Project)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
		Biological Resources		
Waters of the U.S., Including Wetlands				
No new impacts. No new impacts on waters of the U.S. would occur because no project would be built. Current impacts on waters of the U.S. from land use practices, such as ranching and farming, would continue.	Less than significant indirect impacts. Under the no action (no permit) alternative, the project would be constructed without placing fill into waters of the U.S., avoiding the need for a Department of the Army permit. The no action (no permit) alternative would have no direct impacts on waters of the U.S. Because there are no jurisdictional wetlands on the project site, the no action (no permit) alternative would have no impact on jurisdictional wetlands. Waters of the U.S. could be indirectly impacted under the no action (no permit) alternative. Indirect impacts can include changes in hydrology that would affect the normal function of a water resource, increase in suspended sediments and sediment deposition, discharge of pollutants, other reductions in water quality, or introduction or spread of noxious weeds or nonnative, invasive plants. Measures included as part of the no action (no permit) alternative would minimize indirect impacts through implementing best management practices to minimize erosion, sedimentation, and introduction of hazardous materials into waters of the U.S. In addition, construction activities would remain within the designated work areas and outside of buffers established around	Less than significant impacts. Under Alternative A, the proposed project would place fill into 0.122 acre of waters of the U.S. The applicant has avoided impacts on all other waters of the U.S. With implementation of avoidance, minimization, and compensation measures, direct and indirect impacts on waters of the U.S. would be less than significant. Less than significant direct and indirect impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as described for the no action (no permit) alternative for construction and operations and maintenance. Cumulative impacts would be less than significant.	Less than significant impacts. Under Alternative B, the proposed project would place fill into 0.124 acre of waters of the U.S. The applicant has avoided impacts on all other waters of the U.S. With implementation of avoidance, minimization, and compensation measures, direct and indirect impacts on waters of the U.S. would be less than significant. Less than significant direct and indirect impacts associated with PG&E telecommunication network upgrades are the same as described for the no action (no permit) alternative for construction and operations and maintenance.	Less than significant impacts. A jurisdictional delineation has not been performed for the lands within the Westlands CREZ, nor has a specific project location been selected. Given the number of drainages and canals in the eastern half of the CREZ, Alternative C would have the potential to impact jurisdictional waters of the U.S. In order to verify that structures or fill would not have a significant impact on waters of the U.S., a jurisdictional delineation would be required. Based on the results of the delineation, measures would be required to avoid, minimize, or compensate for impacts. Impacts would be less than significant. Cumulative impacts would be less than significant.

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No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's Proposed Project)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	avoided waters of the U.S., temporarily disturbed areas within work areas would be revegetated, and a Wetland Mitigation and Monitoring Plan would compensate for unavoidable impacts. Indirect impacts would be less than significant. There would be no direct permanent or temporary disturbance to potential waters of the U.S. and other aquatic resources resulting from construction of PG&E telecommunication upgrades. Cumulative impacts would be less than significant.		Cumulative impacts would be less than significant.	
Vegetation				
No new impacts. No new impacts on vegetation and sensitive habitats would occur because no project would be built. Current impacts on vegetation from land use practices, such as ranching and farming, would continue.	Less than significant impacts. Construction would result in permanent and temporary disturbance within the project footprint. These impacts include permanent or temporary disturbance of 1,796 acres of introduced annual grasslands, and temporary disturbance of 0.2 acre of waters of the State (vernal pool habitat). Measures included as part of the no action (no permit) alternative would minimize impacts through implementation of weed prevention and control measures, which would reduce any likelihood for the invasion or spread of nonnative, invasive, or noxious weeds to a less than significant level. Several ephemeral pools contain confirmed listed vernal pool fairy shrimp, and these features would be protected	Less than significant impacts. Impacts on vegetation and sensitive habitats under Alternative A would be similar to those described under the no action (no permit) alternative. The measures identified as part of the no action (no permit) alternative to minimize impacts on vegetation and sensitive habitats are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts from construction and operational and maintenance activities would be less than significant.	Less than significant impacts. Impacts on vegetation and sensitive habitats under Alternative B are similar to those described for Alternative A. Construction of the multi-span bridges would cause additional short-term disturbance to the streambed and stream bank and additional short- and long-term upland habitat impacts, as more fill would be needed to	Less than significant impacts. Potential permanent and temporary disturbance could result from the construction of solar project features in the Westlands CREZ. These features would vary depending on the location of the project but would likely be similar to those project features described for the no action (no permit) alternative. In addition, bridge crossings over irrigation canals and ditches within the Westlands CREZ would likely be necessary. Lands in the Westland CREZ may be especially susceptible to invasion or spread of nonnative invasive or noxious weeds, due to the lack of native vegetation and disturbed soils.

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No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's Proposed Project)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	by construction buffers. Measures included as part of the no action (no permit) alternative would include implementing stormwater pollution prevention and erosion control measures, which would reduce any effects of soil disturbance causing the loss of soil nutrients and topsoil through erosion, and fugitive dust abatement measures to reduce dust during construction, which would ensure that effects on plant photosynthesis and respiration that could result in lower plant vigor and growth rate and susceptibility to disease, The PV arrays would alter the light and hydrological regimes where they are installed. Shading and the associated decrease in soil temperature and increase in available soil moisture on the project site may alter the vegetation composition growing in these areas. Approximately 24,176 acres of vegetation communities would be preserved in perpetuity. While short-term impacts to native and nonnative vegetation could occur from habitat enhancement actions on conservation lands, vegetation would benefit in the long term due to the actions. Overall, long-term impacts on vegetation on the project site and conservation lands would be indirect and less than significant.	Less than significant direct and indirect impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as described for the no action (no permit) alternative for construction and operations and maintenance. Cumulative impacts would be less than significant.	accommodate the bridge specifications. These additional impacts are not anticipated to cause substantially higher impacts to vegetation or sensitive habitats, as the long-term removal would affect a relatively small area. The measures identified as part of the no action (no permit) alternative to minimize impacts on vegetation and sensitive habitats are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts from construction and operational and maintenance activities would be less than significant. Less than significant direct and indirect impacts associated with PG&E primary and secondary telecommunication network upgrades are	Additionally, semi-disturbed areas like field edges, dirt access roads, and irrigation canal berms likely harbor existing nonnative invasive or noxious weeds and associated seedbanks. Therefore, any soil disturbance in these areas may facilitate spread of these weedy species. Mitigation measures recommended for the no action (no permit) alternative would minimize direct and indirect impacts on vegetation to less than significant levels. The USACE does not have the authority to implement any of the mitigation measures with the exception of those directly related to impacts to waters of the U.S., water quality certification, or biological opinion. However, the recommended mitigations are standard mitigations that would likely be implemented either through the conditional use permit or other permit required to construct a solar project. These mitigations could be refined by Kings and Fresno Counties, CDFW, and USFWS, which would likely be issued on regulatory approval. Cumulative impacts would be less than significant.

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No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's Proposed Project)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	The nature and type of effects from operational and maintenance activities would be similar to those described for construction. Because measures to reduce impacts would be included as part of the no action (no permit) alternative, impacts would be less than significant. Permanent disturbance resulting from construction of PG&E primary telecommunication upgrades would be limited. Preparation of the temporary pull/splice sites, helicopter landing zones, and work areas for the new permanent wood poles would require some minor ground disturbance, including vegetation trimming, recontouring, and lightly compacting the ground. Because PG&E has proposed as part of the no action (no permit) alternative to implement BMPs and revegetation measures to reduce any temporary effects on soil and vegetation, direct and indirect impacts would be less than significant. Cumulative impacts would be less than significant.		the same as described for the no action (no permit) alternative for construction and operations and maintenance. Cumulative impacts would be less than significant.	
Wildlife				
No new impacts. No new impacts on wildlife would occur because no project would be built. Effects on wildlife associated with ongoing	Less than significant impacts. Construction, heavy equipment, and vehicle use on the project site could cause direct impacts, including mortality or injury to a variety of wildlife species, especially small animals that have subsurface burrows or ground- or shrub-	Less than significant impacts. Impacts from construction would be similar to those described for the no action (no permit) alternative. Installation of single-span bridges under Alternative A would generally	Less than significant impacts. Impacts from construction would be similar to those described for Alternative A. In	Less than significant impacts. Although the Westlands CREZ does not contain a high degree of species diversity and richness, wildlife present in the area could still experience impacts from development of a solar facility.

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No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's Proposed Project)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
agricultural practices would continue.	nesting birds. Measures included as part of the no action (no permit) alternative would minimize impacts through environmental awareness training, keeping traffic and equipment within pre-designated work areas and out of wildlife habitat where strikes would be more likely to occur, establishing speed limits for construction traffic to reduce chances for vehicle strikes, establishing construction hours based on sunrise and sunset, and equipping holes and trenches left overnight with wildlife escape ramps. Short-term, direct effects from visual and noise disturbance could result from construction activities, human presence, vehicles in the project site, and night lighting. Measures included as part of the no action (no permit) alternative would minimize impacts through pre-construction surveys for breeding birds and raptors to avoid active nests, ensuring construction lighting would be downlighted, would not cause excessive glare, and would not illuminate the night sky, and reducing noise and vibration associated with PV panel installation. Habitat loss, fragmentation, and degradation could displace wildlife from the project site over the long term. Preservation of conservation lands would ensure that high quality habitat, including wildlife movement corridors, for common wildlife species are preserved.	result in less upland habitat disturbance than installation of the free-span bridges under the no action (no permit) alternative. Additionally, the single-span bridges would not provide potential predator perches as the free-span bridges would. Impacts from operational and maintenance activities would be as described for the no action (no permit) alternative. The measures identified as part of the no action (no permit) alternative to minimize impacts on wildlife are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts from construction and operational and maintenance activities would be less than significant. Less than significant direct and indirect impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as described for the no action (no permit) alternative for construction and operations and maintenance.	addition, construction of bridge footings within the channel would result in disturbance to streambed and stream bank habitat during construction. This would result in a small increase in disturbance to wildlife movement corridors relative to the construction of the single-span bridges described under Alternative A. Impacts from construction on small and large mammals, reptiles and amphibians, and ground-nesting birds would be the same as Alternative A. Impacts from operational and maintenance activities would be as described for Alternative A. The applicant-proposed measures and San Benito County-required mitigation measures identified as part of	Impacts from construction would be similar to those described under the no action (no permit) alternative. Construction activities, heavy equipment, and vehicle use on the site during construction could cause mortality or injury to wildlife, especially small mammals or ground-nesting birds. Construction could also cause short-term visual and noise disturbance from construction activities, human presence, vehicles on site, and night lighting. Visual and noise disturbances could cause birds, bats, or reptiles to alter their foraging, migration, wintering, and breeding behaviors, and avoid suitable habitat within or near the project area. Impacts from operational and maintenance activities would be similar to those described for the no action (no permit) alternative. While the Westlands CREZ site does not contain a high degree of wildlife diversity or high-quality habitat, mitigation measures are recommended to lessen impacts on wildlife. The USACE does not have the authority to implement mitigation measures with the exception of those directly related to a permitting action, water quality certification, or biological opinion.

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No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's Proposed Project)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	The nature and type of effects on wildlife from operational and maintenance activities under the no action (no permit) alternative could include impacts to wildlife species, populations, and habitats including direct mortality, visual and noise disturbance, temporary loss of habitat, and effects from lighting. Because applicant-proposed and San Benito County-approved measures have been incorporated into the no action (no permit) alternative, and because impacts would be short-term and localized, impacts would be less than significant. PG&E telecommunication upgrades construction activities would temporarily alter the existing condition of only 2.6 acres within the existing PG&E right-of-way. With implementation of measures included as part of the no action (no permit) alternative, direct and indirect impacts would be less than significant. Cumulative impacts would be less than significant.	Cumulative impacts would be less than significant.	the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts from construction and from operational and maintenance activities would be less than significant. Less than significant direct and indirect impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as described for the no action (no permit) alternative for construction and operations and maintenance. Cumulative impacts would be less than significant.	However, the recommended mitigations are standard mitigations that would likely be implemented either through the conditional use permit or other permit required to construct a solar project. These mitigations could be refined by Kings and Fresno Counties, CDFW, and USFWS, which would likely be issued on regulatory approval. These conditions would further reduce impacts from construction. With implementation of these mitigation measures, impacts would be less than significant. Cumulative impacts would be less than significant.

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No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's Proposed Project)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
Special Status Species				
No new impacts. No new impacts on special status species would occur because no project would be built. Effects on special status species associated with ongoing agricultural practices would continue.	Less than significant impacts. Construction would affect four federally protected species: San Joaquin kit fox, giant kangaroo rat, blunt-nosed leopard lizard, and California tiger salamander. Impacts would include displacing San Joaquin kit fox from portions of the project site where they are known to be present, changing the daily movement and hunting patterns of individual kit fox, removing denning sites, and potential injury or mortality to individual kit fox. Impacts on giant kangaroo rat include injury or mortality, habitat loss and modification, and potential changes in the composition and distribution of burrows and precincts. Impacts on blunt-nosed leopard lizard and California tiger salamander include injury or mortality to individuals, habitat loss and modification, and potential changes in the composition and distribution of mammal burrows. With implementation of measures included as part of the no action (no permit) alternative and preservation of the conservation lands, impacts on San Joaquin kit fox, giant kangaroo rat, blunt-nosed leopard lizard, and California tiger salamander would be less than significant. Surveys detected the presence of three California Native Plant Society-ranked special status plant species, recurved larkspur, California groundsel and	Less than significant impacts. Under Alternative A, impacts on special status species would be similar to those described under the no action (no permit) alternative. With construction within 0.122 acre of waters of the U.S., there would be a likelihood of increased impacts on San Joaquin kit fox, blunt-nosed leopard lizard, special status plant species, special status reptiles and amphibians, and special status small mammals. However, there would be fewer impacts to upland habitats caused by the single-span bridges compared to the free-span bridges in the no action (no permit) alternative. The level of impact on each of these species with measures proposed as part of Alternative A would be the same as described for the no action (no permit) alternative. The measures identified as part of the no action (no permit) alternative to minimize impacts on special status species and their habitats are also included as part of this alternative. As	Less than significant impacts. Impacts from construction of Alternative B would be similar to those described for Alternative A. With construction of the multi-span bridges, there would be a likelihood of increased impacts on San Joaquin kit fox, blunt-nosed leopard lizard, special status plant species, special status reptiles and amphibians, and special status small mammals compared to Alternative A. The level of impact on each of these species with measures proposed as part of Alternative B would be the same as described for the no action (no permit) alternative. The measures identified as part of the no action (no	Less than significant impacts. Given the intensive farming and prior site disturbance, it is unlikely that special status invertebrates occur in the Westlands CREZ. As a result, there would be no impact on special status invertebrates under this alternative. No special status plant species have been observed to date in the Westlands CREZ; however, no field surveys have been completed. If special status plant species are present, construction, operations, and maintenance could cause direct and indirect short-term and long-term effects on special status plant species. While no special status reptiles and amphibians are documented within the Westlands CREZ, there is potential suitable habitat for several species, including blunt-nosed leopard lizard. Impacts on special status reptiles and amphibians, if present, could be potentially significant. One special status bird species, burrowing owl, has been observed to date in the Westlands CREZ; however, comprehensive field surveys have not been completed.

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No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's Proposed Project)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	serpentine leptosiphon. Construction activities would result in direct impacts from removal of individuals or populations and indirect impacts from dust cover that inhibits photosynthesis. With the implementation of measures included as part of the no action (no permit) alternative and preservation of the conservation lands, impacts on special status plant species from construction would be less than significant. Construction would also impact other special status invertebrates, reptiles, and amphibians, bird species, bat species, and small mammals through mortality or habitat removal. With implementation of measures included as part of the no action (no permit) alternative, impacts on special status invertebrates, reptiles, and amphibians, birds, bats, and small mammal species would be less than significant. The no action (no permit) alternative would permanently conserve 24,176 acres of habitat within the Panoche Valley. With the implementation of measures included as part of the no action (no permit) alternative and preservation of these conservation lands, impacts to special status species would be less than significant, individually and cumulatively. The nature and type of impacts from operational and maintenance activities	described for the no action (no permit) alternative, direct and indirect impacts from construction and operational and maintenance activities would be less than significant for all species. Less than significant direct and indirect impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as described for the no action (no permit) alternative for construction and operations and maintenance. Cumulative impacts would be less than significant.	permit) alternative to minimize impacts on special status species and their habitats are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts from construction and operational and maintenance activities would be less than significant for all species. Less than significant direct and indirect impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as described for the no action (no permit) alternative for construction and operations and maintenance. Cumulative impacts would be less than significant.	Potential direct and indirect short-term and long-term effects on special status bird species could result from construction, operations, and maintenance. Impacts could be potentially significant. While no special status mammals have been documented in the Westlands CREZ, there is potential suitable habitat for the San Joaquin kit fox and other special status mammal species. Potential direct and indirect short-term and long-term effects on special status mammal species could result from construction, operations, and maintenance and be potentially significant. Mitigation measures have been recommended to reduce potential impacts on special status species. The USACE does not have the authority to implement mitigation measures with the exception of those directly related to a permitting action, water quality certification, or biological opinion proposed for Alternative C. However, recommended mitigations are standard mitigations that would likely be implemented either through the conditional use permit or other permit required to construct a solar project. With the implementation of

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	would be similar to those described for construction. However, there would be fewer impacts during operational and maintenance activities due to the reduced level of human presence and surface-disturbing activities on-site. With the implementation of measures included as part of the no action (no permit) alternative, impacts from operational and maintenance activities would be less than significant levels. Cumulative impacts would be less than significant.			these measures, impacts would be less than significant on all special status species discussed. Cumulative impacts would be less than significant.
		Cultural Resources and Tribal Consultation		
No new impacts. The proposed project would not be constructed and no telecommunication upgrades would occur. Existing land uses, including livestock grazing, recreational actions, and population growth and community development, at the project site and on surrounding mitigation lands would continue. The impacts associated with each of these activities would continue and would	Less than significant impacts. Under the no action (no permit) alternative, the resources within the construction footprint would be affected by construction. Because the five archaeological or historical resources and 19 isolates identified are recommended as ineligible for listing on the National Register of Historic Places, construction would not constitute an adverse effect under the National Historic Preservation Act (NHPA) or a significant effect under NEPA. The USACE will seek concurrence with this finding through the Section 106 consultation process. The possibility of encountering undiscovered resources exists under the no action (no permit) alternative, which	Less than significant impacts. The impacts anticipated under Alternative A would be the same as those described for the no action (no permit) alternative, except that Alternative A would include potential construction within or along waters of the U.S. There is a potential for buried cultural resources or human remains in the central portion of the proposed project site. Measures pertaining to undiscovered resources described for the no action (no permit) alternative are also part of Alternative A. Measures to minimize the potential for adverse effects on undiscovered	Less than significant impacts. The impacts anticipated under Alternative B are the same as those described for Alternative A. The measures identified as part of the no action (no permit) alternative are also included as part of this alternative. Measures to minimize the potential for adverse effects on undiscovered cultural artifacts or human remains during construction, if	Potentially significant impacts. No Class I or Class III cultural surveys were performed for the Westlands CREZ as part of this EIS. Records indicate that 90 recorded cultural resource sites have been identified in Kings County, mostly in the upper three feet of the subsurface (Kings County 2002). Because of the active agriculture production throughout the valley floor portion of Kings County, including the Westlands CREZ, it is likely that agricultural activities have disturbed most archaeological resources. Should new sites be identified at a later time, the nature and type of

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No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's Proposed Project)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
possibly result in damage or destruction of eligible cultural resources through surface-disturbing activities, artifact collection, and vandalism.	could result in inadvertent artifact destruction or damage or the loss of scientific context. Under the measures included as part of the no action (no permit) alternative a professional archaeologist will conduct on-site monitoring during ground-disturbing activities, and a Native American monitor will be on-site for work in locations sensitive for Native American archaeological deposits and human remains. Work will cease immediately if archeological resources or human remains are discovered, and the applicant will follow protocols for evaluating and treating these resources or remains. Direct and indirect effects on cultural resources would be less than significant and would not constitute an adverse effect under the NHPA or a significant effect under NEPA. The no action (no permit) alternative would have indirect impacts on the historic landscape setting, altering the landscape by imposing modern industrial features in the rural viewshed. As the Panoche Valley has not been recommended or identified as rural historic landscape, and many of its component parts lack integrity, the alterations in the landscape setting would not result in an adverse effect under the NHPA or a significant impact under NEPA.	cultural artifacts or human remains during construction, if encountered, would thus be the same as described under the no action (no permit) alternative. Impacts under Alternative A would not result in an adverse effect under the NHPA or a significant impact under NEPA for the reasons outline under the no action (no permit) alternative. Impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	encountered, would thus be the same as described under the no action (no permit) alternative. Impacts under Alternative B would not result in an adverse effect under the NHPA or a significant impact under NEPA. Impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	impacts under this alternative would be the same as those described under the no action (no permit) alternative. Mitigation measures are recommended to avoid or minimize potential adverse effects from development of a 247 MW solar facility in the Westlands CREZ. The USACE would not have the authority to apply the cultural resource mitigation measures at the Westlands CREZ unless a Department of the Army permit would be required. If the USACE did have the authority, standard Section 106 processes and procedures would be followed (including requirements for a cultural resources survey report, mitigation of any adverse effects, and SHPO consultation) and the USACE may require additional mitigation measures such as avoidance of eligible resources and development of a Memorandum of Agreement to mitigate identified adverse effects. Proposed project operations would not be likely to encounter unanticipated resources due to the lack of surface-disturbing actions. However, if such discoveries were made, the measures described under construction are recommended to reduce the potential for adversely affecting previously undiscovered cultural artifacts or human remains.

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No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's Proposed Project)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	Proposed project operations would not encounter unanticipated resources due to the lack of surface-disturbing actions. However, if such discoveries were made, the measures included as part of the no action (no permit) alternative would reduce the potential for adversely affecting previously undiscovered cultural artifacts or human remains. With implementation of these measures, operational-related impacts would be less than significant and would not constitute an adverse effect under the NHPA or a significant effect under NEPA. All identified cultural resources near telecommunication upgrade sites would be outside of the PG&E work areas or would be avoided. Therefore, there would be no direct effects on any of the identified cultural sites. Because no work would occur within 100 feet of the one unevaluated resource, there would be no indirect effects on this resource. Cumulative impacts would be less than significant.			As described under construction, the USACE would not have the authority to apply the cultural resource mitigation measures at the Westlands CREZ unless a Department of the Army permit would be required. Cumulative impacts would be less than significant.

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No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's Proposed Project)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
		Geology and Soils		
No new impacts. The proposed project would not be constructed and no telecommunication upgrades would occur. Ongoing impacts on soils and erosion would continue from agricultural use of the project site.	Less than significant impacts. Construction of the solar facility would result in the direct surface disturbance of 1,796 acres of soils that are at least slightly susceptible to wind erosion. Measures included as part of the no action (no permit) alternative require the applicant to control fugitive dust emissions to the extent possible, including suspending grading during high wind conditions. In addition, areas of temporary disturbance would be restored to their preconstruction state or better, in accordance with the Habitat Restoration and Revegetation Plan. This would reduce the potential for erosion in these areas once the vegetation becomes established. Because these measures have been incorporated into the no action (no permit) alternative to minimize erosion, direct and indirect impacts on soils would be less than significant. Geotechnical investigations indicate the presence of soils that are potentially corrosive to steel and concrete and soils with shrink/swell potential or expansive soils, which can weaken support structures for the solar arrays and building foundations. Measures have been included as part of the no action (no permit) alternative would prevent the weakening of structures. Soils identified as expansive would be overexcavated if	Less than significant impacts. Alternative A would have similar geology and soils impacts as the no action (no permit) alternative. The measures identified as part of the no action (no permit) alternative are also included as part of this alternative. Under Alternative A there would be a similar amount of disturbance. Because the overall level of permanent and temporary disturbance is not substantially different under Alternative A, impacts would be similar to those described under the no action (no permit) alternative and would be less than significant. Impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	Less than significant impacts. Direct and indirect impacts on geology and soils under Alternative B would be the same as described above for the no action (no permit) alternative. The applicant-proposed measures and County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. Impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative.	Less than significant impacts. Permanent and temporary disturbance would result from the construction of solar project features within the Westlands CREZ. Impact levels and appropriate mitigation measures would vary, depending on the location of the project within the Westlands CREZ but would likely be similar in type to those described under the no action (no permit) alternative. NRCS data indicate soils identified as highly corrosive to steel and concrete, and soils that may be expansive. The area is susceptible to moderate to strong ground shaking due to the proximity of the San Andres and Oritgas fault zones. No faults cross through the Westlands CREZ, so the area is not at risk for fault rupture. The Westland CREZ is a gently sloping to flat landscape with deposits of clay, silt, sand, and gravel, indicating that the area is not a risk for landslides, but may be at risk for liquefaction. BMPs and mitigation measures are recommended to reduce potential impacts on soils and geologic resources and ensure that project

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No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's Proposed Project)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	directed by the geotechnical report. PV panels would be installed on direct-driven, corrosion-resistant, galvanized steel support structures and may be placed in holes and backfilled with concrete to reduce corrosion potential. Impacts would be direct and less than significant. No known active faults cross the project site, indicating that there is a low potential for damage to the structures from fault rupture. Adherence to the California Building Code design requirements, standard geotechnical engineering practices, and seismic building code requirements would reduce the potential for major damage to structures during ground shaking, resulting in a less than significant impact. Seismically induced slope failures and landslides are not expected due to the flat and gently sloping topography. There would be no ground-disturbing activities under operations and thus no direct impacts associated with erosion. The perimeter road and driveways would be graveled and interstitial space between the arrays would be vegetated, limiting soil erosion associated with on-site travel. Adherence to speed limits would further limit erosion from on-site travel. Therefore, erosion impacts associated with operational and maintenance activities would be less than significant.		Cumulative impacts would be less than significant.	features are designed and constructed in compliance with California Building Codes and in consideration of site conditions. The USACE does not have the authority to require or implement such measures at the Westlands CREZ; however, similar measures would be required if necessary for specific site conditions as part of the process to obtain the necessary building and grading permits from Fresno or Kings Counties. Operational and maintenance impacts would be the same as those described for the no action (no permit) alternative and would thus be less than significant. Cumulative impacts would be less than significant.

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No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's Proposed Project)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	Temporary disturbance along the Moss Landing-Panoche transmission line would disturb soils, resulting in soil erosion. This would be a less than significant direct impact, as the terrain is flat and PG&E would implement avoidance and minimization measures to reduce dust as part of the no action (no permit) alternative. Cumulative impacts would be less than significant.			
		Hydrology and Water Quality		
No new impacts. Existing land uses at the proposed project site and on surrounding mitigation lands would continue. No telecommunication upgrades would occur. There would be no change in water quality or existing water uses, and there would be no change in flooding or drainage patterns.	Less than significant impacts. Indirect impacts on hydrology and water quality may occur during construction and following construction. Because no waters of the U.S. would be directly filled under the no action (no permit) alternative, there would be no direct impacts. During construction, disturbed ground would be susceptible to wind and water erosion, which can transport soil to a water body. This can contaminate water with sediment or silt. Altering drainage patterns can channel stormwater runoff toward soils or terrains that are highly erodible, resulting in surface water runoff transporting soil to a water body. These ground disturbances can indirectly contaminate water quality by causing sedimentation and siltation in a water body. The no action (no permit) requires	Less than significant impacts. Impacts under Alternative A would be similar in nature to those described under the no action (no permit) alternative for water quality. However, Alternative A would result in direct impacts on water quality as a result of the discharge of fill material into waters of the U.S. These impacts would be similar in type and magnitude to the indirect impacts on water quality described under the no action (no permit) alternative. In total, Alternative A would place fill in 0.122 acre of waters of the U.S. Regulatory requirements and measures included to reduce impacts would be the same as described under the no action (no permit)	Less than significant impacts. Impacts on water quality, water supply, and flooding and drainage would similar to those described under Alternative A, except that Alternative B would have direct impacts on 0.124 acre instead of 0.122 acre of waters of the U.S. The measures identified as part of the no action (no permit) alternative and Alternative A are also included as part of this alternative. As described for the no action (no permit)	Potentially significant impacts. Construction would result in impacts on water quality that are similar to those discussed under construction for the no action (no permit) alternative. The same federal and state regulatory requirements to protect water quality discussed for the no action (no permit) alternative would also apply to the Westlands CREZ alternative. This includes preparing an SWPPP and HMBP and obtaining a state water quality certification. To minimize impacts on water quality, the measures applied to the no action (no permit) alternative are recommended to be implemented for Alternative C. The USACE does not have the authority to implement these measures. Because it is uncertain whether measures other than those required

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No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's Proposed Project)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	and must follow the provisions of the NPDES permit, SWPPP, hazardous materials business plan (HMBP), and state water quality certification. The various regulatory requirements and measures included as part of the no action (no permit) alternative would minimize the potential for changing water quality and would result in less than significant impacts on surface water and groundwater quality. The no action (no permit) alternative would use groundwater for storage ponds, mass grading and excavation, and dust control during construction. Total water use for these purposes would be 125,400,000 gallons. Because impacts to groundwater supply would be temporary and mitigation measures are incorporated into the no action (no permit) alternative, the impacts on water supply would be less than significant. The no action (no permit) alternative would create temporary construction areas and permanent structures, resulting in additional impervious surfaces that can reduce surface water infiltration and subsequently increase surface water runoff or alter surface water drainage patterns. Under the no action (no permit) alternative, flood and stormwater retention capacity would be maintained and protected. Impacts on flood retention values of the jurisdictional ephemeral drainages would	alternative. Direct and indirect impacts would be less than significant. Impacts under Alternative A would be the same as those described under the no action (no permit) alternative for water supply. The measures identified as part of the no action (no permit) alternative are also included as part of this alternative. Because these measures would also be implemented as part of Alternative A, direct and indirect impacts on water supply would be less than significant. Impacts under Alternative A would be similar in nature to those described under the no action (no permit) alternative for flooding and drainage. However, Alternative A would also result in direct impacts on flooding and drainage as a result of the discharge of fill material into 0.122 acre of waters of the U.S. The various regulatory requirements and measures to reduce impacts described as part of the no action (no permit) alternative are included as part of Alternative A and would minimize the potential	alternative, direct and indirect impacts would be less than significant. Cumulative impacts would be less than significant.	by federal and state regulations would be required by Fresno and Kings Counties, direct and indirect impacts on surface water and groundwater quality are potentially significant. Construction may result in impacts on water supply that are similar to those discussed under construction for the no action (no permit) alternative. The various regulatory requirements discussed under construction for the no action (no permit) alternative would apply. The Notice of Preparation for the Westlands Solar Park (Westlands Water District 2013) indicated that a water supply assessment would be required pursuant to Senate Bills 610 and 221 in order to verify that solar development would not have a substantial impact on groundwater supply. As a result, there would be less than significant direct impacts on water supply. Given that the Westlands CREZ is over 35,000 acres, the USACE has determined that it is reasonable to assume that a 247 MW solar facility could be developed that avoided placement of structures in the 100-year floodplain. Impacts on flooding and drainage would therefore be less than significant.

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No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's Proposed Project)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	be minimized by constructing at-grade road crossings and backfilling utility line crossings to original grade. Stormwater would be managed primarily through the use of planted and maintained grassland habitat and revegetation of exposed soils on the project site and through the use of two stormwater basins. Regulatory requirements and measures included as part of the no action (no permit) alternative would minimize the potential for changing flooding and drainage from impervious surfaces, grading, and placing structures or fill in areas containing water resources. Because of these measures, the vegetation that would be planted beneath solar arrays, the buffers from waters of the U.S., and the relatively gentle slopes, impacts on flooding and drainage would be less than significant. Operational and maintenance activities would result in impacts on water quality and water supply similar to those described for construction. Implementation of regulatory requirements and measures described above would reduce impacts to less than significant levels. Operational and maintenance activities would have no impacts related to flooding and drainage. Cumulative impacts would be less than significant.	for changing flooding and drainage from impervious surfaces, grading, and placement structures or fill in 0.122 acre of waters of the U.S. As a result, impacts on flooding and drainage from Alternative A would be less than significant. Cumulative impacts would be less than significant.		Operational and maintenance activities would result in impacts on water quality that are similar to those discussed under construction for Alternative C. The recommended mitigation measures and regulatory requirements would reduce impacts to less than significant levels. Panel washing would have less than significant impacts on water supply. No impacts on flooding and drainage would occur. Cumulative impacts would be less than significant.

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No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's Proposed Project)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
Land Use, Ownership, and Planning				
No new impacts. Existing land uses at the proposed project site and on surrounding mitigation lands would continue. No telecommunication upgrades would occur. There would be no changes in land use on the project site, and no land use impacts would occur. Under the no action (no build) alternative, conservation lands would not be created; therefore, maintaining these lands as undeveloped open space in perpetuity would not be guaranteed.	Less than significant impacts. The no action (no permit) alternative would not conflict with any applicable land use plan, policy, or regulation. In approving the conditional use permit for the project, San Benito County determined that the solar facility is an allowed use and, as conditioned, is compatible with the objectives, policies, general land uses, and programs specified in the general plan. Construction of the no action (no permit) alternative would not directly or indirectly divide an established community. While the no action (no permit) alternative would introduce a different land use into the Panoche Valley, this land use would not prevent the continued agricultural and residential land uses of surrounding lands or lands throughout the Panoche Valley. Construction of the no action (no permit) alternative would temporarily disrupt surrounding residential land uses and the Panoche Elementary School. Mitigation measures have been incorporated into the no action (no permit) alternative and, as a result, indirect impacts from disruption of surrounding land uses would be temporary and less than significant.	Less than significant impacts. Direct and indirect impacts from construction and operational and maintenance activities would be the same as described above for the no action (no permit) alternative. The measures identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. Impacts associated with PG&E primary and secondary telecommunication network upgrades would be the same as described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	Less than significant impacts. Direct and indirect impacts from construction and operational and maintenance activities would be the same as described above for the no action (no permit) alternative. The measures identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. Impacts associated with PG&E primary and secondary telecommunication network upgrades would be the same as described under the no action (no permit) alternative.	Less than significant impacts. Development of a 247 MW solar facility on lands within the Westlands CREZ would be consistent with both the Fresno County and Kings County General Plans. Both plans allow development of commercial solar generation facilities on lands zoned as agriculture through the conditional use permit ting process. Construction activities would have indirect impacts on residential land uses or other sensitive land uses to the extent that these land uses exist within proximity of a proposed project site and the area roadways leading to the site. Because there are limited residences and other sensitive lands uses adjacent to the Westlands CREZ, these impacts are expected to be less than significant. The presence of a solar facility within the Westlands CREZ would introduce a nonagricultural, industrial use into a predominantly agricultural portion of the affected county. The presence of a solar facility would have a less than significant indirect impact on the character of the rural setting. A solar facility in the Westlands CREZ would have no direct impact on

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	The presence of the solar infrastructure would have a long-term less than significant indirect impact on scattered rural residences, recreationists en-route to BLM-administered lands, and other travelers through the Panoche Valley by altering the rural and agricultural character of the immediate project area. Creating permanent conservation easements on the 10,772-acre Valadeao Ranch and 10,890-acre Silver Creek Ranch would ensure that the open space value and rural character of these lands are preserved in perpetuity. Operational and maintenance activities for the solar facility are allowable activities and would not conflict with any local plans or regulations. These activities would not divide a community or disrupt uses on surrounding lands. Impacts would be less than significant. Temporary and intermittent construction-related activities along the PG&E Moss Landing-Panoche transmission line would not disrupt current land uses on or surrounding the work areas. Collocation of microwave equipment on existing towers at Call and Panoche Mountains and construction of a new tower at the Helm Substation would have no impact on land use. Cumulative impacts would be less than significant.		Cumulative impacts would be less than significant.	recreation, as no recreational uses exist on the Westlands CREZ. Operational and maintenance activities would have less than significant land use impacts. Cumulative impacts would be less than significant.

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		Socioeconomics		
No new impacts. Existing land uses at the proposed project site and on surrounding mitigation lands would continue. No telecommunication upgrades would occur. Beneficial impacts on employment and the local economy from construction-related jobs and expenditures would not occur.	Less than significant impacts. The no action (no permit) alternative would result in direct temporary impacts on local employment, resulting in a peak force of approximately 100 to 500 workers for daytime crews and 20 to 50 workers for nighttime activities for 18 months. The construction workforce would contribute to the local economy and would have indirect beneficial impacts through employment and income. The creation of up to 500 construction jobs in the region would result in a temporary reduction in unemployment and a temporary increase in employment in the region. This beneficial indirect impact would be a less than significant due to the small level of the increase and the short-term nature of employment. The no action (no permit) alternative includes a measure to provide construction contractors with information on temporary housing opportunities to offset issues associated with lodging capacity. By providing time to coordinate temporary housing opportunities, this alternative would have less than significant direct impacts on housing supply. The full-time operational and maintenance staff would consist of up to 50 people. This would represent a minor	Less than significant impacts. Direct and indirect impacts on socioeconomic resources under Alternative A would be the same as described for the no action (no permit) alternative. The measure identified as part of the no action (no permit) alternative related to temporary housing is also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. Less than significant impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	Less than significant impacts. Direct and indirect impacts on socioeconomic resources under Alternative B would be the same as described above for the no action (no permit) alternative. The measure identified as part of the no action (no permit) alternative is also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. Less than significant impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative.	Less than significant impacts. The creation of up to 500 construction jobs in the region would have a small temporary reduction in unemployment and a beneficial impact on employment in the region. Impacts would be similar to those described for the no action (no permit) alternative. Adequate temporary lodging is expected to be available in the project area. Given the relatively small number of temporary housing units that are anticipated to be needed, impacts related to construction housing would be less than significant. The full-time operational and maintenance staff would consist of up to 50 people. This would represent a minor increase in the local employment and population and would not result in measureable direct or indirect impacts on housing availability or cost. Local governments would benefit economically from tax revenues during project operation. Cumulative impacts would be less than significant.

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No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's Proposed Project)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	increase in the local employment and population and would not result in measureable direct or indirect impacts on housing availability or cost. Local governments would benefit economically from tax revenues during project operation. Direct and indirect impacts from PG&E telecommunication upgrades would be similar to those described above, but at a much lesser scale. Cumulative impacts would be less than significant.		Cumulative impacts would be less than significant.	
		Environmental Justice		
No new impacts. No solar facility would be constructed; therefore, there is no potential for disproportionate adverse impacts on minority or low-income populations and no increased potential for adverse impacts on children.	Less than significant impacts. A minority or low-income population as characterized by CEQ does not exist in the immediate project area. Therefore, there would be no significant disproportionate adverse impacts on minority populations or low-income populations. The Panoche Elementary School is 1 mile from the project footprint boundary. Measures are included as part of the no action (no permit) alternative to minimize impacts by providing advance notice of construction activities, reducing noise levels from vehicles and equipment, and by implementing specific measures to improve traffic safety. In addition, the school site is fenced, which would prevent children from inadvertently	Less than significant impacts. Direct and indirect impacts on environmental justice under Alternative A would be the same as described for the no action (no permit) alternative. Measures to reduce impacts identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. Less than significant direct impacts associated with PG&E primary and secondary telecommunication network	Less than significant impacts. Direct and indirect impacts on environmental justice under Alternative B would be the same as described for the no action (no permit) alternative. Measures to reduce impacts identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and	Less than significant impacts. A specific project site in the Westlands CREZ has not been determined; however, all census tracts there contain minority populations. Similarly, Kings County census tract 16.01 contains a low-income population. Construction would temporarily increase noise, traffic, and dust, which could result in temporary changes to the quality of life for area residents, particularly for those near the construction site. Impacts would be less than significant for all populations, including minority populations. In addition, public involvement and outreach designed to target all socioeconomic populations and

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Summary of Environmental Impacts

No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's Proposed Project)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	leaving school grounds. Because these measures have been incorporated into the no action (no permit) alternative, impacts would not pose a substantial health or safety risk to children and impacts would be less than significant. Long term, project facilities would be fenced and no public access would be permitted. Therefore, no long-term indirect impacts would occur for children at Panoche Elementary School. Impacts from operational and maintenance activities would be less than significant. Due to the lack of residents in the immediate area proposed for telecommunications upgrades, no impacts are anticipated on minority populations, children, or issues of tribal concern for either primary or secondary telecommunication upgrades. Cumulative impacts would be less than significant.	upgrades are the same as those described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	indirect impacts would be less than significant. Less than significant direct impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	Spanish language outreach materials would aid in informing potentially impacted populations about the proposed project. These instruments would also contain information about opportunities for involvement and measures that would be required to reduce the level of impact. The USACE does not have the authority to require outreach for a project constructed at the Westlands CREZ; however, such outreach would likely be required to be undertaken by the appropriate county for any CEQA compliance necessary in evaluating a conditional use permit application. Children at the two schools within two miles of the CREZ could be disproportionately affected by construction impacts related to noise, traffic, and health and safety. Measures to reduce noise, address traffic safety concerns, and require fencing of the construction site would result in less than significant impacts if fully implemented. Impacts from operational and maintenance activities would be as described for the no action (no permit) alternative. Cumulative impacts would be less than significant.

Table ES-3
Summary of Environmental Impacts

No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's Proposed Project)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
		Noise		
No new impacts. Existing land uses at the proposed project site and on surrounding mitigation lands would continue. No telecommunication upgrades would occur. Noise levels would remain the same as those currently experienced.	Less than significant impacts. Noise from construction equipment on the project site would be short term, temporary, and intermittent. Measures included as part of the no action (no permit) alternative would require limiting noisy equipment use near property boundaries, shielding staging areas, implementing noise suppression techniques for equipment, and limiting pile driving activities. While construction noise may sometimes exceed County noise standards over the course of the construction period, the County approved this exceedance with a determination that the benefits of the project outweigh the temporary noise impacts that would be associated with construction. Because the County approved the increased noise levels associated with construction of the no action (no permit) alternative, this impact would be less than significant. Nighttime activities on the project site would be limited; primary noise sources would be vehicles used by security patrols and research crews. Therefore, noise impacts during nighttime hours would be less than significant. Construction-related traffic would be a source of noise along area roadways. Discrete maximum noise levels along delivery and commuting routes would	Less than significant impacts. Direct and indirect noise impacts under Alternative A would be the same as described above for the no action (no permit) alternative. The applicant-proposed measure and County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. Less than significant impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	Less than significant impacts. Direct and indirect noise impacts under Alternative A would be the same as described above for the no action (no permit) alternative. The applicant-proposed measure and County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. Less than significant impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative.	Less than significant impacts. Noise-related impacts under Alternative C are similar to those described under the no action (no permit) alternative. Noise levels would be short term, temporary, and intermittent, and the level of impact would depend on the location of the project site and the distance to sensitive land uses, such as schools or residences. With exemption of construction from noise standards during daytime hours in Fresno County and no noise standards in Kings County, construction of a proposed solar facility at the Westlands CREZ would likely be in conformance to applicable county standards. Direct impacts would be less than significant. Traffic-related construction noise impacts would be similar to those described for the no action (no permit) alternative along State Routes 41 and 198, the primary roads likely to be used for accessing the CREZ. Impacts would likely be less than significant, as there are scattered rural residences along these routes.

Table ES-3
Summary of Environmental Impacts

No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's Proposed Project)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	likely not exceed current levels, but average daytime noise levels and the frequency of noise exposure would increase due to the additional number of vehicles. Measures included as part of the no action (no permit) alternative would limit truck noise and provide advance notice of construction activities along with advice for reducing noise exposure. With implementation of these measures, construction-related indirect noise impacts would be less than significant. Noise from operation of the proposed project would be limited to vehicle use, the transformers and inverters, and heating, ventilation, and air conditioning systems. Sensitive noise receptors would be separated from the equipment by a great enough distance to meet the San Benito County noise standards. Operation of the collector lines would produce no notable noise or hum and would therefore have no impact. Vehicle traffic generated by permanent employees would represent a negligible increase in ambient noise levels. Panel washing would be limited to twice yearly and restricted to Monday through Saturday 7:00 a.m. to 7:00 p.m., excluding federal holidays, when occurring within 1,900 feet of the property line. Because of these operational limitations, noise impacts would be less than significant.		Cumulative impacts would be less than significant.	Impacts from operational and maintenance activities would be similar to those described for the no action (no permit) alternative. Permitting for a solar facility would likely require design features such as shielding and spacing to ensure that operational-related noise complied with applicable noise standards for Fresno or Kings Counties in conformance with county regulations and ordinances. Given county regulations and the limited number of sensitive land uses near the Westlands CREZ, long-term noise impacts on surrounding land uses would likely be less than significant. Cumulative noise impacts would occur from development of the Westlands Solar Park The degree of cumulative impact would depend upon the location of the project, the location of other projects in the area, and the location of sensitive receptors and cannot be qualified at this time.

Table ES-3
Summary of Environmental Impacts

No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's Proposed Project)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	Heavy machinery and helicopters along the Moss Landing-Panoche transmission line would temporarily increase ambient noise levels at nearby rural residences by more than 10 dBA. Because these activities would be temporary and intermittent and confined to daytime hours, they would result in a less than significant impact. Cumulative impacts would be less than significant.			
Public Health and Safety, Including Hazardous Materials				
No new impacts. Existing land uses at the proposed project site and on surrounding mitigation lands would continue. No telecommunication upgrades would occur. There would be no change to existing public health and safety conditions.	Less than significant direct impacts. Construction of the facility would follow federal, state, and local laws and regulations governing handling and storage of hazardous materials. All construction activities would be performed by trained personnel and would be carried out in compliance with Occupational Safety and Health Act (OSHA) requirements to minimize the risk of construction-related accidents, injuries, or spills. Measures included as part of the no action (no permit) alternative would require fugitive dust minimization to the maximum extent practicable, ceasing grading, welding, soldering, and smoking during high fire-risk days, preventing standing water, protecting workers and the public from Valley Fever, and implementing service agreements with firefighting entities. With regulatory controls pertaining to	Less than significant impacts. Direct and indirect impacts under Alternative A are the same as those described for the no action (no permit) alternative. The measures identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. Less than significant direct impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative.	Less than significant impacts. Direct and indirect impacts under Alternative B are the same as those described for the no action (no permit) alternative. The measures identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. Less than significant direct impacts	Less than significant impacts. Potential health and safety direct and indirect impacts are similar to those described under the no action (no permit) alternative. They include transportation of hazardous materials and potential for spills, wildfire risk, destructive acts, disease transmission, and exposure to Valley Fever. Measures similar to those described under the no action (no permit) alternative are recommended to minimize potential risks to on-site construction workers, off-site residents, and agricultural workers. The USACE does not have the authority to implement any of these measures, so their implementation is uncertain. Application of these measures would ensure impacts are less than significant by minimizing potential

Table ES-3
Summary of Environmental Impacts

No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's Proposed Project)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	hazardous material use and storage and implementation of the measures described above, impacts related to public health and safety would be less than significant. Operational and maintenance activities would require small quantities of petroleum products (fuels and lubricating oils), motor vehicle fuel, and common hazardous materials. Potential impacts related to releases of these materials would be minimized by training personnel in handling and storing hazardous materials in compliance with OSHA standards. The Spill Prevention, Control, and Countermeasure Plan would ensure proper storage and treatment of hazardous materials during operation and procedures to follow in the event of an accidental release. Impacts related to hazardous material storage and use would be less than significant. With regard to intentional destructive acts, the project footprint would be fenced and access would be restricted via a security gate. The applicant would provide 24-hour on-site security personnel to discourage acts of vandalism. Signs warning of electrical hazards would be posted. With these security measures in place, the risk of intentional destruction would be less than significant.	Cumulative impacts would be less than significant.	associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	risks to on-site construction workers, off-site residents, and agricultural workers. Potential health and safety impacts from operational and maintenance activities would be similar to those described under the no action (no permit) alternative. They include transportation of hazardous materials and potential for spills, wildfire risk, destructive acts, disease transmission, and exposure to Valley Fever. Measures similar to those described under the no action (no permit) alternative are recommended. The USACE does not have the authority to implement any of these measures, so their implementation is uncertain. Fire protection services would be provided by Kings County Fire Department stations in the vicinity of Westlands CREZ (Stratford, Kettleman City, and Avenal) under agreement with the project proponent (Westlands Water District 2013). With implementation of these measures, operation-related public health and safety impacts would be less than significant. Cumulative impacts would be less than significant.

Table ES-3
Summary of Environmental Impacts

No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's Proposed Project)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	Operational and maintenance activities could result in wildfire. The agreement with the San Benito County Fire Department would include such measures as maintaining vegetation to minimize ignition risk and ceasing all nonemergency work during a red flag warning. Because these measures are included as part of the no action (no permit) alternative, operation-related wildland fire impacts would be less than significant. Project operational and maintenance activities would minimally disturb on-site soils and would not create a risk of causing Valley Fever fungal spores to become airborne. As such, impacts would be less than significant. Potential exposure of sensitive receptors to hazardous materials during PG&E telecommunication upgrade activities is low. With measures to reduce fire risk included as part of the no action (no permit) alternative, impacts related to fire and emergency response would be less than significant. Cumulative impacts would be less than significant.			

Table ES-3
Summary of Environmental Impacts

No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's Proposed Project)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
		Traffic and Transportation		
No new impacts. Existing land uses at the proposed project site and on surrounding mitigation lands would continue. No telecommunication upgrades would occur. Traffic and transportation conditions would remain the same as those currently experienced.	Less than significant impacts. The no action (no permit) alternative would indirectly affect the local transportation network during the construction period. Construction-related traffic would not result in a decrease in level of service (LOS) on area roadways; however, individual drivers would likely experience temporary delays along Little Panoche Road and Panoche Road. Because measures have been included as part of the no action (no permit) alternative to implement a traffic control plan that minimizes impacts on the transportation system and on individual drivers, impacts would be indirect and less than significant. The increase in the number of vehicles on the roads, especially during the peak construction worker arrival and departure timeframes, could indirectly increase the potential for vehicular accidents (construction workers and the public) in the project area. Measures included as part of the no action (no permit) alternative require the applicant to prepare and implement a traffic safety plan that mitigates potential impacts on emergency response agencies and ensures the ability of emergency service providers to access the region during construction and to ensure the safety of	Less than significant impacts. The indirect impacts on transportation are the same as described under the no action (no permit) alternative. The measures identified as part of the no action (no permit) alternative to reduce impacts are also included as part of this alternative. As described for the no action (no permit) alternative, indirect impacts would be less than significant. Less than significant indirect impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	Less than significant impacts. The impacts on transportation are the same as described under the no action (no permit) alternative. The measures identified as part of the no action (no permit) alternative to reduce impacts are also included as part of this alternative. As described for the no action (no permit) alternative, indirect impacts would be less than significant. Less than significant indirect impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	Less than significant impacts. During construction, transportation systems around the Westlands CREZ would be indirectly impacted by an increase in traffic due to an influx of construction workers and the delivery of construction equipment and materials. To mitigate short-term transportation impacts from materials and equipment deliveries, a traffic control plan should be prepared to identify any road restrictions for delivery vehicles, including designated haul routes and oversized vehicle requirements. The USACE does not have the authority to implement this mitigation measure. It is likely that it would be required, though, through the Fresno or Kings County approval process of a conditional use permit. To mitigate potential impacts on emergency response agencies, a traffic safety plan should be prepared and implemented to ensure the ability of emergency service providers to access the region during construction and to ensure the safety of motorists (construction workers and the public) during peak use of the regional roadways. The USACE does not have the authority

Table ES-3
Summary of Environmental Impacts

No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's Proposed Project)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	all motorists during peak use of the regional roadways. Because this measure is part of the no action (no permit) alternative, the short-term impacts on emergency vehicle operators' ability to respond to emergencies on the roadways in the project area would be indirect and less than significant and would not impact motorist safety. The no action (no permit) alternative has the potential to produce disproportionate wear and tear on the roadway system, damage culverts, and affect already deteriorated road conditions. Measures included as part of the no action (no permit) alternative would require the applicant to rehabilitate damaged pavement prior to construction, restore all public roads, easements, rights-of-way, and infrastructure that have been damaged due to project-related construction, and monitor and repair culverts along area roadways. Because roadways will be restored to pre-project conditions, impacts would be indirect and less than significant. Operation of the no action (no permit) alternative would not require regularly scheduled truck trips. The traffic generated by the project during operation would not adversely affect traffic operations on the surrounding local roadways and intersections. Therefore, impacts on transportation			to implement this mitigation measure. It is likely that it would be required, though, prior to obtaining county approval for construction because this is a common requirement to mitigate safety risks. Project-generated traffic, especially heavy truck traffic, would accelerate the rate of deterioration of public roads traveled. The hauling contractor would be required to comply with state regulations relating to truck weight, including obtaining permits for oversized loads, which would minimize potential impacts on bridge and culvert crossings. Before the start of and during construction, the applicant should coordinate with affected jurisdictions and implement appropriate measures to rehabilitate roadways and to protect and monitor roadway pavement and bridges and culverts. The USACE does not have the authority to implement this mitigation measure. It is likely that it would be required, though, prior to obtaining county approval for construction because this is a common requirement for projects that may damage public roads. The workforce for operations, maintenance, and security purposes would be substantially less than

Table ES-3
Summary of Environmental Impacts

No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's Proposed Project)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	would be less than significant. There may be infrequent and localized disruptions of vehicle traffic from PG&E telecommunication upgrade activities as construction personnel access wire pulling, tensioning, and splicing sites. Traffic disruption during overhead crossings of public roads would be minimized via implementation of a traffic control plan. Impacts would be indirect and less than significant. Cumulative impacts would be less than significant.			during construction and would generate substantially fewer average daily trips. The traffic generated by the project during operation would not adversely affect traffic operations on the surrounding local roadways and intersections. Therefore, long-term impacts on transportation would be less than significant. Cumulative impacts would be less than significant.

CHAPTER 1
INTRODUCTION AND STATEMENT OF PURPOSE AND NEED

1.1 INTRODUCTION

Panoche Valley Solar, LLC (the applicant) is proposing to construct the Panoche Valley Solar Facility, a photovoltaic (PV) generating facility in eastern unincorporated San Benito County, California. The proposed project site contains drainages that have been determined to be jurisdictional waters of the U.S. Construction of the proposed project requires a Department of the Army permit from the US Army Corps of Engineers (USACE) to discharge fill material into these waters, in accordance with Section 404 of the Clean Water Act.

In 2012, the USACE, as the lead agency responsible for complying with the National Environmental Policy Act (NEPA; 42 United States Code [USC], Sections 4321-4370h), made a preliminary determination that the proposed project constitutes a major federal action that may result in significant impacts on the environment and that the preparation of an environmental impact statement (EIS) was required.

This EIS has been prepared in accordance with NEPA, the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 Code of Federal Regulations [CFR], Parts 1500-1508), US Army Corps of Engineers Procedures for Implementing NEPA (33 CFR, Part 230), and Processing of Department of the Army Permits (33 CFR, Part 325, Appendix B, NEPA Regulation).

The US Fish and Wildlife Service (USFWS) is a cooperating agency for this EIS. It has responsibility for issuing a biological opinion on the proposed project under Section 7 of the Endangered Species Act.

1.2 PROPOSED PROJECT REQUIRING ENVIRONMENTAL ANALYSIS

The applicant is proposing to construct an approximately 247 megawatt (MW) PV generating facility on 2,506 acres (project footprint). The project footprint is in unincorporated eastern San Benito County, California, approximately 30 miles south of Los Banos and 60 miles west of Fresno. The site is 2 miles from the Fresno County line and 15 miles west of Interstate 5 and the San Joaquin Valley (**Figure 1-1**). The solar facility and all associated land would be on property that is controlled by the applicant.

The current project output is approximately 339 megawatts of direct-current (MW_{DC}) power, or 247 megawatts of alternating current (MW_{AC}) power. This output is based on the current project design and current PV panel technology. The actual output at the time the facility is brought online would depend on PV technology and uncertainties, such as line losses. Actual output may be greater than the estimated output at project startup or over the life of the facility as solar technology improves.

Power from the project would be delivered via the Pacific Gas & Electric Company (PG&E) Moss Landing-Panoche 230 kilovolt (kV) transmission line that runs in an east-west direction through the project site. The applicant signed a large generator interconnection agreement with PG&E for the project in January 2014. This agreement confirms that the project's electricity output would be deliverable to the transmission grid. It also specifies the interconnection and network facilities that would be required to interconnect the project with the PG&E Moss Landing-Panoche 230 kV transmission line. The applicant executed a power purchase agreement for the project in August 2014. Under this agreement, Southern California Edison is obligated to purchase and the applicant is obligated to deliver 247 MW_{AC} of power annually for 20 years beginning in 2019.

The proposed solar facility would consist of the following:

- A solar field of ground-mounted PV modules
- An underground electrical collection system that converts generated power from direct current to alternating current
- A project substation that collects and converts the alternating current from 34.5 kilovolts to 230 kilovolts
- A switching station that delivers the generated power to the state electrical grid

In addition, the applicant is proposing to conserve all lands within the project site that are outside of the project footprint to maintain and enhance habitat conditions for federal and state listed species. Approximately 2,514 acres interspersed throughout and next to the project footprint would be left

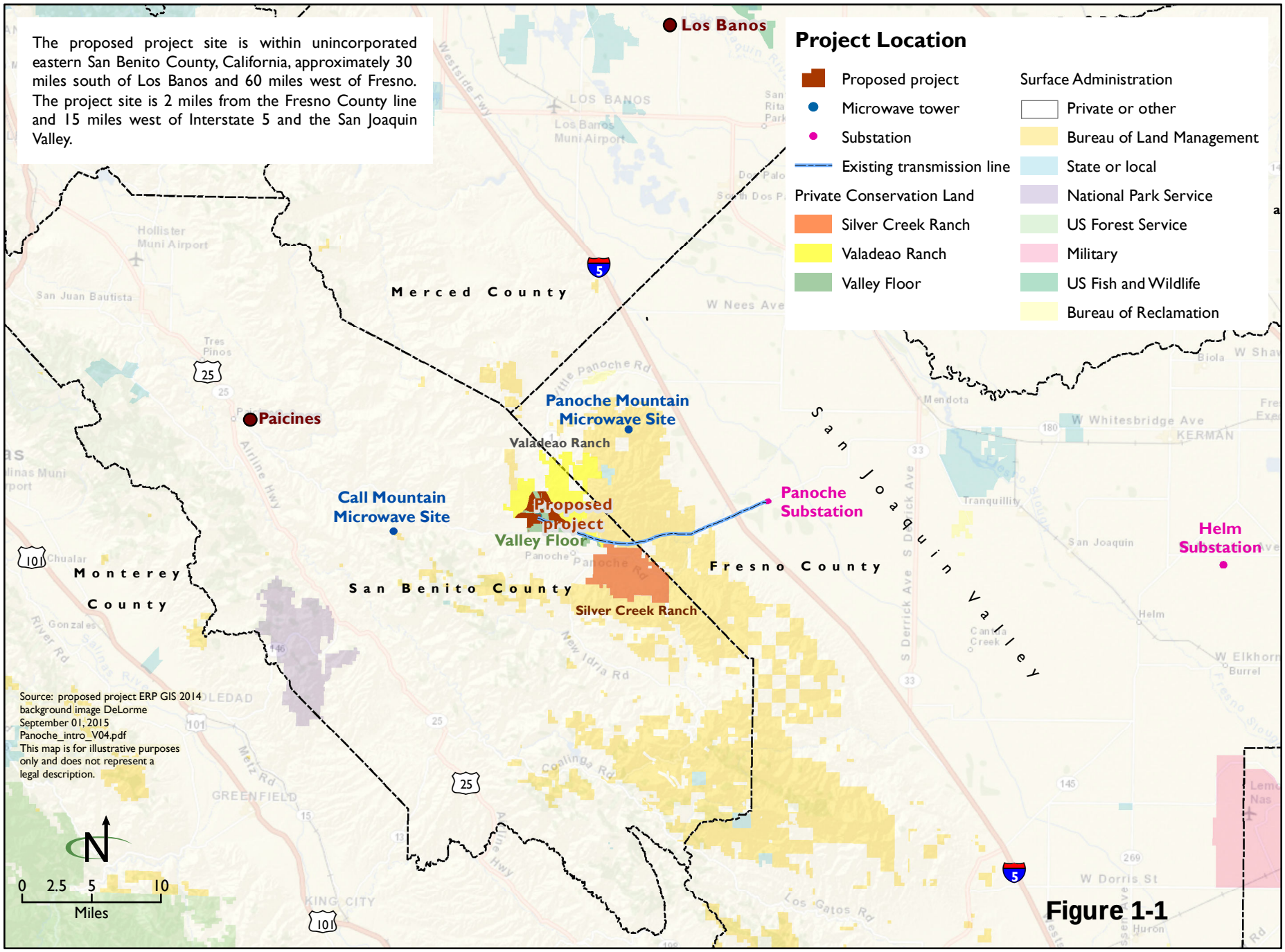

The proposed project site is within unincorporated eastern San Benito County, California, approximately 30 miles south of Los Banos and 60 miles west of Fresno. The project site is 2 miles from the Fresno County line and 15 miles west of Interstate 5 and the San Joaquin Valley.
Project Location
Proposed project
Microwave tower
Substation
Existing transmission line
Private Conservation Land
Silver Creek Ranch
Valadeao Ranch
Valley Floor
Surface Administration
Private or other
Bureau of Land Management
State or local
National Park Service
US Forest Service
Military
US Fish and Wildlife
Bureau of Reclamation
Los Banos
Paicines
Merced County
Monterey County
San Benito County
Fresno County
San Joaquin Valley
Panoche Mountain Microwave Site
Valadeao Ranch
Call Mountain Microwave Site
Proposed Project
Valley Floor
Panoche Substation
Helm Substation
Silver Creek Ranch
Source: proposed project ERP GIS 2014
background image DeLorme
September 01, 2015
Panoche_intro_V04.pdf
This map is for illustrative purposes only and does not represent a legal description.
N
0 2.5 5 10
Miles

Figure 1-1

undisturbed; this area would be designated as Valley Floor Conservation Lands. These lands include areas with dense populations of wildlife, wildlife movement corridors within on-site drainages and 100-year floodplains, as well as open space in the southern portion of the project site.

The applicant is also proposing to permanently preserve and manage two large ranches: the Valadeao Ranch Conservation Lands (10,772 acres) and the Silver Creek Ranch Conservation Lands (10,890 acres). These ranchlands are contiguous with the project site and with each other. Conservation lands are being proposed as mitigation to offset potential impacts on listed species from constructing and operating the proposed solar facility.

In total, the proposed project would conserve 24,176 acres. The lands, which are part of the applicant's proposed project, would be preserved and managed in perpetuity through a conservation easement. Most of these lands are in eastern San Benito County, but a small portion is in western Fresno County (see **Figure 2-3**, Applicant's Proposed Project, in **Chapter 2**).

For the purposes of this EIS, the following terms are used to describe the applicant's proposed project:

- Proposed project—An approximately 247 MW solar facility constructed on 2,506 acres and the permanent preservation and management of 24,176 acres of conservation lands
- Project site—The 2,506-acre project footprint evaluated for solar facility development and the 24,176 acres of conservation lands
- Project footprint—The footprint of the proposed 2,506-acre Panoche Valley Solar Facility
- Conservation lands—The 24,176 acres of land that would be preserved and managed in perpetuity through conservation easements; these lands are described in the EIS as follows:
  - Valley Floor Conservation Lands—2,514 acres interspersed throughout and next to the project footprint that would be left undisturbed; This area includes wildlife movement corridors and wildlife avoidance areas in on-site drainages and 100-year floodplains, as well as open space
  - Valadeao Ranch Conservation Lands—10,772 acres of rangeland north, northwest, and east of the project footprint
  - Silver Creek Ranch Conservation Lands—10,890 acres of rangeland southeast of the project footprint

There are no jurisdictional wetlands or other special aquatic sites (i.e., sanctuaries and refuges, mud flats, vegetated shallows, coral reefs, or riffle and pool complexes) in the project footprint.

The proposed project would discharge fill material into 0.122 acre (approximately 3,504 linear feet) of jurisdictional ephemeral stream channels on the eastern and western portions of the project footprint. Approximately 0.002 acre of impact would occur at Las Aguilas and Panoche Creeks, for the construction of two single-span bridge crossings as part of the road around the project facility. Approximately 0.12 acre would be affected in three unnamed drainages on the eastern side of the project site; this would be associated with installing the perimeter fence and perimeter road and grading/trenching to install the solar arrays. The applicant has avoided impacts on all other waters of the U.S. in the project footprint.

The measures that the applicant has proposed to avoid, minimize, or compensate for impacts on waters of the U.S. are described below.

The applicant would avoid impacts on waters of the U.S. as follows:

- Eliminate jurisdictional ephemeral stream channel crossings to the maximum extent practicable
- Eliminate electrical collection system jurisdictional ephemeral stream channel crossings (redesign crossings to be aerial crossings) to the maximum extent practicable
- Avoid placement of project structures (i.e., solar arrays, substation, operations and maintenance building, fencing, and the majority of the interior road network) Within jurisdictional ephemeral stream channels to the maximum extent practicable

The applicant would minimize impacts on waters of the U.S. as follows:

- Minimize the number of permanent jurisdictional ephemeral stream crossings to the maximum extent practicable
- Minimize roadway width to the extent practicable in consideration of load requirements, vehicle type, and width and safety requirements
- Minimize ground disturbance during construction in areas adjacent to jurisdictional ephemeral stream channels
- Cover well-used roads on the project footprint with gravel to minimize sediment transport
- Minimize trash production and protect wildlife from waste materials
- Maintain grassland groundcover following solar facility completion

The applicant is proposing to compensate for the unavoidable impacts on 0.122 acre of waters of the U.S. on the project footprint by protecting, enhancing, or restoring Panoche Creek and Silver Creek on the Silver Creek Ranch Conservation Lands as follows:

- Enhance 0.40 acre of intermittent and ephemeral streams on the Valadeao Ranch and Silver Creek Ranch off-site conservation lands by removing seven debris areas and stabilizing stream banks
- Enhance 11.16 acres of Panoche Creek on the Silver Creek Ranch off-site conservation lands by partially excluding livestock to restore native vegetation and riparian areas
- Create three breeding ponds, totaling 0.50 acre, for California tiger salamander

1.3 BACKGROUND AND HISTORY

In October 2009 the applicant applied for a conditional use permit from San Benito County to develop a 1,000 MW_{AC} PV solar energy project on approximately 10,000 acres in the Panoche Valley. In response to concerns about the size of the project and the potential environmental impacts, the project applicant collaborated with San Benito County to reduce the project size to 420 MW_{AC} on approximately 4,700 acres. San Benito County prepared a draft environmental impact report (EIR) to analyze the environmental impacts of this proposal.

Comments received from the public, the USFWS, and the California Department of Fish and Wildlife (CDFW) raised concerns regarding the 420 MW_{AC} project's impacts on the following protected wildlife species:

- Blunt-nosed leopard lizard (*Gambelia silus*)
- Giant kangaroo rat (*Dipodomys ingens*)
- San Joaquin kit fox (*Vulpes macrotis mutica*)
- California tiger salamander (*Ambystoma californiense*)

In response to these comments and internal discussions after reviewing the results of biological studies done in 2010, the applicant reduced the proposed project scope from 420 MW_{AC} to 399 MW_{AC} and redesigned it to avoid the most biologically sensitive areas. San Benito County released a final EIR in September 2010 and approved a conditional use permit for the project in October 2010.

In response to continuing concerns from the USFWS and CDFW, additional biological surveys were conducted in 2013 and 2014 to further document the distribution of blunt-nosed leopard lizard, giant kangaroo rat, and San Joaquin kit fox dens. The results of these surveys were used to further refine the project footprint. The applicant incorporated additional giant kangaroo rat avoidance

areas, blunt-nosed leopard lizard avoidance buffers, and a San Joaquin kit fox travel/dispersal corridor.

San Benito County prepared a supplemental EIR to evaluate changes to the project since the EIR was certified in 2010. It included the changes described above and the actions needed to be undertaken by PG&E to interconnect the project to the PG&E Moss Landing-Panoche 230 kV transmission line. San Benito County certified the final supplemental EIR and approved the amended conditional use permit for the proposed project in April 2015. San Benito County's approved conditional use permit for the proposed project includes applicant-proposed measures and mitigation measures that are legally binding conditions of approval. This EIS incorporates those measures as part of the proposed project evaluated in **Chapter 3**; the measures are detailed in **Appendix C**.

In April 2010, the applicant submitted to the USACE, San Francisco District a preconstruction notification for authorizing the proposed project under Nationwide Permit 12, Utility Line Activities. The applicant submitted an updated application in August 2010. The USACE, San Francisco District made a preliminary determination that the proposed project may have more than minimal adverse impacts on the environment under the 2007 Nationwide Permit Program and determined that an individual permit would be required.

The USACE, San Francisco District published a public notice on the updated application in December 2010; this update revised the applicant's proposed project to conform to the project permitted by San Benito County in its conditional use permitting process. This public notice described the proposed project, state and local approvals, compliance with various federal laws and Section 404(b)(1) of the Clean Water Act guidelines, and solicited comments on the proposed project (US Army Corps of Engineers 2010).

Due to the potential for significant adverse impacts on aesthetics and federally listed threatened and endangered species and potential significant beneficial economic impacts, the San Francisco District determined that an EIS should be prepared to analyze the potential impacts.

In May 2015, in accordance with 33 CFR, Part 325.8(b)(4), the permit decision for the proposed project was elevated from the USACE, San Francisco District to the USACE, South Pacific Division, with technical regulatory support provided by the USACE, Sacramento District.

Since submitting the permit applications in 2010, the applicant has revised the application to further avoid and minimize impacts on waters of the U.S. This would be done by reducing the number of proposed road crossings and by eliminating impacts associated with burying utility lines in trenches. In addition, the applicant has submitted a wetland mitigation and monitoring plan and is

proposing to compensate for impacts on 0.122 acre (approximately 3,504 linear feet), as described at the end of **Section 1.2**, above.

1.4 PROJECT PURPOSE AND NEED

In accordance with NEPA, an EIS must briefly specify the underlying purpose and need to which the agency is responding (40 CFR, Part 1502.13). When considered together, the purpose and need establish the basic parameters for identifying the reasonable range of alternatives to be considered in an EIS. Under the USACE regulatory program, if the scope of analysis for the NEPA document covers only the proposed specific activity requiring a Department of the Army permit, then the underlying purpose and need for that activity should be stated. However, if the scope of analysis covers a more extensive project, only part of which requires a Department of the Army permit, then the underlying purpose and need of the entire project should be stated (33 CFR, Part 325, Appendix B[9][b][4]).

The applicant submitted a Department of the Army permit application to the USACE to construct the solar PV energy generating facility in the Panoche Valley region of San Benito County. The power generated by this project would assist the State of California and its retail suppliers of electricity to meet the mandatory Renewable Portfolio Standard (RPS) under California law. This law requires electricity providers to procure 33 percent of their electricity from renewable energy sources by 2020 (2011 Senate Bill SBX 1-2). The project would also assist the state to meet targeted reductions in greenhouse gas emissions to 1990 levels by 2020 (California Global Warming Solutions Act of 2006 [Assembly Bill 32]).

The applicant executed a power purchase agreement with Southern California Edison in August 2014. Under this agreement, the applicant is obligated to deliver 247 MW_{AC} of power annually for 20 years, beginning in 2019.

The USACE takes an applicant's purpose and need statement into account when defining the purpose and need of a proposed action under NEPA; however, in all cases it exercises independent judgment in defining the purpose and need.

As part of the requirements of the US Environmental Protection Agency's (EPA's) Section 404(b)(1) Guidelines for the Specification of Disposal Sites for Dredged or Fill Material, the USACE may identify a basic project purpose and an overall project purpose in order to identify practicable alternatives to a proposed action. The basic project purpose is identified in those cases where a proposed project would result in a discharge into a special aquatic site (i.e., sanctuaries and refuges, wetlands, mudflats, vegetated shallows, coral reefs, and riffle and pool complexes). Because the proposed project would not discharge into a special aquatic site, the basic project purpose has not been identified. The USACE has determined the purpose of the proposed project under NEPA and the overall project purpose under the Section 404(b)(1) of the Clean Water Act guidelines to be as follows:

> The overall project purpose is to construct an approximately 247 MW_{AC} solar PV energy generating facility and associated transmission and support facilities in the west-central portion of California's Central Valley (generally encompassing portions of San Benito, Merced, Madera, Fresno, and Kings Counties).

The USACE uses the overall project purpose to define alternatives for evaluation in an EIS and to determine if the applicant's proposed project is the least environmentally damaging practicable alternative (LEDPA) under the Section 404(b)(1) Guidelines. According to USACE guidance in its 2009 Standard Operating Procedures, "The overall project purpose should be specific enough to define the applicant's needs, but not so restrictive as to constrain the range of alternatives that must be considered under the Section 404(b)(1) Guidelines."

1.5 Scope and Focus of this Environmental Impact Statement

This EIS presents information on the potential impacts associated with issuing a permit to construct the proposed project. The USACE's decision on whether to issue a Clean Water Act Section 404 permit requires compliance with NEPA and the interpretive guidelines established by CEQ and the USACE's NEPA implementing procedures.

This EIS achieves the following:

- Describes the affected environment relevant to potential impacts of the proposed project and alternatives
- Analyzes potential significant environmental impacts from the proposed project and alternatives
- Identifies ways that environmental impacts could be avoided, reduced, or mitigated
- Identifies and characterizes cumulative impacts that could result from the proposed project and alternatives in relation to other past, present, or reasonably foreseeable future actions
- Provides the USACE with environmental information for use in decision-making to protect, preserve, and enhance the human environment and natural ecosystems
- Discloses to the public the environmental information and analyses that the USACE will base its decisions on

The area of analysis of the EIS is the following:

- Lands within the project footprint
- Valley Floor, Silver Creek, and Valadeao Ranch Conservation Lands

- Areas that would be affected by network upgrades along the PG&E transmission line and at microwave tower sites at the existing Helm Substation and on Panoche and Call Mountains in order to interconnect the Panoche Valley solar facility to the electrical grid

The focus of the environmental analysis for each alternative includes the direct and indirect effects of constructing a solar facility. This includes short-term effects from construction activities and long-term effects from the presence of a solar facility. It also includes the effects from operational and maintenance activities associated with operating the facility, which are considered an indirect effect of the construction of the solar facility. Impacts associated with operational and maintenance activities are included within the NEPA scope of analysis, as they may affect federally listed threatened and/or endangered species. However, these activities, because they would not result in the discharge of dredged and/or fill material into waters of the U.S., do not require a Section 404 permit and are not within USACE jurisdiction.

1.6 LEAD AND COOPERATING AGENCIES

The USACE is the federal lead agency under NEPA. It has the principal responsibility for issuing Department of the Army Clean Water Act Section 404 permits and ensuring that the requirements of NEPA have been met. As explained in **Section 1.3**, the USACE, South Pacific Division will make the decision on whether to issue a permit for the proposed project, with technical regulatory support provided by the USACE, Sacramento District.

The project applicant is requesting a permit and related approvals to accommodate proposed development on lands it controls. The proposed action represents a federal action because it would require permits and authorizations required by federal law.

Under NEPA, a cooperating agency is any federal agency other than the lead agency that has jurisdiction over or special expertise with respect to any environmental effect from an action requiring an EIS. Cooperating agencies are encouraged to participate in the NEPA process of the lead agency, to review the NEPA document of the lead agency, and to use the document when making decisions on the project. The USFWS, which has responsibility for issuing a biological opinion on the proposed project under Section 7 of the Endangered Species Act, is a cooperating agency for this EIS.

1.7 PERMITS, AUTHORIZATIONS, AND PLANS

Table 1-1 shows the permits and authorizations that the applicant will be required to obtain before constructing and operating the proposed project.

Table 1-1
Potential Permits and Authorizations for the Proposed Project

Permit or Requirement	Issuing Agency	Description	Status[1]
Federal Permits and Authorizations			
Section 404 Permit	USACE	This permit, issued under the CWA, authorizes the placement of dredge or fill material into jurisdictional waters and wetlands of the U.S.	Revised application submitted August 2015
Section 7 Consultation Process and Endangered/ Threatened Species Take Permit	USFWS	This is an authorization for activities that may take a species listed as threatened or endangered under the federal Endangered Species Act. This authorization would be obtained through Section 7 consultation, which would require submitting a biological assessment before the USFWS would issue a biological opinion with incidental take statement.	Biological assessment submitted; accepted by the USFWS as complete on November 18, 2014
Section 106 Consultation	State Historic Preservation Office (SHPO)	Section 106 of the National Historic Preservation Act requires federal agencies to consult with the SHPO on federal actions that may affect historic resources.	Section 106 consultation will begin in 2015
Right-of-way (SF-299) Permit	Bureau of Land Management (BLM)	The BLM will issue the right-of-way permit to PG&E for its work on the transmission line.	SF-299 application submitted June 2015; cost reimbursement agreement in review with PG&E; BLM approval anticipated October 2015
State Permits and Authorizations			
Lake and Streambed Alteration Agreement	CDFW	This permit authorizes fill, diversion, obstruction, disposal, and other activities in or from the bed, channel, or bank of a state watercourse or lake.	Revised application submitted August 2015
Section 401 Certification	Central Coast RWQCB	This certification is triggered by, and must be received for, a USACE Section 404 permit.	Revised application submitted December 2014; public notice issued May 20, 2015; hearing occurred July 31, 2015; 401 certification anticipated September 2015

Table 1-1
Potential Permits and Authorizations for the Proposed Project

Permit or Requirement	Issuing Agency	Description	Status[1]
Waste Discharge Requirements Order	Central Coast Regional Water Quality Control Board (RWQCB)	This is required to discharge fill to Waters of the State that are exempt, in accordance with Subsection 20090 of Title 27, and not subject to the Federal Water Pollution Control Act.	Order approved by the RWQCB on July 31, 2015
Incidental Take Permit	CDFW	This authorizes activities that may take any threatened or endangered species listed under the California Endangered Species Act.	Revised application submitted March 2015; deemed complete May 15, 2015; permit anticipated fall 2015
Construction General Stormwater Permit	Administered by the Central Coast RWQCB	This is a general stormwater permit that will be required for construction at the site.	Anticipated September 2015
Local Permits and Authorizations			
Conditional Use Permit	County of San Benito	This discretionary permit allows a specific land use.	Approved October 2010; amended April 2015
California Environmental Quality Act (CEQA) authorization	County of San Benito	This is an environmental review for discretionary permits required under CEQA.	Final EIR released in September 2010; Final Supplemental EIR released April 2015

[1]Most recent submission date

Table 1-2 describes the plans that will be prepared or have been prepared for the proposed project.

Table 1-2
Potential Plans Required for the Proposed Project

Plan	Requiring Regulation or Document	Status
Avian conservation strategy	Biological opinion, EIR	Draft completed February 2015
Worker environmental education plan	EIR (MM BR-G.1)	Not yet developed; estimated completion September 2015
Weed control plan	EIR (MM BR-1.1)	Draft completed August 2014
Grazing plan	EIR (MM BR-1.2)	Developed as part of the habitat management plan; completed June 2015
Lighting mitigation plan	EIR (MM AE-1.1)	Not yet developed; estimated completion September 2015
Surface treatment plan	EIR (MM AE-3.1)	Draft completed August 2015
Traffic control plan	EIR (MM TR-1.1)	Draft plan submitted to San Benito County February 2015

Table 1-2
Potential Plans Required for the Proposed Project

Plan	Requiring Regulation or Document	Status
Groundwater monitoring and reporting plan	EIR (MM WR-1.1)	Draft plan submitted to San Benito County March 2015
Aquifer testing and well interference analysis	EIR (MM WR-1.2)	Draft plan submitted to San Benito County March 2015; approved June 10, 2015
Stormwater pollution prevention plan	State and RWQCB	Draft completed August 2015
Spill prevention, control, and countermeasure plan	California Health and Safety Code	Not yet developed; estimated completion during construction before 1,320 gallons of oil are brought on-site
Hazardous materials business plan	California Health and Safety Code	Not yet developed; estimated completion during construction before hazardous materials are brought on-site
Eagle conservation plan	Bald and Golden Eagle Treaty Act, California Endangered Species Act (CESA), Section 2081	Draft completed February 2015
Wetland mitigation and monitoring plan (for waters)	Biological opinion, EIR (MM BR-G.6)	Draft plan submitted to CDFW, RWQCB, and USACE June 2015; comments received from USACE July 2015; revised plan submitted August 2015
Habitat restoration and revegetation plan	Biological opinion, EIR (MM BR-G.3)	Draft completed August 2015
Habitat management plan	Biological opinion, EIR (MM BR-G.6)	Draft plan submitted to CDFW June 2015
Paleontological monitoring and recovery plan	EIR (MM PA-1.1)	Not yet developed; estimated completion September 2015
Antelope squirrel relocation plan	CESA, Section 2081	Draft plan submitted to CDFW and San Benito County April 2014
Giant kangaroo rat relocation plan	Biological opinion, CESA, Section 2081	Draft plan April 2014; supplemental information provided June 2015
Fire protection and prevention plan	Cal Fire Code, EIR (MM-C.9-19)	Not yet developed; estimated completion September 2015
CTS avoidance and minimization plan	Biological opinion, EIR, California Endangered Species Act Section 2081	Draft plan completed June 2015
San Joaquin kit fox conservation measures	Biological opinion, EIR, California Endangered Species Act Section 2081	Draft plan April 2014
Blunt-nosed leopard lizard protection plan	Biological opinion, EIR	Draft plan April 2014

MM = Mitigation measure from EIR (San Benito County 2010) and Supplemental EIR (San Benito County 2015)

1.8 AGENCY AND PUBLIC COORDINATION AND SCOPING PROCESS

Public participation is an important part of NEPA and the Section 404 permitting process. Federal public participation activities conducted in support of this EIS are described below.

1.8.1 Scoping

Project scoping identifies issues of concern early in the EIS process. NEPA requires that the lead agency invite affected federal, state, and local agencies, any affected Native American tribes, and other interested organizations and persons to participate in the scoping process. Scoping provides the public with the opportunity to identify environmental issues, concerns, and opportunities to be analyzed in the EIS.

The USACE published a notice of intent (NOI) to prepare the EIS in the *Federal Register* on July 19, 2012 (*Fed. Reg*. Vol. 77, No. 139, p. 42488), initiating a 30-day scoping period; this period was extended by nearly 20 days to end on September 7, 2012. The NOI was published in the *Hollister Free Lance* on July 31, 2012, and on August 3, 2012. Also, it was mailed to federal, state, and local agencies, organizations, and individuals known to have an interest in the project. The NOI invited the public to provide information on environmental impacts that could occur as a result of the proposed project. Copies of these materials are in **Appendix A**.

Public scoping meetings were held on August 21, 2012, at the Panoche School in Paicines, California, and on August 22, 2012, at the Veterans Memorial Building in Hollister, California. The meetings began with an open house that served as an informal question and answer session, followed by a formal presentation and oral comments. Eleven people attended the scoping meeting in Paicines, and six entered comments into the public record. Thirty people attended the scoping meeting in Hollister, and nine entered comments into the public record. The formal presentations and oral comments were recorded by a court reporter to accurately capture the information presented at the meetings.

The scoping period ended on September 7, 2012. Twenty written comment letters were submitted by the following agencies, tribes, and organizations and by 12 individuals; in all, 21 individuals commented with either written or oral comments:

- US Environmental Protection Agency
- Valentin Lopez, Amah Mutsun Tribal Band of Costanoan/Ohlone Indians
- Luis Alejo, Assembly Member, 28th District
- California Audubon Society
- Center for Biological Diversity

- Defenders of Wildlife
- Santa Clara Valley Audubon Society
- Citizens Committee to Complete the Refuge
- Sierra Club, Loma Prieta Chapter

The issues raised in the oral and written comments are presented in **Table 1-3**; approximately a third of the comments focused on biological resource issues. The comments received during scoping were similar in substance and nature to those received during the USACE public noticing periods in 2010 and 2011.

Table 1-3
Summary of Scoping Issues

Issue	Summary of Comments by Issue
Biological resources	Most of the scoping comments focused on biological issues, especially impacts on sensitive and protected species, migratory birds, and grassland ecosystems. Commenters requested a full accounting of sensitive species, a thorough analysis of project and cumulative impacts, a description of measures to avoid, minimize, and mitigate project impacts, and provisions of mitigation, monitoring, and translocation plans. The EPA and other commenters requested an analysis of the potential for habitat fragmentation, identification and analysis of compensatory mitigation proposals, and consultation with the USFWS and CDFW to incorporate lessons learned from other renewable projects and recent guidance to avoid and minimize adverse effects on sensitive species. Commenters also requested that the EIS analyze impacts from shading and alteration of rainfall on vegetation and species due to panel installation and impacts on species from pile installation and construction noise. The EPA also asked that the EIS include an invasive weed management plan. Several environmental conservation organizations identified the Panoche Valley as an important bird area, and some expressed concern that the quality and quantity of mitigation lands would not compensate for the loss of core habitat.
Water resources	The EPA and other commenters requested an estimation of the quantity of water required during construction and operation, the proposed source of the water, a description of water rights permitting and the status of water rights in the basin, the potential impact on other water users in the area, and the potential impacts on surface and groundwater. The EPA also requested an analysis of technologies that can be used to minimize or recycle water and whether it would be feasible to use other sources of water. The agency requested that the impacts on waters of the U.S. be identified and floodplains and stormwater flow be analyzed. Some commenters expressed concern over potential contaminants leaching from solar facility equipment.
Alternatives	The EPA indicated that the EIS should include a robust discussion of alternatives, including alternative sites, capacities, and technologies, and that an environmentally preferable alternative be identified. It requested that the EIS provide a clear discussion of the reasons for eliminating alternatives not discussed in detail, how each alternative was developed, how it addresses each project objective, and how it will be implemented.

Table 1-3
Summary of Scoping Issues

Issue	Summary of Comments by Issue
	Both local commenters and nonprofit organizations asked to see alternative locations for the site, including in the Westlands Competitive Renewable Energy Zone; alternatives to utility-scale solar, including rooftop solar and smaller facilities located closer to users; and more efficient solar panels. Some commenters requested an alternative that avoided all stream crossings.
Socioeconomics	A number of individuals had concerns over the impact the facility would have on the value of their property, local businesses, tourism, Panoche schoolchildren, and the community. One commenter expressed concerns about housing impacts during construction due to the number of temporary workers. Some commenters expressed support of the project for the potential economic benefits it could have on the regional economy.
Public health and safety/hazardous materials and waste	The EPA requested that the EIS identify hazardous waste types and volumes, applicability of state and federal hazardous waste requirements, and mitigations that include minimizing generation of hazardous waste. Commenters expressed concern about naturally occurring arsenic, pesticide residue, and potential for valley fever from construction-generated dust. Some expressed concern over potential soil and water contamination from the project. Commenters requested that the EIS address impacts on emergency service providers and waste disposal at the end of solar panel life.
Noise	Individual commenters expressed concerns over the levels and duration of construction-related noise, including that from post installation and traffic, the change in background noise levels in a rural environment, impacts on Panoche schoolchildren, and impacts on livestock and domestic and wild animals. One commenter requested that the EIS evaluate operational noise levels.
Air quality	The EPA requested that the EIS estimate construction and operational air emissions, identify measures to minimize emissions, and include a draft construction emissions mitigation plan. A number of individual commenters expressed concerns over construction-related impacts on air quality, primarily fugitive dust impacts from soil disturbance.
Cumulative impacts	The EPA requested an in-depth cumulative impacts analysis, including identification of cumulative projects, geographic area, and temporal boundaries; current conditions, trends, and future conditions; parties responsible for minimizing impacts; and opportunities to minimize impacts. The agency also requested that the EIS evaluate impacts from the additional power supply and cumulative impacts associated with the transmission needs of other reasonably foreseeable projects. Commenters requested that the EIS analyze cumulative impacts on sensitive species from solar development in the region. Some commenters requested the EIS analyze cumulative impacts on water supplies, on waters of the U.S., and on species that depend on those waters.
Project description and design	Several commenters requested details on the applicant's proposed project, made suggestions about the design and implementation of the project, or provided opinions on solar technology. Commenters requested that information on interconnection and transmission be included in the EIS, including requirements for upgrades. One commenter requested an accounting of acreage required for roads and conduit.

Table 1-3
Summary of Scoping Issues

Issue	Summary of Comments by Issue
	Some commenters suggested the use of a more efficient photovoltaic panel to reduce the project footprint.
Fire	Commenters requested that the EIS analyze the potential fire risks from the proposed project and measures that would be taken to minimize this risk. Individuals expressed concern that the project would increase the risk of fire and expressed concern over firefighter response times.
Cultural resources	The EPA requested that the EIS describe the process and outcome of government-to-government consultation with tribal governments, address the existence of sacred sites in the area, and provide a summary of coordination with tribes and the state historic preservation office (SHPO), including identification of sites eligible for listing on the National Register of Historic Places (NRHP) and development of a cultural resource management plan. The Amah Mutsun Tribal Band of Costanoan/Ohlone Indians expressed concerns that the proposed project would negatively affect sacred lands and damage resources with ecological and cultural significance. The tribe expressed specific concerns on impacts on subsurface resources and requested that the applicant hire a tribal representative to monitor all ground disturbance activities, including the removal, repair, or replacement of any solar panel pole.
Traffic and transportation	Individual commenters expressed concerns about construction-related traffic on area roadways, specifically the volume of traffic, hazardous road conditions, and degradation of already poor roads.
Purpose and need	The EPA indicated that the EIS should include a strong rationale for the proposed project. The agency, along with several other commenters, requested identification of power purchasers and how the proposed project would help meet California's renewable portfolio standards.
Mitigation (general)	The EPA requested that the EIS adopt a formal adaptive management plan. Other commenters expressed concern that the project lacks a suitable restoration plan. Commenters requested that lands be identified to fully mitigate project impacts and that deferred mitigation not be allowed, that the EIS analyze the impacts of the mitigations imposed by the EIR, and that funding assurances and an enforceable schedule for restoration be included.
Agriculture	Individual commenters expressed concerns about impacts the project would have on local agriculture. They requested that the EIS evaluate impacts on local farmers, impacts from loss of grazing, and impacts on soils from solar panels. One commenter also stated that the valley was not farmed because of property owner choice, not because of irrigation inefficiencies or poor water quality.
Visual resources	Commenters expressed concern over impacts on the visual character of the area in general and impacts from light pollution on the night sky specifically.
Climate change	The EPA requested that the EIS evaluate how water reliability might be affected by climate change, how climate change could influence the project, and how impacts from the project might be exacerbated by climate change. The agency also requested that the EIS quantify and disclose potential benefits on climate change from solar energy and quantify greenhouse gas emissions from different types of generating facilities. One organization requested that the EIS address the effects of

Table 1-3
Summary of Scoping Issues

Issue	Summary of Comments by Issue
	global climate change on plants, animals, and habitats in the Panoche Valley as part of the future environmental baseline.
Decommissioning	Individual commenters requested more information and commitment on the decommissioning of the proposed project, including setting aside funds for restoration. One commenter expressed the opinion that the facility not be decommissioned after 30 years but that the technology be updated.
Impact analysis (general)	The EPA requested that the EIS clearly describe the rationale used to determine whether impacts of an alternative are significant. One organization described elements to be considered when evaluating the intensity of an impact.
Land use and recreation	The EPA requested that the EIS describe the current condition of the land, if it is disturbed, and to what extent the land could be used for other purposes. It also requested that the EIS discuss how the project would support or conflict with the objectives of federal, state, tribal, or local land use plans and policies. One commenter requested that the EIS evaluate impacts on recreationists, particularly bird watchers.
Environmental justice	The EPA requested an evaluation of environmental justice populations within the geographic scope of the project and the potential for disproportionate impacts on these populations. One commenter expressed concern over access to information by the Hispanic community.
Soils and geology	One commenter requested that the EIS analyze impacts from the project on Class I soils. Another commenter expressed concern over soil erosion.
Section 404 permitting process	Two commenters asked that comments provided to the USACE through the Section 404 public noticing process be included and addressed in the EIS.

1.9 ORGANIZATION AND AVAILABILITY OF THE EIS

1.9.1 Organization of the EIS

Volume I is the main body of the EIS and contains the cover sheet, table of contents, list of acronyms and abbreviations, and summary, followed by the chapters described below.

- **Chapter 1, Introduction and Statement of Purpose and Need,** describes the project location and gives an overview of the project. It also provides background and history of the proposed project, the project purpose and need, the scope of the analysis. It includes an overview of the lead and cooperating agencies, plans and permits required for the proposed project, and the public participation process. It also describes the organization and availability of the EIS.
- **Chapter 2, Project Description and Alternatives,** describes the proposed action, the alternatives development process, the no

action alternative, the proposed project, alternatives to the proposed project, and alternatives eliminated from detailed consideration.

- **Chapter 3, Affected Environment and Environmental Consequences,** describes the existing baseline conditions of the resources that may be affected by implementing the proposed project and alternatives. These are aesthetics, agricultural resources, air quality, climate change, biological resources, cultural resources and tribal consultation, geology and soils, hydrology and water quality, land use, landownership, and planning, socioeconomics, environmental justice, noise, public health and safety (including hazardous materials), and traffic and transportation. It also describes the potential direct, indirect, and cumulative impacts associated with the proposed project and alternatives described in Chapter 2.
- **Chapter 4, Other Statutory Requirements,** describes the relationship between short-term uses of the environment and long-term productivity, irreversible or irretrievable commitments of resources resulting from the proposed project and alternatives, and growth-inducing impacts.
- **Chapter 5, Consultation and Coordination,** provides a list of agencies contacted during preparation of this EIS.
- **Chapter 6, List of Preparers,** is a brief description of credentials for the preparers of the EIS.
- **Chapter 7, References,** lists the sources of information used in preparing the EIS.
- **Chapter 8, Glossary,** defines technical terms used in the EIS.
- **Chapter 9, Index,** lists by page number the topics that are discussed in the EIS.
- **Appendix A, Public Scoping,** contains the NOI, the newspaper and e-mail notices announcing the public scoping meeting, transcripts from the public meetings, and comment letters received during public scoping.
- **Appendix B, Section 404(b)(1) Alternatives Information,** contains the applicant's 404(b)(1) alternatives information.
- **Appendix C, Applicant Proposed Measures, Mitigation Measures, and PG&E Avoidance and Minimization Measures,** contains the applicant-proposed measures and mitigation measures for the proposed project. The applicant developed these measures during the EIR process, San Benito County made them conditions of its approval of the conditional use permit for the project. The appendix also includes measures that

PG&E committed to in order to avoid or minimize potential impacts while implementing network upgrades.

- **Appendix D, Drainage Crossing Drawings,** contains the preliminary engineering drawings for proposed crossings and grading within the three ephemeral drainages in the eastern portion of the project footprint that are jurisdictional waters of the U.S.
- **Appendix E, PG&E Natural Resources-Related Studies,** is a detailed description and maps of the proposed PG&E primary and secondary telecommunications network upgrade actions and biological, water, and cultural resources surveys and memoranda related to these actions.
- **Appendix F, Biological Resources,** contains biological resource documentation for the proposed project.

1.9.2 Availability of the Draft EIS

This Draft EIS is being distributed to interested agencies, stakeholder organizations, and individuals. This distribution ensures that interested parties have an opportunity to express their views on the environmental effects of the proposed project or the alternatives and to ensure that decision-makers provide information pertinent to permits and approvals. This document is available for review online at the USACE's website:

http://www.spk.usace.army.mil/Missions/Regulatory

Alternatively, a CD containing the EIS will be provided on request. The Draft EIS is being distributed for a public review period that will end 45 days after publication of the Notice of Availability of the EIS in the *Federal Register*. Comments should be sent to the following address:

Lisa Gibson
US Army Corps of Engineers, Sacramento District, Regulatory Branch
1325 J Street, Room 1350
Sacramento, CA 95814-2922
E-mail: Lisa.M.Gibson2@usace.army.mil

If comments are provided via e-mail, they should have the project title in the subject line and should include the commenter's mailing address. Comments should be attached in a Microsoft Word or portable document format (PDF) file. Written comments may be provided at any time during the public review period.

CHAPTER 2
PROJECT DESCRIPTION AND ALTERNATIVES

2.1 INTRODUCTION

Chapter 2 is a description of the alternatives to the proposed action, including a no action (no build) alternative, a no action (no USACE permit) alternative, one on-site alternative, and one off-site alternative and detailed technical information on the applicant's proposed project. It includes a description of the method used to develop and evaluate alternatives to the applicant's proposed project, the alternatives that were carried forward for detailed analysis, and the alternatives that were considered but rejected.

2.2 PROPOSED ACTION

The USACE's proposed action is to make a decision on the permit application submitted by Panoche Valley Solar, LLC to construct the Panoche Valley Solar Facility in eastern San Benito County, California. The USACE is neither an opponent nor a proponent of the applicant's proposal. Decision options available to the USACE are to issue the permit, issue the permit with modifications or conditions, or deny the permit.

The no action alternative is described in **Section 2.4**. The applicant's proposed project is described in **Section 2.5**, Alternative A (Applicant's Proposed Project). One on-site alternative is described in **Section 2.6**, Alternative B (On-Site Alternative). One off-site alternative is described in **Section 2.7**, Alternative C (Off-site Alternative, Westlands CREZ). Alternatives considered but rejected are described in **Section 2.8**.

2.3 NEPA AND SECTION 404(B)(1) GUIDELINES – REQUIREMENTS FOR EVALUATION OF ALTERNATIVES

NEPA regulations require that an EIS identify and evaluate a range of reasonable alternatives to the proposed project. In addition to meeting the requirements of NEPA, the evaluation of alternatives in this EIS provides the basis for the USACE to make specific findings under Section 404(b)(1) of the Clean Water

Act. USACE NEPA regulations state that a USACE-prepared EIS involving a Department of the Army permit application should be thorough enough to use for both the public interest review and the Section 404(b)(1) Guidelines (40 CFR, Part 230, and 33 CFR, Part 325, Appendix B, Section 9b[5][A]). Thus, the alternatives evaluation for this EIS must comply with both NEPA and Clean Water Act Section 404(b)(1) Guidelines for alternatives analysis.

NEPA and Section 404(b)(1) Guidelines use different criteria for the types of alternatives that should be considered (see **Table 2-1**). NEPA considers "reasonable" alternatives, while the Section 404(b)(1) Guidelines consider "practicable" alternatives.

Table 2-1
Comparison of NEPA and Section 404(b)(1) Guideline

	NEPA	**Section 404(b)(1) Guidelines**
Standard:	Reasonable	Practicable
Alternatives definition:	Those that are practical or feasible from a technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant (46 *Federal Register* 18026, Question 2a).	Those that are available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes (40 CFR, Part 230.10[a][2]).
Purpose:	An EIS must evaluate reasonable alternatives to the proposed project so that their comparative merits may be considered by agency decision makers and the public (40 CFR, Part 1502.14).	Guidelines prohibit discharges of dredged or fill material into waters of the U.S. if there is a "practicable alternative to the proposed discharge that would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences" (40 CFR, Part 230.10[a]).

Reasonable alternatives are those that are *practical* or *feasible* from a technical and economic standpoint and using common sense, rather than simply being desirable from the standpoint of the applicant (46 *Federal Register* 18026). The range of potential reasonable alternatives may include alternative sites, project configurations, project sizes, and technologies.

An alternative is *practicable* if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall project purpose. If it is an otherwise practicable alternative, an area not presently owned by the applicant, which could reasonably be obtained, used, expanded, or managed in order to fulfill the basic purpose of the proposed activity, may be considered (40 CFR, Part 230.10). The regulations further require that the USACE alternatives analysis identify the least environmentally damaging practicable alternative.

The USACE has evaluated alternatives for the proposed project and has identified the alternatives to be evaluated in detail in the EIS. The alternatives analysis conducted by the USACE and described in this report complies with NEPA and with the Clean Water Act Section 404(b)(1) Guidelines.

2.3.1 Summary of Applicant's Section 404(b)(1) Alternatives Information

The applicant submitted a Department of the Army permit application in April 2010 for a 420 MW solar facility. The applicant submitted a revised permit application in December 2010 for a 399 MW solar facility (the project approved by San Benito County in 2010); it was estimated in this application that project impacts would include 427 cubic yards of fill into Panoche and Las Aguilas Creeks.

The applicant submitted alternatives information to the USACE in November 2012 (Power Engineers 2012) and in December 2014 submitted revised alternatives information. This revised information accounted for changes in the proposed project resulting from biological survey information, interconnection requirements by PG&E, and revisions to the jurisdictional determination (Energy Renewal Partners 2014). The applicant's current alternatives information (Energy Renewal Partners 2015), submitted to the USACE in August 2015, is included in **Appendix B**. The USACE has not reviewed this updated alternatives information but is providing it for the public to comment on.

The applicant's preferred alternative (applicant's proposed project) described in the 2014 alternatives information included project impacts of approximately 6 cubic yards of cut and 5 cubic yards of fill in Panoche Creek, 10 cubic yards of cut and 10 cubic yards of fill in Las Aguilas Creek, and 22 cubic yards of cut and 646 cubic yards of fill in three unnamed ephemeral drainages in the eastern portion of the project footprint. This would amount to a total discharge of fill material into 0.122 acre of waters of the U.S. This is evaluated as Alternative A (applicant's proposed project) and is described in **Section 2.5**.

The alternatives information submitted by the applicant included a description of the applicant's proposed project and alternatives in the following categories:

- Off-site alternatives
- On-site alternatives (alternative project configurations, energy output, and drainage crossing technologies)

2.3.2 USACE Evaluation of Alternatives

The alternatives analysis is the heart of the EIS, and agencies must rigorously explore and objectively evaluate all reasonable alternatives. For alternatives that were eliminated from detailed study, agencies must briefly discuss the reasons for their having been eliminated (40 CFR, Part 1502.14). Reasonable alternatives are those that are practical or feasible from a technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of

the applicant (46 *Federal Register* 18026 [Question 2a]). Reasonable alternatives do not include those that are remote or speculative or that do not achieve the project purpose and need.

The alternatives analysis developed for the EIS considered the following:

- Applicant requirements in siting a utility-scale solar generating facility
- The overall project purpose as defined by USACE
- Criteria related to cost, logistics, and existing technology, including the requirements of the RPS and other federal, state, and local requirements
- Section 404(b)(1) alternatives information submitted by the applicant
- Agency and public input during public noticing of the project by the USACE in 2010 and public scoping for the EIS in 2012
- Input from the USFWS and CDFW on project configurations to reduce impacts on federal and state listed species

The USACE considered alternative on-site configurations, alternative off-site locations, and alternative technologies. The screening criteria used in evaluating potential alternatives for the EIS are described below. Additional screening criteria may be developed by USACE through review of the proposed action and other alternatives.

Alternative On-Site Configurations

Screening Criteria

The following screening criteria were used in developing alternative on-site configurations. Additional screening criteria may be developed by USACE to determine the least environmentally damaging practicable alternative for compliance with the Section 404(b)(1) Guidelines.

- Overall Project Purpose—If the alternative does not meet the overall project purpose, it will be eliminated. In order to achieve the overall project purpose, the alternative must allow for the development of a 247 MW solar facility.

The justification is as follows:

- 247 MW solar facility—The USACE has determined that it is appropriate to include a minimum 247 MW solar facility in the overall project purpose based on the following:

- The construction of a solar facility that is less than 247 MW requires the same amount of infrastructure and telecommunications upgrades as a solar facility that is 247 MW or higher; therefore, the construction costs would be the same, but there would be less revenue for the cost of power. This would result in a solar facility that is not commercially viable.
- Since the original proposal, the applicant has reduced the proposed solar facility from 1,000 MW, to 420 MW, to 399 MW, to the currently proposed 247 MW facility. Based on the substantial reduction in the proposed size of the facility, as well as the avoidance and minimization that has occurred throughout project development, it is not appropriate to require further reductions in the solar facility output.

- Cost—If the alternative would result in unreasonable costs when compared to the costs of a similar project, the alternative will be eliminated.
- Logistics—If the alternative does not provide for emergency ingress and egress to the project site, it will be eliminated. The USACE has determined that maintaining emergency ingress and egress to a proposed solar facility is essential for the health and safety of workers and the residents of the surrounding Panoche Valley.
- Impacts to waters of the U.S.—If the discharge of dredged or fill material into waters of the U.S. would be greater than the proposed project, the alternative will be eliminated. In determining whether the discharge into waters of the U.S. would be greater than the proposed project, the USACE would take into consideration the acreage of discharge and the functions and services provided by the waters. For example, discharges into a greater acreage of previously impacted, low-functioning waters of the U.S. may be appropriate in order to avoid waters of the U.S. that have not been previously impacted and have higher functions and services.
- Other significant adverse environmental consequences—If an alternative would result in a discharge to waters of the U.S. that is less than the proposed project but would cause other significant adverse environmental consequences (including impacts on federally listed threatened or endangered species, air quality, aesthetics, cultural resources, or other resources), the alternative will be eliminated.

On-Site Alternatives Analysis Discussion

The applicant's proposed project has evolved over time, first through the San Benito County permitting process and CEQA analysis, and then through coordination with the USFWS and the CDFW, which resulted in the currently proposed project. A number of project configurations and project output

capacities have been studied at the project site. During preparation of this EIS, the USACE continued to evaluate alternative site configurations to further reduce impacts on aquatic resources (fill into waters of the U.S.) and sensitive biological resources.

On-site alternatives evaluated in the applicant's 404(b)(1) alternatives information, alternative configurations and capacities suggested by agencies and the public during project scoping, and alternative configurations investigated with the USFWS and CDFW were evaluated for their ability to meet the project purpose and need. The goal in developing on-site alternative configurations was to reduce impacts likely to be associated with the project as currently proposed, with an emphasis on reducing impacts on aquatic resources (fill into waters of the U.S.).

No alternative configurations were found that further minimized impacts on waters of the U.S. and sensitive biological species, while still providing a project output of 247 MW, as specified in the overall project purpose. One alternative was found that reduced aquatic impacts by avoiding placing fill into Panoche and Las Aguilas Creeks (waters of the U.S.). However, this alternative would not provide for adequate emergency access to the site required by the Hollister Fire Chief (Hollister Fire Department 2014), so it was not evaluated in detail. The alternative configurations analyzed and the reasons they were eliminated from detailed review are described in **Section 2.8**.

In compliance with USACE NEPA regulations (33 CFR, Part 325, Appendix B), one alternative is being evaluated that avoids all impacts to waters of the U.S. Due to the location of waters of the U.S. on the project site, the USACE determined that it is appropriate to analyze a no action alternative that constructs a 247 MW solar facility in a manner that avoids waters of the U.S. and the subsequent need for a Department of the Army permit from the USACE (No Action (No USACE Permit) Alternative). This would be accomplished by constructing free span bridge crossings over Panoche and Las Aguilas Creeks and avoiding waters of the U.S. on the eastern side of the project site. The USACE will determine whether this alternative is practicable under the Section 404(b)(1) Guidelines and whether it would result in other significant adverse impacts, including impacts on sensitive biological resources. The USACE is also evaluating a second no action alternative that is a "no build" alternative (No Action (No Build) Alternative). More information on the no action alternative is provided in **Section 2.4**.

One on-site alternative crossing technology met the overall project purpose and was carried forward for detailed analysis. This alternative is described in **Section 2.6**.

Alternative Site Locations

Screening Criteria

The following screening criteria were used in developing off-site alternatives for the EIS. Additional screening criteria may be developed by USACE to determine the least environmentally damaging practicable alternative for compliance with the Section 404(b)(1) Guidelines.

- Overall Project Purpose—If the alternative does not meet the overall project purpose, it will be eliminated. In order to achieve the overall project purpose, the alternative must
  - Allow for the development of a 247 MW solar facility
  - Site the development within the west-central portion of the Central Valley (generally including portions of San Benito, Kings, Fresno, Merced, and Madera Counties)

  The justification is as follows:

  - 247 MW solar facility—The USACE has determined that it is appropriate to include a minimum 247 MW solar facility in the overall project purpose based on the following:
    - The construction of a solar facility that is less than 247 MW requires the same amount of infrastructure and telecommunications upgrades as a solar facility that is 247 MW or higher.
    - Since the original proposal, the applicants have reduced the proposed solar facility from 1,000 MW, to 420 MW, to 399 MW, to the currently proposed 247 MW facility. Based on the extensive avoidance and minimization that has occurred throughout project development, it is not appropriate to require further reductions in the solar facility output.
  - Size Requirements—While the exact number of acres needed for a particular solar project would vary depending on the site's slope and aspect and other site-specific constraints, the USACE has determined that a minimum of approximately 2,000 acres is needed to develop a 247 MW solar facility. This determination was based on a review of California solar facilities in various stages of development, provided by the applicant and shown below. Based on this information, an average of 8.85 acres of land per MW is typical of solar facilities in California.

Size Requirement Justification

Solar Facility	Project Proponent	Location	Power Output	Status	Size (acres)	Acres/ MW
Sites Found Through California Energy Commission						
Beacon Solar Energy Project	Beacon Solar LLC	Kern County	250 MW	Approved 8/25/2010	2,012	8.05
Blythe Solar Power Project	NextEra Blythe Energy Center LLC	Riverside County	1,000 MW	Approved 9/15/2010	7,030	7.03
Ivanpah Solar	Solar Partners/ Brightsource	San Bernardino County	370 MW	Approved 9/22/2010	3,400	9.19
Imperial Valley Solar Project	Imperial Valley Solar LLC	Imperial County	709 MW	Approved 9/29/2010	6,500	9.17
Calico Solar Project	Calico Solar LLC/ Tessera Solar	San Bernardino County	663.5 MW	Approved 10/28/2010	8,230	12.40
Palen Solar Project	Nalep Solar Project I, LLC	Riverside County	500 MW	Approved 12/15/2010	5,200	10.40
Ridgecrest Solar Power Project	Solar Millennium	Kern County	250 MW	AFC filed 9/1/2009	1,760	7.04
Sites Found Through Internet Search						
Desert Sunlight Solar Farm	NextEra Energy Resources	Riverside County	550 MW	Operational 2/2015	3,968	7.21
Topaz Solar Farm	MidAmerican Renewables	San Luis Obispo County	550 MW	Operational 2/2013	6,080	11.05
California Valley Solar Ranch	NRG Solar	Carrizo Plain	250 MW	Completed 10/2013	1,966	7.86
Antelope Valley Solar Ranch 1	First Solar, Exelon Corporation	Antelope Valley	266 MW	Constructio n start 8/2011	2,100	7.89
Mount Signal Solar	TerraForm Power	Imperial County	265.7 MW	Commission date 5/2014	1,980	7.45
McCoy Solar Energy Project	NA	Riverside County	750 MW	Proposed project	7,680	10.24
				Average Acres/MW	**=**	**8.85**

- Location in the west-central portion of the Central Valley (generally including portions of San Benito, Kings, Fresno, Merced, and Madera Counties)—In accordance with 40 CFR, Part 230.5(b), of the EPA's Section 404(b)(1) Guidelines, the level of documentation required for compliance should be commensurate with the significance and complexity of the discharge activity. The proposed project would discharge dredged and fill material into 0.122 acre of waters of the U.S. that are subject to the Section 404(b)(1) Guidelines. This would be a relatively minor discharge into waters of the U.S. Because of this, limiting the review area for the solar project to these counties would allow reasonable and practicable alternatives to be evaluated in a way that is not so narrow as to eliminate all alternatives nor so broad as to not allow for a reasonable analysis.

- Cost—If the alternative would result in unreasonable costs when compared to the costs of a similar project, it will be eliminated.
- Logistics—If the alternative does not provide for emergency ingress and egress to the project site, it will be eliminated. The USACE has determined that maintaining emergency ingress and egress to a proposed solar facility is essential for the health and safety of workers and the residents of the surrounding Panoche Valley.
- If the alternative was not within 2,000 feet of an existing 230 kV transmission line, it will be eliminated. The USACE has determined that alternatives that are not within 2,000 feet of an existing 230 kV transmission line are not practicable for the following reasons:
  - Connecting a higher transmission line (e.g., 500 kV) would require installing at least three 500 kV transformers, which would require additional area for construction. Also, these transformers are approximately 40 percent more expensive than 230 kV transformers. In addition, requesting an outage on a 500 kV transmission line creates capacity and reliability concerns for the California electrical grid.
  - Constructing a transmission line longer than 2,000 feet would result in impacts on cost and schedule. The CPUC exempts power lines or substations that have undergone CEQA review as part of a larger project. Under CEQA's Section III.A, a proponent relocating up to 2,000 feet of existing electrical line over 200 kV is exempt from the requirement to obtain a permit to construct or to begin the certification of public convenience and necessity (CPCN) licensing process. The planning and permitting process for a new transmission line exceeding 2,000 feet would take approximately six to eight years to complete, according to permitting schedule information available on the CPUC website.[1]
- Impacts to waters of the U.S.—If discharging dredged or fill material into waters of the U.S. would be greater than the proposed project, the alternative will be eliminated. In determining this, the USACE takes into consideration the acreage of discharge and the functions and services provided by the waters. For example, discharges into a greater acreage of previously impacted, low-functioning waters of the U.S. may be appropriate in order to avoid waters of the U.S. that have not been previously impacted and have higher functions and services.

[1] http://www.cpuc.ca.gov/NR/rdonlyres/6F25BFDD-3F71-479C-B02A-4542DF6C9BF5/0/Transmission_Permitting_Slides.pptx

- Other significant adverse environmental consequences—If an alternative would result in a discharge to waters of the U.S. that is less than the proposed project, but would cause other significant adverse environmental consequences (such as impacts on federally listed threatened or endangered species, air quality, aesthetics, cultural resources, or other resources), then the alternative will be eliminated.

Off-Site Alternatives Analysis Discussion

To satisfy the Clean Water Act Section 404(b)(1) Guidelines for alternatives analysis and in response to public input during scoping for this EIS, the USACE evaluated potential off-site locations to the applicant's proposed project site.

In developing the overall project purpose and the EIS purpose and need statement, the USACE determined that it was reasonable to geographically define the area of analysis to include lands in the west-central portion of California's Central Valley (generally encompassing portions of San Benito, Merced, Madera, Fresno, and Kings Counties), as described above. Lands in this region have similar solar insolation values and would thus require a similar land area to develop a 247 MW PV generating facility. The USACE approved the off-site alternatives included in the applicant's 404(b)(1) alternatives information and included them in the alternatives analysis in this EIS.

The off-site alternatives in this geographic area were determined to be reasonable if they were of sufficient size to accommodate a 247 MW PV facility (more than 2,000 acres), if they were available for long-term lease or purchase, and if they were near an existing transmission line. This last criterion meant that the off-site alternative would have to have the potential to interconnect to the electric grid without the need for substantial transmission infrastructure upgrades or new transmission lines. In meeting this criterion, the off-site alternative could contribute to the 2020 RPS. This would allow the applicant to meet its obligations under the executed PPA with Southern California Edison to deliver 247 MW by 2019.

All of the sites evaluated had land use designations that would allow the development of utility-scale solar, or it was thought that an appropriate land use designation could be achieved. The availability of the land was determined through an Internet land search and by contacting landowners to determine their interest in selling or leasing their properties for solar development.

Five of the off-site alternatives did not meet the purpose and need and were eliminated from detailed analysis (see **Section 2.8**). The Westlands CREZ Alternative was determined to potentially meet the purpose and need, given the level of information available to the USACE at the time of this analysis; thus, it was carried forward as a reasonable alternative (see **Section 2.7**).

As additional information is submitted, the USACE will determine whether this alternative meets the overall project purpose, whether it is practicable, and whether it would have other significant adverse environmental effects.

Alternative Technologies

During public scoping for the EIS, agencies and the public requested that the USACE evaluate the following alternatives to utility-scale solar:

- Rooftop solar
- Smaller solar facilities located closer to users
- Alternative generating technologies, including different types of solar technologies
- Conservation and efficiency measures that avoid o reduce energy use

None of the alternative technologies evaluated met the purpose and need and therefore were not carried through for analysis (see **Section 2.8**).

2.4 NO ACTION ALTERNATIVE

CEQ regulations implementing NEPA require consideration of a no action alternative (40 CFR 1502.14d). In accordance with USACE NEPA regulations, the no action alternative is one that results in no construction requiring a USACE permit. This could be accomplished either by the applicant modifying the project to eliminate work under the jurisdiction of the USACE or by the USACE denying the permit (33 CFR, Part 325, Appendix B). Therefore, the no action alternative could result in one of two potential scenarios:

- The applicant would not build the proposed project
- The applicant would build the proposed project, but in a manner that did not require a USACE permit

To account for either possible outcome, the USACE has determined that it is appropriate to evaluate both no action scenarios in the EIS. To differentiate between the two no action scenarios, they are referred to as the no action (no build) alternative and the no action (no permit) alternative and are described below.

No Action (No Build) Alternative

Under the no build alternative, a solar facility would not be developed at the proposed project site. Environmental conditions would remain in the status quo, and current land uses would continue.

No Action (No USACE Permit) Alternative

Due to the location of waters of the U.S. on the project site, the USACE determined that it is appropriate to analyze a no permit alternative that

constructs a 247 MW solar facility in a manner that avoids waters of the U.S. and the subsequent need for a Department of the Army permit from the USACE. The USACE has not yet made a determination on whether this alternative is practicable under the Section 404(b)(1) Guidelines or whether it would result in other significant adverse impacts, including impacts on sensitive biological resources.

Under the no action (no permit) alternative, Panoche Valley Solar, LLC would construct a 247 MW PV solar generating facility within a 2,506-acre project footprint (see **Figure 2-1**, No Action (No Permit) Alternative and **Figure 2-2**, No Action (No Permit) Alternative Site Layout). This facility would be similar to the applicant's proposed project described in **Section 2.5**, below, except that it would construct free span bridge crossings over Las Aguilas and Panoche Creeks that avoided the discharge of fill into these waters of the U.S. but still allowed for adequate emergency access to the site required by the Hollister Fire Chief (Hollister Fire Department 2014). It would also avoid impacts to the three ephemeral drainages on the eastern side of the project footprint that are waters of the U.S. These changes are described in more detail, below.

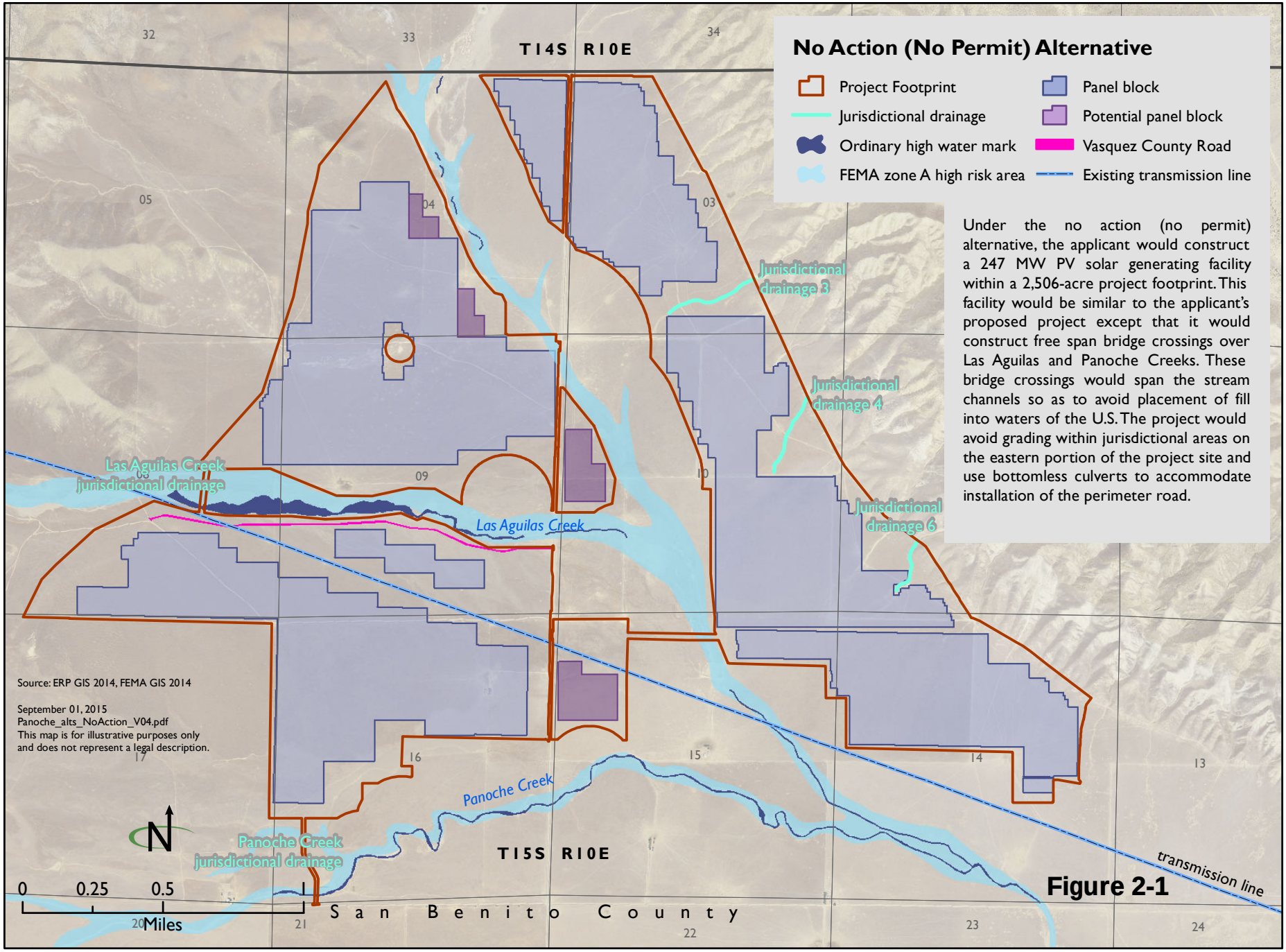
Las Aguilas Creek and Panoche Creek Drainage Crossings

Under the no action (no permit) alternative, the applicant would construct free span bridge crossings over Las Aguilas Creek (**Figure 2-3**) and Panoche Creek (**Figure 2-4**). These bridge crossings would span the stream channels so as to avoid placement of fill into waters of the U.S. The free span bridges would have abutments placed approximately 100 feet from the top of the banks on either side of the ephemeral stream channels. The bridges would be approximately 275 feet long, would sit approximately 3 feet above ground level, and would have bridge structures (trusses) above the bridge decking that rise approximately 25 feet above ground level (see **Figures 2-3** and **2-4**).

The free span bridges would not require any ephemeral stream channels to be filled; however, they would result in moderate permanent upland habitat disturbance during construction and for the life of the project. There would be approximately 0.1 acre of permanent upland disturbance associated with each bridge, or approximately 0.05 acre of permanent disturbance at each bridge abutment. Additionally, there would be temporary disturbance of stream channel and upland habitat from installation of the bridges and from staging areas needed to assemble the bridge parts and lift them into place.

Unnamed Ephemeral Drainage Crossings

The no action (no permit) alternative would avoid grading within jurisdictional areas on the eastern portion of the project site and use bottomless culverts to accommodate installation of the perimeter road. To offset the loss of developable area in the eastern portion of the project footprint, five 1.67 MW_{AC} solar arrays would either be split into smaller blocks with less spacing between


No Action (No Permit) Alternative
Project Footprint
Jurisdictional drainage
Ordinary high water mark
FEMA zone A high risk area
Panel block
Potential panel block
Vasquez County Road
Existing transmission line
Under the no action (no permit) alternative, the applicant would construct a 247 MW PV solar generating facility within a 2,506-acre project footprint. This facility would be similar to the applicant's proposed project except that it would construct free span bridge crossings over Las Aguilas and Panoche Creeks. These bridge crossings would span the stream channels so as to avoid placement of fill into waters of the U.S. The project would avoid grading within jurisdictional areas on the eastern portion of the project site and use bottomless culverts to accommodate installation of the perimeter road.
T14S R10E
T15S R10E
San Benito County
Jurisdictional drainage 3
Jurisdictional drainage 4
Jurisdictional drainage 6
Las Aguilas Creek jurisdictional drainage
Las Aguilas Creek
Panoche Creek
Panoche Creek jurisdictional drainage
transmission line
Source: ERP GIS 2014, FEMA GIS 2014
September 01, 2015
Panoche_alts_NoAction_V04.pdf
This map is for illustrative purposes only and does not represent a legal description.
N
0 0.25 0.5 1
Miles
Figure 2-1

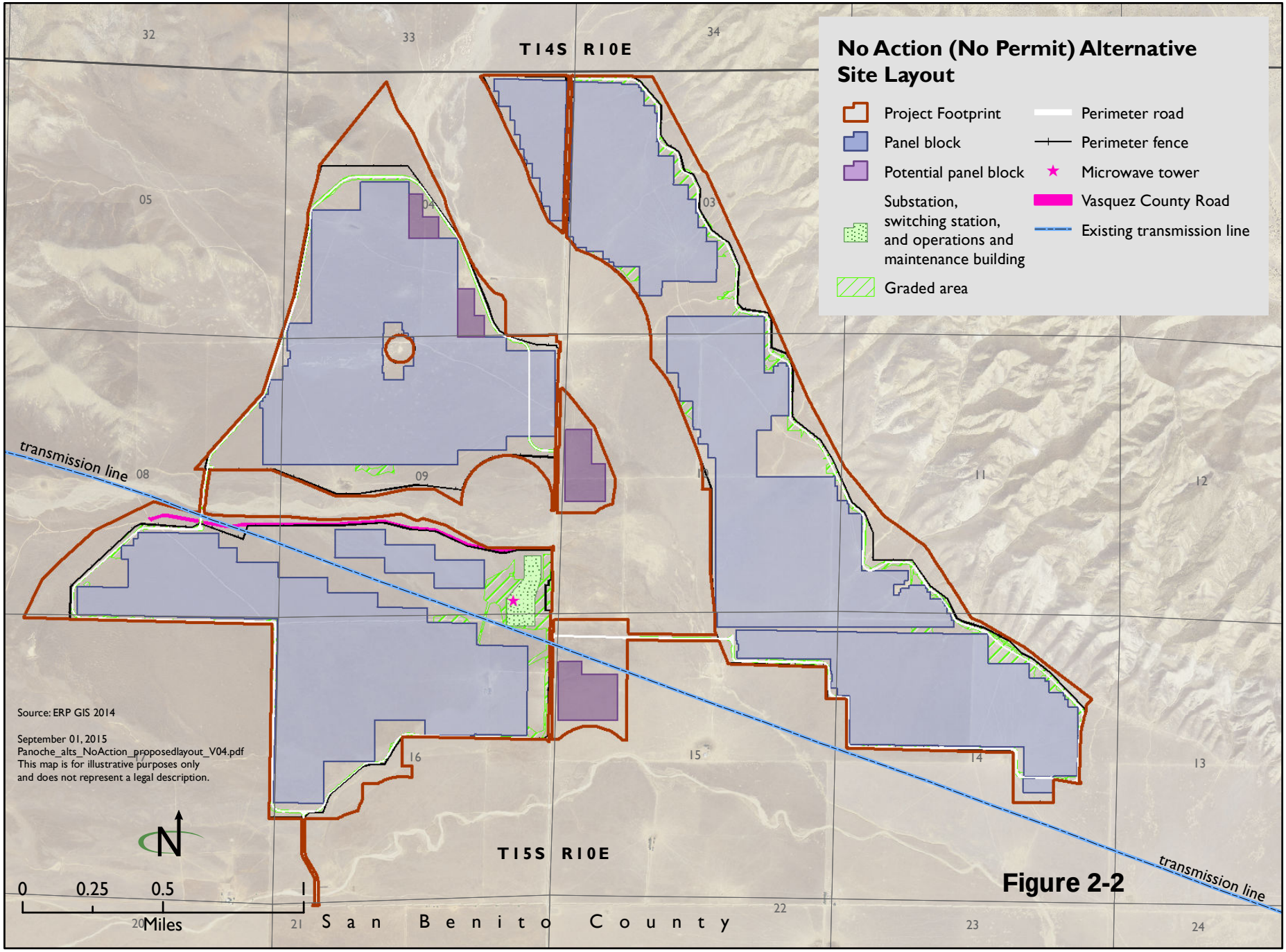

No Action (No Permit) Alternative Site Layout
Project Footprint
Panel block
Potential panel block
Substation, switching station, and operations and maintenance building
Graded area
Perimeter road
Perimeter fence
Microwave tower
Vasquez County Road
Existing transmission line
T14S R10E
T15S R10E
transmission line
transmission line
San Benito County
Source: ERP GIS 2014
September 01, 2015
Panoche_alts_NoAction_proposedlayout_V04.pdf
This map is for illustrative purposes only
and does not represent a legal description.
N
0 0.25 0.5 1
Miles

Figure 2-2

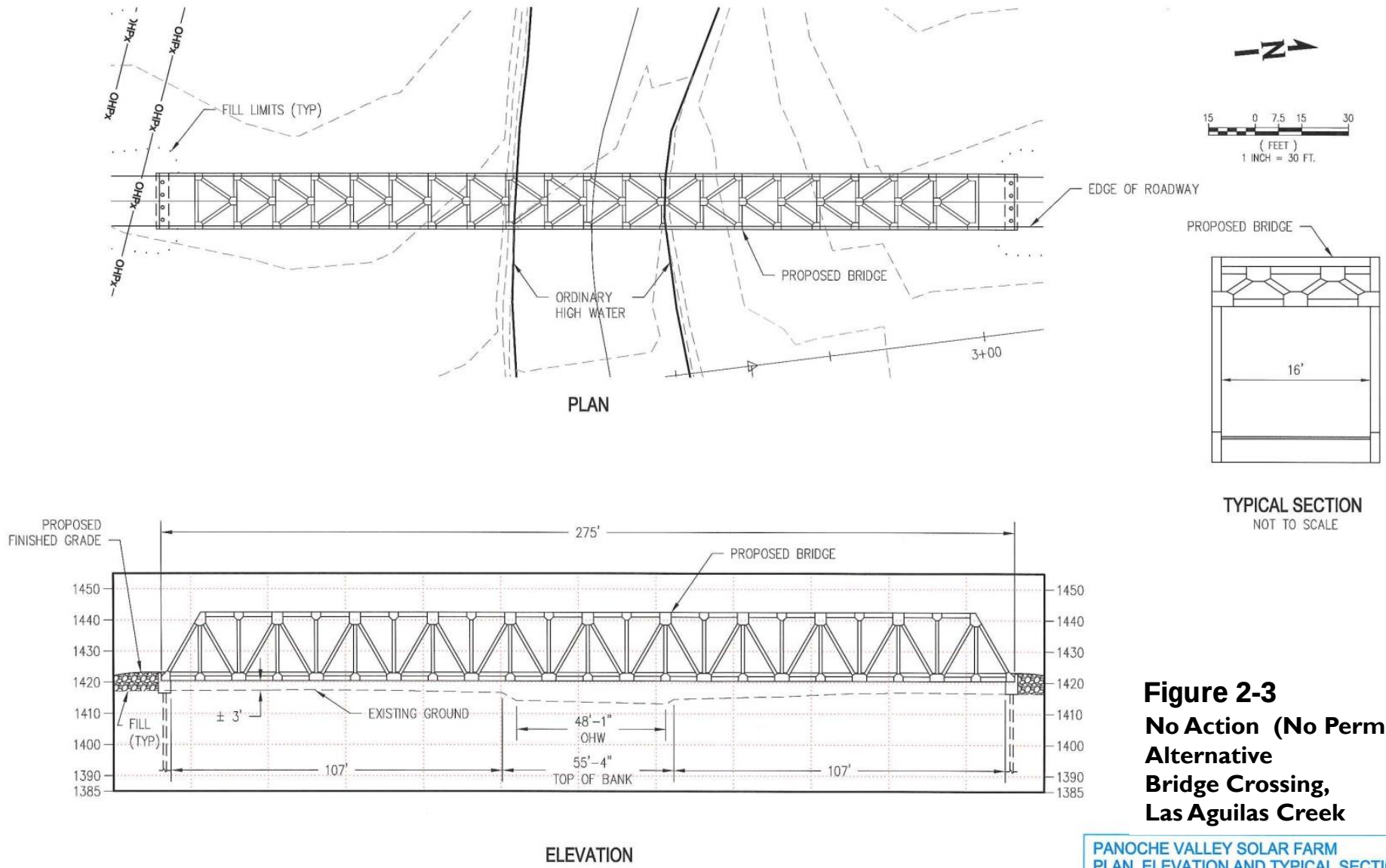


Figure 2-3
No Action (No Permit) Alternative Bridge Crossing, Las Aguilas Creek

PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION
WHPacific

PROJECT NUMBER	DRAWING FILE NAME	DATE
035916	035916_EX01.dwg	10-08-13

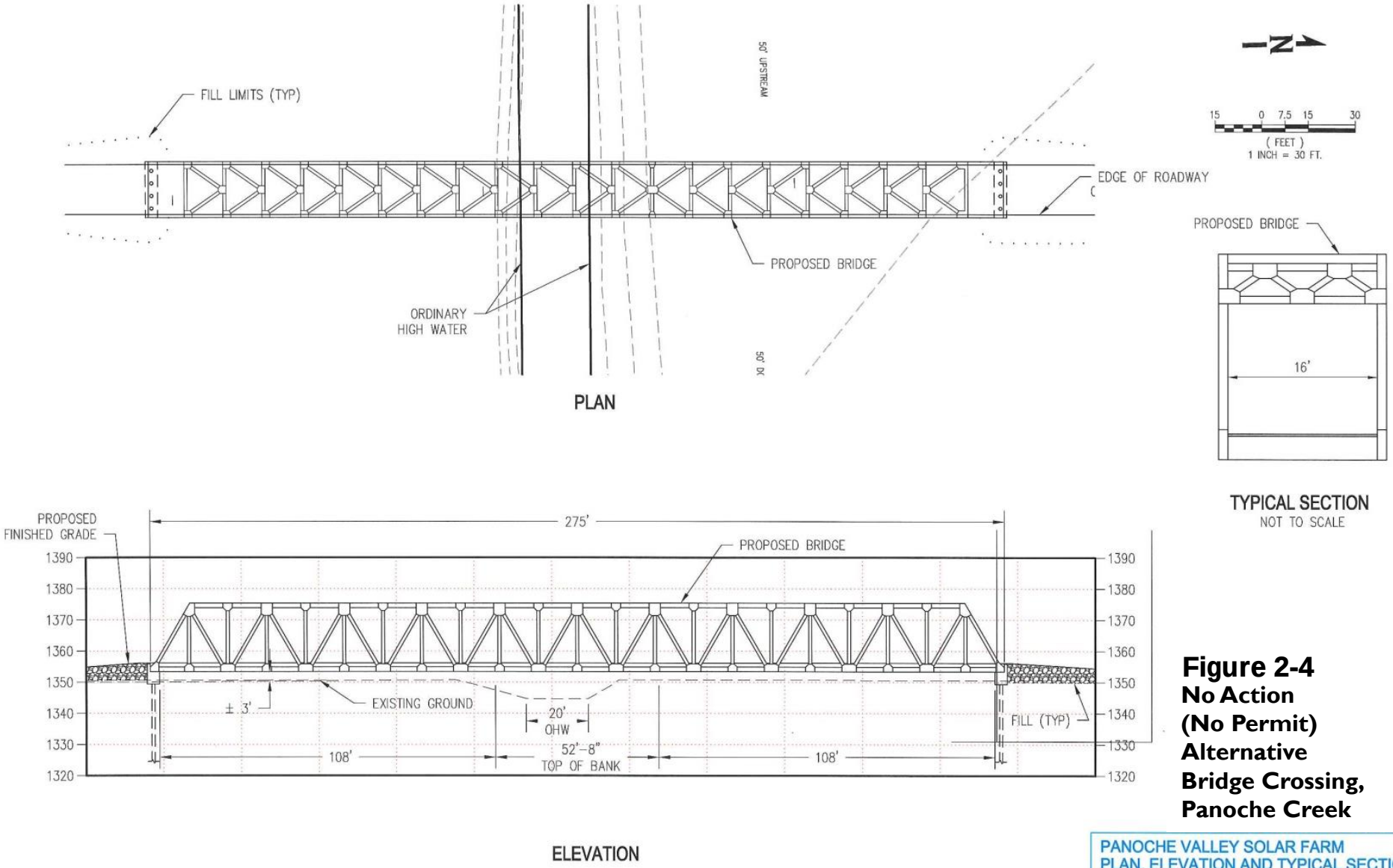


Figure 2-4
No Action (No Permit) Alternative Bridge Crossing, Panoche Creek

panel rows or would be relocated to avoid impacts on waters of the U.S. Relocated arrays would be moved to the western portion of the project footprint, requiring additional medium voltage switchgear and cable to be routed to the east side transformer in the project substation. In addition, there would be smaller laydown areas throughout the site to accommodate construction worker parking and material storage, and vehicle traffic across the site would increase during construction. **Figure 2-2** shows the no action (no permit) alternative site layout.

Other project features such as the substation and switching station, PG&E telecommunication upgrades, and the measures described in **Sections 2.5.6** and **2.5.8** to reduce impacts, as well as the development of conservation lands described in **Section 2.5.7**, would be similar to the applicant's proposed project described in **Section 2.5**, below. Construction-related activities would also be the same as those described in **Section 2.5** except for the loss of developable area in the eastern portion of the project footprint as described above. Applicant-proposed measures, mitigation measures developed through the San Benito County EIR process, and PG&E avoidance and minimization measures for telecommunication network upgrades described in **Sections 2.5.6** and **2.5.8** would also be part of the no action (no permit) alternative. Permanent and temporary acreages that would be affected under the no action (no permit) alternative are shown in **Table 2-2** and **Table 2-3**, respectively.

Table 2-2
No Action (No USACE Permit) Alternative, Permanent Impacts

Project Feature	Area Impacted
Solar arrays	1,584 acres
Solar arrays, potential	60 acres
Project perimeter roads (including pullouts)	30 acres
Substation, switching station, and O&M building	12 acres
Graded areas[2] (outside of other project features)	106.5 acres
230 kV loop-in tubular steel poles (TSPs)	250 square feet
Perimeter fencing	0.06 acre
Vasquez County Road[3]	4 acres
Total Permanent Impacts[1]	**1,796 acres**

Notes:
[1]The project footprint is 2,506 acres, the same as the applicant's proposed project (Alternative A). The maximum total permanent disturbance is estimated to be 1,796 acres. While no grading would occur within jurisdictional waters of the U.S. on the eastern portion of the project site, an additional 60 acres outside of the Alternative A solar array footprint could be impacted from the reconfiguring of solar arrays outside of waters of the U.S.
[2]Limited grading is expected to be required because of the nearly flat terrain. Grading would be required on slopes greater than 3 percent for PV power blocks. Grading for the no action (no permit) alternative would include approximately 347.5 acres (195 acres for arrays; 30 acres for roads; 12 acres for the substation, switching station and O&M building; 4 acres for Vasquez County Road; and 106.53 acres for other grading areas) of proposed area that would be graded.
[3]Vasquez County Road would be replaced with a new road that would run outside of the project fence line south of Las Aguilas Creek.

Table 2-3
No Action (No USACE Permit) Alternative, Temporary Impacts

Project Feature	Area Impacted
Road construction and perimeter fence buffers	72 acres
Federal crossing work areas (outside of waters of the U.S.)	4 acres
Temporary laydown yard	108 acres
Restricted work areas	194 acres
Solar array buffer, including Vasquez Road disturbance, including collector line installation	333 acres
Construction ponds	1 acre
Total Temporary Impacts	**712 acres**

2.5 ALTERNATIVE A (APPLICANT'S PROPOSED PROJECT)

As described in **Chapter 1**, the project applicant is proposing to construct the Panoche Valley Solar Facility on lands that it secured with options to purchase. The proposed project would include the 2,506-acre solar facility (project footprint) and 24,176 acres of conservation lands. Conservation lands include approximately 2,514 acres of Valley Floor Conservation Lands, 10,772 acres of Valadeao Ranch Conservation Lands, and 10,890 acres of Silver Creek Ranch Conservation Lands. Conservation lands are being proposed as mitigation to offset potential impacts on federally and state listed species under the Endangered Species Act from constructing, maintaining, and operating the proposed solar facility. **Figure 2-5** shows the proposed project footprint and the three areas of conservation lands.

The proposed project would result in the discharge of fill material into waters of the U.S., requiring a Department of the Army Section 404 permit from the USACE. The proposed project would affect 0.122 acre (approximately 3,504 linear feet) of jurisdictional ephemeral stream channels on the eastern and western portions of the project footprint. Approximately 31 cubic yards of cut and fill would occur in Panoche Creek and Las Aguilas Creek for the construction of two single-span road crossings as part of the perimeter road around the project facility, resulting in 0.002 acre of impact. Approximately 668 cubic yards of cut and fill would occur within three unnamed drainages on the eastern side of the project site associated with installation of the perimeter fence, perimeter road, and grading/trenching to install the solar arrays, resulting in 0.12 acre of impact in these areas. These actions are described in more detail under *Drainage Crossings* in **Section 2.5.1**, below.

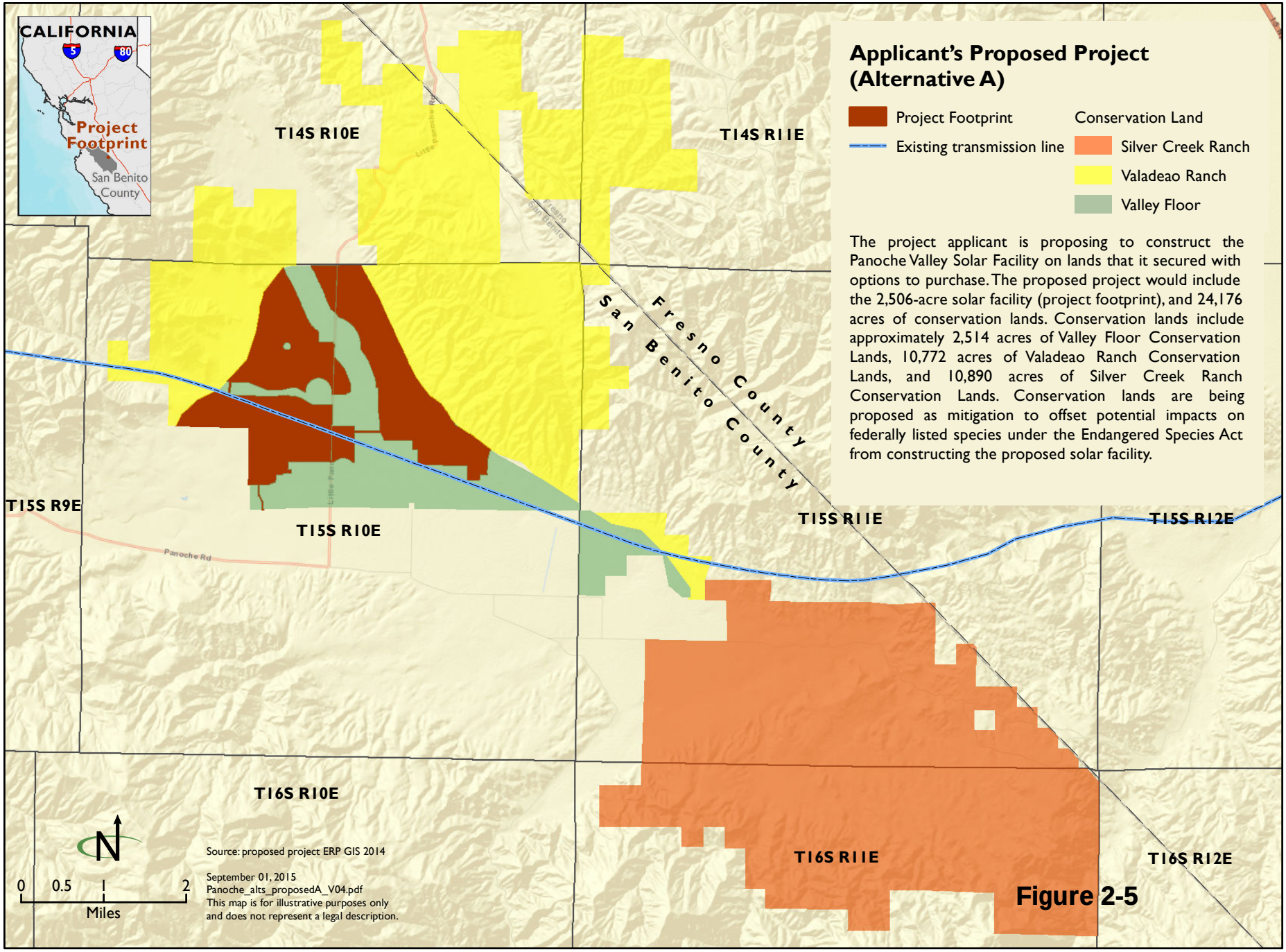

CALIFORNIA
5
80
Project Footprint
San Benito County
T14S R10E
T14S R11E
Applicant's Proposed Project (Alternative A)
Project Footprint
Existing transmission line
Conservation Land
Silver Creek Ranch
Valadeao Ranch
Valley Floor
The project applicant is proposing to construct the Panoche Valley Solar Facility on lands that it secured with options to purchase. The proposed project would include the 2,506-acre solar facility (project footprint), and 24,176 acres of conservation lands. Conservation lands include approximately 2,514 acres of Valley Floor Conservation Lands, 10,772 acres of Valadeao Ranch Conservation Lands, and 10,890 acres of Silver Creek Ranch Conservation Lands. Conservation lands are being proposed as mitigation to offset potential impacts on federally listed species under the Endangered Species Act from constructing the proposed solar facility.
Fresno County
San Benito County
T15S R9E
T15S R10E
T15S R11E
T15S R12E
Panoche Rd
T16S R10E
T16S R11E
T16S R12E
N
0 0.5 1 2
Miles
Source: proposed project ERP GIS 2014
September 01, 2015
Panoche_alts_proposedA_V04.pdf
This map is for illustrative purposes only and does not represent a legal description.

Figure 2-5

2.5.1 Project Location and Description

The proposed project consists of the proposed solar facility in San Benito County and the proposed conservation lands, which span both eastern San Benito and western Fresno Counties (see **Figure 1-1**). The project footprint and the interspersed Valley Floor Conservation Lands are approximately 0.75 mile north of the intersection of Panoche Road and Little Panoche Road in eastern San Benito County, approximately 2 miles southwest of the Fresno County Line and the Panoche Hills, and approximately 15 miles west of Interstate 5 and the San Joaquin Valley.

The project site is bordered by rangeland on the north and south, by the Gabilan Range on the west, and by the Panoche Hills on the east. The site elevation ranges from approximately 1,200 feet above mean sea level near the southeastern end to approximately 1,400 feet above mean sea level near the western end of the project site. Panoche Creek and Las Aguilas Creek flow through the project site.

During the past forty years the project site has been used for cattle grazing; previously, crop production occurred over much of the site. A PG&E 230 kV transmission line runs in a generally east-west direction through the site on approximately 100-foot-tall, steel lattice towers.

2.5.2 Proposed Project Features

The proposed project would consist of a solar field of ground-mounted PV modules, an underground electrical collection system that would convert generated power from direct current to alternating current, a substation that would collect and convert the alternating current from 34.5 kV to 230 kV, and a switching station. This station would then deliver the generated power to the state electrical grid via PG&E's Moss Landing-Panoche/Coburn-Panoche 230 kV transmission line that runs through the project site. PG&E primary and secondary telecommunications network upgrades would also be part of the proposed project.

Key features of the proposed project are described below, while permanent features are depicted on **Figure 2-6**. **Table 2-4** provides a breakdown of the acreages affected by the various components of the proposed solar facility.

Solar Project Components

PV Panels and Support Structures

PV panels would be installed on approximately 1,629 acres of the project footprint. The proposed project would use over one million PV panels installed in a clockwise progression, beginning near the substation location south of Las Aguilas Creek and west of Little Panoche Road (**Figure 2-6**). The total number of PV panels would depend on the technology ultimately selected for the project. The ultimate decision for the technology would depend on market

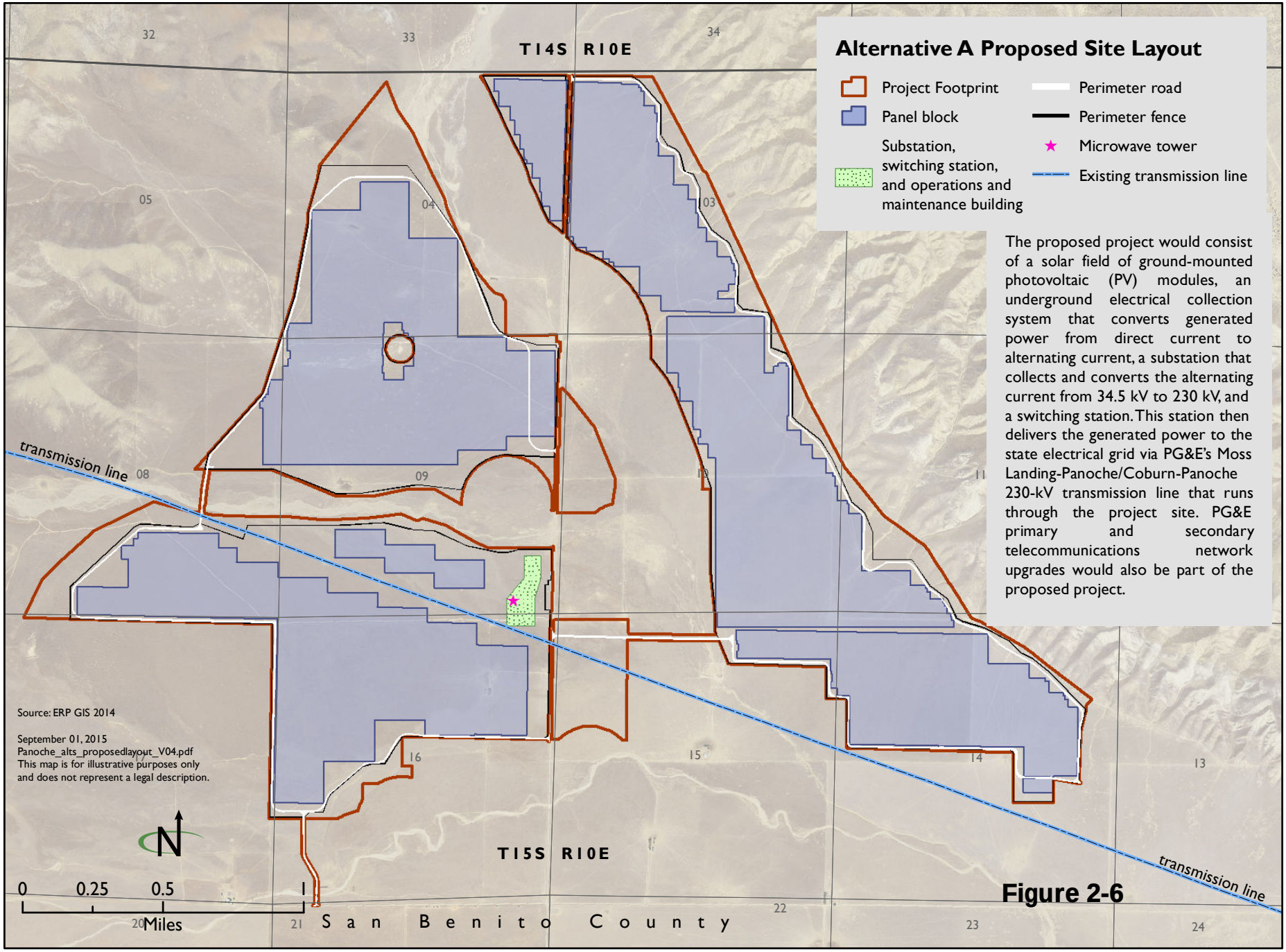

Alternative A Proposed Site Layout
Project Footprint
Panel block
Substation, switching station, and operations and maintenance building
Perimeter road
Perimeter fence
Microwave tower
Existing transmission line
The proposed project would consist of a solar field of ground-mounted photovoltaic (PV) modules, an underground electrical collection system that converts generated power from direct current to alternating current, a substation that collects and converts the alternating current from 34.5 kV to 230 kV, and a switching station. This station then delivers the generated power to the state electrical grid via PG&E's Moss Landing-Panoche/Coburn-Panoche 230-kV transmission line that runs through the project site. PG&E primary and secondary telecommunications network upgrades would also be part of the proposed project.
T14S R10E
T15S R10E
transmission line
transmission line
San Benito County
Source: ERP GIS 2014
September 01, 2015
Panoche_alts_proposedlayout_V04.pdf
This map is for illustrative purposes only and does not represent a legal description.
N
0 0.25 0.5 1
Miles

Figure 2-6

Table 2-4
Project Features

Project Feature	Area Impacted
Solar arrays[1]	1,629 acres
Project perimeter roads (including pullouts)	30 acres
Substation, switching station, and O&M building	12 acres
Graded areas (outside of other project features)	106.5 acres
230 kV loop-in tubular steel poles (TSPs)	250 square feet
Trenching and Foundations adjacent to arrays	12.41 acres
Perimeter fencing	0.06 acre
Vasquez County Road	4 acres
Permanent Impact Areas	*1,794 acres*
Temporary Impact Areas	*712 acres*
TOTAL PROJECT FOOTPRINT	**2,506 acres**

[1] Includes 2.33 acres for foundations, 26.64 acres of direct current trench, 8.84 acres of alternating current trench, 205.47 acres of grading, and 1,385.72 acres of solar array work areas. Solar panels and associated electrical equipment would be installed on approximately 185,000 support post foundations. Posts would be steel I-shaped sections with a cross sectional area of 4.5 square inches each.
[2] Limited grading is expected to be required because of the nearly flat terrain. Grading would be required on slopes greater than 3 percent for PV power blocks. Final grading plans for the project are under development; however, the proposed project includes approximately 358 acres (205.47 acres for arrays; 30 acres for roads; 12 acres for the substation, switching station and O&M building; 4 acres for Vasquez County Road; and 106.53 acres for other grading areas) of proposed area that would be graded.
[3] Vasquez County Road would be replaced with a new road that would run outside of the project fence line south of Las Aguilas Creek.

conditions, economic considerations, and environmental factors, including the recycling potential of the panels at the end of their useful lives. A single-axis tracker system would be used to support the PV panels.

Each PV panel would be approximately 3 feet by 6 feet; however, as technology changes during the life of the project, larger panels may be used. Panels would be a maximum of 10 feet high at the point of highest tilt, and panel faces would be non-reflective black or blue. All panels would be oriented to maximize solar resource efficiency. The PV solar panels would be mounted on direct-driven steel support structures up to 15 feet long and made of corrosion-resistant galvanized steel. Steel poles may be placed in holes backfilled with concrete if difficult soil conditions are found based on additional geotechnical evaluations.

Rows of panels would be spaced 10 to 35 feet apart to prevent shading of adjacent rows. Rows of panels would be configured into power blocks connecting to an inverter system. The purpose of the inverter system is to convert the direct current energy produced by the panels to alternating current energy that is required for electric transmission.

The facility would consist of 145 1.67-MW power blocks and 6 0.83-MW power blocks. Each power block would be up to 520 feet by 90 feet. The blocks would

contain the number of panels required to make up the 1.67-MW or 0.83-MW output from the inverter. This would depend on the wattage of the panels ultimately selected for the final design. The number of rows per power block is estimated to be between 8 and 34. The actual energy output of the project would depend on the technology available during the life of the project; output may increase if improved technology allows for the installation of higher efficiency PV panels within the same project footprint and without any increase in resource impacts.

The normal operating temperature of the PV panel face would be 25 to 35 degrees Fahrenheit (°F) above maximum ambient temperature. Panel face temperatures of approximately 130 to 140°F would be expected on typical summer days. Panels would shade the area below.

The project footprint would include a 20-foot-wide perimeter road that would be used for maintenance and emergency response (with additional pullout locations for vehicles to be able to pass each other). In addition, interstitial space between panels would be used for transportation access during maintenance. Transportation corridors may be native vegetative cover or maintained dirt access points.

Electricity Collection Lines and Inverters

Electrical energy in the form of direct current generated by the PV panels would be collected in combiner boxes and routed to an inverter. A combiner box is a small electrical enclosure, approximately four cubic feet in size, which is mounted on the PV racking system. It allows the PV string voltages to be placed in parallel, increasing the direct current. Electricity from panel combiner boxes would be gathered via an underground or rack-mounted direct current collection system from the arrays to centralized inverters. The project would use between 27 and 30 boxes per power array depending on the technology used.

The project would also use approximately 151 inverters and 151 transformers coupled in sets of one inverter and one transformer on a shared foundation. The inverter systems are not typically enclosed and are mounted on concrete foundations or steel piers, with the entire structure being approximately 8 feet wide by 40 feet long by 10 feet high. There would be one of these structures for each power array.

The direct current would be converted to alternating current by the inverters, stepped up by the transformers, and transmitted to the proposed substation via 34.5 kV alternating current medium-voltage collection lines. The medium voltage collection lines would begin at the inverter-transformer foundation and would be located underground in trenches until the output from between 8 and 10 power blocks terminates in the collection breaker of the substation.

Some of the 34.5 kV collection wires are a distance of 1,000 feet or more from the collection breakers in the switching station and outside the PV field; these may be mounted overhead on standard wood or steel poles along the site boundary. These poles would be approximately 25 feet high and spaced approximately 250 feet apart.

The most recent Avian Power Line Interaction Committee (APLIC) guidelines for avian protection would be followed on overhead structures and lines. Avian safe design features and other project measures to avoid, minimize, and mitigate impacts on avian species would be outlined in a project bird and bat conservation strategy.

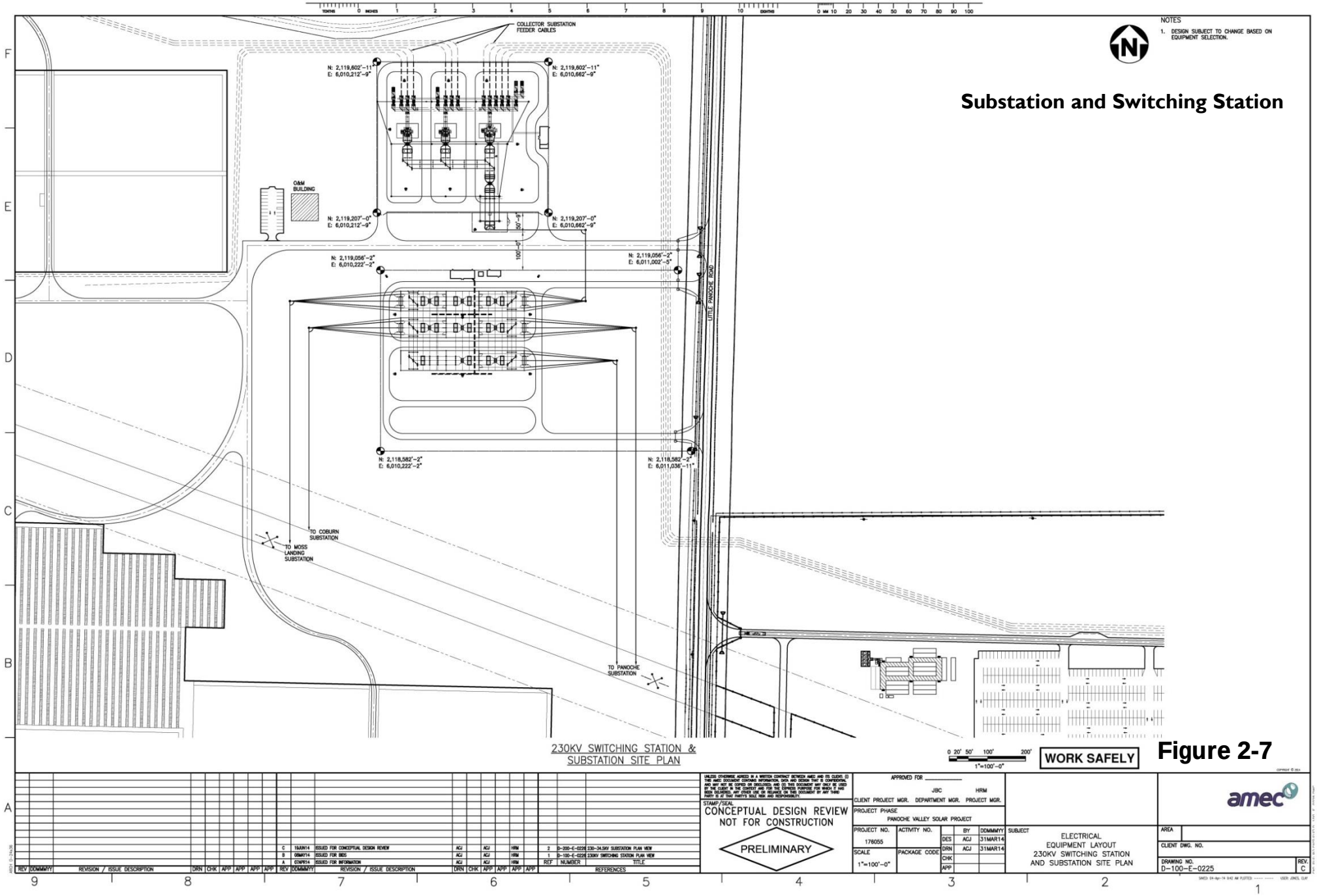
Substation and Switching Station

A substation and switching station would be constructed north of the existing PG&E transmission line on the west side of Little Panoche Road (see **Figure 2-6**). Electrical transformers, switchgear, and related substation facilities would be designed and constructed to transform medium-voltage power from the project's delivery system to the existing PG&E 230 kV transmission line. Substation equipment would cover approximately 9 of the 12.4-acre substation area.

The substation equipment would range in height from 3 feet to 35 feet. In addition, one approximately 100-foot-tall microwave tower would be constructed in this area, as described in **Section 2.5.8**, PG&E Telecommunications Upgrades and shown on **Figure 2-6**, and up to 12 approximately 135-foot tall tubular steel poles (TSP) would be installed to connect to PG&E's existing transmission line. Up to two existing lattice steel transmission structures would also be removed. The substation site would be graded and compacted to an approximately level grade. Concrete pads would be constructed as foundations for substation equipment, and the remaining area would be graveled. A new on-site access road would be constructed to serve the substation and an approximately 1-acre fenced parking area. **Figure 2-7** is a conceptual illustration of the proposed substation.

The substation would include two transformers containing approximately 12,500 gallons of mineral oil each. Secondary containment would be provided to accommodate an accidental spill of transformer fluid. No PCB-laden fluids would be used.

The switching station and substation would contain two small buildings to house control equipment. A modular protection automation and control (MPAC) building would house PG&E's switching station control and protection equipment, and a protection and control building would house the substation relaying and Supervisory Control and Data Acquisition (SCADA) equipment.


Substation and Switching Station
NOTES
1. DESIGN SUBJECT TO CHANGE BASED ON EQUIPMENT SELECTION.
COLLECTOR SUBSTATION FEEDER CABLES
N: 2,119,602'-11"
E: 6,010,212'-9"
N: 2,119,602'-11"
E: 6,010,662'-9"
O&M BUILDING
N: 2,119,207'-0"
E: 6,010,212'-9"
N: 2,119,207'-0"
E: 6,010,662'-9"
50'-0"
100'-0"
N: 2,119,056'-2"
E: 6,010,222'-2"
N: 2,119,056'-2"
E: 6,011,002'-5"
LITTLE PANOCHE ROAD
N: 2,118,582'-2"
E: 6,010,222'-2"
N: 2,118,582'-2"
E: 6,011,036'-11"
TO COBURN SUBSTATION
TO MOSS LANDING SUBSTATION
TO PANOCHE SUBSTATION
230KV SWITCHING STATION & SUBSTATION SITE PLAN
0 20' 50' 100' 200'
1"=100'-0"
WORK SAFELY
Figure 2-7
CONCEPTUAL DESIGN REVIEW
NOT FOR CONSTRUCTION
PRELIMINARY
PANOCHE VALLEY SOLAR PROJECT
178055
1"=100'-0"
ELECTRICAL
EQUIPMENT LAYOUT
230KV SWITCHING STATION
AND SUBSTATION SITE PLAN
D-100-E-0225
amec

Operation and Maintenance Building

An operations and maintenance (O&M) building would be constructed next to the substation site (**Figure 2-6**). This building would house relay, protection, and SCADA equipment. It would be an approximately 1,800-square-foot building consisting of standard steel on a concrete slab. The facility would provide operations equipment and parts storage, security, and site monitoring; its maximum height would be 20 feet. The O&M building would be inside the collection portion of the substation fence and would be built in accordance with local codes and standards. Worker parking would be provided in a parking lot next to the O&M building.

Project Roads

Project roads would be limited to a 20-foot-wide perimeter road with pullouts every 2,500 to 3,000 feet. Pullouts would be approximately 20 feet wide by 300 feet long. Portions of the perimeter roads that cross on-site federal jurisdictional washes over Panoche Creek and Las Aguilas Creek would be used only for emergency access or for limited maintenance to cables in the bridge crossing at Las Aguilas Creek. Interstitial space between rows of panels would be used as transportation corridors for maintenance and access for site safety. These transportation corridors would be dirt paths, with no gravel or compaction.

An additional transportation corridor, a maintained fenced-off dirt path, would be placed south of Aguilas Creek and north of the perimeter fence line. This transportation corridor would provide access to the western portion of the Valadeao Ranch Conservation Lands from Little Panoche Road for landowners and ranchers.

All overhead obstructions would have a minimum vertical clearance of 15 feet. All road and access designs would be reviewed and approved by the San Benito County Public Works Engineers and Administrator and the Hollister Fire Department Chief before final design submittal. **Figure 2-8** shows the proposed road layout and drainage crossings, while **Table 2-5** shows the estimated areas and lengths of the access road.

Table 2-5
Proposed Access Road Dimensions

Access Road Type	Length	Width	Area
Perimeter access road with pullouts	65,658 feet	20 to 40 feet	30 acres

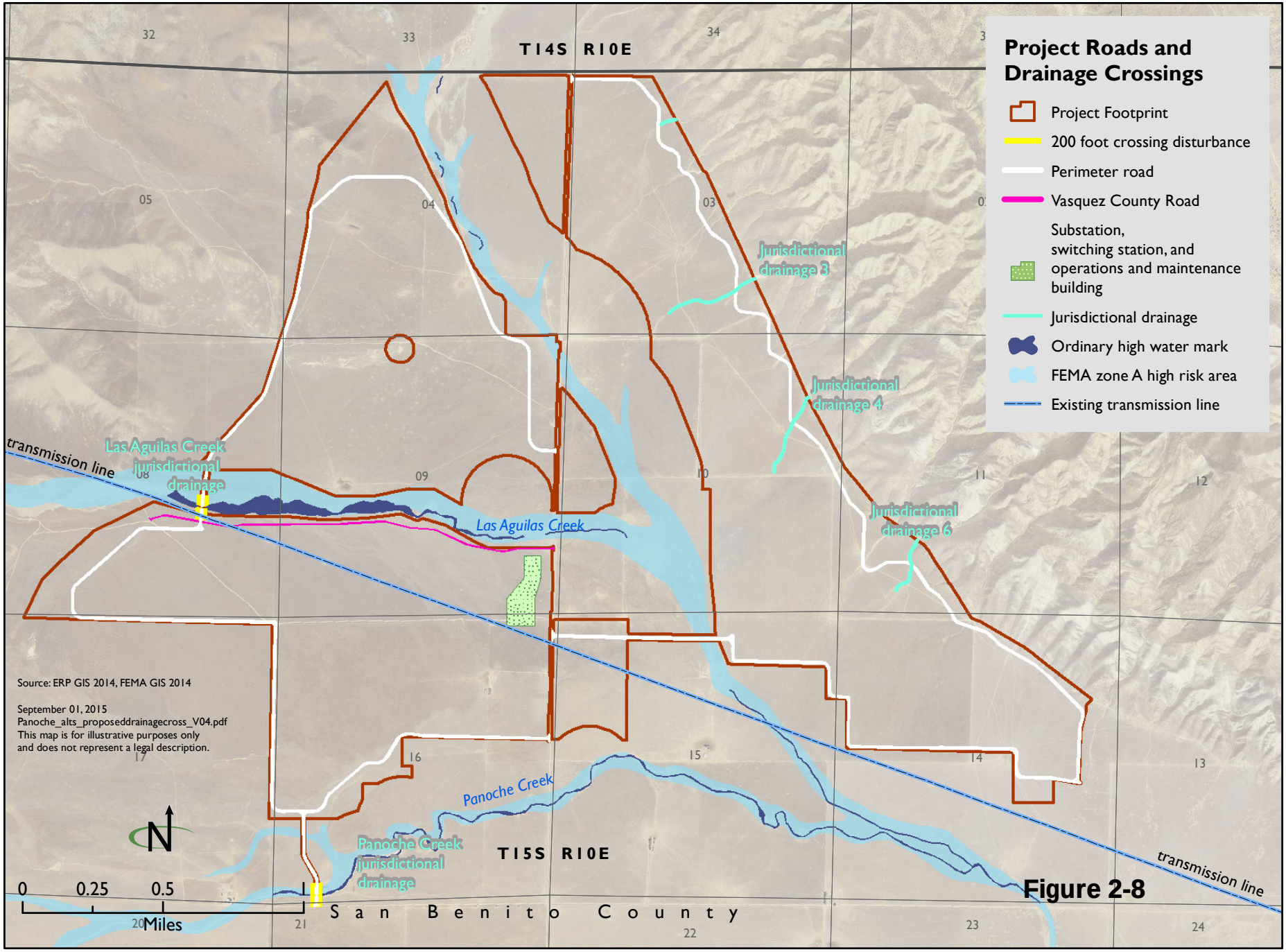

Project Roads and Drainage Crossings
Project Footprint
200 foot crossing disturbance
Perimeter road
Vasquez County Road
Substation, switching station, and operations and maintenance building
Jurisdictional drainage
Ordinary high water mark
FEMA zone A high risk area
Existing transmission line
T14S R10E
T15S R10E
San Benito County
Jurisdictional drainage 3
Jurisdictional drainage 4
Jurisdictional drainage 6
Las Aguilas Creek jurisdictional drainage
Las Aguilas Creek
Panoche Creek
Panoche Creek jurisdictional drainage
transmission line
transmission line
Source: ERP GIS 2014, FEMA GIS 2014
September 01, 2015
Panoche_alts_proposeddrainagecross_V04.pdf
This map is for illustrative purposes only and does not represent a legal description.
N
0 0.25 0.5 1 Miles

Figure 2-8

Emergency egress and access roads for the project would cross Panoche Creek, Las Aguilas Creek, and three unnamed drainages on the eastern side of the project footprint (see **Figure 2-8**). These crossings require a permit from USACE under Section 404 of the Clean Water Act and a Section 401 Water Quality Certification from the Regional Water Quality Control Board. The crossings of washes, creeks, and drainages that are potentially waters of the State and regulated by the CDFW require a CDFW Lake and Streambed Alteration Agreement.

Drainage Crossings

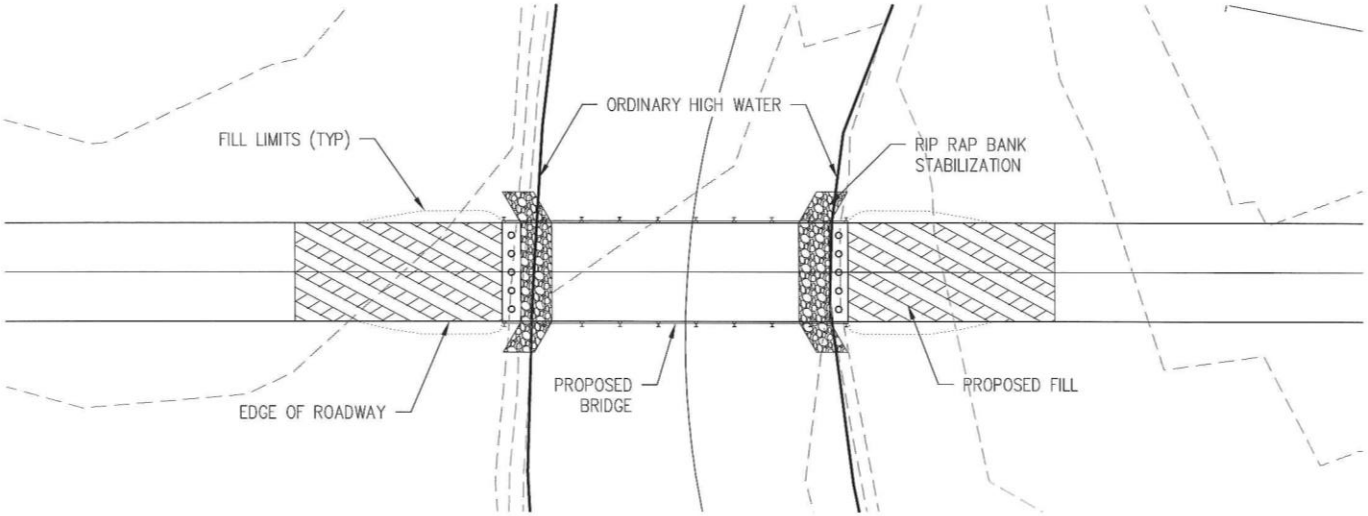
The applicant has applied for a Department of the Army Section 404 permit from the USACE to allow the placement of fill into 0.122 acre of ephemeral stream channels classified as other waters of the U.S. The areas affected include Panoche Creek and Las Aguilas Creek on the western side of the project footprint and three unnamed drainages on the eastern side of the project footprint. The work proposed in these areas is described below.

Las Aguilas Creek and Panoche Creek Ephemeral Stream Crossings

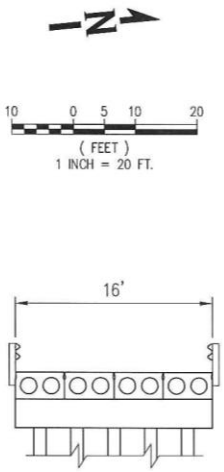
Under Alternative A, the applicant would use single-span bridges to cross Las Aguilas Creek and Panoche Creek. The single-span bridge designs for each crossing are shown on **Figure 2-9** and **Figure 2-10**; the proposed span lengths and area impacted by each of the crossings are described in **Table 2-6**. The single-span bridges would be long enough to reach from bank to bank across the creeks without an additional footing in the center of the creek. The single-span bridges would have footings that are placed on each side of the bank, outside of the Ordinary High Water Mark (OHWM). Only the areas within the OHWM constitute waters of the U.S. subject to Clean Water Act jurisdiction. No Section 404 permit from the USACE is required for fill or other activity outside of the OHWM. The distance between the bridge footings would be designed to minimize upstream and downstream hydrological and hydraulic effects and minimize fill inside the OHWM.

To construct the bridges, the crossing decks would be brought to the project site in approximately three to four sections and would total the length of the entire crossing. Each section would be lifted with a crane and placed on the footings. The crane would sit near the bank of the crossing but would not enter the jurisdictional area. Once the sections were laid next to each other on the footings, a final concrete bridge deck would be poured across the deck. A guardrail would be placed on the sides of the bridge.

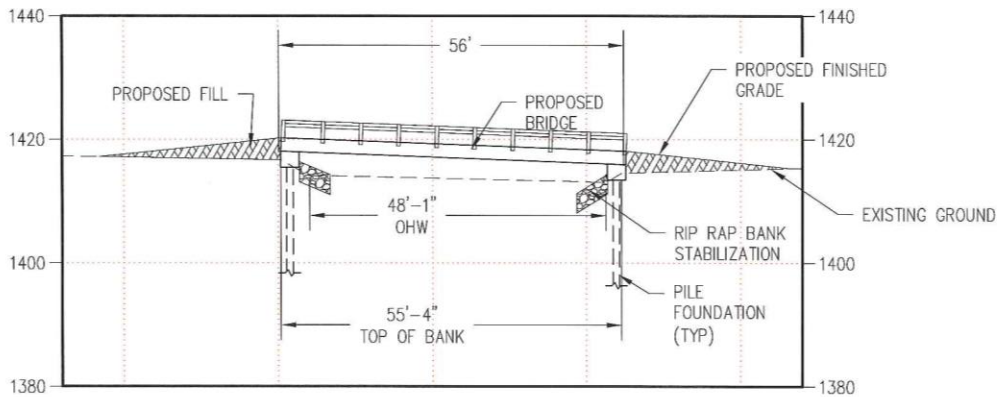
The abutments and footings may affect channel flow dynamics during high hydraulic events due to potential flow restriction and reduced flow velocity, although the single-span bridges would be designed to provide maximum water conveyance through the site. Riprap or other bank armament would be placed



PLAN



TYPICAL SECTION
NOT TO SCALE



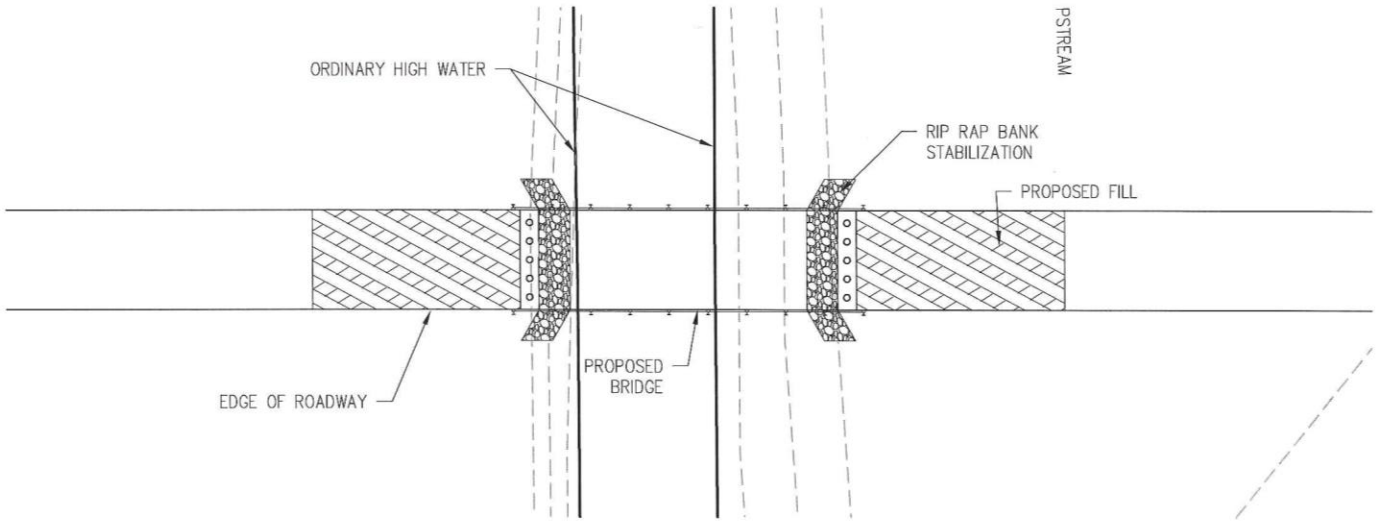
ELEVATION

Figure 2-9

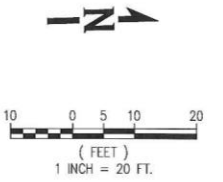
Alternative A Bridge Crossing, Las Aguilas Creek

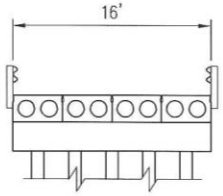
PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION
WHPacific

PROJECT NUMBER	DRAWING FILE NAME	DATE
035916	035916_EX02.dwg	10-08-13

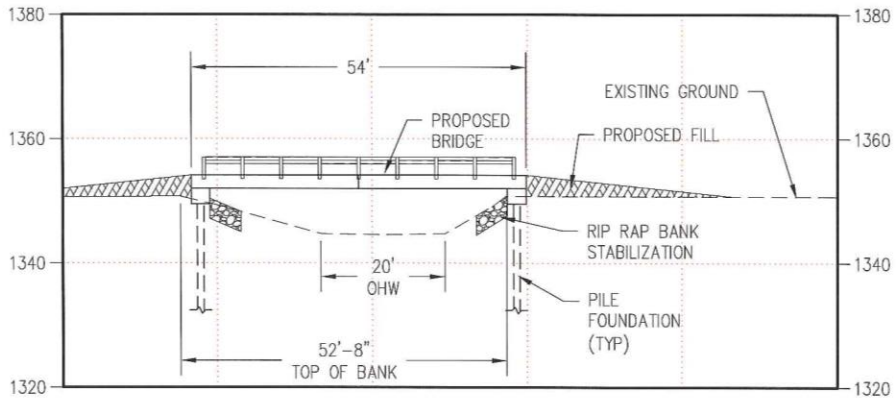


PLAN





TYPICAL SECTION
NOT TO SCALE



ELEVATION

Figure 2-10
Alternative B Bridge Crossing, Panoche Creek

PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION
WHPacific

PROJECT NUMBER	DRAWING FILE NAME	DATE
035916	035916_EX02.dwg	10-08-13

Table 2-6
Creek Crossing Impacts, Single-Span Bridges

Access Road Type	Las Aguilas Crossing	Panoche Creek Crossing
Width between tops of banks	56 linear feet	53 linear feet
Width of OHWM	48 linear feet	20 linear feet
Area of impact within OHWM		
Cut	32 square feet	24 square feet
Fill	32 square feet	24 square feet
Volume of material that would be disturbed within OHWM		
Cut	5 cubic yards	10 cubic yards
Fill	6 cubic yards	10 cubic yards
Area of impact outside of OHWM		
Outside top of bank, cut area	0 square feet	0 square feet
Outside top of bank, fill area	1,510 square feet	1,510 square feet
Within top of bank, cut area	96 square feet	160 square feet
Within top of bank, fill area	96 square feet	160 square feet
Volume of material disturbed outside OHWM		
Outside top of bank, cut area	0 cubic yards	0 cubic yards
Outside top of bank, fill area	150 cubic yards	150 cubic yards
Within top of bank, cut area	10 cubic yards	10 cubic yards
Within top of bank, fill area	10 cubic yards	10 cubic yards

Source: Energy Renewal Partners 2014

along the footing installations to prevent erosion or scouring along and behind the footings. This would ensure that the bridge is stable and able to withstand high water flows without damage. It also would ensure that the bridge is available for use by emergency personnel at all times, including during and immediately after high water flows.

Permanent disturbance would result in approximately 0.001 acre of cut and fill within the OHWM of Las Aguilas and approximately 0.001 acre of cut and fill within the OHWM of Panoche Creek. No permanent fill of waters of the U.S. would be required for electrical cables in the construction of the single-span bridges because the project would use cables within the bridge decks.

The single-span bridges would result in permanent upland habitat disturbance from permanent upland fill needed at each end of the span to accommodate the higher deck elevation. There would be approximately 3,020 square feet (0.07 acre) of permanent upland disturbance from placing fill for the two bridges. Additionally, there would be temporary disturbance of adjacent upland from installing the bridges and from the staging areas needed to assemble the bridges and lift them into place.

Unnamed Ephemeral Stream Crossings

In addition to Las Aguilas and Panoche Creeks, there are three additional federal jurisdictional impact areas that would be affected by the proposed project. These areas are described as Crossings/Impact Areas 3, 4, and 6 in the applicant's Section 404(b)(1) alternatives information (the area described as Crossings/Impact Area 5 was avoided through engineering design); this terminology has been retained in the EIS. These areas, located along the eastern boundary of the project footprint, are shown on **Figure 2-8**. They would be disturbed during construction of the 20-foot-wide perimeter road that would be used for maintenance and emergency response; grading would be necessary to establish the required slopes for panels and to control stormwater and erosion across the project footprint (see **Table 2-7**); **Appendix D**, Drainage Crossing Drawings, contains schematics for these crossings.

Table 2-7
Unnamed Drainage Crossing Impacts

	Crossing/ Impact Area 3	Crossing/ Impact Area 4	Crossing/ Impact Area 6
Width of OHWM	4 feet	1.5 feet	3 feet
Area of impact within OHWM			
Cut	0 square feet	248 square feet	177 square feet
Fill	2,317 square feet	1,747 square feet	1,267 square feet
Volume of material that would be disturbed within OHWM			
Cut	0 cubic yards	15 cubic yards	7 cubic yards
Fill	524 cubic yards	86 cubic yards	36 cubic yards
Area of impact outside of OHWM			
Within top of bank, cut area	0 square feet	6,420 square feet	3,056 square feet
Within top of bank, fill area	54,877 square feet	22,246 square feet	16,677 square feet
Volume of material that would be disturbed outside OHWM			
Within top of bank, cut area	0 cubic yards	594 cubic yards	181 cubic yards
Within top of bank, fill area	5,864 cubic yards	8,241 cubic yards	309 cubic yards

Source: Energy Renewal Partners 2014

Crossing/Impact Area 3

The applicant is proposing to install a pipe arch culvert at Crossing/Impact Area 3 to accommodate the proposed perimeter road. This structure would include a headwall and riprap at both ends. The roadway design would include shoulders and guardrails above the culvert. In addition to installing the culvert, the applicant would grade and fill jurisdictional areas downstream of the culvert installation area to meet slope requirements for the solar panels in that area; trench for underground cables; allow surface flows to reach Las Aguilas Creek; and install fencing.

Impacts on waters of the U.S. would result from the placement of a corrugated metal pipe arch culvert with headwall and riprap. A concrete weir/cut-off wall with a riprap apron would be installed approximately 40 feet downstream of the culvert outlet. In addition to the installation of the culvert, there would be

impacts to federally jurisdictional areas downstream of the culvert from grading/filling of the existing federally jurisdictional channel. Grading/filling of the existing federally jurisdictional channel is required to meet the maximum slopes needed to install the tracker system between the panels. Grading and filling is required to limit the height of the modules above grade (higher modules would require deeper non-uniform foundations) and disperse the concentrated surface water flows found in the existing channel around the tracker support posts to decrease wash out of the tracker and the panel support posts.

After the grading/filling of the existing federally jurisdictional channel, erosion protection such as large riprap, the placement of concrete cut-off wall with surrounding riprap, erosion control blankets, and grassing would be installed. The concrete cut-off wall with riprap apron would be installed approximately 90 feet downstream of the culvert outlet. The cut off wall would extend approximately 8 feet below the ground surface. This cut-off wall would dissipate flow, and decrease potential scour and erosion within the panel installation area. The water would ultimately flow across the site to Las Aguilas Creek.

The pipe arch culvert and grading and filling the downstream channel would result in the permanent disturbance of approximately 0.05 acre (2,317 linear feet) within the OHWM associated with this drainage.

Crossing/Impact Area 4

The applicant is proposing to install low water crossings within federal jurisdictional waters at Crossing/Impact Area 4 to accommodate the proposed perimeter road. The low water crossings would be designed to be overtopped during high surface water flows, but at a flow rate and depth that would allow for emergency vehicle access and that would meet the San Benito Code of Ordinances, Title 23: Subdivisions, Chapter 23.31 Improvement Standards, Article III Storm Drainage Design Standards, Sub Article 23.31.042 Hydraulic Criteria.

Low water crossings are proposed within drainage channels that are relatively unentrenched, where the channel side slopes are less than eight percent, and where stream depth is less than four feet. These requirements allow a proposed crossing to be constructed as close to the existing channel bottom elevation as possible. The low water crossings at Crossing/Impact Area 4 would be designed to minimize any potential changes to the channel morphology. They would also allow for an adequate vertical curve length in the road to accommodate vehicles using the crossings.

The type of improved low water crossings proposed for this crossing/impact area would be a rock crossing. This type of crossing is typically used for drainages that have flows of less than 10 feet per second. Rock crossings would be constructed using six to eight inches of well-graded coarse rock. This rock would be in-filled with finer graded aggregate and installed on top of a geotextile fabric separating the rock layers from the subgrade. The potential for scouring

due to water flow over the installed crossing would be reduced by the riprap on both the upstream and downstream sides of the constructed crossing. The maintenance required for the rock crossing would involve periodically replacing finer material, which has the potential to be removed from the crossing during heavy traffic and high surface water flows.

In addition to installing the low water crossings at Crossing/Impact Area 4, the applicant would grade and fill jurisdictional areas to meet slope requirements for the solar panels in that area. After the jurisdictional drainage channel is graded and filled, erosion protection measures would be implemented similar to those described for Crossing/Impact Area 3.

The planned construction of the low water crossing would impact approximately 0.04 acre (1,747 linear feet) of jurisdictional drainages from installing the crossing and grading and filling the drainage below the crossing.

Crossing/Impact Area 6

The applicant is proposing to reroute the jurisdictional drainage at Crossing/Impact Area 6. Any surface water flowing onto the project footprint would be redirected into a roadside drainage feature next to the perimeter road, southeast into an unnamed jurisdictional ephemeral drainage, which is not a federal jurisdictional water.

The roadside drainage feature would be constructed with lined bend protection, structures to assist in slowing the runoff velocity, and additional sediment and erosion control measures. Once the diverted flow from the roadside drainage flows across the unnamed ephemeral drainage to the southeast, the flow velocity would be decreased by constructed energy dissipaters.

In addition, the applicant would grade and fill jurisdictional areas to meet slope requirements for the solar panels in that area and to maintain appropriate surface flow on the project footprint.

The actions described above would impact approximately 0.03 acre (1,267 linear feet) of jurisdictional stream for Crossing/Impact Area 6.

Fencing

Security Fencing

Security fencing would be constructed around the project footprint (see **Figure 2-6**). The chain-link fence would have a 5- to 6-inch gap along the bottom that would allow wildlife to travel through the site and link up with the existing travel corridors. These fencing designs have been previously approved or suggested by the CDFW and USFWS for other solar projects.

Fences surrounding the O&M building would use the same fencing plan, unless otherwise determined by CDFW and USFWS. Gated eight-foot-high chain-link fences would be constructed around the switching station, in accordance with the PG&E standard. All permanent materials would be industrial strength with galvanized steel to aid visual dulling over time.

Species Exclusion Fencing

Temporary wildlife exclusion fencing would be placed around construction staging areas and construction of water ponds for wildlife protection. Wildlife exclusion fencing may also be installed in other areas around the project as needed to help minimize impacts on species. This could include areas adjacent to conservation lands that will be graded. The primary function of temporary species exclusion fencing is to prevent special status, small vertebrate species (e.g., giant kangaroo rat, blunt-nosed leopard lizard, and California tiger salamander) from entering the construction sites, where they can be killed, injured, or isolated.

In general, wildlife exclusion fencing is to be installed before any ground disturbance, equipment laydown, site preparation, or construction, as deemed necessary by the designated biologist. The exclusion fencing would be equipped with breaks and/or one-way exits every 250 to 500 feet to avoid entrapping species. Care would be taken in exclusion fencing design in the event that cattle or sheep are expected to be next to the fencing. The exclusion fencing, which is detailed in the project's comprehensive fencing plan, would be removed after construction.

Water Tanks and Water Treatment

In order to accommodate water use during construction, the applicant proposes to construct three temporary construction water ponds with a combined capacity of approximately 4.4 million gallons, along with three temporary 20,000-gallon water tanks near existing or new wells. Temporary exclusionary fencing would be installed around the ponds for safety and to restrict access by special status species. The temporary ponds would be removed at the end of construction. Temporary piping would be used to transport water from the ponds to drop tanks at designated locations around the project site. Permanent piping would be installed from permanent water storage tanks to the O&M building for use during operations, including providing water to the fire suppression system.

Four permanent 4,000-gallon water tanks would be located near existing well sites. Water in the storage tanks, holding approximately 16,000 total gallons, would be used for washing solar panels. Water from these tanks would also be used as part of the firefighting system and for facilities in the O&M building.

Panel washing requires water with very low total dissolved solids (TDS). If required, a filter would be installed to filter TDS from the well water source. No reject water would be produced during the filtering. The filter would be a

self-contained cartridge attached directly to the well (if needed); therefore, all water would flow through the filter from the well, and no reject water would be produced. The filter would be replaced as needed to maintain appropriate water filtration levels.

2.5.3 Solar Project Site Design and Engineering

Site Disturbance

Permanent disturbance would result from the construction of the following:

- Project footprint perimeter roads and emergency access/egress points
- Project perimeter fence
- Maintenance transportation corridors
- The substation, switching station, and O&M facility
- Tubular steel transmission poles
- Stormwater control basin
- Parking areas
- Collector lines
- Solar array footers
- Equipment pads

The areas of potential grading within the project footprint overlap with other permanent features, including solar arrays, perimeter roads, the substation, the switching station and O&M building, a stormwater control basin, and collector lines. Graded areas combined total approximately 358 acres. Permanent impacts are shown in **Table 2-8** and on **Figure 2-11**.

In addition to permanent impacts from project infrastructure, there would be temporary impacts from constructing permanent project features and from staging material and equipment on the site. Areas of temporary disturbance would be restored in accordance with the habitat restoration and revegetation plan developed for the proposed project. Disturbed areas would be recontoured where appropriate and planted with an approved weed-free seed mix. Noxious weeds would be controlled through the noxious weed and invasive plant control plan. Herbicides used for noxious weed control would be applied in accordance with federal and state regulations. Temporary impacts are shown in **Table 2-9** and on **Figure 2-12**.

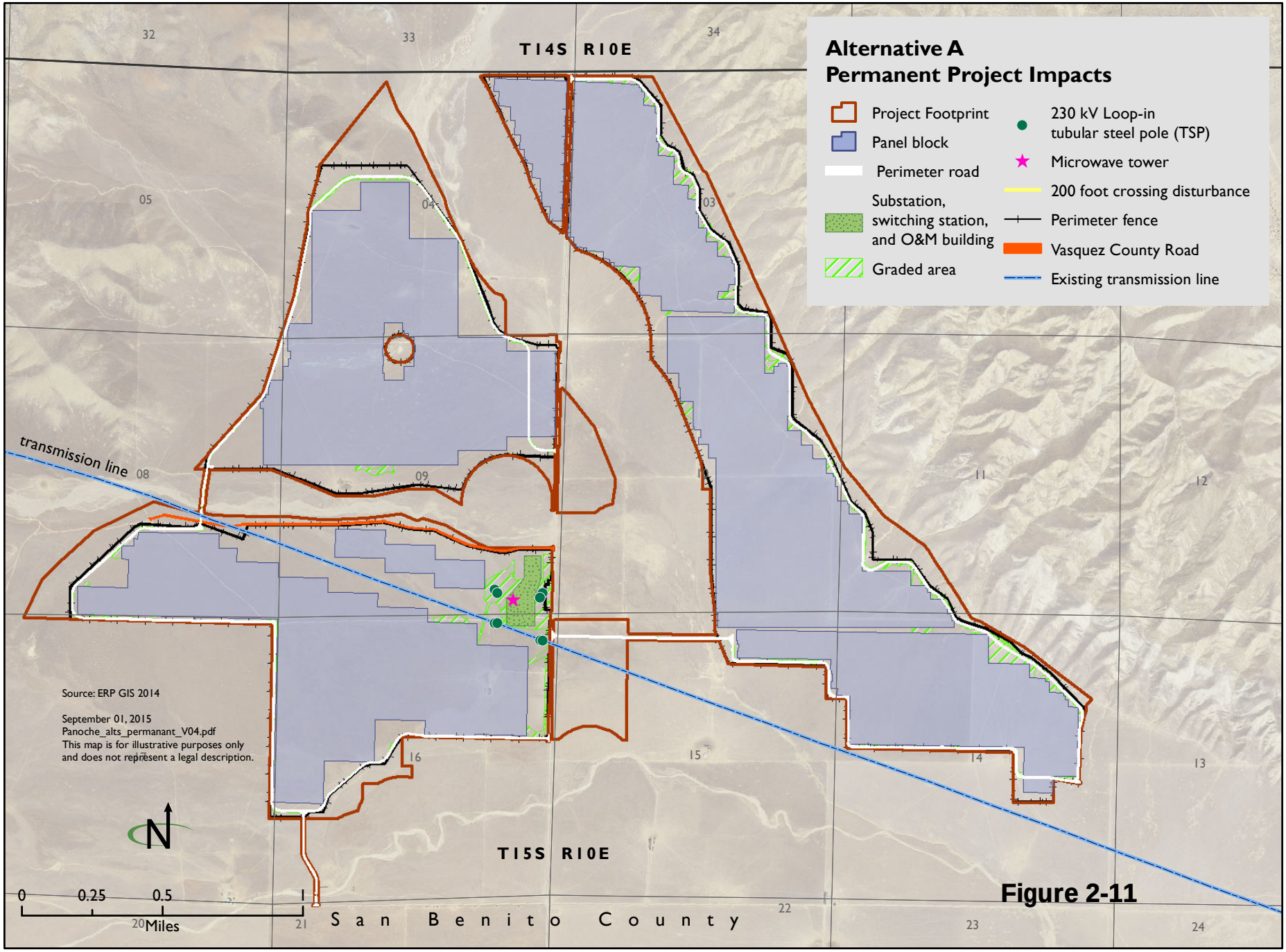
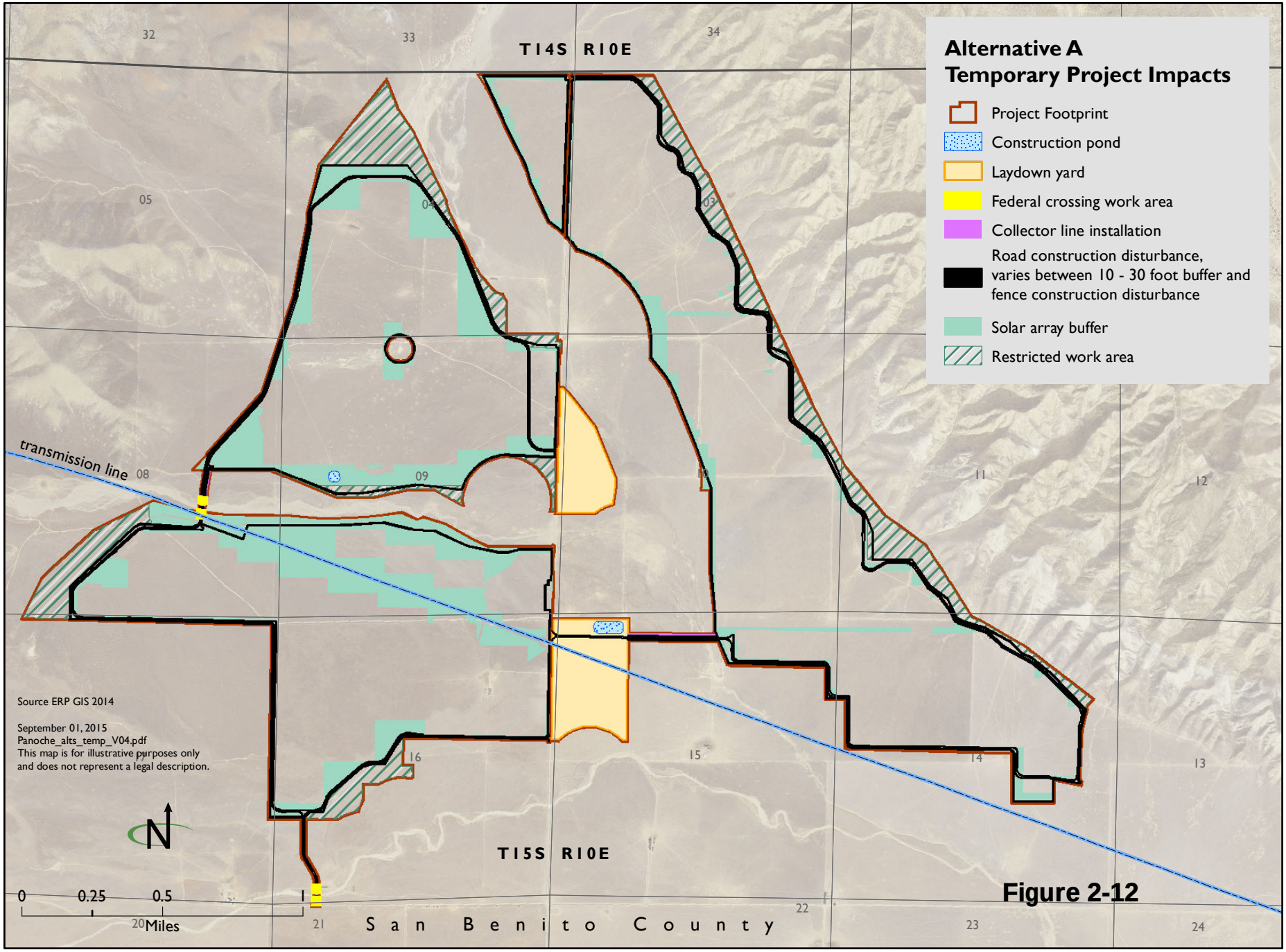

Alternative A
Permanent Project Impacts
Project Footprint
Panel block
Perimeter road
Substation, switching station, and O&M building
Graded area
230 kV Loop-in tubular steel pole (TSP)
Microwave tower
200 foot crossing disturbance
Perimeter fence
Vasquez County Road
Existing transmission line
T14S R10E
T15S R10E
transmission line
San Benito County
Source: ERP GIS 2014
September 01, 2015
Panoche_alts_permanant_V04.pdf
This map is for illustrative purposes only and does not represent a legal description.
N
0 0.25 0.5 1
Miles

Figure 2-11


Alternative A
Temporary Project Impacts
Project Footprint
Construction pond
Laydown yard
Federal crossing work area
Collector line installation
Road construction disturbance, varies between 10 - 30 foot buffer and fence construction disturbance
Solar array buffer
Restricted work area
T14S R10E
T15S R10E
transmission line
San Benito County
Source ERP GIS 2014
September 01, 2015
Panoche_alts_temp_V04.pdf
This map is for illustrative purposes only and does not represent a legal description.
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Miles

Figure 2-12

Table 2-8
Permanent Project Disturbance

Work Area Description	Total Impact
Solar arrays[1]	1,629 acres
Project perimeter roads (including pullouts)	30 acres
Substation, switching station, and O&M building	12 acres
Graded areas (outside of other project features)[2]	106.5 acres
230 kV loop-in TSPs	250 square feet
Trenching and foundations adjacent to arrays	12.41 acres
Perimeter fencing	0.06 acres
Vasquez County Road[3]	4 acres
Total	**1,794 acres**

Notes:
[1] Includes 2.33 acres for foundations, 26.64 acres of direct current trench, 8.84 acres of alternating current trench, 205.47 acres of grading, and 1,385.72 acres of solar array work areas. Solar panels and associated electrical equipment would be installed on approximately 185,000 support post foundations. Posts would be steel I-shaped sections with a cross sectional area of 4.5 square inches each.
[2] Limited grading is expected to be required because of the nearly flat terrain. Grading would be required on slopes greater than 3 percent for PV power blocks. Final grading plans for the project are under development; however, the proposed project includes approximately 358 acres (205.47 acres for arrays; 30 acres for roads; 12 acres for the substation, switching station and O&M building; 4 acres for Vasquez County Road; and 106.53 acres for other grading areas) of proposed area that would be graded.
[3] Vasquez County Road would be replaced with a new road that would run outside of the project fence line south of Las Aguilas Creek.

Table 2-9
Temporary Project Disturbance

Work Area Description	Total Impact
Road construction and perimeter fence buffers	72 acres
Federal crossing work areas	4 acres
Temporary laydown yards	108 acres
Construction ponds	1 acre
Restricted work areas	194 acres
Solar array buffer including collector lines installation	333 acres
Total	**712 acres**

Notes:
Road construction buffers assume approximately 10 feet to 30 feet of temporary disturbance along perimeter roads and the perimeter fence.
Temporary work areas necessary for installing crossings over federal jurisdictional waters would be outside of the ordinary high water mark (OHWM).
Restricted work areas do not have work planned within the areas but vehicles may travel over them during construction if needed for access.

Erosion Control

A stormwater pollution prevention plan (SWPPP) outlining best management practices (BMPs) for minimizing erosion and runoff has been prepared. The following typical erosion control devices would be used:

- Sandbags, straw wattles, energy dissipaters, and similar BMP devices will be used during construction during the rainy season (October 15 to April 15) to prevent sediment-laden runoff from discharging into receiving waters
- Revegetation as soon as practicable after completion of grading to reduce sediment transport during storms
- Installation of straw bales, wattles, or silt fencing around the perimeter of graded building pads for construction during the rainy season
- Structural BMPs (e.g., grease traps, debris screens, and oil/water separators) incorporated into substation design to minimize potential for contaminated stormwater to leave the substation
- A stormwater control basin will be designed to intercept the sheet flows from respective sub-basin watershed and to attenuate the additional stormwater runoff from the project's impervious surfaces. The stormwater basin is designed to allow for full drawdown and discharge within 24 hours.

During project operation, a vegetated understory, composed of indigenous species consistent with existing vegetation, would be planted under the panels. The vegetation height w be minimized by planting slow-growing grasses native to the region and by allowing intensive sheep grazing for a short duration, described under *Fire Safety*, below.

Utilities

Electricity during construction would be obtained by a metered tap of the local 12 kV power grid and from portable gasoline or diesel-powered on-site generators. As many as 30 portable generators would be used on the project site during construction. Water would be obtained from on-site wells, described under *Water Use*, below. Portable sanitary facilities would be required during construction. Wastewater would be hauled to appropriate treatment plants, such as the Hollister Domestic Wastewater Treatment Plant. Solid waste would be hauled to appropriate recycling centers or landfills. A SCADA system in the O&M building would be used for project communications. This system would allow for complete control and access to the PV panels, substation, telephone system, and all other communication systems.

Telephone and Internet services to the project site would be provided by AT&T using AT&T services located 2,000 feet south of the project site, along Little Panoche Road. AT&T's preferred method would be to install new cable underground in the public road shoulder from the existing connection point to the project site. Installation would include construction of a two-foot-wide by three-foot-deep trench to allow direct burial of the cable, in compliance with state and local standards. Alternatively, the cable could be attached to existing wood distribution poles along the road from the existing AT&T connection

point to the project site. Existing facilities would be used to bring the AT&T services to the project site, and recent biological surveys indicate the absence of any sensitive biological resources. Because of this, no impacts on sensitive habitat and sensitive biological resources are anticipated to occur from this work on private easements and public rights-of-way.

Water Use

Water would be required on-site during construction of the project, primarily for dust control and sanitary facilities. This water would be provided by pumping groundwater from the Panoche Valley Groundwater Basin, using existing water wells or new wells, into two temporary construction water holding ponds and tanks placed within the project footprint. The water from the temporary ponds would be used to water graded/excavated areas and active unpaved roadways, unpaved staging areas, and unpaved parking areas. The frequency would be based on the type of operations, soil, and wind exposure. The watering would help reduce fugitive dust accumulation, the amount of wind erosion and dust generated by exposed topsoil, the possible exposure to valley fever from dust generated by construction and traffic, and the impacts on vegetation from fugitive dust.

Two temporary ponds are planned within the project footprint near existing or new wells. These ponds would have a combined capacity of approximately 4,433,000 gallons and would cover approximately 1 acre of the project footprint. The ponds either would be surrounded by species exclusion fencing to restrict access by special status species or would be located in the laydown areas, which are surrounded by species exclusion fencing. Based on pumping rates expected from water wells at the site, the ponds would be filled during the night and over the course of the day to capacity and would be drained of water each day to meet the project's water needs. In addition, up to five new water wells would be drilled, if existing water wells could not be used to fill the temporary construction ponds.

Peak daily demand during construction is estimated at 1.72 acre-feet (581,250 gallons). Peak annual demand during construction is estimated at 314.87 acre-feet (102,600,000 gallons). Total construction water usage is estimated at 385.15 acre-feet (125,500,500 gallons).

Other Wastewater

A septic tank and leach field would be constructed near the O&M building. The expected flow to the septic tank and leach field is estimated to be approximately 250 gallons per day. For this level of flow, the septic tank would be sized at a minimum of approximately 750 gallons. The septic tank would conform to all federal, state, and San Benito County requirements for configuration, fittings, and approved vendors.

The septic leach field would be sized according to good engineering practice and San Benito County requirements. It would be based on percolation data

obtained from tests conducted in the proposed leach field location. The leach field would be sited such that sufficient area for a future replacement leach field of equal size next to the initial leach field is available. Piping from the septic tank to the infiltration trenches would include a splitter valve to direct flows to either drain field location; piping for the initial drain field would include a level distribution box properly supported such that effluent would be distributed equally to each infiltration trench.

Landscape Design

Landscaping in disturbed areas would typically use native plant stock whose origin is close to the project area where feasible. Salvaged topsoil would be used to reestablish plant communities from the existing seed bank if available.

Erosion and sediment control measures would be implemented at revegetated areas to minimize soil movement and improve the potential for revegetation. If revegetation could not be conducted immediately following completion of construction, appropriate interim erosion control measures, as detailed in the SWPPP, would be installed until revegetation criteria are met. Examples of interim erosion control measures are certified weed-free straw mulch, fiber rolls, and straw bale barriers.

General Safety

Emergency response plans would be developed for construction. Ongoing training would occur in accordance with Occupational Safety and Health Administration (OSHA) regulations. All emergency response plans would be developed in consultation with the Hollister Fire Department, the San Benito County Public Health Department, and any additional local, state, or federal agencies with jurisdiction over emergency response at the project site.

Fire Safety

Vegetation at the site would be kept to a height of less than 18 inches. Short-duration intensive sheep grazing may be used to maintain vegetation, depending on the amount of forage available on the site. The number of sheep required to appropriately graze the feed produced on the project site would vary seasonally, depending on the rainfall and temperature of each grazing season. During normal rainfall years, one to three bands of sheep would graze the project site from January to May to consume the forage produced before and during that season. Each band would consist of between 750 and 1,200 adult sheep and offspring, depending on the season. The sheep would be removed from the site the remainder of the year. The applicant would construct new sheep fencing as necessary.

Three water tanks holding approximately 20,000 gallons each would be located at existing or new well sites. These tanks would have universal adapters to enable fire trucks to refill with water at the project site.

The MPAC and Substation Building fire suppression will follow the PG&E standard, which is a Novec 1240 clean agent flooding system for fire suppression, or similar, subject to local building permit official approval. Novec fluid, manufactured by 3M, is an environmentally friendly halon replacement for use as a gaseous fire suppression agent. It is generally used in situations where water from a fire sprinkler would damage expensive equipment or where water-based fire suppression is impractical.

2.5.4 Solar Project Construction

The project solar panels would be constructed in a general clock-wise progression around the site over approximately 18 months. Construction is anticipated to begin in 2015, near the proposed substation location south of Las Aguilas Creek and west of Little Panoche Road (see **Figure 2-6**).

Nighttime construction activities on the project site would be limited to minor actions such as the following:

- Commissioning and maintenance activities to be performed when PV arrays are not energized
- Interior use of the operations and maintenance facility
- Unanticipated emergencies
- Special status species impact avoidance and minimization activities and research (e.g., giant kangaroo rat trapping and San Joaquin kit fox radio telemetry)
- Security patrols

No ground-disturbing activities (including grading, pile driving, and trenching) would take place at night. From 7 p.m. to 7 a.m., generators within 350 feet of the project boundary would not run at 100 percent load, or would be less than 40 dBA (A-weighted decibels) at the property line. No work would be completed during severe rainstorms unless it is required, such as in the case of an imminent threat to life, necessary sensitive species work, or a significant property or construction interest. A designated biologist or biological monitor would be present during all construction activities.

Construction activities would be permitted from sunrise to sunset (according to the times published by the National Oceanic and Atmospheric Administration), as early as 5:00 a.m. to as late as 9:00 p.m., depending on the time of year.

Site Preparation

Site preparation would mainly include preconstruction biological surveys, burrow excavation, special status species relocation, road construction, intermittent stream crossings, and stormwater BMPs implementation. Project grading requirements are anticipated to result in cut-and-fill activities with no

cubic yards of export. Aggregate would be imported for the perimeter roads and the substation.

Unless the PV array areas overlap with the graded area, no ground preparation such as disking, harrowing, or rolling of the land areas for array installation would be performed. For most of the project footprint, the ground under the PV arrays would not require grading or any land preparation, except for areas that are greater than five percent slope. Preparing the ground beneath PV arrays would begin by trimming vegetation, if required. Approximately 358 acres of the project footprint are expected to be graded.

Panel Assembly and Installation

Panel components, including the PV panels and racks, would be transported to the laydown areas by container truck. The steel rack assemblies would then be constructed at each power block location, and the PV panels would be lowered onto the racks with final fastening being performed at the power block.

A prefabricated racking system would arrive on-site to be assembled and grounded. Preassembled PV panels would arrive on-site and be placed in a staging area inside or on shipping containers. Panels would be put in place manually and secured to the rack according to vendor specifications. The rack would be populated with panels, wired in series, and connected to a DC combiner box, which would deliver DC power to the local inverters. Equipment used for system installation would include 4x4 forklifts, all-terrain vehicles, truck-mounted pile drivers, cranes, and pickup trucks.

Approximately 108 acres are planned for laydown and staging. Each laydown area would be at a convenient spot for construction traffic to access from existing roads. The laydown areas would require a power source for lighting, construction trailers, and parking. There would be no hazardous substances stored on-site outside of approved containment measures.

Substation Construction

The substation would be constructed by a contractor selected by the applicant, in accordance with its engineering, procurement, and construction contract specifications.

Construction Personnel

The workforce at the project would vary based on activity at the site during the course of construction. Nighttime activities would have crews of 20 to 50 worker, and daytime crews would range from 100 to 500. There would be no on-site temporary workforce housing, and employees would be prohibited from parking recreational vehicles or trailers.

Construction Traffic

All truck traffic and deliveries, along with approximately 40 percent of personal vehicle traffic, would enter the site from the north on Little Panoche Road. In

order to accommodate the increased daily traffic volume and decrease safety risks to personal traffic, the remaining personal vehicle traffic would enter the site from the west on Panoche Road. Material deliveries and other truck traffic would be limited to using Little Panoche Road. Construction of the project substation or underground utility road crossings may require temporary closure or partial closure of roadways around the project site.

Table 2-10 shows the estimated daily peak and average traffic conditions. **Table 2-11** shows the total project one-way trips and the average daily one-way trips by type of construction traffic.

Table 2-10
Estimated Daily Traffic

	Peak Trips	Average Trips
Employees	550	200
Employee daily trips	950	400
Assumed vehicle occupancy	1.2	1.2
Material delivery trips	200	120
Total daily trips	**1,150**	**520**

Table 2-11
Construction Traffic Specifications

Traffic Type	Total One-Way Trips	Average Daily One-way Trips	Trip Types[1]
Aggregate base material	10,000	15	Local
Backhaul excess cut	1,320	4	On-site
Water trucks, dust control	50,000	100	On-site
Concrete raw material	1,980	5	Local
PV panel delivery	2,250	20	Remote
Substation equipment	1,200	5	Remote
Electrical materials	3,300	15	Remote
Total	**70,050**	**164**	

[1]Local equals trips of 40 miles or less; remote equals trips of greater than 40 miles.

Personnel Traffic

The construction workforce for the project would vary based on activity at the site during the course of construction. Crews of 20 to 50 workers for nighttime activities and 100 to 500 for daytime crews are anticipated.

The origin and travel distance for workers are estimated as follows:

- 5 percent from Panoche Valley (up to 5 miles)
- 75 percent from Hollister area (approximately 45 miles)
- 20 percent from San Benito County, Santa Clara County, and Fresno County (up to 60 miles)

Delivery Traffic

Truck traffic generated by the proposed project would mainly be composed of trucks delivering solar panels, materials, and equipment to the site. A few trucks containing oversized loads would access the site but would be infrequent when compared to daily truck traffic.

Routes for trucks hauling materials and construction equipment would primarily follow the I-5 corridor to Little Panoche Road, allowing for safer travel by larger container trucks and wide-load trucks carrying heavy equipment.

Material delivery would include all components of the switching station, O&M building, fencing, PV panel components, inverters, and additional miscellaneous items. Material deliveries would originate at manufacturing sources in California and from shipping ports along California's coast. Materials are expected to be delivered via Interstate 5; smaller deliveries may arrive to the site via Hollister or via county roads. **Table 2-12** describes the delivery truck type for each project component.

Table 2-12
Delivery Truck Type by Project Component

Project Component	Truck Type
Solar panels	Standard width 53-foot van
Inverters	Standard width 48-foot flatbed trailer
Solar racking and support steel	Standard width 48-foot flatbed trailer
Transmission poles	Standard width 48-foot flatbed trailer
Substation steel	Standard width 48-foot flatbed trailer
Substation circuit breakers	Standard width 48-foot flatbed trailer
Substation transformers	48-foot lowboy trailer with pilot cars
Auxiliary substation equipment	Standard width 48-foot flatbed trailer
Crane (35-ton)	48-foot lowboy trailer with pilot cars
Crane (60- to 100-ton)	Wide-load self-propelled trucks with 2 jib companion flat beds
Aggregate	End or side dump semi or tandem/triple dump truck
Pre-manufactured concrete	Concrete mixer

Materials would be delivered throughout construction; much of the heavy construction equipment would be delivered to the site at the start of construction and would remain on-site for the duration of construction. **Table 2-11** describes the projected number of daily truck deliveries.

On-Site Vehicle Movement During Installation

<u>Vehicles Entering and Traversing the Site</u>

During installation, traffic would enter the site at the specified laydown areas. Vehicle operators would travel along Little Panoche Road and Panoche Road. **Table 2-13** describes construction vehicles and equipment that would generate emissions.

Table 2-13
Construction Vehicles and Equipment

Vehicle Traffic Use	Vehicle Type	Max Weight (lbs)	Max Power (hp)	Tread Type	Frequency of Use (hrs/day)	Quantity On-Site
On-road equipment (grading and travel on main roads)	Scraper	77,800	313	Dual axle	8	1
	Grader	30,000	174	Dual axle	6	1
	Dozer	44,582	357	Tractor	6	1
	Backhoe loader	13,046	108	Dual axle	8	1
	Roller	27,340	95	Dual axle	8	1
	4,000-gallon water truck	55,000	189	Triple axle	8	1
Off-road equipment (between PV power blocks and for panel installation)	Excavator	36,000	168	Tractor	8	4
	Roller	27,340	95	Dual axle	8	1
	Backhoe loader	13,046	108	Tractor	8	1
	Trencher	5,500	63	Dual axle	8	1
	Drill rig	55,000	291	Tractor	20	4
	Crane	28,800	399	Dual axle	8	1
	Forklifts	20,000	93	Dual axle	16-24	4
	Generators	n/a	549	N/a	8	Multiple
	Grader	10,000	174	Dual axle	6	1
	Plate compactor	n/a	8	Pad	8	2
	Pickup trucks	10,000	250	Dual axle	16-24	8
	Welders	n/a	45	n/a	8	2

[1]Generators to power the office complex would run 24 hours a day to power ice makers, refrigerators, and computer servers.

Roads that require a drainage crossing would be engineered to the specifications that allow for the weight of vehicles to cross without destabilizing the drainage areas. All reasonable efforts would be made to keep drainage crossings to a minimum.

2.5.5 Interconnection

Interconnection Studies

The California Independent System Operator (CAISO), the electricity grid operator in California, in combination with PG&E, the interconnecting utility, are responsible for ensuring grid reliability. These two entities are tasked with determining the transmission system impacts of the proposed project and any measures needed to ensure system conformance with utility reliability criteria.

The following interconnection studies have been completed for the project:

- Phase I 01/03/2012
- Phase II 11/05/2012
- Phase II Revised 01/17/2013
- Phase II Addendum #1 04/17/2013

- Phase II Addendum #2 05/29/2013
- Reassessment Study 09/18/2013
- Revised Reassessment Study 11/27/2013
- Large Generator Interconnection Agreement 01/09/2014

The applicant signed a large generator interconnection agreement with PG&E for the project in January 2014. This agreement confirms that the project's electricity output would be deliverable to the transmission grid; it also specifies the interconnection and network facilities that would be required to interconnect the project with the PG&E Moss Landing-Panoche 230 kV transmission line.

The applicant executed a power purchase agreement for the project in August 2014. Under this agreement, which is subject to approval by the California Public Utilities Commission, Southern California Edison is obligated to purchase and the applicant is obligated to deliver 247 MW_{AC} of power annually for 20 years beginning in 2019.

Interconnection Facilities

The proposed project would be interconnected through a loop-in from the project's switching station to the PG&E 230 kV transmission line that passes through the project site. The switching station would be constructed by the applicant, and ownership would be transferred to PG&E. The PG&E switching station would be known as the Las Aguilas Switching Station.

The primary interconnection facility for this project would be a switching station north of the existing PG&E transmission line on the project site. The switching station design details would be developed in consultation with PG&E. Four pairs of new tubular steel poles would be required: two pairs in the existing transmission right-of-way and one pair on either side of the PG&E switching station. There would be four temporary work areas to allow for construction of up to 12 approximately 135-foot-tall tubular steel poles. The exact number of TSPs would be defined once final design is complete; however, the number of poles would not exceed twelve.

All ground-disturbing work associated with the construction of the new tubular steel poles that would loop into the PG&E switching station would be performed within the project footprint. Before PG&E's installation of the tubular steel poles foundations, the applicant would perform all required clearances for biological resources. PG&E's tubular steel poles and their foundations would be installed only in areas where the ground has been prepared.

PG&E would also remove two lattice towers within the project footprint in the existing PG&E right-of-way. The tower foundations would be demolished to approximately three feet below grade. There would be an estimated three

transmission line structures approximately 80 feet high connecting the generation tie line from the project substation to the project switching station.

Network Upgrades

The measures that PG&E needs to undertake to ensure system conformance with utility reliability criteria are described in detail in **Section 2.5.8**, PG&E Telecommunications Upgrades.

2.5.6 Solar Project Operations and Maintenance

The entire project is expected to be fully operational by the end of 2016. The project would operate for at least 30 years, with the possibility of a subsequent repowering of the project for additional years of operation.

The proposed project would operate seven days a week during daylight. Operations would consist of monitoring system status, performance, and diagnostics from the control room in the O&M building. System production forecasting and scheduling with PG&E and CAISO would also occur in the O&M building, along with operational planning. Operations would include meter reading and production reporting by the SCADA system, along with updating O&M manuals.

Operational Personnel

The full-time staff of the project is expected to consist of a site manager, electrician, technician and maintenance/wash crew, and security personnel. The operations staff would consist of up to 50 persons once construction has been completed.

Security

The project would be fenced to ensure public safety and to protect equipment from theft and vandalism. Gates would be installed at all site access roads. The applicant would provide 24-hour security at the site, along with maintenance personnel capable of responding to any upset conditions or other emergencies. Security staff would routinely traverse the site in lightweight vehicles and all-terrain vehicles. The facility would be equipped with day/night closed-circuit security cameras and human-activated motion lighting.

Maintenance

Once installation is complete and the site is fully operational, all traffic would enter the site at the gates near the switching station location off Little Panoche Road, except during an emergency event where other access points may be utilized. The facility would be restricted to O&M staff and security personnel and authorized guests. The O&M staff would use light-duty vehicles and all-terrain vehicles for traversing the site.

The PV field would be inspected periodically for degraded wires, panels, and combiner boxes and for mechanical fastener tightening. The SCADA system would also identify areas that are underperforming. Damaged or

underperforming PV panels and mechanical fasteners would be replaced as required. Inverters would be checked twice annually for general component maintenance.

Water Use

During project operation, water would be used for sanitary facilities, fire suppression, and grazing livestock. In addition, to optimize performance of the proposed project, the PV panel surfaces may be washed up to twice annually during the dry season. The panel washing crew would traverse the site in a small all-terrain vehicle, which would be fitted with a trailer containing a water tank and pump to operate a high pressure sprayer.

Operational activities would require an estimated 2.84 acre-feet of water annually, based on the current project layout. Approximately 0.05 acre-feet (16,000 gallons) would be required for the O&M facilities and fire suppression. Potable water for the O&M facilities would be piped directly from the water well closest to the O&M facility. Sheep watering may require an estimated 0.35 to 0.56 acre-feet per year if there is enough forage to support grazing.

Lighting

During operation of the project, motion-sensor lighting would be used at the O&M building and substation. The lighting would consist of energy-efficient lamps that would be lit only when human activity is detected. Motion sensors would be set to avoid activation by animals. In addition to lighting, security cameras would be installed near the lighting to monitor activity. Constant low-level lighting would be required at the O&M building. This would include a single lamp source near the entrance of the building, which would be activated by a timer. All lighting would include a power switch to conserve energy when the lighting is not required.

All lighting would point downward, would be shielded to preserve dark skies, and would adhere to San Benito County's Lighting Ordinance (19.31.003-009).

2.5.7 Measures to Reduce Project Impacts

Applicant Proposed Measures

As part of the EIR process, the applicant proposed to implement specific measures to reduce the project's environmental impacts. These measures, summarized in **Table 2-14** below and described in detail in **Table C-1** in **Appendix C**, are considered part of the proposed project and are incorporated into the environmental impact analysis presented in **Chapter 3** of this EIS.

Table 2-14
Applicant Proposed Measures (APMs)

APM Number	Measure by Issue Area
	Aesthetics
APM AES-1	"Dulled" metal finish structures, and facility buildings painted in earth tones, will be used to reduce visual impacts where feasible.
APM AES-2	Construction Lighting
APM AES-3	Operation Lighting
	Agriculture
APM AG-1	Grazing sheep on the project site
APM AG-2	Allow grazing on lands covered by conservation easement created for biological resource mitigation
	Air Quality
APM AQ-1	All requirements of those entities having jurisdiction over air quality matters would be adhered to and any necessary permits for construction activities would be obtained. Open burning of construction trash would not be allowed.
APM AQ-2	The Applicant shall implement the BMPs to further reduce construction vehicle emissions (NOx, VOC, and Diesel Particulate Matter) during project construction
APM AQ-3	The Applicant shall reduce fugitive dust emissions during construction through implementation of the following best management practices to be shown on grading and building plans
	Biological Resources
APM BIO-1	All construction vehicle movement outside the project area would normally be restricted to pre-designated access, contractor acquired access, or public roads.
APM BIO-2	The areal limits of construction activities would normally be predetermined, with activity restricted to and confined within those limits. No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate survey or construction activity limits.
APM BIO-3	In construction areas where recontouring is not required, vegetation would be left in place wherever possible and original contour would be maintained to avoid excessive root damage and allow for regrowth.
APM BIO-4	Prior to construction, all supervisory construction personnel would be instructed on the protection of cultural and ecological resources.
APM BIO-5	Mitigation measures that will be developed during the consultation period under Section 7 of the Endangered Species Act will be adhered to as specified in the Biological Opinion of the US Fish and Wildlife Service.
APM BIO-6	Project boundary fencing will be constructed using chain link approximately 6 feet in height. The bottom of the chain link fencing will be elevated off the surface of the ground approximately 5-6 inches to allow for wildlife movement across the project site.
APM BIO-7	In construction areas where ground disturbance is significant or where recontouring is required, surface restoration would occur as required by the landowner or land management agency as part of decommissioning.

Table 2-14
Applicant Proposed Measures (APMs)

APM Number	Measure by Issue Area
APM BIO-9	Protocol surveys were completed for the entire Project Footprint, and additional preconstruction surveys will be completed within 30 days of ground disturbance for each construction area. Monitors will be present during construction activities.
APM BIO-11	The BNLL Protection Plan will be implemented at the site for construction activities.
APM BIO-12	Preserve Undisturbed Onsite Lands.
APM BIO-13	On-site Conservation Measures for Blunt-Nosed Leopard Lizard
APM BIO-14	Off-site Conservation Measures for Blunt-Nosed Leopard Lizard
APM BIO-15	On-site Conservation Measures for Giant Kangaroo Rat
APM BIO-16	Off-site Conservation Measures for Giant Kangaroo Rat
APM BIO-17	On-site Conservation Measures for San Joaquin Kit Fox
APM BIO-19	Off-site Conservation Measures for San Joaquin Kit Fox
APM BIO-20	Employee Education Program
APM BIO-21	List of Best Management Practices
APM BIO-22	Conduct a BNLL education program (e.g., tailgate briefing) for all project personnel
APM BIO-24	A biological monitor(s) shall be present while ground-disturbing activities are occurring
APM BIO-25	Biological monitors are empowered to order cessation of activities if take avoidance and/or mitigation measures are violated
APM BIO-27	The Applicant shall appoint a representative who will be the contact source for any employee or contractor who inadvertently kills or injures a BNLL or who finds a dead, injured, or entrapped individual BNLL
APM BIO-28	Any contractor, employee(s), or other personnel who inadvertently kills or injures a BNLL shall immediately report the incident to their representative
APM BIO-29	To prevent inadvertent entrapment of protected species, all open holes, steep-walled holes, or trenches more than 2 feet deep shall be covered at the close of each working day
APM BIO-30	All spills of hazardous materials shall be cleaned up immediately in accordance with the Spill Prevention Plan
APM BIO-31	Pets are prohibited at the PVSF
APM BIO-32	Firearms are prohibited at the PVSF
APM BIO-33	All food-related trash, such as wrappers, cans, bottles, bags, and food scraps shall be disposed of daily in containers with secure covers and regularly removed from PVSF
APM BIO-34	Use of rodenticides and herbicides in project areas is prohibited with the exception of those applied near buildings/critical facilities.
APM BIO-35	All project-related vehicles shall observe a speed limit of 15 mph or less on all except as posted on State and County highway/roads
APM BIO-36	Motorized vehicles are prohibited within occupied BNLL habitat
APM BIO-37	Appropriate measures shall be undertaken to prevent unauthorized vehicle entry to

Table 2-14
Applicant Proposed Measures (APMs)

APM Number	Measure by Issue Area
	off-road survey routes in sensitive habitat areas. Signing will be the preferred method to discourage use
APM BIO-38	Project vehicles shall be confined to existing access routes or to specifically delineated areas (i.e., areas that have been surveyed). Otherwise, off-road vehicle travel is not permitted.
APM BIO-39	Upon completion of any project component, all areas that are significantly disturbed and not necessary for future operations shall be stabilized to resist erosion, and re-vegetated and re-contoured if necessary, to promote restoration of the area to pre-disturbance conditions.
Cultural Resources	
APM CR-1	Prior to construction, all supervisory construction personnel would be instructed on the protection of any known or unknown cultural and paleontological resources
Geology	
APM GEO-2	In order to avoid expansive clay and mitigate possibly disturbed surface soil, overexcavation of building and equipment pads will be considered as required by the geotechnical report.
Noise	
APM N-1	Compliance with the San Benito County's noise standards
Hazards and Hazardous Materials	
APM HAZ-1	Hazardous materials storage requirements
APM HAZ-2	Prior to construction and mounting of the PV panels, each panel will be checked for cracks or other defects to avoid the possible exposure of toxic metals on the surface
APM HAZ-3	Sheep grazing under the panels will help to keep pasture growth controlled, as necessary.
APM HAZ-4	The applicant shall ensure that any animals grazing on the site during construction activity pursuant to a lease or other agreement shall be properly vaccinated in accordance with local custom and practice for San Benito County and Panoche Valley.
APM HAZ-6	Prior to energizing the project, the Applicant will install electrical safety signage on all solar arrays in the immediate vicinity of wiring and electrical equipment using weather-resistant and fade-proof materials as required by applicable electrical code
APM HAZ-7	The Applicant proposes to decommission the site at the end of the useful life of the project
Population and Housing	
APM PH-1	At least thirty days prior to commencing construction, the Applicant will provide construction contractors with information, including general information on the facility, telephone numbers, addresses and contact information, on temporary housing opportunities
Public Services and Facilities	
APM PSU-1	If damaged or destroyed by construction activities, fences and gates would be repaired or replaced to their original pre-disturbed condition as required by the

Table 2-14
Applicant Proposed Measures (APMs)

APM Number	Measure by Issue Area
	applicable landowner or the land management agency
APM PSU-2	During operation of the solar farm, the project site would be maintained free of trash
APM PSU-3	During construction and operation of the solar farm, all disposable materials that are considered recyclable shall be separated and properly recycled or reused
APM PSU-4	Hazardous materials shall not be drained onto the ground or into streams or drainage areas
	Water Resources
APM WR-1	Water facilities would be repaired or replaced to their pre-disturbed condition
APM WR-2	In construction areas where ground disturbance is significant or where recontouring is required, surface restoration would occur as required by the landowner or land management agency as part of project decommissioning
APM WR-3	Roads would be built as near as possible to right angles to the streams and washes or as required by project permits
APM WR-4	The Applicant would limit the panel washing to two washings per year

EIR Mitigation Measures

The EIR (2010) and supplemental EIR (2015) prepared by San Benito County for the Panoche Valley Solar Facility identified additional mitigation measures to reduce the impact of the proposed project on the natural and human environment. These measures, summarized in **Table 2-15** below and described in detail in **Table C-2** in **Appendix C**, were adopted as conditions of approval by San Benito County in the conditional use permitting process. Therefore, these measures are also considered part of the applicant's proposed project and are incorporated in the environmental impact analysis presented in **Chapter 3** of this EIS.

Table 2-15
EIR Mitigation Measures

Mitigation No.	Measure by Issue Area
	General
EM-1	Provide funding for environmental monitoring
EM-2	Provide documentation for monitoring
	Aesthetics
AE-1.1	Reduce night lighting impacts
BR-G.3	Develop and implement a Habitat Restoration and Revegetation Plan
AE-3.1	Treat surfaces of project structures and buildings, Develop Treatment Plan, Report to San Benito County

Table 2-15
EIR Mitigation Measures

Mitigation No.	Measure by Issue Area
	Agriculture
BR-G.3	Development and implementation of a Habitat Restoration and Revegetation Plan
BR-1.2	Develop and implement a Grazing Plan for the project site
BR-G.5	Create permanent conservation easements as compensation for impacts to biological resources
BR-G.6	Develop and implement Habitat Mitigation and Monitoring Plan for mitigation lands
AG-2.1	Create agricultural conservation easement(s)
LU-1.1	Establish construction liaison
LU-1.2	Provide advance notification of construction
LU-1.3	Provide quarterly construction updates
AQ-1.1	Reduce fugitive dust
BR-1.1	Prepare and implement a Weed Control Plan
BR-1.2	Develop and implement a Grazing Plan for the project site
BR-G.5	Create permanent conservation easements as compensation for impacts to biological resources
WR-1.1	Groundwater Monitoring and Reporting Plan
WR-1.2	Aquifer Testing and Well Interference Analysis
WR-6.1	Accidental spill control and environmental training
WR-6.2	Store fuels and hazardous materials away from sensitive water resources
WR-6.3	Maintain vehicles and equipment
	Air Quality
AQ-1.1	Reduce fugitive dust
AQ-1.2	Designate a dust complaint monitor
	Biological Resources
BR-G.1	Implement a Worker Environmental Education Program
BR-G.2	Implement Best Management Practices (BMPs)
BR-G.3	Develop and implement a Habitat Restoration and Revegetation Plan, Soil Restoration Plan, Plant Restoration and Revegetation Plan, and a Monitoring Plan
BR-G.4	Implement biological monitoring of construction activities
BR-G.5	Create permanent conservation easement(s) as compensation for impacts to biological resources
BR-G.6	Develop and implement Wetland Mitigation and Monitoring Plan and Habitat Management Plan for mitigation lands
BR-1.1	Prepare and implement a Weed Control Plan
BR-1.2	Develop and implement a Grazing Plan for the project site
AQ-1.1	Reduce fugitive dust

Table 2-15
EIR Mitigation Measures

Mitigation No.	Measure by Issue Area
BR-3.1	Conduct pre-construction surveys for State and Federally Threatened, Endangered, Proposed, Petitioned, and Candidate plants and implement avoidance measures
BR-6.1	Conduct pre-construction surveys for nesting and breeding birds and implementation of avoidance measures
BR-7a.1	Impacts to all potential breeding habitat for western spadefoot toad shall be avoided to the extent feasible
BR-7a.2	Conduct pre-construction surveys for San Joaquin coachwhip and coast horned lizard and implement avoidance measures
BR-7b.1	Conduct pre-construction surveys for non-breeding birds designated as California Species of Special Concern
BR-7c.1	Conduct pre-construction surveys for short-nosed kangaroo rat, San Joaquin pocket mouse, and Tulare grasshopper mouse and implementation of avoidance measures
BR-8.2	Avoid disturbance to ephemeral pools occupied by vernal pool fairy shrimp to the maximum extent practicable, and mitigate for any unavoidable impacts
BR-8.3	Avoid seasonal depressions and known waterbodies
BR-9.1	Conduct pre-construction surveys for California tiger salamander and implement avoidance measures
BR-10.1	Conduct pre-construction surveys for blunt-nosed leopard lizard, implement avoidance measure and implement protective procedures if a blunt-nosed leopard lizard is detected on the project site, establish movement corridors to allow movement of isolated blunt-nosed leopard lizards to and from areas of greater population density.
BR-12.2	Avoid and report California condors
BR-13.1	Focused pre-construction burrowing owl surveys and implementation of avoidance measures
BR-14.1	Implement Avian Power Line Interaction Committee guidelines (APLIC)
BR-14.2	Prepare and Implement an Avian Conservation Strategy and Eagle Conservation Plan
BR-15.1	Survey pre-construction maternity colony or hibernaculum for sensitive bats
BR-15.2	Provide substitute roosting habitat
BR-15.3	Exclude bats prior to eviction from roosts
BR-15.4	Implement management recommendations at known bat roosts
BR-16.1	Conduct focused pre-construction giant kangaroo rat burrow/precinct surveys and avoid
BR-16.2	Minimize impacts of foundation support installations
BR-17.1	Conduct pre-construction San Joaquin antelope squirrel surveys and implement avoidance measures
BR-18.1	Conduct focused pre-construction surveys for American badger surveys and implementation of avoidance measures
BR-19.1	Conduct focused pre-construction San Joaquin kit fox surveys and implementation of avoidance measures

Table 2-15
EIR Mitigation Measures

Mitigation No.	Measure by Issue Area
BR-22.1	Fence temporary pond to exclude wildlife
BR-23.1	Create conservation easement on all project areas retired from the development footprint
BR-16.3	Preserve, manage, and maintain giant kangaroo rat habitat corridors across the project footprint
Cultural and Paleontological Resources	
CR-2.1	Conduct cultural resource monitoring during construction
CR-2.2	Treat previously unidentified archaeological resources discovered during construction
CR-2.3	Inadvertent discovery of human remains
CR-2.4	Implement workers environmental awareness program
PA-1.1	Implement site-specific paleontological recovery
PA-1.2	Monitor grading and excavation for unknown and accidentally discovered paleontological resources
Geology, Mineral Resources, and Soils	
GE-4.1	Implement Geotechnical Report recommendations
Hazards and Hazardous Materials	
HZ-5.1	Cease work during Red Flag Warning
PS-1.1	Develop and implement service agreement with San Benito County Fire Department
HZ-7.1	Prohibit standing water
HZ-7.2	Protect Workers and Public from Valley Fever
Land Use and Recreation	
LU-1.1	Establish construction liaison
LU-1.2	Provide advance notice of construction
LU-1.3	Provide quarterly construction updates
Noise	
NS-1.1	Shield construction staging areas
NS-1.2	Implement noise-reducing features and practices for construction noise
NS-1.3	Provide advance notice of construction
NS-1.4	Limit pile driving activities
BR-16.2	Minimize impacts of foundation support installations
NS-2.1	Limit decommissioning activities to daytime
NS-4.1	Locate PV inverters and transformers away from the project's property line
NS-5.1	Limit panel washing activities
Public Services, Utilities, and Service Systems	
PS-1.1	Develop and implement service agreement with firefighting entities

Table 2-15
EIR Mitigation Measures

Mitigation No.	Measure by Issue Area
	Transportation and Circulation
TR-1.1	Prepare and implement Traffic Control Plan
TR-1.2	Rehabilitate, protect and monitor roadway pavement, bridges and culverts
TR-1.3	Repair roadway damage
TR-1.4	Ensure Traffic Safety
	Water Resources
WR-1.1	Groundwater Monitoring and Reporting Plan
WR-1.2	Aquifer Testing and Well Interference Analysis
WR-6.1	Accidental spill control and environmental training
WR-6.2	Store fuels and hazardous materials away from sensitive water resources
WR-6.3	Maintain vehicles and equipment

2.5.8 Mitigation Lands

The applicant has proposed on-site and adjacent off-site mitigation lands to address the proposed project's impacts on biological and grazing resources. Within and next to the project footprint, 2,514 acres would consist of undeveloped Valley Floor Conservation Lands. The adjacent off-site mitigation lands, depicted on **Figure 2-5**, consist of the following two areas:

- The 10,772-acre Valadeao Ranch, which is north, northwest, and east of the project site
- The 10,890-acre Silver Creek Ranch, which is southeast of the project site

The Silver Creek Ranch was specifically identified by the USFWS in its Recovery Plan for Upland Species of the San Joaquin Valley (1998) as an area with high habitat value for many of the special status species covered by the plan.

On-site and off-site mitigation lands would be preserved in perpetuity, in accordance with conservation easements to be developed in coordination with county, state, and federal resource agencies, including the CDFW and USFWS.

The management actions on conservation lands proposed by the applicant in the biological assessment it submitted to the USFWS include the following:

- The perimeter of the conservation lands will be fenced to exclude unauthorized access. If new fencing is installed, it will be designed with at least three-strand barbed wire, with a fourth bottom strand of smooth wire at least eight inches above the ground. The fencing design, which should be consistent with local BLM guidelines, would

reduce potential injury to wildlife and clarify Conservation Land boundaries to the public. Signs should be placed on boundary fencing next to public roads or property accessible by the public at 150- to 500-foot intervals. These signs would state that entry without access permission is prohibited and that the lands are protected.

- Litter and illegally dumped wastes should be removed from the property in the first year of establishing the conservation easement, and at least annually thereafter. The initial cleanup areas will include at least the sites identified during the initial baseline survey.
- Any previously disturbed areas that are not needed for long-term maintenance, landowner or lessee access, grazing, or other uses should be restored to blend into the surrounding habitat. A revegetation specialist with experience restoring western San Joaquin Valley plant communities will assess individual sites to determine restoration methods and appropriate planting procedures and species. If restoration is determined to be warranted, methods will follow the habitat restoration and revegetation that has been developed for the site.
- Actions will be implemented that facilitate regional connectivity for the special status species by enhancing corridors and connected portions of the conservation lands. Implementation will include habitat enhancement and restoration of former agricultural lands in the conservation lands and minimization of new roads and facilities near "pinch points" in the connected conservation lands and adjacent protected properties.
- A sufficient population level of special status species should be provided, on average over the long term, to fully mitigate for the numbers taken during project construction. When needed, habitat should be enhanced to increase population levels, as described below; are at minimum, these would be the number of species taken during project construction.

Specific requirements for maintaining the conservation lands are included in the conservation management plan, habitat management plan, habitat restoration and revegetation plan, and noxious weed and invasive plant control plan. These plans are considered part of the proposed project evaluated in **Chapter 3** of the EIS.

2.5.9 PG&E Telecommunications Upgrades

CAISO, the electricity grid operator in California, in combination with PG&E, the interconnecting utility, are responsible for ensuring grid reliability. They determine the transmission system impacts of the proposed project and any measures needed to ensure system conformance with utility reliability criteria.

CAISO, in coordination with PG&E, conducted an interconnection reassessment study dated September 18, 2013, and a revised study dated November 27, 2013,

in accordance with CAISO Tariff Appendix DD, Generator Interconnection and Deliverability Allocation Procedures. The studies identified system upgrades necessary to support interconnection of the project to the electrical grid; these upgrades, shown on **Figure 2-13**, PG&E Telecommunication Network Upgrades, would provide primary and secondary telecommunication services to allow for data transmission between the project and the electrical grid. **Figure 2-14** shows the interconnection facilities between the proposed project and the existing transmission line.

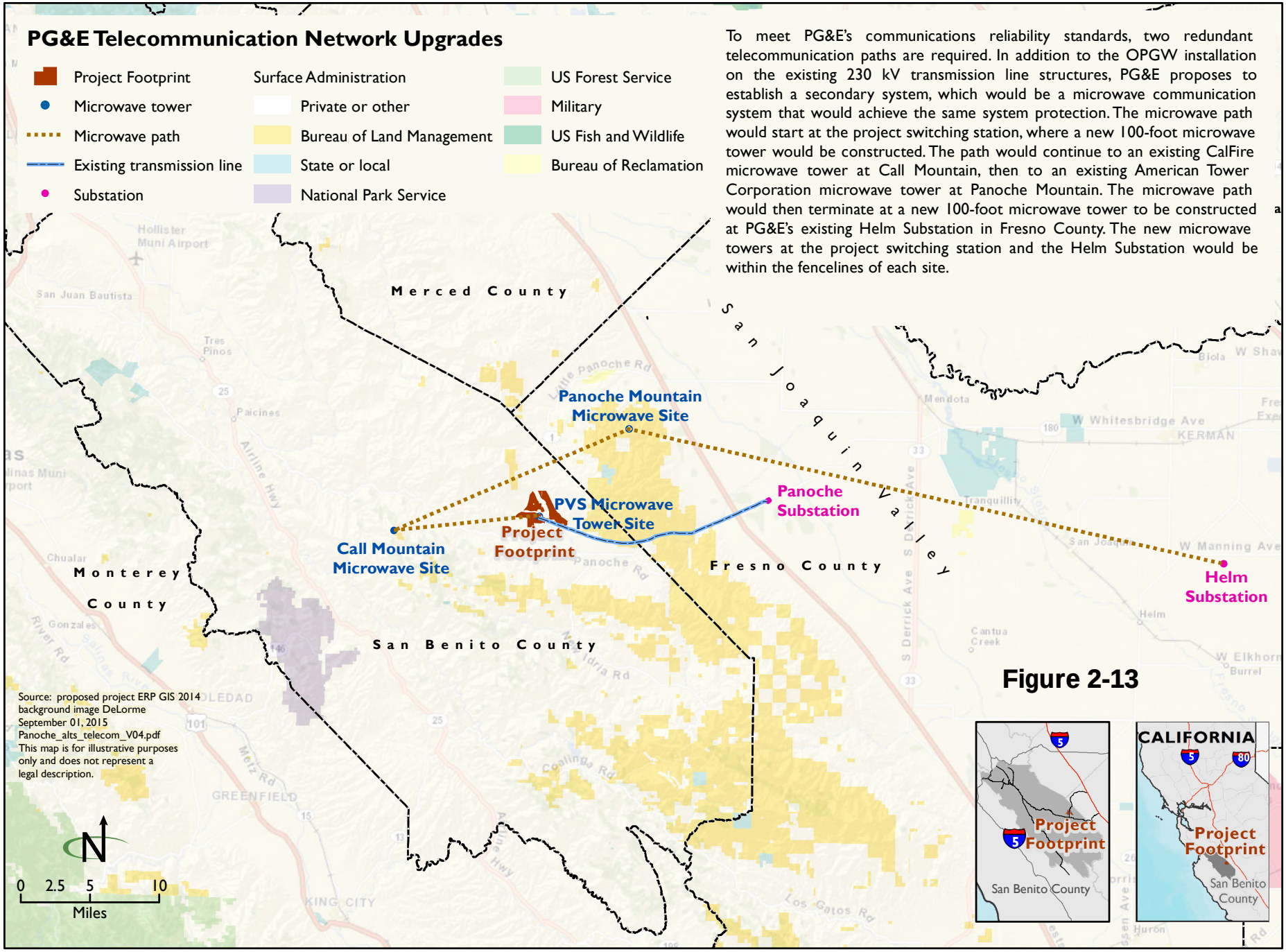
PG&E Primary Telecommunication Upgrades (Optical Ground Wire)

PG&E proposes to install new optical ground wire (OPGW) along 17 miles of its existing Panoche-Moss Landing 230 kV transmission line, between the new substation on the project site and the existing PG&E Panoche Substation in Fresno County. Where the existing 230 kV transmission line crosses under two existing 500 kV transmission lines about 1.5 miles west of the I-5 crossing, PG&E would install All-Dielectric Self-Supporting (ADSS) fiber for approximately 4,650 feet on approximately twelve existing wood distribution poles located to the north of the 230 kV transmission line. OPGW and ADSS would provide telecommunications services between electrical substations and generating facilities or other substations and would provide the primary telecommunication service for the proposed project.

The OPGW would replace the existing shield wire in the transmission line. It would be installed on the existing transmission line towers, which would require minimal modification. OPGW performs the same function as shield wire, which is to protect the line by providing a path to ground, as well as containing optical fibers that can be used for telecommunications.

Of the 17 miles of shield wire that would be replaced with OPGW, about 7 miles are in San Benito County and 10 miles are in Fresno County. About 6 miles of the line (in both Fresno and San Benito Counties) are on federal lands administered by the Bureau of Land Management (BLM); this portion of the transmission line corridor runs through the Panoche Hills east of the project site and west of Interstate 5, south of the Panoche Hills South Wilderness Study Area. Work in this area requires an SF-299 right-of-way permit from the BLM. PG&E has submitted an application for this permit, and the BLM is currently processing the application.

PG&E would also have telecommunications between the Moss Landing, Coburn, and Panoche Substations and the project. These substations are shown on the map inset of **Figure 2-13**. In addition to installing OPGW from the Panoche substation, PG&E would use power line carrier (PLC) and leased line systems to connect the remaining two substations at Moss Landing and Coburn; implementing these systems would involve minor modifications to the switchyards at Moss Landing and Coburn substations. All modifications would occur within the fence line of the existing disturbed substations.



To meet PG&E's communications reliability standards, two redundant telecommunication paths are required. In addition to the OPGW installation on the existing 230 kV transmission line structures, PG&E proposes to establish a secondary system, which would be a microwave communication system that would achieve the same system protection. The microwave path would start at the project switching station, where a new 100-foot microwave tower would be constructed. The path would continue to an existing CalFire microwave tower at Call Mountain, then to an existing American Tower Corporation microwave tower at Panoche Mountain. The microwave path would then terminate at a new 100-foot microwave tower to be constructed at PG&E's existing Helm Substation in Fresno County. The new microwave towers at the project switching station and the Helm Substation would be within the fencelines of each site.

Figure 2-13

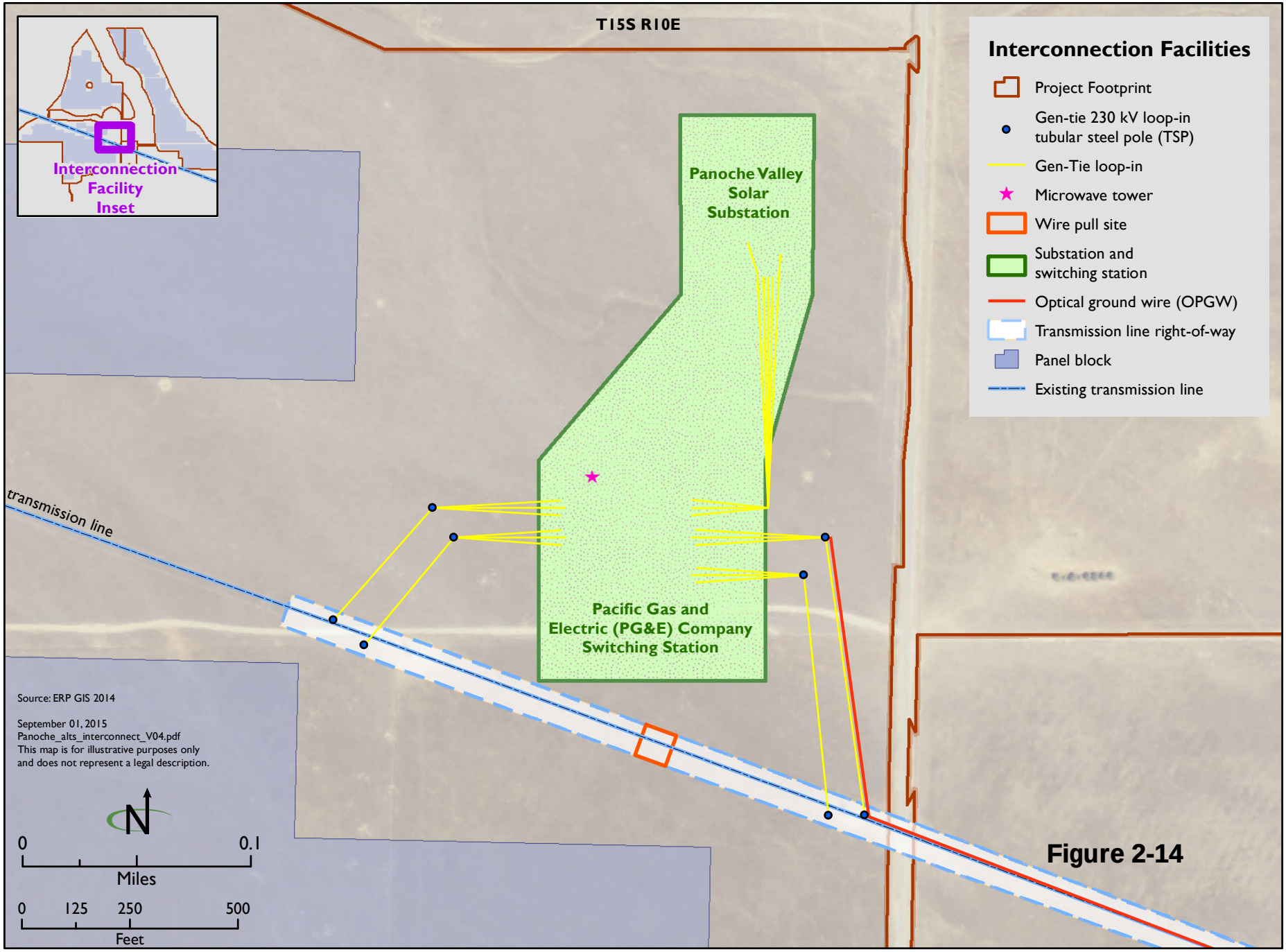

T15S R10E
Interconnection Facilities
Project Footprint
Gen-tie 230 kV loop-in tubular steel pole (TSP)
Gen-Tie loop-in
Microwave tower
Wire pull site
Substation and switching station
Optical ground wire (OPGW)
Transmission line right-of-way
Panel block
Existing transmission line
Interconnection Facility Inset
Panoche Valley Solar Substation
Pacific Gas and Electric (PG&E) Company Switching Station
transmission line
Source: ERP GIS 2014
September 01, 2015
Panoche_alts_interconnect_V04.pdf
This map is for illustrative purposes only and does not represent a legal description.
N
0
0.1
Miles
0
125
250
500
Feet

Figure 2-14

Construction

PG&E proposes to replace the shield wire and install the OPGW on the north side and at the top of the 230 kV towers. The OPGW comes on reels that hold approximately 23,000 feet of cable, so an estimated 12 temporary pull/reel and splice sites would be established along the existing 17-mile transmission line corridor. Each splice and pull/reel site would require an approximate 75-foot by 75-foot work area between the tower sites within the existing transmission corridor right-of-way.

The OPGW installation would be completed in approximately 12 to 16 weeks; at any one location the construction would take between 2 and 3 weeks. Existing roads and access along the transmission line would be used to install the OPGW, and PG&E would use the same methods when maintaining the electrical system.

The locations of the pull/reel sites have been identified through a combination of helicopter and ground surveys and a review of aerial imagery. The criteria used in selecting the final pull/reel sites were as follows:

- Accessibility for vehicles
- Presence of flat or nearly flat land next to existing transmission line route for equipment set-up
- Existing land use
- Absence of or minimal habitat for sensitive species
- Absence of resources that would restrict work

Preparation of the temporary pull/splice sites would require some minor ground disturbance. Minor structural modifications would also be made to each of the transmission towers to allow splice boxes to be mounted where the sections of OPGW would be spliced (every three to five miles). The pull/reel sites and transmission towers would be accessed generally along existing unimproved roads or improved unsurfaced or surfaced roads that lead to many of the towers; no new roads would be constructed. Helicopters would be used to place materials at the point of installation for towers inaccessible by road.

At each of the 75 existing towers along the 17-mile 230 kV transmission line route, minor upgrades to the steel attachments would be required to accommodate installation of the OPGW. These upgrades would include only overhead work on the existing tower, such as replacing the gode peaks with a pulley to accommodate the OPGW. The existing static wire would then be used to pull the new OPGW through each tower pulley. Existing roads or helicopters would be used to provide access to the sites to fashion the attachments needed on each tower.

Construction would be completed using a combination of helicopter and ground crews. Helicopters would be used to transport electrical workers to the towers, to deliver materials, and to assist in pulling the OPGW from tower to tower. Approximately four 150-foot by 100-foot landing zones would be constructed approximately every five miles using means similar to pull sites. Establishing these landing zones would involve minimal temporary ground disturbance, and the zones would facilitate the use of helicopters and reduce overall impacts associated with the work. Landing zones would primarily be used for staging materials, picking up and transporting electrical personnel and equipment, and refueling helicopters.

Temporary guard structures. Overhead crossings of public roadways or existing transmission or distribution lines would require the use of approximately eleven temporary guard structures at seven crossings. The structures would be designed to prevent tools or materials from falling into the roadway or utility. Guard structures typically consist of two to four wooden poles and cross beams attached between the poles. They are generally installed in pairs with a net strung between them, but in some cases a net would not be required. A PG&E line truck would be used to auger and set the wooden poles. For roadway crossings, the temporary poles would be placed in or next to the disturbed road shoulder in an approximately 75-foot by 75-foot area. No grading or vegetation removal is anticipated during installation of the guard structures. Guard structure poles would be removed following OPGW installation, and the holes would be backfilled.

Crossing of 500 kV lines. The existing 230 kV transmission line crosses under two existing 500 kV transmission lines, about 1.5 miles west of the Interstate 5 crossing. At this crossing, PG&E would splice in all-dielectric self-supporting (ADSS) fiber optic cable from the 230 kV towers to the east and west sides of the 500 kV transmission line corridor and then attach the ADSS to wood poles. The ADSS would replace the OPGW for this 4,650-foot section.

To support the added weight of the ADSS, PG&E would replace twelve wood poles with twelve new wood poles in the same locations. These poles are within the PG&E right-of-way on agricultural land. To replace the poles, a 30-foot by 40-foot work area would be required to accommodate one crew truck and a trailer truck to bring each pole to the site and a line truck to auger a hole about eight feet deep and two feet wide. In addition, ADSS would be trenched from the easternmost 230 kV tower along an existing dirt road to the first distribution pole location.

Site Disturbance

Table 2-16 summarizes the total ground disturbance associated with the proposed PG&E primary telecommunications upgrades.

Table 2-16
Primary Telecommunications Site Disturbance

Work Area Description	Total Impact (acres)
Temporary pull/splice sites (12–75 feet x 75 feet)	1.54
Temporary landing zones (4–150 feet x 100 feet)	1.38
Temporary guard structures (11–75 feet x 75 feet)	1.42
Wood pole temporary work areas (12–30 feet x 40 feet)	0.36
ADSS underground temporary work area (1,200 feet x 37.5 feet)	1.03
Total	**5.73 acres**

PG&E would implement avoidance and minimization measures for sensitive species and their habitat, as required by a state incidental take permit (SITP) approved by the CDFW and the project's biological opinion issued by the USFWS.

PG&E Secondary Telecommunication Upgrades (Microwave System)

To meet PG&E's communications reliability standards, two redundant telecommunication paths are required. In addition to the OPGW installation on the existing 230 kV transmission line structures, PG&E proposes to establish a secondary system, which would be a microwave communication system that would achieve the same system protection.

The microwave path would start at the project switching station, where a new 100-foot microwave tower would be constructed. The path would continue to an existing CAL FIRE microwave tower at Call Mountain, then to an existing American Tower Corporation microwave tower at Panoche Mountain. The microwave path would then terminate at a new 100-foot microwave tower to be constructed at PG&E's existing Helm Substation in Fresno County (see **Figure 2-13**). The new microwave towers at the project switching station and the Helm Substation would be within the fence lines of each site. The proposed tower at the project switching station would be a self-supporting, three-legged Valmont tower, while the proposed tower at Helm Substation would be a self-supporting, four-legged Valmont tower (see **Figure 2-15**).

A Federal Aviation Administration (FAA) study, if required, would be performed before construction of the microwave towers to determine appropriate lighting to comply with FAA requirements. PG&E would comply with the Federal Communications Commission (FCC) approval process and FAA filings and approval, including installing FAA-lights on the microwave towers, as required.

Construction

Distribution power already exists at microwave tower sites, so no new poles would be installed to provide power. In addition, existing roads would be used to access the proposed microwave tower sites, so no new roads would be constructed to bring equipment and materials to the work site.

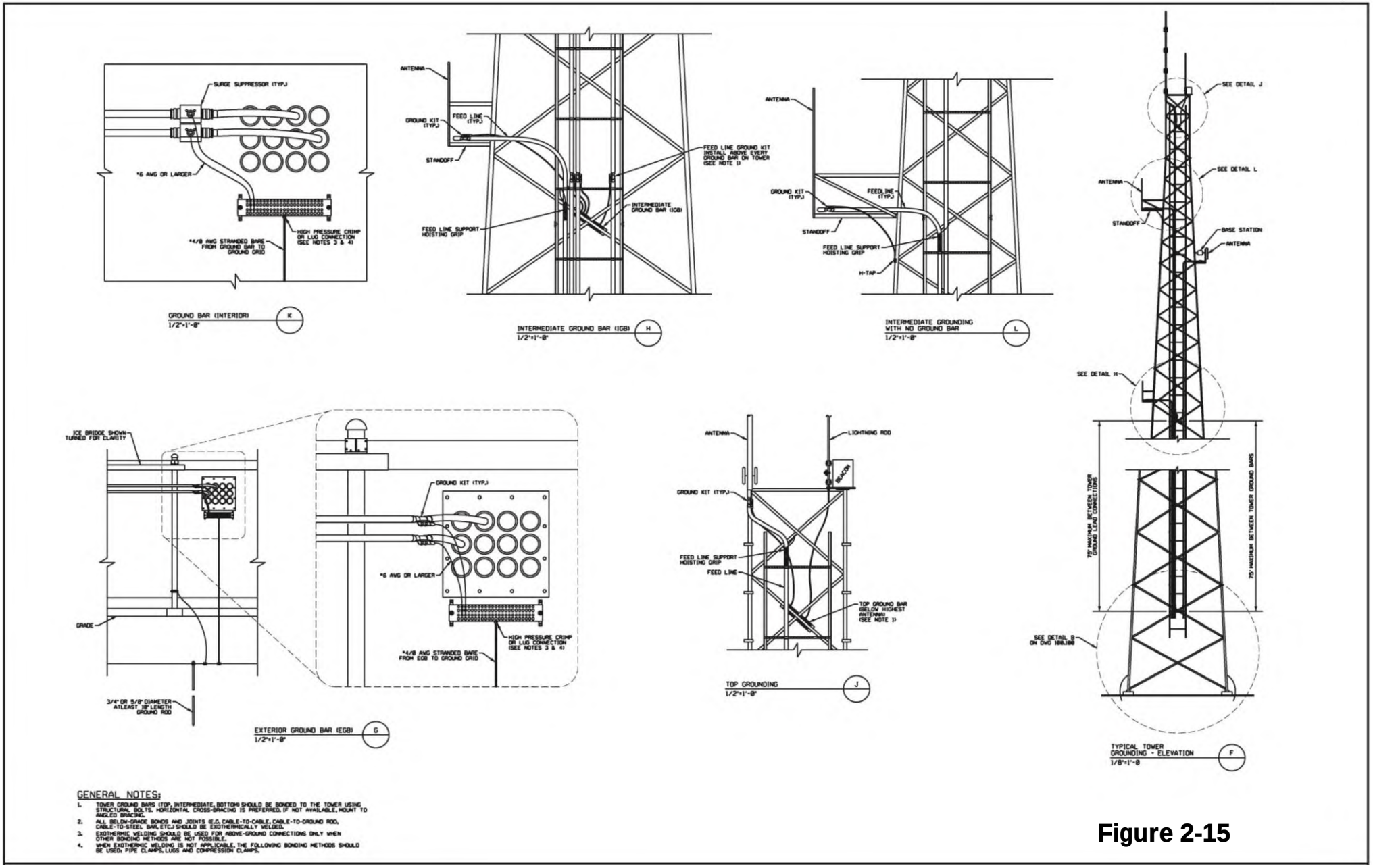


Figure 2-15

Microwave Tower Design

Site Disturbance

Table 2-17 summarizes the total ground disturbance associated with the PG&E secondary telecommunications upgrades.

Table 2-17
Secondary Telecommunications Site Disturbance

Work Area Description	Total Impact
Microwave site permanent work area for new towers (2–100 feet x 100 feet)	0.46 acre
Microwave Towers (2–100 feet x 100 feet)	0.46 acre
Total	**0.92 acre**

Avoidance and Minimization Measures

PG&E has committed to avoidance and minimization measures during construction for the proposed telecommunication network upgrades. These measures are summarized in **Table 2-18** below and contained in **Table C-3** in **Appendix C**.

Table 2-18
PG&E Avoidance & Minimization Measures (AMMs)

AMM Number	Measure by Issue Area
	Aesthetics
AMM AES-1	Treat structure surfaces
	Air Quality
AMM AQ-1	Minimize fugitive dust
AMM AQ-2	Limit equipment idling
	Biological Resources
AMM BR-PGE-1	Worker Environmental Training
AMM BR-PGE-2	Park vehicles and equipment in disturbed areas
AMM BR-PGE-3	Work during daylight hours
AMM BR-PGE-4	Minimize disturbance from vehicle access
AMM BR-PGE-5	Implement a speed limit
AMM BR-PGE-6	Trash dumping, firearms, open fires, hunting, and pets will be prohibited at the work activity sites.
AMM BR-PGE-7	Fire prevention
AMM BR-PGE-8	Fire prevention during “red flag” conditions
AMM BR-PGE-9	Restoration and erosion control
AMM BR-PGE-10	Special-status amphibians and reptiles
AMM BR-PGE-11	Avoid giant kangaroo rat and San Joaquin antelope squirrel
AMM BR-PGE-12	Avoid San Joaquin kit fox and American badger dens if possible
AMM BR-PGE-13	Exclusion zones for blunt-nosed leopard lizard
AMM BR-PGE-14	Report dead or injured listed species
AMM BR-PGE-15	Exclusion zones for special-status plants.

Table 2-18
PG&E Avoidance & Minimization Measures (AMMs)

AMM Number	Measure by Issue Area
AMM BR-PGE-16	Conduct preconstruction surveys for active Swainson's hawk nests and implement avoidance measures if necessary
AMM BR-PGE-17	Conduct preconstruction surveys and avoidance of active western burrowing owl burrows
AMM BR-PGE-18	Wetland and Other Waters Avoidance and Minimization
Cultural Resources	
AMM CR-1	Pre-construction worker cultural resources training
AMM CR-2	Cultural resource avoidance
AMM CR-3	Cultural construction monitoring
AMM CR-4	Unanticipated discoveries of cultural resources
AMM CR-5	Unanticipated discovery of human remains
Hazards	
AMM HAZ-1	Proper storage and disposal of waste and hazardous materials
AMM HAZ-2	Curtail work during red flag conditions
AMM HAZ-3	Fire season preparedness
AMM HAZ-4	Reduce Risk for Valley Fever
Transportation and Circulation	
AMM TR-1	Develop and Implement Traffic Control Plan
Water Resources	
AMM WR-1	Hazardous material spill prevention and response plan

PG&E would implement measures where practicable and physically possible and where they will not conflict with other regulatory obligations or safety considerations; work activities will be prohibited or greatly restricted within restricted activity zones. However, vehicle operation on existing roads and foot travel will be permitted. A qualified biologist will monitor the work activities near flagged exclusion and restricted activity zones. Within 60 days after work activities have been completed at a given worksite, all staking and flagging will be removed.

2.6 ALTERNATIVE B (ON-SITE ALTERNATIVE)

Under Alternative B, the applicant would construct the proposed Panoche Valley Solar Facility and PG&E would perform primary and secondary telecommunication network upgrades (see **Section 2.5**). Applicant-proposed measures, mitigation measures developed through the San Benito County EIR process, and avoidance and minimization measures proposed by PG&E for telecommunication network upgrades described in **Section 2.5** would be part of the action evaluated under Alternative B.

Emergency egress and access roads for the project would cross Panoche Creek, Las Aguilas Creek, and three unnamed drainages on the eastern side of the project footprint that are subject to permitting under Section 404(b)(1) of the Clean Water Act. **Figure 2-8** shows the locations of these features.

2.6.1 Panoche Creek and Las Aguilas Creek Crossings

Under Alternative B, the applicant would use multi-span bridges to cross Las Aguilas Creek and Panoche Creek. Whereas a single-span bridge design is anchored only at either end of the bridge and does not have any supports beneath its span, a multi-span bridge design uses one or more intermediate supports between its two ends. This allows a multi-span bridge to span greater distances. The multi-span bridge designs proposed under Alternative B are shown on **Figure 2-16** and **Figure 2-17**. The proposed span lengths and area impacted by each of the crossings are described in **Table 2-19**.

The multi-span bridges would have abutments near the top of the stream banks and support footings in the ephemeral stream channel (see **Figure 2-16** and **Figure 2-17**). The multi-span bridges would disturb streambed and stream bank habitat during construction from excavation and from concrete foundation installation and equipment. Minimal excavation would be required for abutments and disturbance in the creek channel during footing installation. All construction equipment would operate from the proposed access road footprint except during the installation of the center footing.

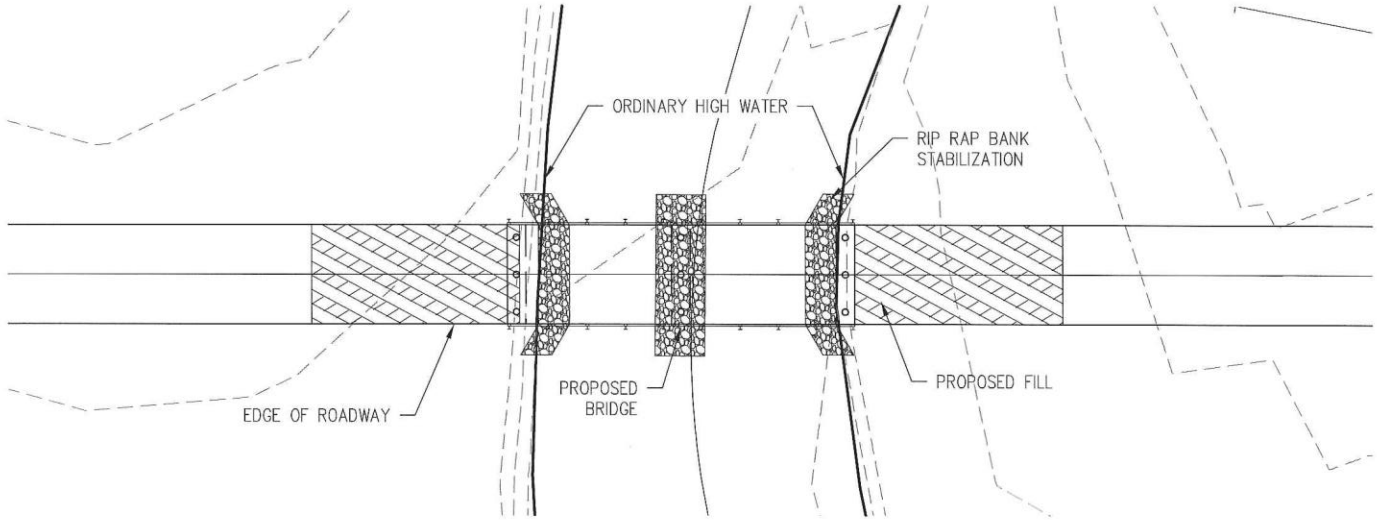
The multi-span bridges would be designed to have minimal backwater rise from a 100-year storm at Las Aguilas Creek or Panoche Creek. They also would be designed to provide maximum water conveyance through the site. Riprap or other bank armament would be installed along the footing installations to prevent erosion or scouring along and behind the footings. This would ensure that the bridges are available for use by emergency personnel at all times, including during and immediately after high water flows.

Installation of the multi-span bridges would permanently disturb approximately 0.002 acre within the OHWM of the Las Aguilas Creek and approximately 0.002 acre within the OHWM of Panoche Creek. Placing fill for the two bridges would permanently disturb upland habitat of approximately 2,280 square feet (0.05 acre). The bridge construction would temporarily disturb adjacent upland areas during construction.

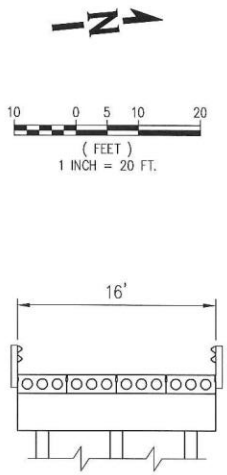
No waters of the U.S. would need to be filled for electrical cables in the multi-span design because the project would use overhead cables.

2.6.2 Drainage Crossings

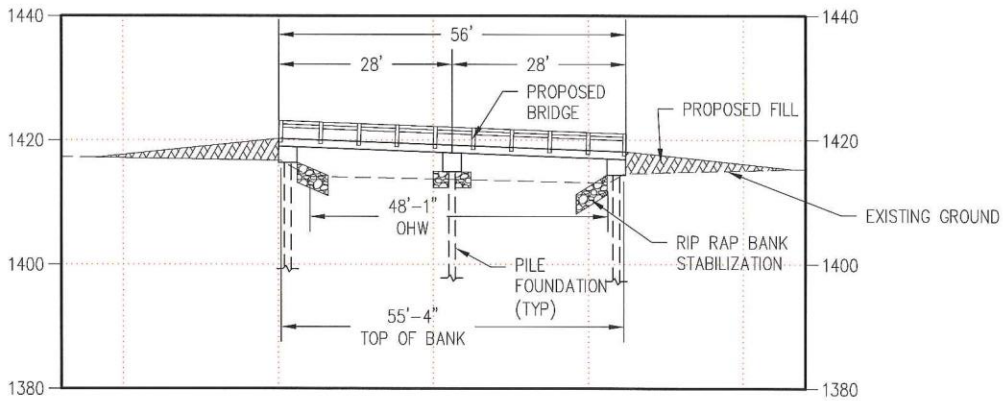
Under Alternative B, proposed actions in the three additional federal jurisdictional impact areas, Crossings/Impact Areas 3, 4, and 6, are the same as those described in **Section 2.5.1**.



PLAN



TYPICAL SECTION
NOT TO SCALE



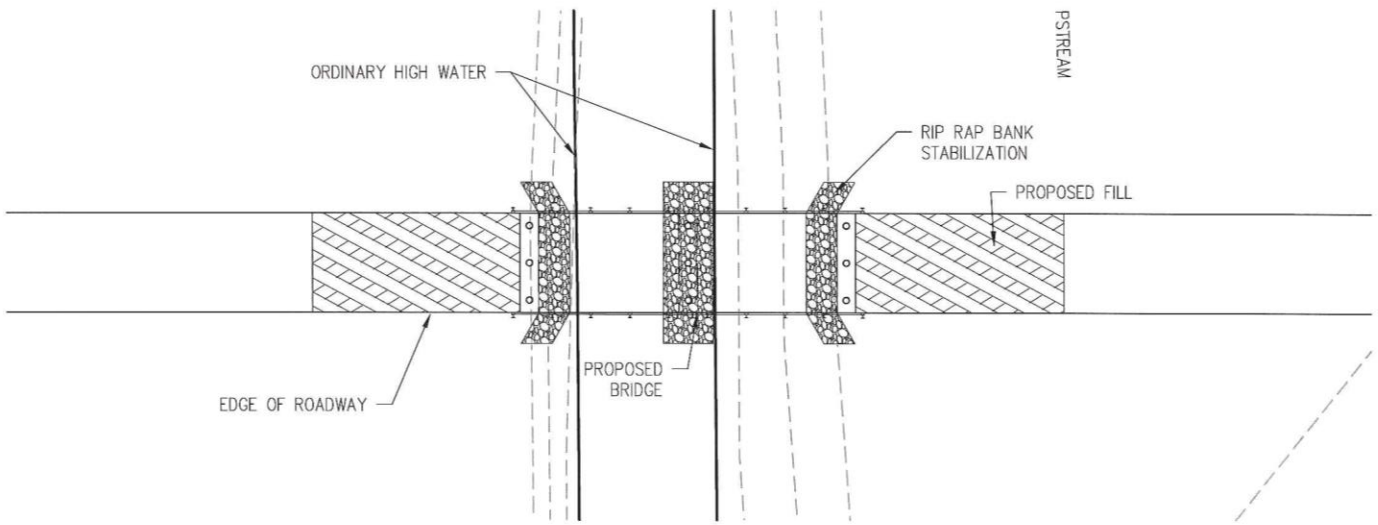
ELEVATION

Figure 2-16

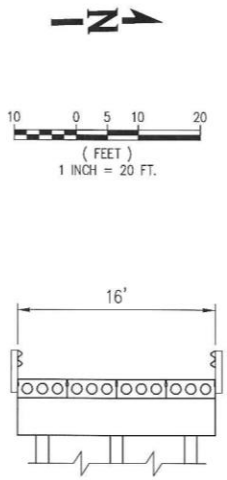
Alternative B Bridge Crossing, Las Aguilas Creek

PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION
WHPacific

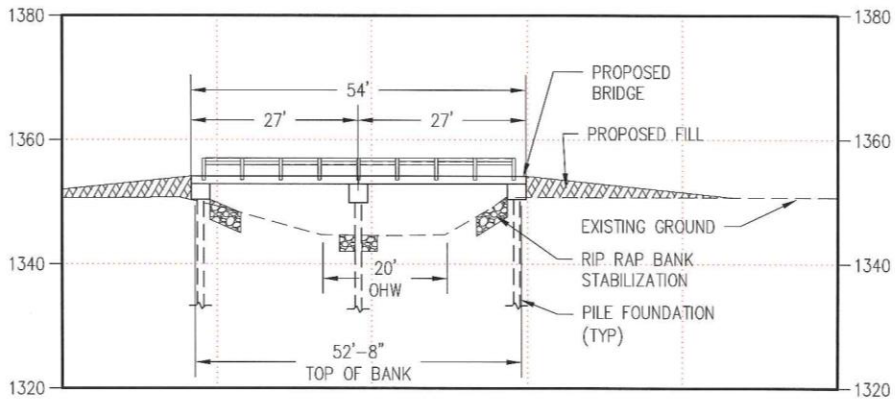
PROJECT NUMBER	DRAWING FILE NAME	DATE
035916	035916_EX02.dwg	10-08-13



PLAN



TYPICAL SECTION
NOT TO SCALE



ELEVATION

Figure 2-17

Alternative B Bridge Crossing, Panoche Creek

PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION
WHPacific

PROJECT NUMBER	DRAWING FILE NAME	DATE
035916	035916_EX02.dwg	10-08-13

Table 2-19
Drainage Crossing Impacts, Multi-Span Bridges

Access Road Type	Las Aguilas Crossing	Panoche Creek Crossing
Width between tops of banks	55 linear feet	53 linear feet
Width of OHWM	48 linear feet	20 linear feet
Area of Impact within OHWM		
Cut	48 square feet	48 square feet
Fill	48 square feet	48 square feet
Volume of material that would be disturbed within OHWM		
Cut	4 cubic yards	15 cubic yards
Fill	10 cubic yards	20 cubic yards
Area of impact outside of OHWM		
Outside top of bank, cut area	0 square feet	0 square feet
Outside top of bank, fill area	1,140 square feet	1,140 square feet
Within top of bank, cut area	96 square feet	160 square feet
Within top of bank, fill area	96 square feet	96 square feet
Volume of material that would be disturbed outside OHWM		
Outside top of bank, cut area	0 cubic yards	0 cubic yards
Outside top of bank, fill area	90 cubic yards	90 cubic yards
Within top of bank, cut area	15 cubic yards	15 cubic yards
Within top of bank, fill area	27 cubic yards	27 cubic yards

Source: Energy Renewal Partners 2014

2.7 ALTERNATIVE C (OFF-SITE ALTERNATIVE, WESTLANDS CREZ)

California's Renewable Energy Transmission Initiative (RETI) is a statewide initiative started in 2007 to help identify the transmission projects needed to accommodate the state's renewable energy goals, support future energy policy, and facilitate transmission corridor designation and transmission and generation siting and permitting (California Energy Commission 2015). The RETI effort is being supervised by a coordinating committee composed of members from the California Public Utilities Commission, California Energy Commission, California Independent System Operator, and three publicly owned utilities (Southern California Public Power Authority, Northern California Power Agency, and Sacramento Municipal Utility District; California Energy Commission 2015). The RETI is charged with assessing competitive renewable energy zones in California and in neighboring states that can provide significant electricity to California consumers by 2020, identifying those zones that can be developed in the most cost effective and environmentally benign manner, and preparing detailed transmission plans for the zones identified for development (California Energy Commission 2015). The RETI program identified competitive renewable energy zones having densities of developable resources at levels that justify building transmission to them. It also identified zones that could be developed in the most cost effective and environmentally benign manner. RETI is preparing detailed transmission plans for those zones identified for development.

The Westlands Competitive Renewable Energy Zone (Westlands CREZ) was added as a new solar CREZ in the Draft Phase 2B Report issued in April 2010 (RETI 2010). This CREZ was identified as being a moderate solar area; however, it was added because it consists of disturbed agricultural land contaminated with selenium. Also, due to the contamination, the area has few alternative uses. Finally, it is next to existing transmission and the Gates Substation (RETI 2010).

2.7.1 Site Description

The Westlands CREZ includes 35,470 acres of Westlands Water District lands in Kings and Fresno Counties. This acreage has been retired due to water shortages and salt buildup in the soil that makes it toxic to crops (see **Figure 2-18**). The Westlands CREZ has the potential to accommodate up to 5,000 MW of solar energy generation (RETI 2010).

The Westlands Water District leases most of the Westlands CREZ to Westside Holdings, a private investment group, for commercial development of the 24,000-acre Westlands Solar Park. The park comprises most of the eastern portion of the CREZ in Kings County.

Westlands Solar Park is considering developing PV solar projects that are 200 MW or larger. The Westlands Solar Park website indicates that commercial development planning is complete for the initial phase of the solar park and that solar development opportunities from 2013 to 2016 are therefore limited. Commercial development planning for the 2015 to 2020+ timeframe is underway (Westside Holdings, LLC 2014). Because no information could be obtained on potential parcels available for lease, this alternative is evaluating all lands within the CREZ.

CAISO information reports indicated that substantial transmission upgrades to the existing transmission lines near the Westlands CREZ would not be required in order to deliver up to 800 MW to the grid (San Benito County 2010). Since that time, large energy-generating projects have been proposed. These new projects are in the CAISO interconnection queue waiting to interconnect to these transmission lines and place generated power on the grid. A technical memorandum prepared for the applicant showed nine projects currently in the queue; combined, these projects have a total power output of over 1,500 MW (Shin 2014). Because of this, it is unknown if a 247 MW solar facility would be able to interconnect to the existing electrical grid.

CAISO has approved construction of a new high-voltage Gates-Gregg transmission line, which will run through the Westlands CREZ and accommodate future solar development; this line is projected to begin operation as early as May 2020 (CAISO 2014) or as late as December 2022 (PG&E 2014).

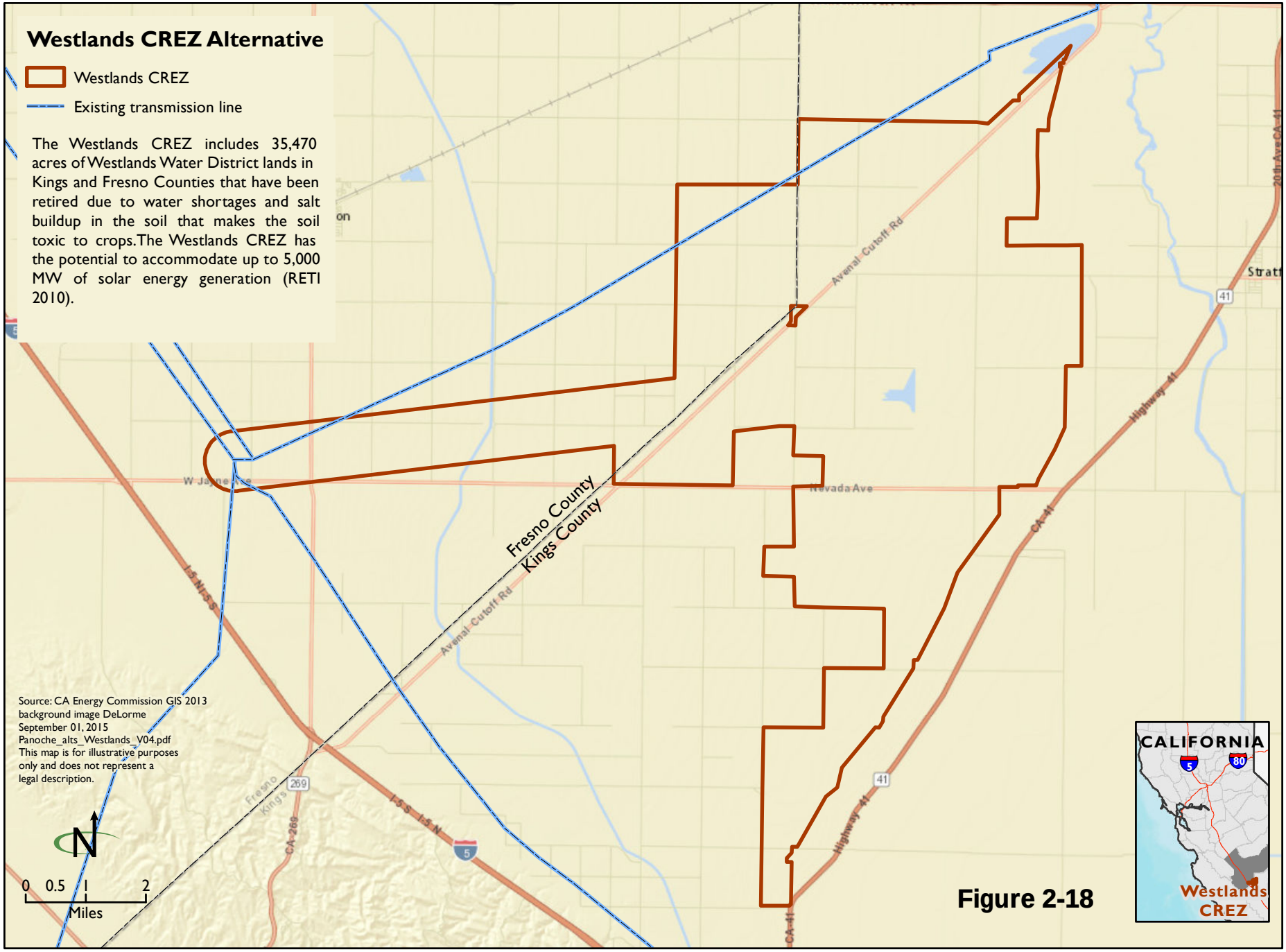

Westlands CREZ Alternative
Westlands CREZ
Existing transmission line
The Westlands CREZ includes 35,470 acres of Westlands Water District lands in Kings and Fresno Counties that have been retired due to water shortages and salt buildup in the soil that makes the soil toxic to crops.The Westlands CREZ has the potential to accommodate up to 5,000 MW of solar energy generation (RETI 2010).
Fresno County
Kings County
Avenal Cutoff Rd
Nevada Ave
Highway 41
CA-41
I-5 N
I-5 S
CA-269
Source: CA Energy Commission GIS 2013
background image DeLorme
September 01, 2015
Panoche_alts_Westlands_V04.pdf
This map is for illustrative purposes only and does not represent a legal description.
N
0 0.5 1 2
Miles
CALIFORNIA
Westlands CREZ

Figure 2-18

The Westlands CREZ alternative was evaluated in the County of San Benito's EIR for the Panoche Valley Solar Project. During scoping for this EIS, agencies and the public requested that the alternative be included. This alternative meets the project purpose and need to construct an approximately 247 MW solar photovoltaic energy-generating facility and associated transmission and support facilities in the west-central portion of California's Central Valley. This area generally encompasses portions of San Benito, Merced, Madera, Fresno, and Kings Counties. USACE has not yet determined if this alternative is practicable under the Section 404(b)(1) Guidelines. Westlands Water District is the lead CEQA agency for preparing an EIR for the Westlands Solar Park Master Plan and related transmission facilities. The notice of preparation for the EIR was published in March 2013 (Westlands Water District 2013). The Draft EIR was expected to be published in March 2015, but to date has not been published (Campbell 2014).

2.7.2 Project Description

The Westlands CREZ alternative assumes a 247 MW PV solar facility with project features similar to those described in **Section 2.5**. The facility would be constructed on an unspecified 2,500-acre site within the Westlands CREZ. The Westlands CREZ alternative also assumes that applicant-proposed measures similar to those described in **Table C-1** would likely be applicable to the Westlands CREZ site.

The alternative does not propose transmission infrastructure, nor does it include county mitigation measures. This is because no conditional use permitting has been performed by Fresno or Kings County for the lands in the Westlands CREZ.

2.8 ALTERNATIVES CONSIDERED BUT REJECTED

In developing this EIS, the USACE identified and considered several additional project alternatives through the process described in **Section 2.3**, which it then eliminated from detailed study. These alternatives are described below, along with the reasons for their elimination.

2.8.1 Alternative On-Site Configurations

Alternative site configurations that were evaluated but eliminated from detailed consideration are described below.

Alternatives Greater than 247 MW

As described in **Section 1.3**, the applicant proposed and the County of San Benito evaluated a larger solar output than is currently being proposed. The initial project output of 1,000 MW, a revised project output of 420 MW, and a permitted project output of 399 MW are not being carried forward for detailed analysis in this EIS. While these alternatives would result in the same impacts to waters of the U.S. as the proposed project, they would have greater impacts on federally listed threatened or endangered species.

Alternatives Less than 247 MW

The San Benito County EIR and the applicant's 404(b)(1) alternatives information evaluated project alternatives that would develop only the western side (116 MW on 1,058 acres) and the eastern side (131 MW on 1,054 acres) of the project site. These alternatives would likely reduce impacts to waters of the U.S. and sensitive biological resources, compared with the proposed project; however, they would not meet the project purpose and need of providing 247 MW of solar power.

No other configurations were found that would reduce impacts and still provide 247 MW output of solar power.

CDFW No Fill Alternative

The CDFW submitted an alternative access road plan to the Hollister Fire Department on September 22, 2014. It eliminated the two proposed road crossings at Panoche Creek and Las Aguilas Creek, which are jurisdictional waters of the U.S. (CDFW 2014). This alternative would maintain the 247 MW proposed project layout by creating gated access points along the project site's perimeter road for emergency access, rather than the two proposed crossings across Panoche and Las Aguilas Creeks. This alternative would eliminate impacts on waters of the U.S. on the western side of the project footprint (see **Figure 2-19**) but not on the eastern side of the project footprint. The stated reason for the CDFW's proposal was that the access road plan would provide comparable or better emergency vehicle access (CDFW 2014a).

This alternative reduces on-site impacts to waters of the U.S.; however, the Hollister Fire Department, which must approve and issue a permit for project construction, responded on October 2, 2014, that it would not approve the CDFW alternative. This was because it would not provide for sufficient ingress and egress required for emergency equipment and evacuation of the site (Hollister Fire Department 2014). Because the facility could not be constructed to meet emergency ingress and egress requirements, this alternative was not carried forward for detailed consideration.

Other Alternative Crossing Technologies

In its 404(b)(1) alternatives information, the applicant identified and evaluated alternative technologies for crossing Las Aguilas and Panoche Creeks. These technologies included ford crossings, culvert crossings, free span bridges, multi-span bridges, and single-span bridges. The CDFW no fill alternative was also evaluated (see above). The ford crossings and culvert crossings were eliminated from further consideration, as described below. The free span bridge technology was included in the no action alternative (no permit) alternative to avoid waters of the U.S., while providing ingress and egress to the project footprint.

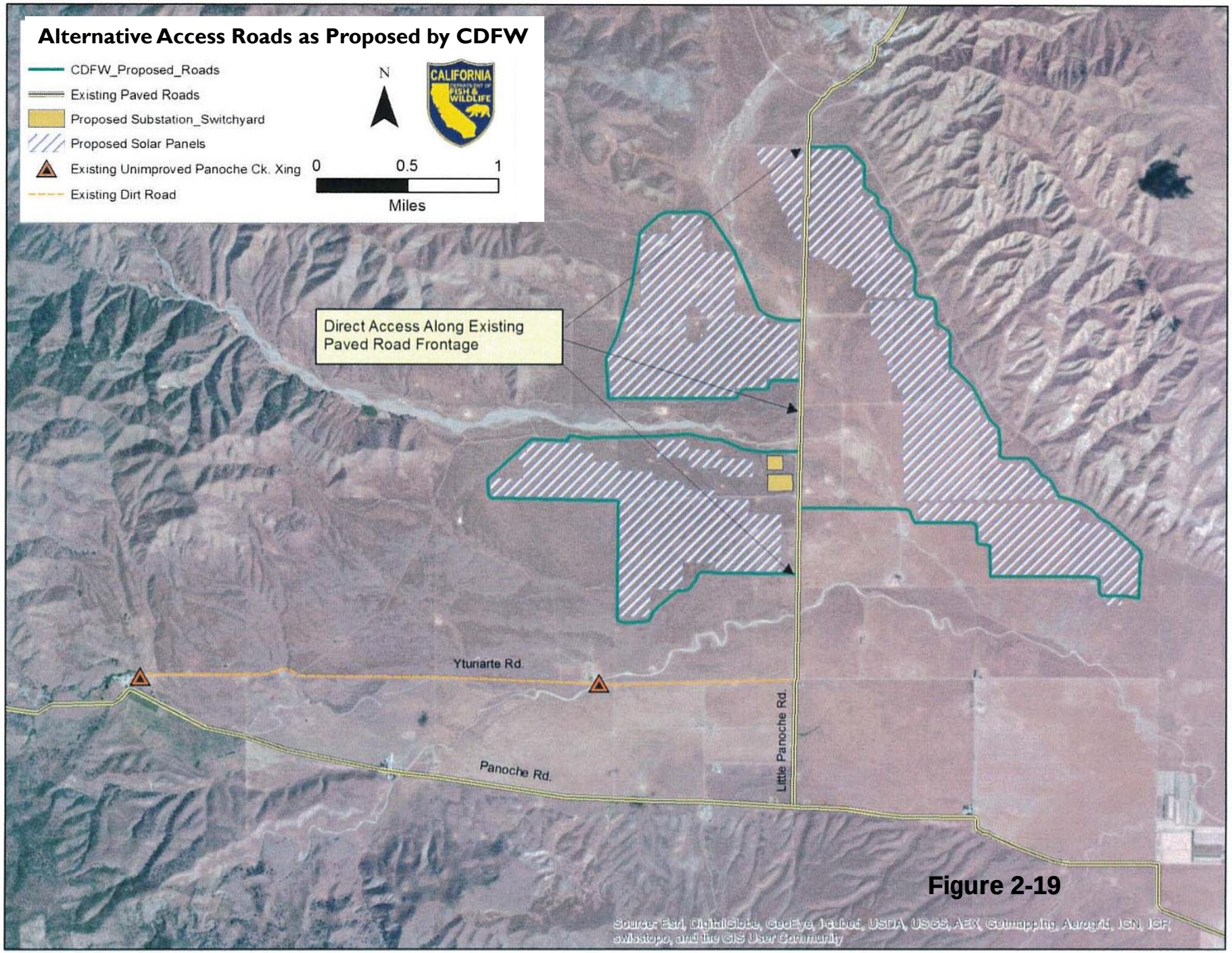

Alternative Access Roads as Proposed by CDFW
CDFW_Proposed_Roads
Existing Paved Roads
Proposed Substation_Switchyard
Proposed Solar Panels
Existing Unimproved Panoche Ck. Xing
Existing Dirt Road
N
CALIFORNIA
0
0.5
1
Miles
Direct Access Along Existing Paved Road Frontage
Yturiarte Rd.
Panoche Rd.
Little Panoche Rd.
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Figure 2-19

Ford Crossings Alternative

Ford crossings are commonly used in areas having wide floodplains and highly variable flows, such as desert drainages and stream channels subject to flash floods and rainstorms. The more closely the crossing matches the existing channel and floodplain surface elevations, the less channel instability would occur, resulting in fewer adverse impacts on hydrology and hydraulics of the channel.

The ford crossings for the project would be at the two jurisdictional ephemeral stream channels (Las Aguilas and Panoche Creeks) at grade. A cabled, concrete block mattress would be installed at grade across the entire width of the channel and up to and beyond the OHWM. This would require excavating bank material to reduce slopes and excavating below the ground, including the ephemeral stream channel, to accommodate the concrete block mattress and to achieve an all-weather road.

Permanent fill within the OHWM would come from installing the concrete block mattresses across the channels and grading an additional eight feet on both sides of the concrete block mattress for the width of the channel. The ford crossings could be used only during dry or low water conditions and only by emergency personnel. Because the crossings would not be usable during times of moderate and high water flows, this technology would limit the ability of emergency response personnel and vehicles to access the facility during such flow conditions. The crossing would also result in greater impacts to waters of the U.S. Because the ford crossing alternative would not meet emergency ingress and egress requirements, it was eliminated from further consideration.

Culvert Crossings Alternative

This alternative is similar to the ford crossing alternative, except that it would use two culvert crossings of the jurisdictional streams rather than ford crossings. The culvert crossings would consist of a multi-barreled, concrete box culvert.

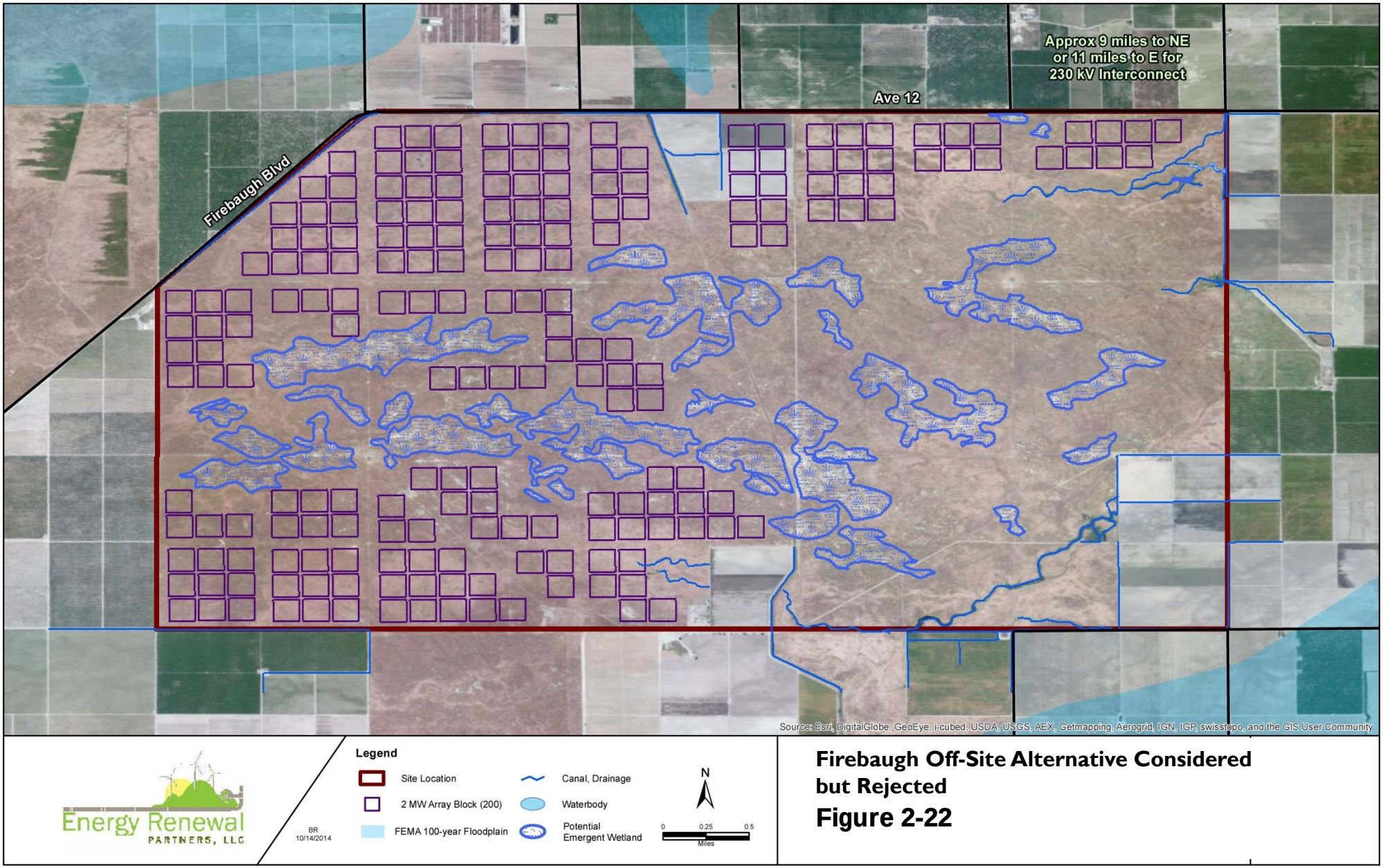
This culvert crossings alternative would not meet the requirements of the Hollister Fire Department for emergency access and egress, as the crossing would be impassible during high flow events. Furthermore, the crossing design would result in greater impacts to waters of the U.S. than the proposed project. For these reasons, this alternative was eliminated from further consideration.

2.8.2 Alternative Off-Site Locations

The off-site alternatives considered but eliminated are shown on **Figure 2-20**. A description of each off-site alternative and the reason it was eliminated from detailed consideration is provided below.

Brownfield-Kettleman City Alternative

The Brownfield-Kettleman City site is a 1,600-acre parcel in western Kings County. It is 3.5 miles southwest of Kettleman City and 2.5 miles west of Interstate 5. The site is in the Kettleman Hills and has slopes ranging from 1 to



Firebaugh Off-Site Alternative Considered but Rejected

Figure 2-22

50 percent. A 230 kV transmission line is approximately 3.5 miles east of the site; interconnection would require constructing a transmission line across high-relief terrain.

The Brownfield-Kettleman City site was analyzed in San Benito County's EIR for the Panoche Valley Solar Facility as one of several brownfield sites in the project area and was included in the applicant's 404(b)(1) alternatives information. The site is an active commercial hazardous waste treatment, storage, and disposal facility operated by Chemical Waste Management, Inc., and owned by Waste Management, Inc.

Approximately 500 acres of the site have been approved for hazardous waste activity and are degraded; portions of the site are undeveloped. The site is used as a disposal site, and the hazardous waste facility operator (EPA Identification Number CAT000646117) applied for a permit modification in October 2013 (CDTSC 2013). The California Department of Toxic Substances Control approved this permit modification on June 23, 2014, which allowed the site to expand its landfilling activities. This effectively eliminated any potential to buy or lease the property for the construction of a PV solar facility.

The site does not contain lands within the 100-year floodplain, though it does contain ephemeral drainages in the areas of greater slope. The site may contain wetlands (USFWS 2014), potential waters of the state, though no jurisdictional delineations have been performed. The San Joaquin kit fox and blunt-nosed leopard lizard, both of which are federal listed species, have been known to occur on portions of the site.

Developing the site would require significant grading because many of the slopes are greater than 5 percent. The area of suitable slope would not provide the acreage needed to accommodate 247 MW of solar power output. This alternative was eliminated from detailed consideration in the EIS because it was of insufficient size to support a 247 MW PV generating facility and it is not available for sale or for long-term lease. Moreover, it is a brownfield site and development would likely disturb potentially contaminated soils.

Moss Landing-Panoche Alternative

The Moss Landing-Panoche site consists of approximately 2,260 acres southeast of Hollister. It is immediately south of the intersection of Panoche Road and State Highway 25 in the Paicines community in western San Benito County.

Most of the Moss Landing-Panoche site is farmed with row crops and vineyards. Additional areas in the site are used for livestock grazing, commercial and residential development, and undeveloped land next to the San Benito River. The site is next to the Moss Landing-Panoche 230 kV transmission line.

The National Wetland Inventory indicates that approximately 320 acres of the site may contain freshwater jurisdictional wetlands (**Figure 2-21**; USFWS 2014); the National Hydrologic dataset indicates that the site contains approximately 52 acres of water bodies and 35,000 feet of drainages and canals (USGS 2013). In addition, over half the site is designated as critical habitat for the California red-legged frog (USFWS 2014), and approximately 588 acres are within a 100-foot floodplain.

This alternative is next to the Moss Landing-Panoche transmission line and thus meets the transmission requirements of the purpose and need. However, because of the numerous hydrological features on this site, including rivers, wetlands, creeks, drainages, and canals, constructing a 247 MW solar facility there would likely result in greater impacts to waters of the U.S. than the proposed project; thus, it was eliminated from detailed consideration.

Panoche Ranch Alternative

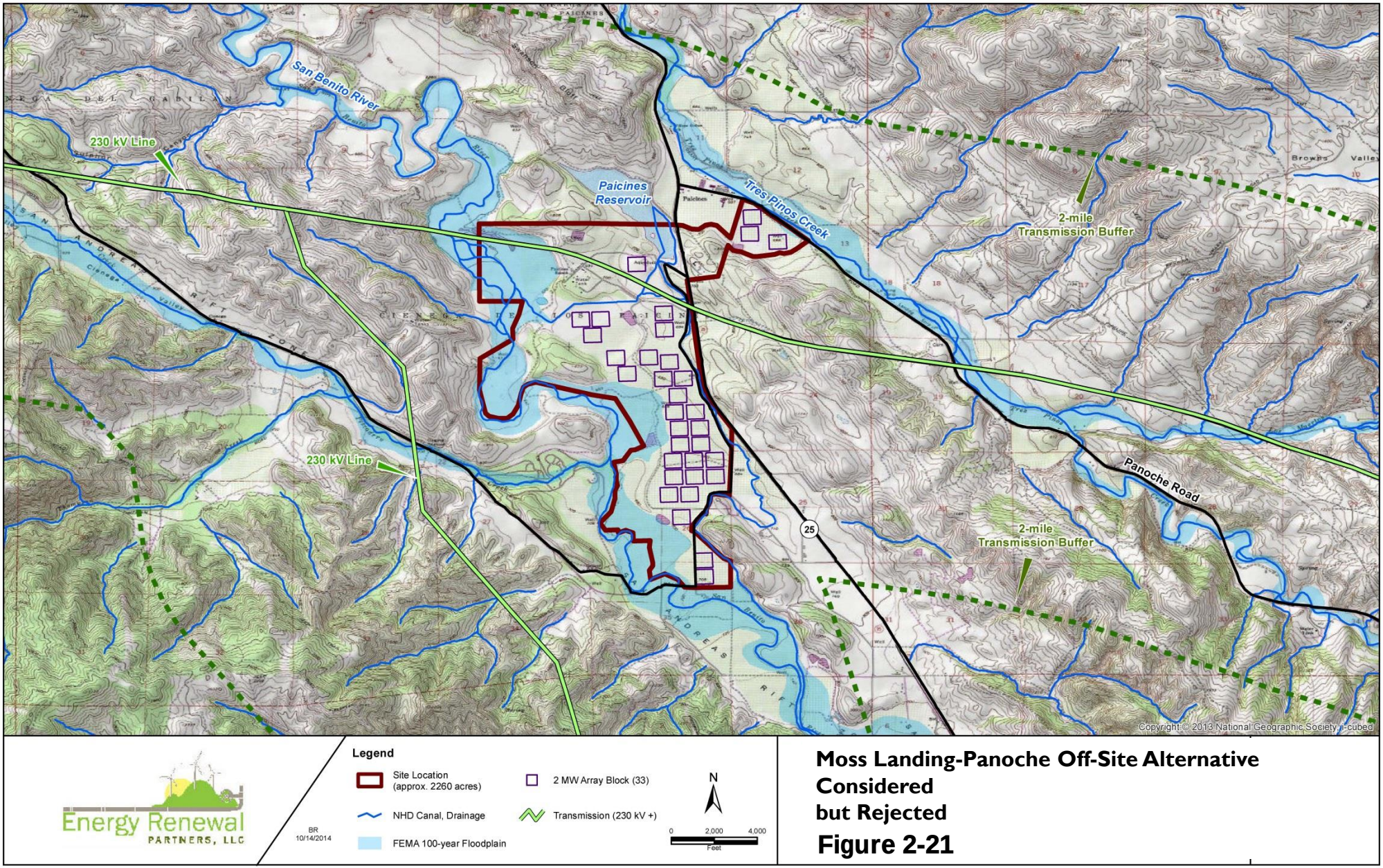
The Panoche Ranch site consists of approximately 820 acres of cattle-grazed pasture east of the Little Panoche Reservoir Wilderness Area and northeast of Mercey Hot Springs in the Little Panoche Valley of western Fresno County. The Panoche Ranch site is on undeveloped rangeland, with an elevation range of approximately 700 to 1,000 feet above mean sea level. The site contains several ravines, and portions have slopes ranging from 6 to 65 percent. The Gates-Los Banos 500 kV transmission line intersects the site, and the Panoche to Dos Amigos 230 kV transmission line is approximately three miles to the west, across Interstate 5.

The site contains approximately 8,014 linear feet of ephemeral drainages (USGS 2013). California Natural Diversity Database records for the site show occurrences of San Joaquin coachwhip and tricolored blackbird. San Joaquin kit fox, blunt-nosed leopard lizard, and other special status species have been known to occur next to the site and thus may occur within its boundaries (USFWS 1998). Also, the site is in the Ciervo Panoche Natural Area, which is designated as a core population recovery area for San Joaquin kit fox (USFWS 1998).

The Panoche Ranch property is privately owned and is not listed for sale. The applicant contacted the landowner, who was not interested in selling or leasing the property for solar development (Energy Renewal Partners 2014). This alternative was eliminated from detailed consideration in the EIS because it was of insufficient size to support a 247 MW PV generating facility and because it was not available for long-term sale or lease.

Firebaugh Alternative

The Firebaugh site is approximately 9,264 acres northwest of Fresno, between Firebaugh Boulevard and Ripperdan Avenue in Madera County. The site is in a farming region, and most of it is open pastureland for livestock grazing on relatively flat land. The nearest 230 kV transmission line (Borden-Gregg to Henrietta) is approximately 12 miles east of the site.



Moss Landing-Panoche Off-Site Alternative Considered but Rejected

Figure 2-21

The Natural Resources Conservation Service categorizes approximately one-third of the site as prime farmland by the (NRCS 2010). Hydrological features are creeks, drainages, canals, and approximately 14 miles of canals and drainages (**Figure 2-22**).

The site also includes the Gravelly Ford Canal, which could be defined as a water of the U.S. The site contains potential emergent wetlands, as noted by data obtained from California Department of Water Resources (2013). Approximately 1,085 acres could be classified as jurisdictional wetlands. The California Natural Diversity Database (CDFW 2014b) indicates the presence of several special status species, including blunt-nosed leopard lizard.

The Firebaugh property is privately owned and is not listed for sale. The applicant contacted the landowner, who was not interested in selling or leasing the property for solar development (Energy Renewal Partners 2014).

The nearest 230 kV transmission line, the Borden-Gregg to Henrietta line, is 12 miles east of the site.

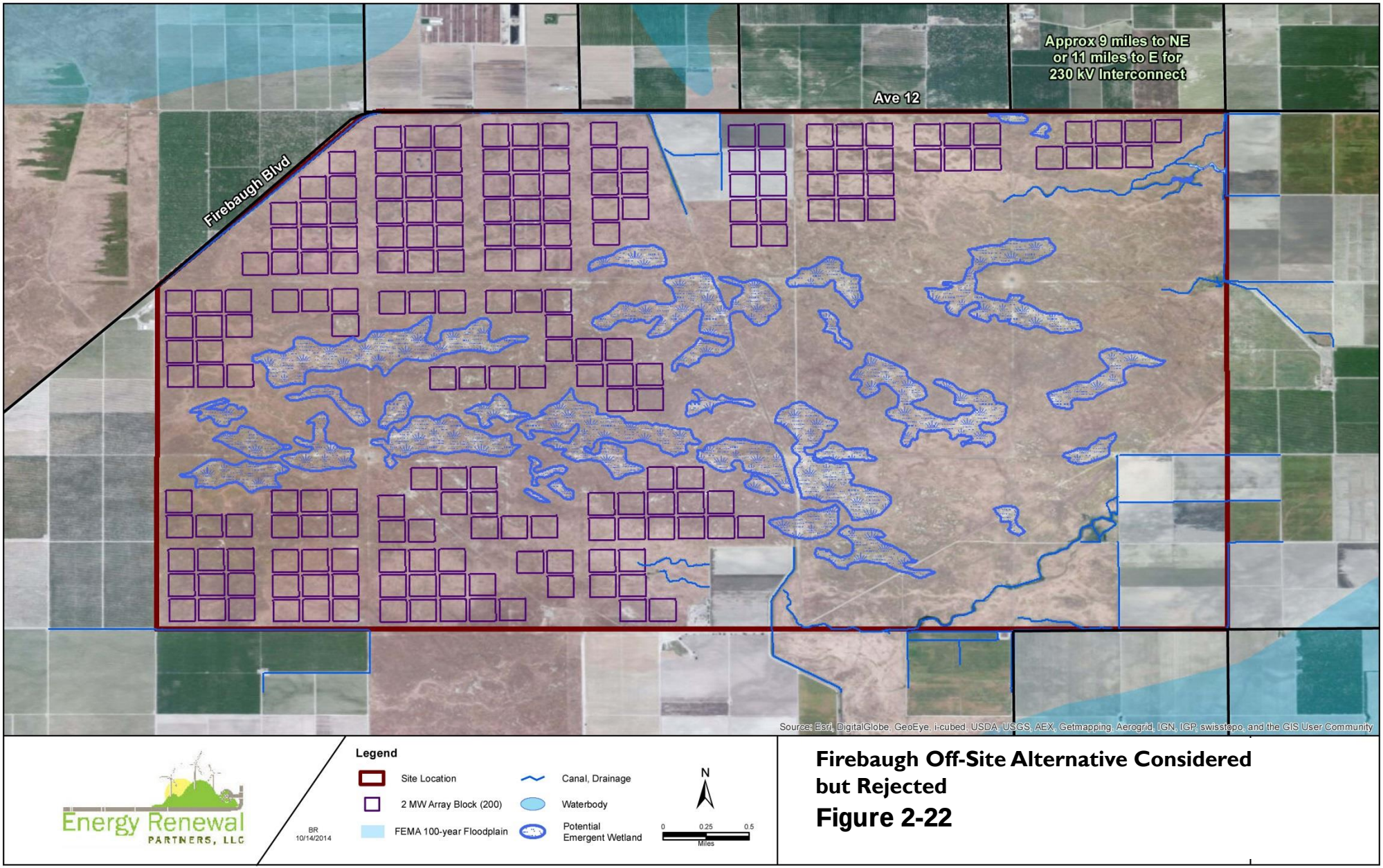
While the alternative is of sufficient size to support a 247 MW solar facility, it is not available for lease or sale (Energy Renewal Partners 2014) and is not near an existing transmission line. Therefore, this alternative has not been carried forward for detailed analysis.

Panoche Substation Alternative

The Panoche Substation site, in western Fresno County, is next to the San Luis Canal on its northeastern boundary and Interstate 5 at its southwest corner. The site is actively farmed and contains approximately 4,085 acres of fields that are used primarily for row crops; a small percentage of the land contains fruit-bearing trees, such as olives and nuts. The site has an elevation range of approximately 350 to 550 feet above mean sea level. The Los Banos-Panoche 230 kV and Los Banos-Dos Amigos-Panoche 230 kV transmission lines intersect the middle of the site, running northwest to southeast.

The National Wetlands Inventory shows several small open water ponds/holding basins along the western boundary of the site, which likely could be avoided during development. California Natural Diversity Database records (CDFW 2014b) did not identify any previous occurrences of special status plant or animal species on the site; however, the records did show occurrences of San Joaquin kit fox and other special status species within a two-mile radius.

At the request of the applicant, a real estate professional contacted most landowners in January 2014 to discuss the potential for selling the land. The parties were not interested in selling or leasing the property for solar development. The Panoche Substation site met the size and transmission proximity requirements; however, it is not available for long-term lease or purchase and thus has been eliminated from detailed consideration.



Firebaugh Off-Site Alternative Considered but Rejected

Figure 2-22

2.8.3 Alternative Technologies

Alternative technologies for providing renewable energy that were eliminated from detailed consideration are provided below. Because the overall project purpose is to construct a 247 MW solar facility, alternative forms of renewable energy, such as wind, biomass, and geothermal, were not considered in this analysis.

Distributed Solar Generation

A number of commenters requested that the EIS analyze rooftop solar as well as small solar facilities that are close to urban load centers as an alternative to utility-scale solar. A distributed solar alternative was also evaluated in the EIR for the Panoche Valley Solar Project.

Distributed generation refers to electricity that is produced at or near the point where it is used. Distributed solar can be on rooftops or the ground and typically connects to the local utility distribution grid. Because distributed solar does not require transmission to get to the location where it is used, line losses are reduced, compared to utility-scale solar facilities. Rooftop solar systems have few, if any, direct environmental impacts because no ground disturbance is required to install them. Smaller-scale solar facilities require much less land area than utility-scale facilities and thus have greater flexibility in being sited to avoid impacts. Because these facilities do not use transmission infrastructure, impacts associated with infrastructure development are also avoided.

In January 2007, California began a $3.3 billion ratepayer-funded effort to install 3,000 MW of new distributed solar generation systems and to transform the market for solar energy by reducing the cost of solar generating equipment. The CPUC's portion of the solar effort is known as the California Solar Initiative Program, which was authorized by Senate Bill 1 in 2006. The program provides rebates to consumers of the three investor-owned utilities—PG&E, Southern California Edison, and San Diego Gas & Electric—to install solar on homes and commercial buildings. Its goal is to install 1,940 MW of distributed solar generation capacity by the end of 2016. Along with other statewide solar programs, the goal is to transition the solar industry to a point where it can be self-sustaining without subsidies.

The CPUC issued its California Solar Initiative 2014 Annual Program Assessment Legislative Report in June 2014 (CPUC 2014). According to the report, an estimated 2,139 MW of distributed solar had been installed throughout California by the end of the first quarter of 2014, with 623 MW installed in 2013.

The California Energy Commission determines the scope of eligibility for the RPS program and publishes these rules in the Renewables Portfolio Standard Eligibility Guidebook, currently in its seventh edition (California Energy Commission 2013). With the adoption of the fifth edition of the guidebook in 2012, the California Energy Commission determined that distributed generation

facilities may be certified as RPS eligible. It further determined that the owners of these systems may sell renewable energy credits that have been certified by the CPUC to suppliers of retail electricity to apply toward their RPS goals.

While solar energy generated from distributed systems is eligible for California's RPS goals, the solar and utility industries have stated that cost barriers prevent customer-side renewable resources from contributing to the state's RPS goals.

The California Energy Commission requested that the scope of potential issues to be addressed in the next revision of the Renewables Portfolio Standard Eligibility Guidebook be identified. In response, the California Solar Energy Industries Association stated that, as a practical matter, selling energy and renewable energy credits is not feasible. This is due to the additional costs to bring the renewable energy credits to market (CALSEIA 2014). This is despite the fact that distributed generation facilities produce RPS-eligible energy and renewable energy credits that, as a technical matter, can be sold into the California RPS compliance market.

While the growth in distributed solar generation throughout the state, including 623 MW in 2013 alone, demonstrates that it is feasible to produce 247 MW of solar power using distributed solar generating systems, this alternative was eliminated from detailed consideration because it does not meet the overall project purpose of constructing a solar facility.

Alternative Solar Technologies

Agencies requested that the EIS examine alternative technologies. As described above, because the overall project purpose is to provide 247 MW of solar power, alternative forms of renewable energy, such as wind, biomass, and geothermal, were eliminated from detailed consideration.

The USACE considered alternative solar generating technologies commonly proposed in west-central portion of the Central Valley, primarily concentrated solar power. This uses mirrors to concentrate the sun's light energy, converting it into heat to create steam, drive a turbine, and generate electrical power. This consideration was with the assumption that the technologies would be implemented at the proposed project site.

The USACE eliminated these technologies from detailed consideration because impacts from concentrated solar and other solar technologies would be the same or greater than those described for the proposed project. None of the technologies examined would reduce the land area required for a similar energy output and would require greater water use than PV solar.

Conservation and Efficiency Measures

Commenters who requested that the EIS examine a distributed generation alternative also requested an alternative that reduced energy demand through conservation and efficiency. A conservation and energy demand reduction

alternative was also evaluated in the EIR for the Panoche Valley Solar Project. This alternative was eliminated from detailed consideration because it would not satisfy the overall project purpose to construct a 247 MW solar facility in the west-central portion of the Central Valley.

Conservation and demand-side management are important for California's energy future; cost-effective energy efficiency is considered the resource of first choice for meeting the state's energy needs. However, with population growth and increasing demand for energy, conservation and efficiency measures alone are not sufficient to address all of these energy needs.

CHAPTER 3
AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 APPROACH TO THE ENVIRONMENTAL ANALYSIS

3.1.1 Introduction and Scope of the EIS

CEQ regulations for implementing NEPA specify that a federal agency preparing an EIS must consider the effects of the proposed action and alternatives under consideration on the natural and human environment. An EIS must identify relevant, reasonable mitigation measures that are not already included in the proposed action or alternatives under consideration that could avoid, minimize, rectify, reduce, eliminate, or compensate for the adverse environmental effects of each alternative evaluated (40 CFR, Parts 1502.14, 1502.16, 1508.8).

This chapter describes the existing social, economic, and environmental conditions of the affected environment for the proposed solar facility, conservation lands proposed to offset the impacts of constructing the proposed facility, and the PG&E telecommunication upgrades necessary to interconnect the facility. It also describes the social, economic, and environmental conditions of the affected environment for the Westlands CREZ, which is being evaluated as an off-site alternative to the proposed project.

USACE regulations at 33 CFR, Part 325, Appendix B(7)(b), require that the USACE establish the scope of the EIS to address impacts on the specific activity requiring a Department of the Army permit and to those portions of the entire project over which USACE has sufficient control and responsibility to warrant federal review. Based on the location and configuration of the waters of the U.S. on the proposed project site, the USACE has determined that it has sufficient control and responsibility to warrant federal review of proposed construction activities over the entire project site, telecommunication upgrades, and the portions of the on-site and off-site conservation lands proposed as compensatory mitigation for impacts to waters of the U.S., as described in

Section 1.2. The focus of the environmental analysis for each alternative therefore includes:

- Direct and indirect effects of constructing a solar facility. This includes short-term impacts from activities required to construct a solar facility and long-term impacts associated with the presence of a solar facility.
- Effects from operational and maintenance activities associated with operating the facility. Operational and maintenance activities include on- and off-site vehicle use, security patrols, maintenance of inverters, transformers, and PV arrays, vegetation control, panel washing, and sanitary water use, which are considered an indirect effect of the construction of the solar facility. Impacts associated with operational and maintenance activities are included within the NEPA scope of analysis, as they may affect federally listed threatened and/or endangered species. However, these activities, because they would not result in the discharge of dredged and/or fill material into waters of the U.S., do not require a Section 404 permit and are not within USACE jurisdiction.

3.1.2 Section Contents and Definition of Terms

Chapter 3 focuses on those resource areas potentially affected by the proposed project and alternatives: aesthetics, agricultural resources, air quality, climate change, biological resources (waters of the U.S., vegetation communities, wildlife, and special status species), cultural resources and tribal consultation, geology and soils, hydrology and water quality, land use, ownership, and planning, socioeconomics, environmental justice, noise, public health and safety (including hazardous materials), and traffic and transportation. Each resource section contains the elements described below.

Regulatory Environment

The regulatory environment section for each resource area identifies the adopted plans, policies, laws, regulations, and ordinances that are relevant to each resource and describes required authorizations, permits, and other approvals necessary to implement the project. Federal applicable laws and regulations are provided because they are required under NEPA. State applicable laws and regulations are provided for informational purposes. USACE has considered applicable state, regional, and local plans and ordinances as a part of the environmental review process for this EIS, where applicable.

Affected Environment

The affected environment, or environmental setting, for each resource area provides a baseline against which to evaluate the changes that would occur from implementing the applicant's proposed project, the alternatives to the proposed project, and the no action alternatives. Each affected environment section includes a description of the regional setting and resource conditions in the

areas of analysis for that resource. The areas of analysis described in each affected environment resource section include the following:

1. The proposed project site, including the project footprint and proposed on-site conservation lands. Proposed off-site conservation lands are discussed only where proposed construction activities could affect the resources on or the resource uses of these lands.

2. The areas that would be temporarily or permanently affected by PG&E primary and secondary telecommunications network upgrades, including the following:

    - Primary telecommunications network upgrades along the existing Moss Landing-Panoche 230-kV transmission line between the proposed project substation and the existing Panoche Substation 17 miles east of the proposed project site. These are temporary pull sites, helicopter landing zones, guard structure sites, and wood pole replacement sites.
    - Secondary telecommunications network upgrades, including tower construction at the existing PG&E Helm Substation east of the project site in Fresno County, microwave equipment installation on an existing tower on Call Mountain west of the project site in San Benito County, and microwave installation on an existing tower or new tower construction on Panoche Mountain northeast of the project site in Fresno County. The affected environment for constructing a new microwave tower at the proposed project site is described under the affected environment for the proposed project site.

3. The 35,470-acre Westlands CREZ alternative site in Fresno and Kings Counties.

Environmental Impacts

Following a discussion of the affected environment for each resource area is a discussion of the environmental impacts that could result from implementing the no action (no build) alternative, the no action (no USACE permit) alternative, the applicant's proposed project (Alternative A), one on-site project alternative (Alternative B), and one off-site alternative (Alternative C). PG&E primary and secondary telecommunication network upgrades are included as part of the no action (no permit) alternative, Alternative A, and Alternative B.

3.1.3 Terminology Used to Describe Impacts

Characterization of Potential Impacts

Where possible, potential impacts associated with the alternatives are quantified. When it is not possible to quantify impacts, a qualitative assessment of potential impacts is presented. Project impacts are described as direct impacts, indirect impacts, or cumulative impacts, as follows:

- ***Direct impacts*** are defined as those caused by the action and occurring at the same time and place (see 40 CFR, Part 1508.8[a]). Direct impacts include those impacts caused by construction activities that occur on the proposed project site, including the on-site conservation lands, as well as on off-site conservation lands and PG&E primary and secondary telecommunication upgrade sites.
- ***Indirect impacts*** are defined as those that are caused by the action but occur later in time or are farther removed in distance from the action but are still reasonably foreseeable (see 40 CFR, Part 1508.8[b]). Indirect impacts include impacts on surrounding land uses and along area roadways, because while these actions are caused by the proposed project, they are farther removed in distance. In addition, effects that occur later in time as a result of the construction of the proposed project are considered indirect impacts because they would occur later in time (e.g., impacts that result from shading caused by the installation of solar panels).
- ***Cumulative impacts*** are the impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions (40 CFR, Part 1508.7). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR, Part 1508.7).

The following descriptors are used to characterize impacts:

- ***No Impact*—**Construction of the proposed project would have no apparent or measurable impact on the resource.
- ***Less Than Significant Impact*—**Construction of the proposed project would have a measurable impact on the resource, but this impact would not be significant. This category could include significant or potentially significant impacts that would be reduced to a less than significant level by the implementation of the applicant-proposed measures and County-required mitigation measures (including PG&E minimization measures) described in **Appendix C** that are County conditions of approval for the

applicant's proposed project and thus considered part of the action evaluated in this EIS.

- ***Significant Impact*—**Construction of the proposed project would have obvious and extensive impacts that would result in significant impacts on a resource despite implementation of applicant-proposed measures and County-required mitigation measures (including PG&E measures) described in **Appendix C**. Where significant impacts are identified, additional mitigation measures beyond those built into the proposed action may be identified and the residual impacts after mitigation disclosed.

Context and intensity are also taken into consideration in determining a potential impact's significance, as defined in 40 CFR, Part 1508.27. The context of an impact takes into account the region of influence, the affected interests, and the locality. The intensity of a potential impact refers to its severity and duration and includes the consideration of beneficial and adverse impacts; the level of scientific controversy associated with a project's impacts; whether the action establishes a precedent for future actions with significant effects; the level of uncertainty about project impacts; and whether the action threatens to violate federal, state, or local laws or requirements imposed for protecting the environment. In addition, impacts may be further characterized as follows:

- ***Temporary Impacts*—**Effects that would occur only during the construction period or a portion of the construction period.
- ***Short-term Impacts*—**Effects that would occur from the time construction ceases to within 3 years following construction.
- ***Long-term Impacts*—**Effects that would last longer than 3 years after construction ceases.

Applicant-Proposed Measures and County Mitigation Measures

The USACE, as the federal lead agency over the EIS, has no authority over the enforcement of mitigation measures described in this EIS that are not under the purview of USACE. The measures described in this EIS have been committed to by the project applicant and are required as conditions of approval as part of the project's approval and CEQA clearance by San Benito County. These measures will be included in a mitigation monitoring and reporting plan that has been prepared by the project applicant and will be implemented as required under CEQA, and enforced by San Benito County, as the lead agency under CEQA. These measures include the following:

- ***Applicant-proposed Measures*—**Applicant-proposed measures, summarized in **Section 2.5** and described in detail in **Table C-1** (**Appendix C**), would be implemented during construction to reduce environmental impacts and to ensure consistency with applicable federal, state, and county rules and regulations. These

measures were part of the proposed action evaluated in this EIS. In addition, it is reasonable to assume that these measures would also be proposed as part of the no action (no permit) alternative and Alternative B, and therefore these measures are also considered part of those alternatives.

- ***County Mitigation Measures—***The EIR prepared by San Benito County in 2010 and supplemented in 2015 for the Panoche Valley Solar Facility identified additional mitigation measures to reduce the impact of the proposed project on the natural and human environment. These measures, summarized in **Section 2.5** and described in detail in **Table C-2** and **Table C-3** (**Appendix C**), were adopted as conditions of approval by San Benito County in the conditional use permitting processes. Therefore, these measures are considered to be part of the proposed action evaluated in this EIS. In addition, it is reasonable to assume that these measures would also be required for the no action (no permit) alternative and Alternative B, and therefore these measures are also considered part of those alternatives.

No site-specific location within the Westlands CREZ has been identified for siting a 247 MW solar facility, and no local permitting or environmental analysis has been performed by Fresno or Kings Counties. Because of this, the impact analysis for the Westlands CREZ (Alternative C) assumes that applicant-proposed measures described in **Table C-1** would apply to Alternative C to the extent that they would be applicable to that geographic location. Mitigation measures to further reduce impacts would be required and are included in this EIS to the extent that they can be identified given that no specific development site has been identified within the CREZ. For mitigation measures identified under Alternative C, the analysis will disclose if the USACE has enforcement authority for the mitigation measures, identify the agency that would have authority over the measure if the USACE does not have authority, and evaluate the likelihood that the measure would be implemented and the reasons why it is likely or not likely that the measure would be implemented.

3.1.4 Cumulative Impacts

A cumulative effects analysis is provided at the end of each resource section within Chapter 3. The analysis describes the severity of the cumulative impacts, including the magnitude, geographic extent, duration, and frequency of the impacts. The magnitude of the impact reflects the relative size or amount of the impact; the geographic extent considers how widespread the impact may be; and the duration and frequency refer to whether the impact is a one-time event, intermittent, or chronic. The depth of discussion for cumulative impacts varies by resource; resources with a greater potential for cumulative effects are discussed in greater detail, while resources with less potential for cumulative effects are discussed on less detail.

The cumulative effects analysis for each resource:

- Defines the geographic area considered for the cumulative effects analysis
- Provides an overview of relevant past and present actions in the project vicinity that may affect cumulative impacts
- Presents the reasonably foreseeable actions in the geographic area of consideration
- Determines whether there are adverse cumulative impacts associated with the resource and the level of impact (no impact, less than significant impact, potentially significant impact, or significant impact)

Geographic Scope

The geographic scope is the spatial boundary in which the cumulative effects analysis was undertaken. The spatial boundary evaluated in this cumulative effects analysis generally includes eastern San Benito County, southwestern Fresno County, and northwestern Kern County. It also includes the transportation corridors between the Panoche Valley and western San Benito County that could be affected by the proposed project, together with past, present, and reasonably foreseeable actions in the region.

The geographic scope may vary depending on the type of environmental resource being considered. A different geographic scope may be used to analyze cumulative impacts based on a resource's specific temporal or spatial impacts. For example, the socioeconomic cumulative effects analysis includes additional counties from which the construction workforce likely would be drawn. The geographic scope for each resource is specified in the discussion of the cumulative impacts for that resource.

Temporal Boundary of Evaluation

A temporal boundary is the timeframe during which the cumulative impacts are reasonably expected to occur. The temporal parameters for this cumulative effects analysis include the timeframe during which past actions occurred within the geographic area of effects in addition to the anticipated lifespan of the proposed project, beginning in 2015 for the no action (no permit) alternative and Alternatives A and B and in 2020 for Alternative C. It extends out at least 30 years, which is the minimum expected project life of the proposed project.

Cumulative Actions

Past, present, and reasonably foreseeable actions have been identified based on information provided by San Benito County in the Final Supplemental EIR for the Panoche Valley Solar Project (San Benito County 2015) and a search of projects under review by San Benito County, Fresno County, Kings County, the California Energy Commission, and the California Department of

Transportation. Past, present, and reasonably foreseeable cumulative actions are described in **Table 3-1**. The projects shown are those that would have the potential for cumulative impacts within the general geographic scope of analysis described above. Additional reasonably foreseeable actions may be identified within a resource section's cumulative effects analysis discussion if applicable to the geographic scope of analysis for that resource.

Table 3-1
Cumulative Projects

Project	Location	Description	Status
San Benito County			
No cumulative projects identified.			
Fresno County			
Westlands Solar Farm	Huron (50 miles southeast of the proposed project)	18 MW photovoltaic solar facility (85 acres)	Operational
Stroud Solar Station	Helm, near the intersection of State Route (SR) 145 and W. Kamm Avenue (40 miles east-southeast of the proposed project)	20 MW photovoltaic solar facility (123 acres)	Operational
Five Points Solar Station	Five Points, near the intersection of SR 145 and SR 269 (45 miles east-southeast of the proposed project)	15 MW photovoltaic solar facility (105 acres)	Operational
Westside Solar Station	Five Points (45 miles east-southeast of the proposed project)	15 MW photovoltaic solar facility (100 acres)	Operational
Cantua Solar Station	Cantua Creek (30 miles east-southeast of the proposed project)	20 MW photovoltaic solar facility	Operational
Huron Solar Station	Cantua Creek (30 miles east-southeast of the proposed project)	20 MW photovoltaic solar facility	Operational
Giffen Solar Station	North side Mountain View between Oil City Ave. and S. Stanislaus on 160 acres (30 miles southeast of the proposed project)	10 MW photovoltaic solar facility	Operational
West Gates Solar Station	Next to the PG&E Gates Substation (50 miles southeast of the proposed project)	10 MW photovoltaic solar facility	Operational
Gates Solar Station	Next to the PG&E Gates Substation (50 miles southeast of the proposed project)	20 MW photovoltaic solar facility	Operational
Gasna 16P, LLC (Gestamp)	Corner of Fig and Central (60 miles east of the proposed project)	1.5 MW photovoltaic solar facility (19 acres)	Operational
North Star Solar	Mendota (25 miles east-northeast of the proposed project)	60 MW photovoltaic solar facility (640 acres)	Under construction
RE Adams East, LLC	SR 33 and South Avenue (25 miles east, northeast of the proposed project)	20 MW photovoltaic solar facility (319 acres)	Under construction

Table 3-1
Cumulative Projects

Project	Location	Description	Status
Wellhead Renewable Energy, LLC	Muscat Avenue, 4 miles southwest of Kerman (45 miles east of the proposed project)	20 MW photovoltaic solar facility (102.5 acres)	CEQA complete
Whitney Point Solar	S. Lake Avenue, 3.3 miles southwest of Five Points (45 miles east-southeast of the proposed project)	20 MW photovoltaic solar facility (320 acres)	Approved by County
Fresno Solar	Lassen Avenue, 4.5 miles east of city limits of San Joaquin (40 miles east of the proposed project)	20 MW photovoltaic solar facility (50 acres)	Approved by County
RE Tranquility #1 through #8 (Recurrent Energy)	Seven miles southwest of Tranquility, 5.5 miles east of I-5, 5 miles north of Three Rocks (25 miles southeast of the proposed project)	Up to 400 MW photovoltaic solar facility (3,732 acres)	Approved by County
Gasna 52P LLC (Gestamp Helm 1)	W. Springfield, 0.25 mile south of San Joaquin (40 miles east of the proposed project)	23 MW photovoltaic solar facility (280 acres)	Under CEQA review
Gestamp Power	7 miles southwest of Firebaugh (30 miles northeast of the proposed project)	photovoltaic solar facility (197 acres)	Approved by County
Three Rocks Solar, LLC	Three Rocks Avenue (25 miles southeast of the proposed project)	13 MW photovoltaic solar facility	Approved by County, Power Purchase Agreement
Frontier Renewables, LLC (Five Points Solar Park and Giffen Solar Park)	Paige between Sonoma Avenue and Napa Avenue (45 miles southeast of the proposed project)	80 MW photovoltaic solar facility (500 acres)	Approved by County, Power Purchase Agreement
FPC Solar	Lassen Avenue, 1 mile north of Manning (35 miles east of the proposed project)	photovoltaic solar facility (50 acres)	Approved by County
Kings County			
Avenal Solar Facility (Avenal Park, Sand Drag, Sun City)	Avenal (15 miles southwest of the Westlands CREZ, 60 miles southeast of the proposed project)	72 MW photovoltaic solar facility (500 acres)	Operational
CED Corcoran, LLC	Corcoran (20 miles southeast of the Westlands CREZ, 80 miles southeast of the proposed project)	20 MW photovoltaic solar facility (160 acres)	Operational
Recurrent Kansas South	Lemoore (10 miles northeast of the Westlands CREZ, 65 miles southeast of the proposed project)	20 MW photovoltaic solar facility	Operational
Guernsey Solar Station	Hanford (15 miles northeast of the Westlands CREZ, 70 miles southeast of the proposed project)	20 MW photovoltaic solar facility	Operational

Table 3-1
Cumulative Projects

Project	Location	Description	Status
Hanford 1 and 2	Hanford (15 miles northeast of the Westlands CREZ, 70 miles southeast of the proposed project)	3 MW photovoltaic solar facility	Operational
White River Solar Project 1 and 2	Alpaugh (30 miles southeast of the Westlands CREZ, 100 miles southeast of the proposed project)	20 MW photovoltaic solar facility (165 acres)	Operational
Alpaugh Solar Project	Alpaugh (30 miles southeast of the Westlands CREZ, 100 miles southeast of the proposed project)	70 MW photovoltaic solar facility (550 acres)	Operational
Recurrent Mustang	Lemoore (10 miles northeast of the Westlands CREZ, 65 miles southeast of the proposed project)	160 MW photovoltaic solar facility	Proposed
Recurrent Orion	Lemoore (10 miles northeast of the Westlands CREZ, 65 miles southeast of the proposed project)	20 MW photovoltaic solar facility	Proposed
Recurrent Kent South	Lemoore (10 miles northeast of the Westlands CREZ, 65 miles southeast of the proposed project)	20 MW photovoltaic solar facility	Proposed
Lemoore 14	Lemoore (10 miles northeast of the Westlands CREZ, 65 miles southeast of the proposed project)	8 MW photovoltaic solar facility	CEQA complete
Corcoran Solar 3	Corcoran (20 miles southeast of the Westlands CREZ, 80 miles southeast of the proposed project)	20 MW photovoltaic solar facility (130 acres)	CEQA complete
Gales Solar Project	Hanford (15 miles northeast of the Westlands CREZ, 70 miles southeast of the proposed project)	3 MW photovoltaic solar facility	CEQA complete
Corcoran Solar 2	Corcoran (20 miles southeast of the Westlands CREZ, 80 miles southeast of the proposed project)	20 MW photovoltaic solar facility (124 acres)	CEQA complete, Power Purchase Agreement
Henrietta Solar Project	Lemoore (10 miles northeast of the Westlands CREZ, 65 miles southeast of the proposed project)	100 MW photovoltaic solar facility	CEQA complete, Power Purchase Agreement
Westlands Solar Park Master Plan	West-central Kings County (60 miles southeast of the proposed project)	2,400 MW photovoltaic solar facility (24,000 acres)	Under CEQA review

Sources: California Energy Commission 2014, Fresno County 2014d, San Benito County 2014c

In addition to the specific projects listed in **Table 3-1**, there are a number of solar projects that have been proposed, approved, or constructed on federal, state, and private lands throughout California, including within the Central Valley and Desert regions of the state. These are the Topaz Solar Farm (operational; 550 MW) and California Valley Solar Ranch (operational; 250 MW) in San Luis Obispo County, approximately 100 miles southeast of the proposed project site, and the Wright Solar Park (under CEQA review; 200 MW) and

Quinto Solar Project (under construction; 110 MW) in Merced County, approximately 40 miles northwest and northeast of the proposed project site, respectively. While these solar facilities would not have cumulative effects on most of the resources discussed in this section because of their distance from the proposed project site, these proposals do have the potential for cumulative effects on such resources as special status species and climate change and are discussed in those resource sections within Chapter 3.

3.1.5 Resource Areas Not Evaluated in Detail

The following resource areas were examined but eliminated from detailed analysis because the proposed action and alternatives were determined to have no impact or a less than significant impact on that resource. These resources and the reasons they were not included for detailed analysis are as follows:

- Mineral Resources—Because there are no known active mines or mineral resource sites in the project footprint or the PG&E telecommunication upgrade sites, there would be no direct impacts on mineral resources. In addition, construction of the solar facility and PG&E telecommunication upgrades would have no indirect impacts on mineral resources or activities in the region.
- Navigation, Shore Erosion and Accretion, Coastal Zones, and Marine Sanctuaries—This resource area was not evaluated because the proposed project is an inland project and would not affect any navigable waters or coastal resources.
- Paleontological Resources—A paleontological resource assessment of the project site (Minch 2010) evaluated whether significant paleontological resources were likely to be encountered during construction of the proposed project. This study, as well as another study for the PG&E telecommunication upgrade actions (Sikes 2014), indicated that there are no known paleontological resource localities recorded at the project site or telecommunication upgrade locations. In addition, the project site was determined to have a low paleontological sensitivity (Minch 2010). Due to the low potential to encounter paleontological resources and County-required measures in place as part of the proposed project in the event of an unanticipated find (see PA-1.1, implement site-specific paleontological recovery, and PA-1.2, monitor grading and excavation for unknown and accidentally discovered paleontological resources, in **Appendix C**, **Table C-2**), this resource is not evaluated in detail.
- Public Services—Construction of the proposed project would not place significant increased demands on public services such as police services, schools, or emergency medical services. Therefore, public services are not evaluated in detail.

- Utilities and Service Systems—There is no water, sewer, or natural gas service to the project site, and construction of the proposed project would not place demands on electrical or telecommunications infrastructure in the project area. For this reason, utilities and service systems are not evaluated in detail.

3.2 AESTHETICS

Aesthetic, or visual, resources are viewsheds and scenic resources. Viewsheds are generally unmanaged areas with aesthetic value. A viewshed encompasses the land, vegetation, and other environmental elements that are visible from a fixed vantage point. Scenic resources are lands that are managed by federal, state, and local governments for preservation and protection. These areas have natural or manmade aesthetic qualities that give a landscape its character and value.

The region of influence for aesthetics is all viewsheds from which the public would be able to view the proposed project. For the purposes of this EIS, foreground is defined as less than 0.5 mile from the viewer, middle ground is up to four miles from the viewer, and background is greater than four miles from the viewer to the horizon (Forest Service 1995).

Visual quality of the project site and surrounding area has been determined by assuming that areas with the most variety in form, line, color, and texture and with the most harmonious composition have the greatest quality and value. This method is used by the BLM and is described in BLM Manual H-8410-1, Visual Resource Inventory (BLM 1986). While proposed project lands are not regulated by this method, it is a well-defined system to describe the visual character.

3.2.1 Regulatory Environment

There are no federal or state laws or programs applicable to the aesthetic resources on proposed project lands. At the local level, the San Benito County General Plan includes goals and policies, described below, that are meant to maintain certain visual and aesthetic qualities in the county. The CAL FIRE microwave tower at Call Mountain and the America Tower Corporation microwave tower at Panoche Mountain are on BLM-administered lands in the Hollister Field Office. Visual considerations for BLM-administered lands are also discussed below.

San Benito County General Plan

<u>Scenic Roads and Highways Element, Policy 1</u>. It is San Benito County policy to protect certain transportation corridors that are recognized as having unusual or outstanding scenic qualities (San Benito County 1980a).

The County has designated three scenic corridors that encompass portions of US Route 101 and State Routes 129 and 146 (San Benito County 1980a). State

Routes 25, 146, and 156 are also eligible for state scenic highway designation (San Benito County 2010c, pp. 9-11).

Open Space and Conservation Element, Policy 17, Ridgeline Development. To preserve the rural character of the area, new development shall be directed away from the horizon through the use of building envelopes and integration of building architecture into the contour of the horizon (San Benito County 1995).

Natural and Cultural Resources Element, Objective NCR-6.3, Energy Facilities. The County shall require the siting of energy facilities in a manner that is compatible with surrounding land uses and protects scenic resources (San Benito County 2012, pp. 8-10).

San Benito County Code of Ordinances

Title 19: Land Use and Environmental Regulations, 19.31. Development Lighting Ordinance 19.31 provides direction to minimize light pollution and curtail the degradation of the nighttime visual environment. The proposed project would be subject to Section 19.31.006, General Requirements for All Zones, and Section 19.31.009, Special Requirements for Zone III.

Title 25 (Zoning), Chapter 25.29 (General Requirements), Article II (Hillside Development Regulations) encourages design excellence and high quality projects that would follow certain requirements:

- Maintain existing rural character
- Conserve landforms and natural landscape
- Preserve wildlife habitats
- Protect/preserve viewsheds
- Ensure that developments are designed to fit with the characteristics and constraints of the site
- Protect life and property from sites that are constrained by slope stability, landslide hazard, fire hazard, and fault zones

Any proposed new structures on slopes greater than 15 percent would be subject to the regulations.

BLM Visual Resources Management System

The BLM's visual resources management system identifies visual resource objectives that projects must meet for various landscapes. Through the BLM land use planning process, landscapes are assigned objectives at four different levels, known as Visual Resource Management Classes; Visual Resource Management Class I is the strictest for maintaining landscapes and Visual Resource Management Class IV is the least restrictive.

Kings County General Plan

Resource Conservation Element Policy G1.2.5. Site new large-scale alternative energy facilities where they can be served by existing electrical transmission lines, or where such lines can be located and designed to minimize visual, environmental, and agricultural disturbances (Kings County 2010a, p. RC-50).

3.2.2 Affected Environment

Proposed Project

Regional Setting

The proposed project landscape is in the Southern and Central California Chaparral and Oak Woodlands ecoregion, which extends along the US West Coast from Northern California to Mexico (EPA 2011). The primary distinguishing characteristic of this ecoregion is its Mediterranean climate of hot dry summers and cool moist winters, and associated vegetative cover of mainly chaparral and oak woodlands. Grasslands occur in some lower elevations, and patches of pine are found at higher elevations.

Most of the region consists of open low mountains or foothills, but there are areas of irregular plains in the south and near the border of the adjacent Central California Valley ecoregion. Large parts of the region are grazed by domestic livestock. Relatively little land has been cultivated, although some valleys are or were important agricultural centers (EPA 2010). Dispersed, backcountry recreation occurs on public lands surrounding the site to the north, east, and south (Panoche Hills, Tumey Hills, and Griswold Hills).

Project Setting

At an elevation of 1,250 to 1,400 feet, much of the project site is presently used for cattle grazing and all is rural in character. Little Panoche Road passes north-south through the site and has a traffic volume of approximately 66 vehicles per day (Hexagon Transportation Consultants, Inc. 2014). Yturiarte Road passes east-west approximately 0.75 mile south of the project footprint. The pastoral character of the grass-covered valley floor and the natural-appearing surrounding hills and ridges form a visually coherent pattern with high scenic quality and considerable visual interest. The area is generally undeveloped; the exceptions are 27 100-foot-tall steel-lattice transmission line towers running southeast to northwest through the project area, a simple wood pole distribution line, and several rural residences. There is one residence west of the project footprint; the remainder are south of it. The nearest occupied residence is approximately 1,700 feet southwest of the southwest corner of the project footprint, off Yturiarte Road; all other residences are at least 0.5 mile from the project footprint boundary.

Beyond the project site and Panoche Valley the terrain becomes more mountainous, with elevations reaching almost 4,000 feet. Notable peaks in the

area are Big Mountain (3,992 feet), Walker Peak (2,835 feet), Glaucophane Ridge North (1,980 feet), Cerro Colorado (3,656 feet), Glaucophane Ridge (2,100 feet), and Panoche Hills Highest Point (2,684 feet). About 10 miles to the east of the project site, developed agricultural lands appear around Interstate 5 and extend to the east. These flat, green, grassy lands are a stark contrast to the rugged mountains surrounding the Panoche Valley.

The rugged angular ridges of the slightly more distant Coast Range Mountains to the south and west provide a landscape backdrop that enhances the available panoramic views across the valley.

The viewshed or area of potential visual effect (the area from which the project site and project components could be seen) is as follows:

- The residences and roads in the Panoche Valley
- The south-facing slopes of the southern Panoche Hills
- The north-facing slopes and ridges of the Tumey Hills, Griswold Hills, and adjacent Coast Ranges

Identification of Scenic Resources

The San Benito County General Plan and the BLM Resource Management Plan for the Southern Diablo Mountain Range and Central Coast of California Record of Decision (BLM 2007) identify one Area of Critical Environmental Concern (ACEC), Panoche-Coalinga, and two Wilderness Study Areas (WSAs), Panoche Hills North and Panoche Hills South, within five miles of the project area. The nearest designated scenic corridor, State Highway 129, is approximately 15 miles southwest of the project site. There are no other scenic areas or areas of special consideration (e.g., natural areas and wild and scenic rivers) where scenic resources need protection.

The Panoche-Coalinga ACEC is approximately 4.5 miles to the northeast and southeast of the project area. However, scenic resources were not identified as relevant and important values for protection in the ACEC.

PG&E Telecommunications Upgrades

PG&E primary telecommunications upgrades would occur along the Moss Landing-Panoche 230-kV transmission line between the project site and the Panoche Substation in Fresno County. Permanent visual changes along that line would be minimal.

PG&E's secondary telecommunications upgrades would occur on the proposed project site, at the Helm Substation, and on Call and Panoche Mountains (see **Figure 2-7**, Telecommunications Network Upgrades, in **Chapter 2**). To evaluate the existing visual landscape for the proposed secondary telecommunication sites, a viewshed analysis was conducted using GIS, and the terrain was assessed using Google Earth imagery.

Three of the proposed telecommunication sites would be additions to areas with existing infrastructure. These sites are Call Mountain (microwave equipment would be collocated on an existing CAL FIRE microwave tower), Panoche Mountain (microwave equipment would be collocated on an existing American Tower Corporation microwave tower), and Helm Substation (a new tower would be constructed within the fence line of the existing substation).

A new PG&E microwave tower would be constructed at the Panoche Valley Solar Facility project switching station in the proposed project footprint. This microwave tower would be approximately 100 feet tall and would be in the fence lines of the new project switching station. The current visual landscape of the proposed tower location is characterized by its flat topography in the Panoche Valley. The area is undeveloped, except for dirt two-track roads. The sparse vegetation gives the area an overall tan appearance. A 100-foot-tall telecommunications tower on the project site could be seen from as far south as the Diablo Range. **Figure 3-1** shows the viewshed.

The existing CAL FIRE microwave tower at Call Mountain in San Benito County is approximately nine miles west of the project site on BLM-administered land in the Hollister Field Office. In the mountains overlooking Panoche Valley, the site is approximately 3,500 feet in elevation. The mountains are densely vegetated with interspersed grassy patches, giving them a green appearance. BLM-administered land at the Call Mountain site is managed as Visual Resource Management (VRM) Class III (BLM 2007, pp. 3-17). The objective of VRM Class III is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. There are no residential areas within one mile of the site. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape (BLM 1986).

The existing American Tower Corporation microwave tower at Panoche Mountain in Fresno County is northeast of the project site. It is atop a ridge in the Panoche Hills on BLM-administered land in the Hollister Field Office. These ridges are sparsely vegetated, giving them a tan appearance. There are two towers at the site, along with other building facilities. The Panoche Hills North WSA is directly south of the Panoche Mountain microwave tower site. There are no residential areas within one mile of the site. Based on a viewshed analysis, the Panoche Mountain site is visible from few areas in the WSA, those areas being at higher elevations. It is also visible from the valley to the east of the site, up and down the Interstate 5 corridor.

A new microwave tower is proposed for the Helm Substation, which is almost 40 miles east of the project site in Fresno County. This tower would be approximately 100 feet tall and would be in the fence line of the substation. The

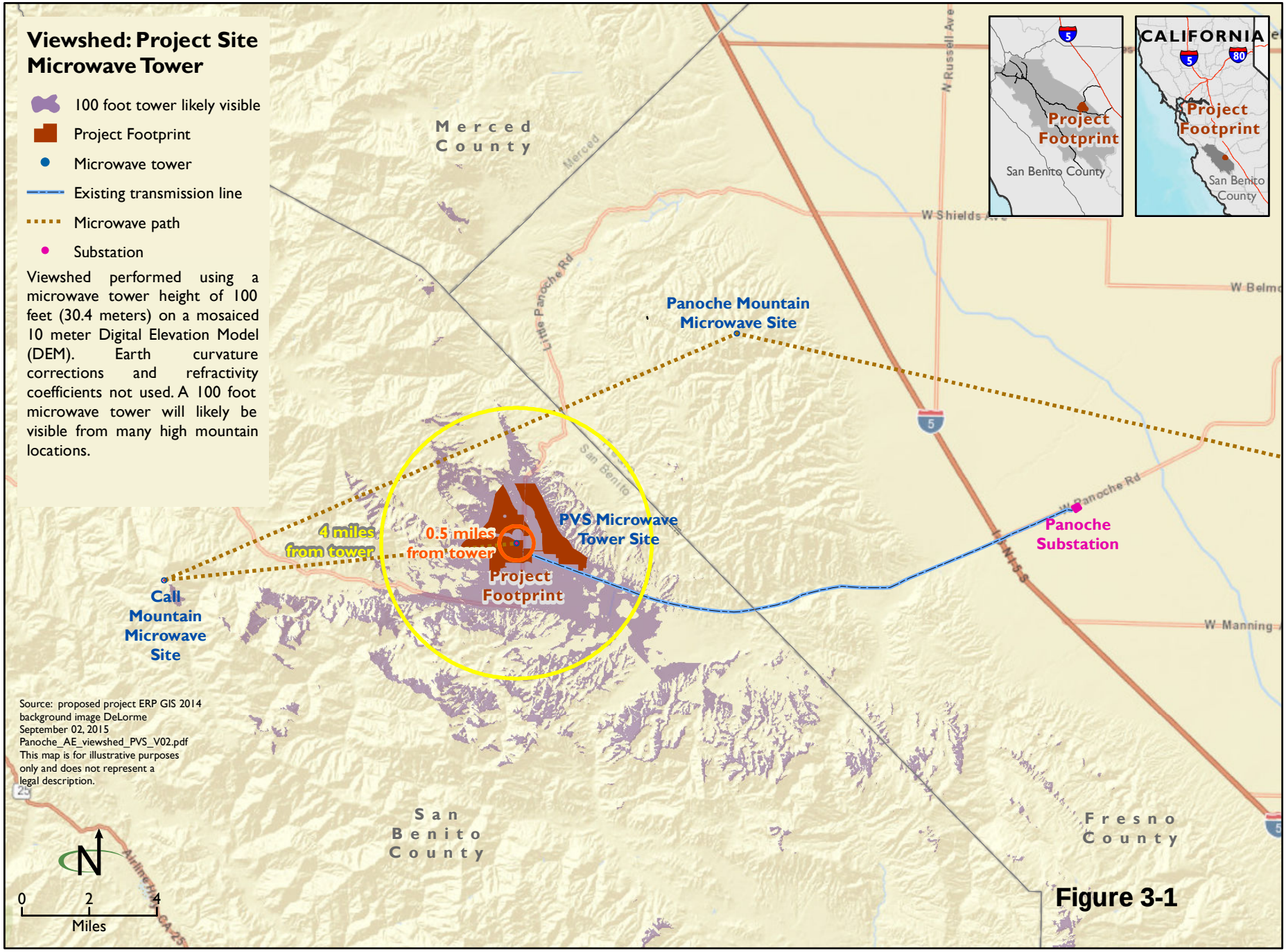

Viewshed: Project Site Microwave Tower
100 foot tower likely visible
Project Footprint
Microwave tower
Existing transmission line
Microwave path
Substation
Viewshed performed using a microwave tower height of 100 feet (30.4 meters) on a mosaiced 10 meter Digital Elevation Model (DEM). Earth curvature corrections and refractivity coefficients not used. A 100 foot microwave tower will likely be visible from many high mountain locations.
Merced County
Panoche Mountain Microwave Site
PVS Microwave Tower Site
4 miles from tower
0.5 miles from tower
Project Footprint
Call Mountain Microwave Site
Panoche Substation
San Benito County
Fresno County
CALIFORNIA
Project Footprint
San Benito County
Source: proposed project ERP GIS 2014
background image DeLorme
September 02, 2015
Panoche_AE_viewshed_PVS_V02.pdf
This map is for illustrative purposes only and does not represent a legal description.
0 2 4
Miles

Figure 3-1

Helm Substation site is approximately one mile southeast of the town of San Joaquin. Several low-capacity wood poles and high-capacity steel lattice transmission line towers connect at the substation. This site is surrounded by developed agricultural lands, characterized by flat topography with green crop rows in quadrilateral agricultural blocks. It is surrounded by rural residential areas, including approximately 10 residences.

Westlands CREZ

The terrain in and around the Westlands CREZ is flat, except for the mountains and foothills of the Coast Ranges, visible on the horizon in distant views to the south and west. The east-central portion of the CREZ is denuded of vegetation, leaving the area a light tan. The remaining area is a scattered mixture of areas with green crops in low linear rows and tan desert-like bare ground. Low buildings are scattered throughout the CREZ. There are no designated or eligible state or county scenic roadways in the vicinity (Westlands Water District 2013; Fresno County 2014a).

Existing transmission infrastructure parallels the northern boundary of the CREZ. The tallest structures in and surrounding the CREZ are at and emanate from the Gates Substation in the westernmost arm of the CREZ. High-capacity transmission lines enter the substation from the northeast, southeast, and south, and two lines enter from the northwest. The lattice steel structures are highly visible in the flat green/brown landscape. There are scattered rural residences within one mile of the Westlands CREZ.

3.2.3 Environmental Impacts

The region of influence for the aesthetics analysis is the area surrounding the project footprint and associated telecommunication infrastructure. The general public would be able to view the facilities from a residence, the roadway, and an overlook.

The aesthetics of the area and the effects from the proposed project on them were evaluated using elements from the BLM visual resource management system (BLM 1984). While components of the proposed project would be built on lands that are not subject to BLM visual resource management objectives, the visual resource management system offers a method of evaluating the effects of visual change from a project on the surrounding landscape. The visual resource management system uses an assessment of the existing landscape by describing such elements as form, line, texture, and color and by evaluating photographic simulations from key observation points (KOPs).

The following factors, based on the framework provided by the BLM visual resource management system, were also used to evaluate the aesthetic resources and sensitivity regarding proposed changes in the project vicinity:

- The extent to which the landscape is already altered from its natural condition and the degree of contrast that would occur under the proposed project and alternatives
- The visibility of the proposed project and alternatives. Visibility includes the duration that the project elements are visible, the proximity of the project elements to the viewer, and the number of people within visual range of the area; these are residents, highway travelers, and recreationists
- The degree of public interest in or concern about the visual quality of the landscape

Impacts on visual resources would be considered significant if they would result in any of the following:

- A substantial adverse effect on a scenic vista
- A substantial change in the existing visual character or quality of a project site or its surrounding

No Action (No Build) Alternative

Under the no action (no build) alternative, the proposed project would not be constructed and no telecommunication upgrades would occur. The existing aesthetic environment of the project site and telecommunication facilities would remain the same as described in **Section 3.2.2.**

No Action (No USACE Permit) Alternative

Construction

The following County-required measures were included as conditions of approval in the conditional use permit for the proposed project and are considered part of the no action (no permit) alternative in this EIS. The full text of these measures is included in **Appendix C**, **Table C-1** and **Table C-2**. The impacts of the no action (no permit) alternative on aesthetic resources with incorporation of these measures is discussed below.

- **APM AES-1**. Use "dulled" metal finish structures, and facility buildings painted in earth tones, to reduce visual impacts where feasible. The solar module cells will be blue or green toned and non-reflective. Equipment that cannot be dulled will have an ANSI gray or factory standard manufacturer finish. The perimeter fence will also be galvanized steel.
- **APM AES-2. Construction Lighting.** During construction, localized and portable lighting will be used where the work is occurring. Lighting will be powered by generators and have switches to cut power when lighting is not required during construction.

- **APM AES-2. Operation Lighting**: During operation of the project, motion-sensor lighting will be used at the main entrance, substation, and switching station. The lighting will consist of energy-efficient lamps that will only be lit when human activity is detected. Motion sensors will have sensitivities set to avoid activating the lights when animal activity is occurring. This will be done to prevent startling animals and creating false alarms for security personnel. In addition to lighting, security cameras will be installed onsite. Constant lighting, at a low-level, may be required at the O&M building for security and safety. This will be a single lamp source near the entrance of the O&M building, which will be activated by a timer. All lighting will have a power switch to conserve energy when the lighting is not required.
- **Mitigation Measure AE-1.1. Reduce night lighting impacts.** Design and install all temporary construction and decommissioning lighting and permanent exterior lighting according to the following conditions: lamps and reflectors are not visible from beyond the proposed project site, including any off-site security buffer areas; lighting does not cause excessive reflected glare; direct lighting does not illuminate the nighttime sky; illumination of the proposed project and its immediate vicinity is minimized; and the proposed project lighting mitigation plan complies with local policies and ordinances (for Class 2 in Zone 3 see County Ordinance 19.31.006 and 19.31.009). Prior to installation of any permanent exterior lighting or temporary construction/decommissioning lighting, a lighting mitigation plan must be submitted to and approved by San Benito County. After installation is completed, San Benito County will inspect and approve the lighting. Prior to commercial operation, the Applicant shall notify San Benito County when the operational lighting installation has been completed and is ready for inspection. If, after inspection, the County notifies the Applicant that modifications to the lighting are needed, within 30 days of receiving that notification the Applicant shall implement the modifications and notify the County that they have been completed and are ready for inspection. Within 48 hours of receiving a lighting complaint, the Applicant shall provide San Benito County with either (1) a complaint resolution proposal to resolve the complaint and a schedule for its implementation, or (2) written confirmation that lighting is in compliance with the lighting plan and the building permit. The proposed project owner shall notify the County within 48 hours of implementing a resolution. A complaint resolution report shall be submitted to County within 30 days thereafter.
- **Mitigation Measure AE-3.1. Treat surfaces of project structures and buildings**. The Applicant shall treat the surfaces of all project structures and buildings visible to the public such that (1)

their colors minimize visual intrusion and contrast by blending with the existing colors of the surrounding landscape, (2) their colors and finishes do not create excessive glare, and (3) their colors and finishes are consistent with local policies and ordinances. Prior to the start of commercial operation, the Applicant shall notify the County that surface treatment of all listed structures and buildings has been completed, and that they are ready for inspection.

- **APM AQ-3. Reduce fugitive dust emissions during construction**. Implement best management practices: water graded/ excavated areas and active unpaved roadways, unpaved staging areas, and unpaved parking areas at least three times daily or apply chemical soil stabilizers per manufacturer recommendations; apply chemical soil stabilizers or water on inactive construction areas; stabilize all disturbed soil areas not subject to revegetation by using approved chemical soil binders, jute netting, or gravel for temporary roads; place gravel on all perimeter roadways and driveways as soon as possible after grading for said roadways; cover all trucks hauling dirt, sand, or soil or maintain at least two feet of freeboard; and install gravel track systems where vehicles enter and exit unpaved roads onto streets and inspect equipment tires to ensure free of soil prior to carry-out to paved roadways.
- **Mitigation Measure AQ-1.1. Further reduce fugitive dust emissions during construction**. Implement additional measures to significantly reduce fugitive dust emissions and require measures to be shown on grading and building plans. Such measures include limiting grading to 50 acres per day, and grading and excavation to 2.2 acres per day; watering graded/excavated areas and active unpaved roadways, unpaved staging areas, and unpaved parking areas at least three times daily or apply non-toxic chemical soil stabilization materials per manufacturer's recommendations; prohibiting all grading activities during periods of high wind (sustained over 15 mph); and minimizing dust leaving the site through wheel washers, street sweepers, gravelling roadways and driveways, and maintaining two feet of freeboard on haul trucks.
- **Mitigation Measure AQ-1.2. Designate a dust compliant monitor**. The Applicant shall require the contractor(s) or builder(s) to designate a person or persons to monitor the fugitive dust emissions and enhance the implementation of the measures as necessary to minimize dust complaints, reduce visible emissions below 20 percent opacity, and to prevent transport of dust off-site. Their duties shall include monitoring during holidays and weekend periods only when work is in progress. The name and telephone number of such persons shall be provided to the Monterey Bay Unified APCD [Air Pollution Control District] Compliance Division prior to the start of any grading, earthwork, or demolition. The

Applicant shall provide and post a publicly visible sign that specifies the telephone number and name to contact regarding dust complaints. This person shall respond to complaints and take corrective action within 48 hours. The phone number of the Monterey Bay Unified APCD shall also be visible to ensure compliance with Rule 402 (Nuisance).

- **Mitigation Measure BR-G.3. Develop and implement a Habitat Restoration and Revegetation Plan.** The Applicant shall restore disturbed areas to pre-construction conditions or better. Prior to the issuance of a building permit and removal of any soil or vegetation, the Applicant shall retain a County-approved, qualified biologist, knowledgeable in the area of annual grassland habitat restoration, to prepare a Habitat Restoration and Revegetation Plan (HRRP). The biologist would also be responsible for monitoring the initial implementation of the plan as the Applicant's attainment of the established success criteria.

Construction

Under the no action (no permit) alternative, the solar facility would introduce up to approximately 1,796 acres of PV arrays and associated infrastructure to a predominantly undeveloped area. An additional approximately 712 acres would experience temporary impacts during construction and short-term impacts from the disturbance after construction. The short-term and long-term effects of this change on the aesthetic environment is described below.

Temporary and Short-term Impacts

Aesthetic impacts during construction would be varied and changing as the type and location of construction moved across the project footprint. The major aesthetic change induced by construction would be removing vegetation during grading, developing a new perimeter road, installing lighting required for night-time construction, placing and moving construction equipment and materials, and creating varying levels of dust during ground-disturbing activities.

Grading would occur on 348 acres within the project footprint. Grading would reveal the brown layers of soil, which could range from a low to moderate short-term contrast, depending on the size and location of grading from major travel corridors. Such grading would not result in a contrast to the relatively flat landscape as observed from KOPs (described under *Long-term Impacts*, below). As part of the CEQA EIR certification and project approval process, the applicant committed to implementing Mitigation Measure BR-G.3, which requires the applicant to develop and implement a Habitat Restoration and Revegetation Plan. Under this plan, any vegetation removed from beneath the solar arrays would be revegetated after construction, which would eliminate the long-term color contrast between the soil and vegetation in these areas. Other areas impacted by grading or trampling during project construction would also be revegetated. Because this measure has been incorporated into the no action

(no permit) alternative, vegetation removal during grading would be a temporary, less than significant direct impact. No additional mitigation measures were identified to further reduce this impact.

During the construction phase, the use of heavy equipment, including excavators, cranes, dozers, and post drivers, would be visible from Little Panoche Road and along Panoche and New Idria Roads as travelers approach the project site. Construction activities and components would become less visible farther from the project area. While the project site is visible from some vantages in the Panoche Hills South WSA, construction would not dominate the view of recreationists. Because construction would not dominate the view of recreationists, aesthetic impacts associated with the presence of equipment and machinery would be less than significant. No additional mitigation measures were identified to further reduce this impact.

Perimeter road construction, site grading, and truck traffic on unpaved roadways could cause dust to be mobilized in the air, which may create dust plumes around these activities, similar to those created by some agricultural equipment now used around the project site. Dust produced on the project site can travel off-site during windy conditions or when occurring near the boundary of the project site. As part of the CEQA EIR certification and project approval process, the applicant committed to implementing APM AQ-3 and Mitigation Measure AQ-1.1, which would require the applicant's contractors to implement a number of measures to minimize the amount of dust created on the proposed project site and minimize the amount of dust that would be carried off the project site by vehicles or during windy conditions. Because these measures have been incorporated into the no action (no permit) alternative dust-related aesthetic impacts would be less than significant. No additional mitigation measures were identified to further reduce this impact.

Exterior lighting needed for night-time construction activities may cause temporary visual impacts on dark night sky conditions by creating unnatural upward lighting that can obscure the night sky. Because no ground-disturbing activities would occur at night, the only lighting needed would be for special status species impact avoidance and minimization activities and research and security patrols. As part of the CEQA EIR certification and project approval process, the applicant committed to implementing APM AES-2, which would require the applicant to use portable and localized lighting only where the work was occurring. While some impacts from night sky lighting may still occur, these impacts would be temporary and due to the relatively small amount of lighting needed, less than significant. No other mitigation measures were identified to further reduce this impact.

Because of the limited number of residences near the construction area, the limited number of travelers on nearby roadways, the temporary nature of the impacts, and the measures incorporated as part of the no action (no permit)

alternative to minimize activities that could affect the aesthetic environment, short-term aesthetic impacts under the no action (no permit) alternative would be less than significant. No additional mitigation measures were identified to further reduce aesthetic impacts.

Long-term Impacts

The degree of contrast within the viewsheds of the solar facility has been determined by analyzing the proposed project elements with simulated views from identified KOPs (**Figure 3-2**). KOPs were identified for their high visibility or perceived sensitivity. They were selected to represent the most critical locations from which the solar facility would be seen by the public. The degree of visual impact would depend on the level of visual change coupled with the level of sensitivity of the individual viewer and is thus somewhat subjective. The primary observers of the proposed project would be travelers on roadways in the project, area, including on Little Panoche Road, which runs in a north-south direction through the proposed project site; the proposed project features would not be in foreground views (within 0.5 mile) from all but one rural residence.

Photo simulations from KOPs developed for the Final EIR for the Panoche Valley Solar Farm Project (San Benito County 2010a) were evaluated for this analysis. The project analyzed in the Final EIR did not include the telecommunications infrastructure; therefore, the simulations do not include the proposed microwave tower site that would be constructed near the switching station of the project footprint. The visual effect of the microwave tower is evaluated qualitatively under *PG&E Telecommunication Upgrades* at the end of this discussion. In addition, the project footprint has been reduced since the visual simulations were developed, so the photo simulations may show panels closer to area roadways than under the no action (no permit) alternative footprint. Differences are outlined in the descriptions of each KOP.

KOP 1. KOP 1 is on Little Panoche Road, north of the project footprint, looking south onto the proposed project site (**Figure 3-2**). The observers at this KOP are occupants of vehicles travelling on Little Panoche Road, which has a traffic volume of approximately 66 vehicles per day (Hexagon Transportation Consultants, Inc. 2014). KOP 1 is 3 miles north of KOP 2 on Little Panoche Road. There are no residences near this KOP, and therefore residents would not be affected from the construction of solar arrays from KOP 1. From KOP 1, the solar arrays would intermittently dominate the view in the foreground of the landscape for drivers along Little Panoche Road but would not affect the surrounding background views. The visibility of solar arrays along Little Panoche Road for drivers travelling south along Little Panoche Road from KOP 1 towards KOP 2 would include the following:

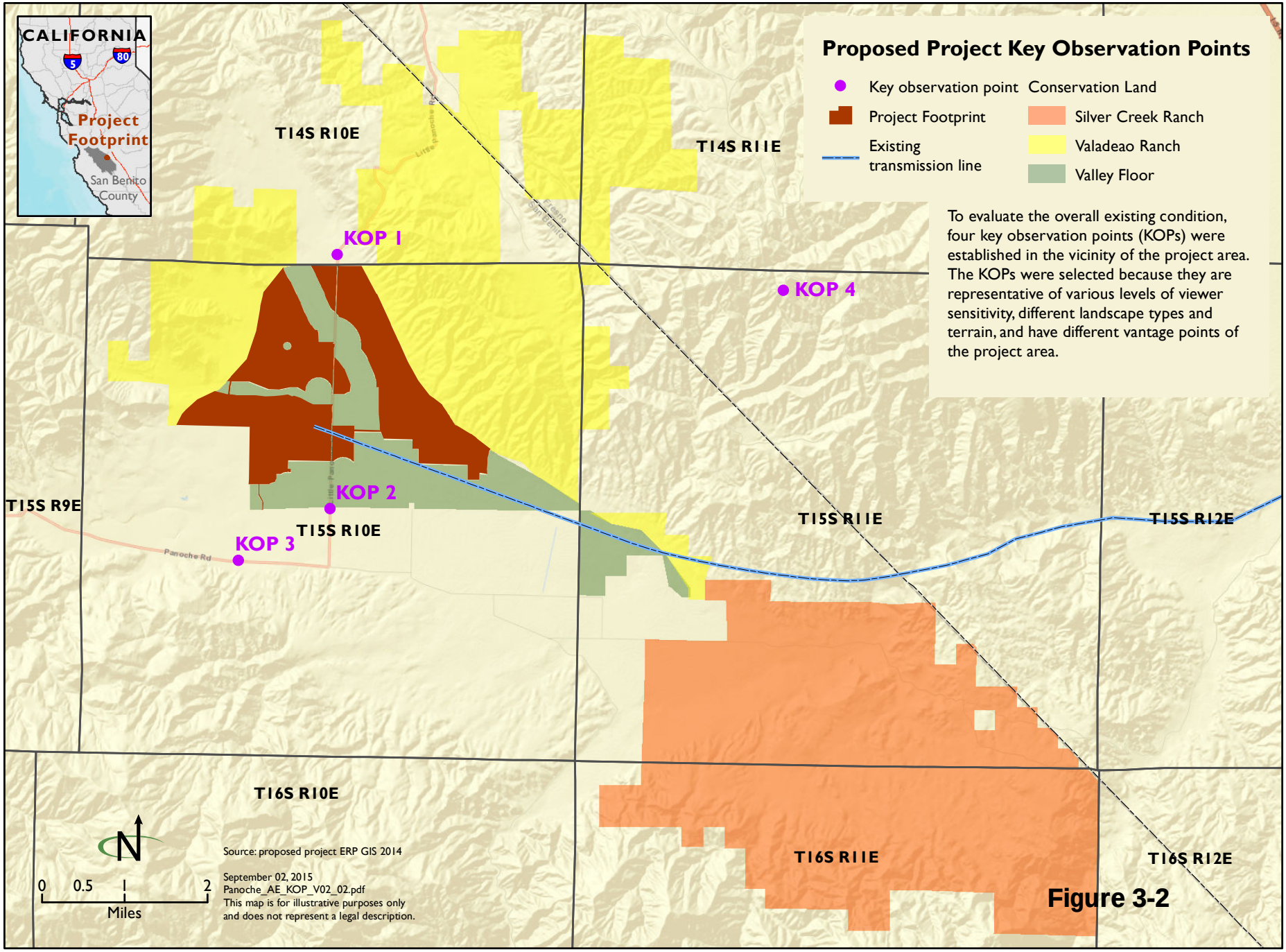
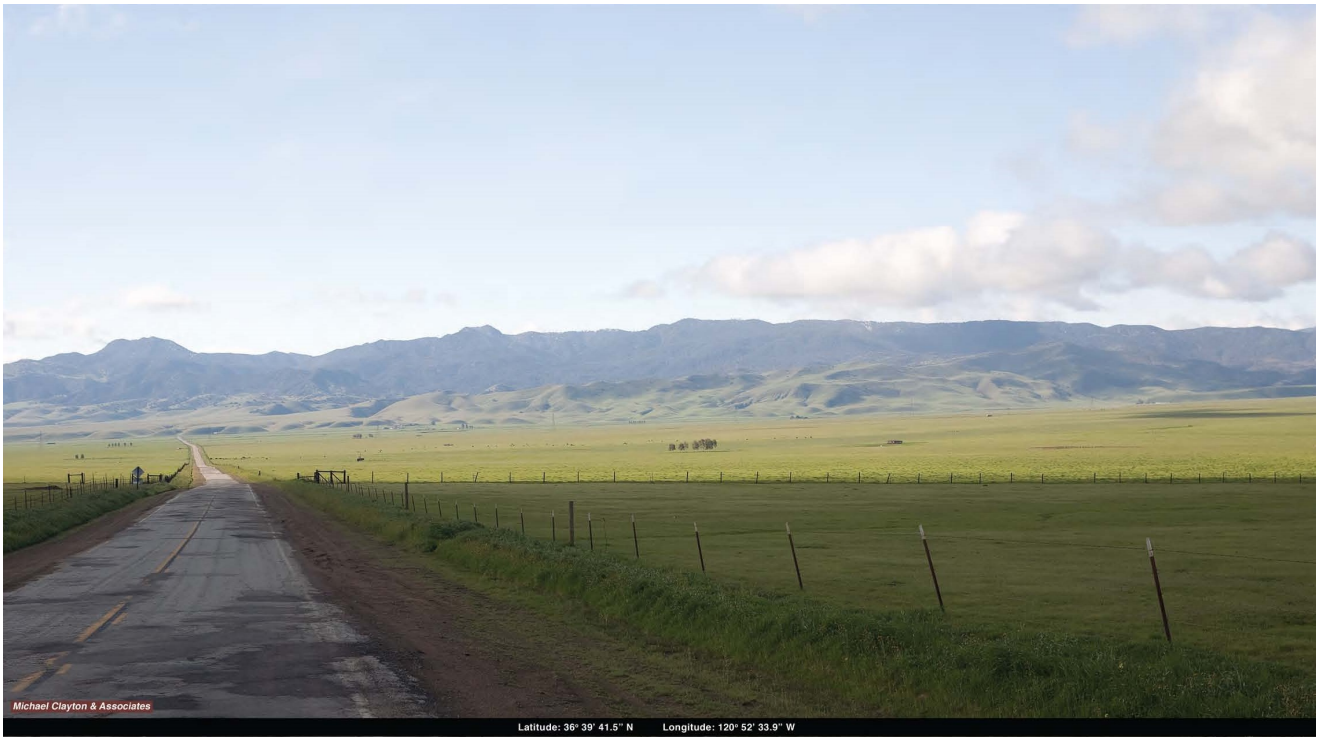

Proposed Project Key Observation Points
Key observation point
Project Footprint
Existing transmission line
Conservation Land
Silver Creek Ranch
Valadeao Ranch
Valley Floor
To evaluate the overall existing condition, four key observation points (KOPs) were established in the vicinity of the project area. The KOPs were selected because they are representative of various levels of viewer sensitivity, different landscape types and terrain, and have different vantage points of the project area.
CALIFORNIA
5
80
Project Footprint
San Benito County
T14S R10E
T14S R11E
KOP 1
KOP 4
KOP 2
KOP 3
T15S R9E
T15S R10E
T15S R11E
T15S R12E
Panoche Rd
T16S R10E
T16S R11E
T16S R12E
N
0 0.5 1 2
Miles
Source: proposed project ERP GIS 2014
September 02, 2015
Panoche_AE_KOP_V02_02.pdf
This map is for illustrative purposes only and does not represent a legal description.

Figure 3-2

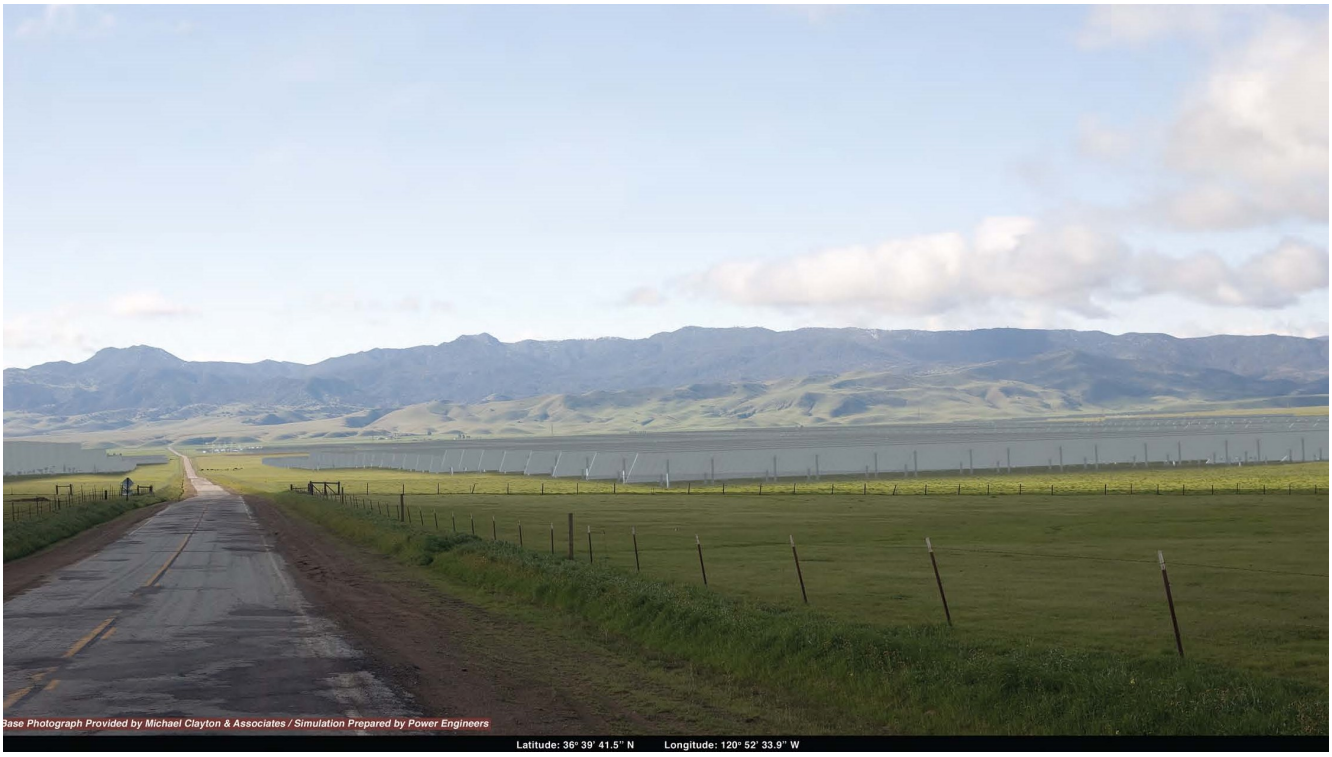
- From KOP 1 to approximately 0.7 mile south of KOP 1: solar arrays would dominate the foreground along both the east and west sides of Little Panoche Road.
- From 0.7 mile to 1 mile from KOP 1: solar arrays may be visible in the distance on the east and west side of Little Panoche Road, and to the south, but would not dominate the views.
- From 1 mile to 1.4 mile from KOP 1: solar arrays would dominate the view along the west side of Little Panoche Road. In addition, panels would be visible to the south if the potential array sites adjacent to the Little Panoche Road are developed (potential array sites are identified on **Figure 2-2**, No Action (No Permit) Alternative Site Layout, in **Chapter 2**). While solar panels may be visible in the distance, they would not dominate the view along the east side of Little Panoche Road.
- From 1.4 mile to 2 mile from KOP 1: solar arrays may dominate the view along the east side of Little Panoche Road if the potential sites are developed. While solar panels may be visible in the distance, they would not dominate the view along the west side of Little Panoche Road, or to the south.
- From 2 mile to 2.7 mile from KOP 1: solar arrays may be visible in the distance on the east and west side of Little Panoche Road, and to the south, but would not dominate views.
- From 2.7 mile to KOP 2: solar arrays would be behind the observer and would not be visible.

The introduction of the gray solar arrays at a diagonal slant create uniform horizontal lines parallel to the ground that is in contrast to the sparsely developed landscape in the foreground (see **Figure 3-3**). Modification of the visual character of the rural landscape from grasslands to a developed industrial use represents a change in the visual quality of the landscape. However, because the visibility of the solar panels would be intermittent, the viewing time while traveling the three miles between KOP 1 and KOP 2 would be short, the frequency of use of Little Panoche Road is low (66 vehicles per day; Hexagon Transportation Consultants, Inc. 2014), and the visual quality of the background views will not be affected, the aesthetic impacts would be less than significant.

<u>KOP 2</u>. KOP 2 is on Little Panoche Road on the south side of the project site looking north-northeast toward the project footprint (**Figure 3-2**). Because the project footprint is smaller than that analyzed in the Final EIR, the existing view and visual simulation for KOP 2 (**Figure 3-4**) are not entirely representative of the currently proposed project. The foreground from KOP 2 is composed of Valley Floor Conservation Lands, so the solar arrays would be located beyond the agricultural structures and transmission line almost one mile northeast of



The **existing view** to the south toward the Panoche Valley Solar Farm Project site, from southbound Little Panoche Road just north of the north project boundary. This view encompasses a large, central portion of Panoche Valley, backdropped by the western extent of the Griswold Hills and Coast Range Mountains that define the southern boundary of the valley. Aside from a single transmission line visible in the center of the image, there are few built structures except for a few scattered rural residences and agricultural structures and the landscape is rural pastoral in character.



A **visual simulation** of the proposed project from KOP 1, on southbound Little Panoche Road just north of the north project boundary. This view to the south encompasses a substantial portion of the central development area. As demonstrated in the image above, the expansive solar fields would transform the existing rural landscape of Panoche Valley, with the introduction of the project's complex industrial character sharply contrasting with the predominantly pastoral landscape setting of the valley and the predominantly natural appearance of the background hills and mountains.

Source: Michael Clayton & Associates and Power Engineers 2010

Figure 3-3. Key Observation Point 1

The **existing view** to the north-northeast toward the Panoche Valley Solar Farm Project site, from northbound Little Panoche Road, immediately north of the south project boundary. This view encompasses a large, central portion of Panoche Valley, backdropped by the Panoche Hills, which define the northeastern boundary of the valley. Aside from a single transmission line visible in the center of the image,there are few built structures except for a few scattered rural residences and agricultural structures and the landscape exhibits a rural, pastoral character.

A **visual simulation** of the proposed project from KOP 2, on northbound Little Panoche Road just north of the south project boundary. This view to the north-northeast encompasses a substantial portion of the central development area. As demonstrated in the image above, the expansive solar fields would transform the existing rural landscape of Panoche Valley, with the introduction of the project's complex industrial character sharply contrasting with the predominantly pastoral valley landscape and the predominantly natural appearance of the background Panoche Hills.

Source: Michael Clayton & Associates and Power Engineers 2010

Figure 3-4. Key Observation Point 2

the KOP. The simulation is representative of a location approximately 0.75 mile north on Little Panoche Road looking northwest. At that location the solar arrays would be in the foreground, as displayed in the simulation. There would be no contrast in form, line, or texture to the existing land or vegetation and no contrast in the color of the existing vegetation. Shadows created by the solar arrays would make the land appear a uniform gray, a moderate contrast to the lighter and more natural grays, greens, and browns of the existing land. The gray solar arrays at a diagonal slant would create uniform horizontal lines parallel to the ground. This is in strong contrast to the sparsely developed landscape in the foreground.

The casual observers at this KOP are considered to be passersby driving on Little Panoche Road, which has a traffic volume of approximately 66 vehicles per day (Hexagon Transportation Consultants, Inc. 2014). The visibility of solar arrays along Little Panoche Road for drivers travelling north along Little Panoche Road from KOP 2 would be the reverse of that identified above for KOP 1. Modification of the visual character of the rural landscape from grasslands to a developed industrial use represents a change in the visual quality of the landscape. However, because the visibility of the solar panels would be intermittent, the viewing time while traveling on Little Panoche Road would be short, the frequency of use of Little Panoche Road is low (66 vehicles per day; Hexagon Transportation Consultants, Inc. 2014), and the visual quality of the background views will not be affected, the aesthetic impacts would be less than significant.

KOP 3. KOP 3 is on Panoche Road south of the project site looking northeast (**Figure 3-2**). The casual observers at this KOP are considered to be passersby driving on Panoche Road, which has a traffic volume of approximately 176 vehicles per day (Hexagon Transportation Consultants, Inc. 2014). The existing view and visual simulation are shown in **Figure 3-5**. The solar arrays would be set farther back than those displayed on this figure, as some of the project site would be left undeveloped as Valley Floor Conservation Lands. There would be no contrast in form, line, color, or texture to the existing vegetation. The solar arrays appear as widespread, low, dark gray structures in the background, and the substation appears spiky and light gray or white against the gray solar arrays. From KOP 3, the solar panels or substation would be to the north of travelers driving east on Panoche Road for approximately 3.75 miles. Due to the distance of the proposed solar arrays from Panoche Road, views from any vantage point along Panoche Road would be similar to those from KOP 3. While the solar arrays and substation would cause a change in views along Panoche Road, these features do not dominate the view for drivers travelling east or west along Panoche Road, and the background views would not be affected. Because the solar panels and substation would not dominate the view from Panoche Road, the viewing time for travelers on Panoche Road would be short, the frequency of use of Panoche Road is low (176 vehicles per day; Hexagon Transportation

The **existing view** to the northeast toward the Panoche Valley Solar Farm Project site, from eastbound Panoche Road, approximately 0.65 mile south of the southwest corner of the project site and 1.1 miles west of the intersection with Little Panoche Road. This expansive view encompasses a large, central portion of Panoche Valley, backdropped by the Panoche Hills. A wood-pole distribution line is visible in the foreground and a lattice transmission line is visible in the distance. There are also few scattered rural residences in this predominantly rural, pastoral landscape setting.

A **visual simulation** of the proposed project from KOP 3, on eastbound Panoche Road, approximately 1.1 miles west of the intersection with Little Panoche Road. This panoramic view to the northeast encompasses a substantial portion of the proposed project. As demonstrated in the image above, the expansive solar fields would fill much of Panoche Valley, transforming the existing rural landscape to one with considerable complex industrial character, which would sharply contrast with the pastoral valley landscape and the natural appearance of the background Panoche Hills.

Source: Michael Clayton & Associates and Power Engineers 2010

Figure 3-5. Key Observation Point 3

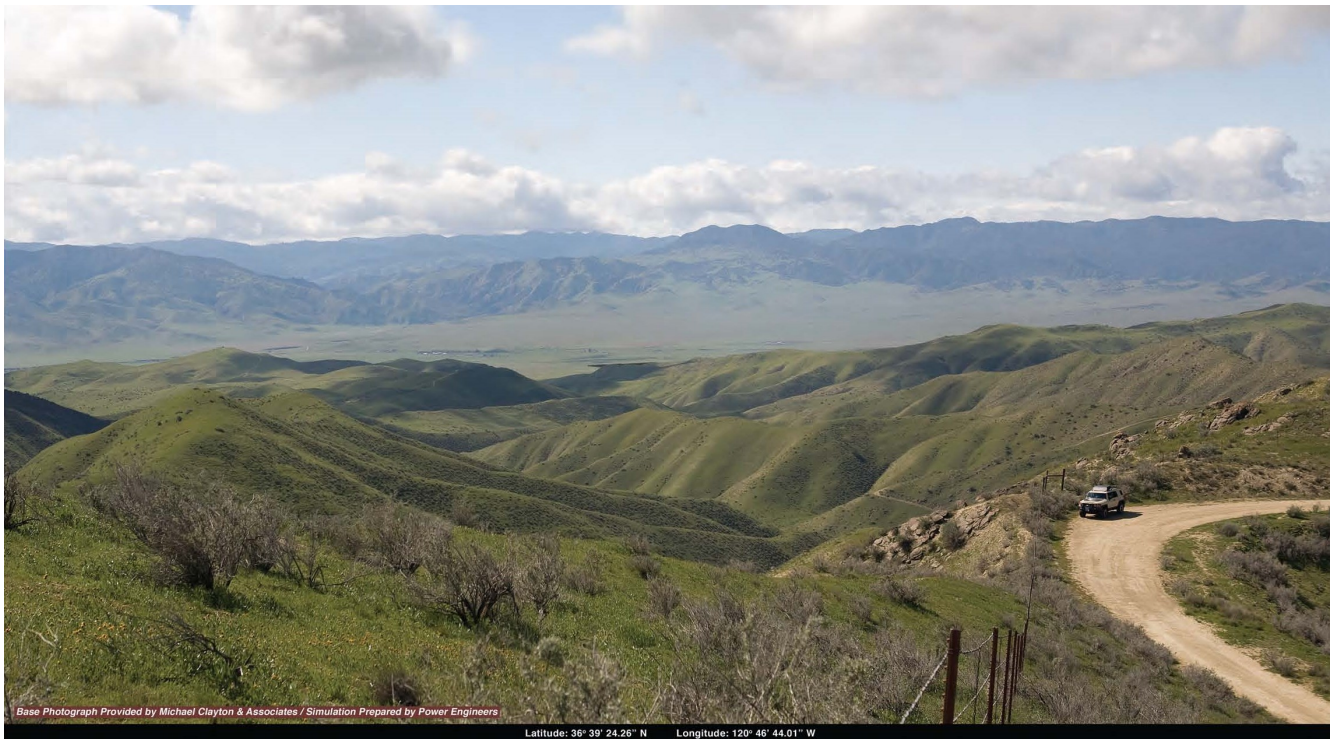
Consultants, Inc. 2014), and the visual quality of the background will not be affected, the aesthetic impacts would be less than significant.

KOP 4. KOP 4 is the viewpoint from the Panoche Access Road in the Panoche Hills; this road serves as the western boundary of the Panoche Hills WSA. It is approximately 3.5 miles northeast of the easternmost boundary of the project footprint (**Figure 3-2**). The existing view and visual simulation are shown in **Figure 3-6**. The project would not be significantly noticeable given the short viewing duration. There would be no contrast in form, line, color, or texture to the existing land or vegetation. From this viewing distance, the only contrast with the structures from the landscape is the color, which appears a darker gray than others in the view. Because of the short viewing duration, long viewing distance, and the screening provided by the hills, this indirect impact would be less than significant.

Las Aguilas and Panoche Creek Free-span Bridge Crossings. Under the no action (no permit) alternative the applicant would avoid impacts to Las Aguilas and Panoche creeks by constructing free-span bridges over these ephemeral drainages. These bridges, described in **Section 2.4**, No Action (No Permit) Alternative and depicted on **Figure 2-3** and **2-4**, would be approximately 275 feet long, would sit approximately 3 feet above ground level, and would have bridge structures (trusses) above the bridge decking that rise approximately 25 feet above ground level. The Las Aguilas Creek bridge would be 2 miles north of Panoche Road and 1.2 miles west of Little Panoche Road. The Panoche Creek bridge would be 0.7 mile north of Panoche Road and 0.8 mile west of Panoche Road. The Las Aguilas bridge would be masked from view by other features of the solar facility as seen from both roads. The Panoche Creek bridge would not be masked from view by other features of the solar facility. However, solar arrays would sit behind the bridge as seen from Panoche Road. Given the distance of the bridges from Panoche Road and Little Panoche Road, the use of dulled finishes as required by the County (APM AES-1 and Mitigation Measure AE-3.1), and the blending with other features of the solar facility, construction of the bridges would have a less than significant aesthetic impact.

Overall, the long-term impacts on aesthetics from the no action (no permit) alternative would be less than significant due to the intermittent or low visibility of the solar panels, the short viewing time of solar facility features, the low frequency of use of adjacent roadways, the use of dulled finishes and colors to blend with the landscape, and maintenance of the visual quality of the background views of the Panoche Hills, Tumey Hills, Griswold Hills, and the Coast Range Mountains. No additional mitigation measures were identified to further reduce aesthetic impacts.

The **existing view** to the southwest toward Panoche Valley and the proposed project site, from Key Viewpoint 4 adjacent to Panoche Access Road, which is the primary access road into the Panoche Hills and serves as the western boundary of the Panoche Hills Wilderness Study Area. This panoramic vista view encompasses the southern ridges of the Panoche Hills and the southern portion of Panoche Valley beyond (3.5 miles distant). The Griswold Hills and Coast Range Mountains provide a backdrop to the valley. The view is predominantly natural in appearance.



A **visual simulation** of the proposed project from KOP 4 adjacent to Panoche Access Road, approximately 3.5 miles northeast of the eastern-most solar blocks. This panoramic vista view to the southwest encompasses a small portion of the eastern development area, which is barely visible as a darker sliver above the ridgeline in the center of the image above. As illustrated above, the solar blocks would be barely visible to a small portion of the Panoche Wilderness Study Area (and not visible at all to the vast majority of the Wilderness Study Area).

Source: Michael Clayton & Associates and Power Engineers 2010

Figure 3-6. Key Observation Point 4

Operational and Maintenance Activities

The primary aesthetic impacts associated with operational and maintenance activities would be dust plumes from travel on unpaved surfaces and operational lighting. Because the perimeter road and driveways would be graveled and interstitial space between the arrays would be vegetated, the amount of dust generated and associated aesthetic impacts would be less than significant.

Exterior lighting would be required for security during operation of the facility. The effects of this lighting on the night sky would be less than significant because lighting in the solar arrays would be activated by motion sensors and would have sensitivities set to avoid light activation by wildlife. While constant low-level lighting would be required at the O&M building, it would consist of a single lamp source near the entrance of the building activated by a timer. All lighting would point downward, would be shielded to preserve dark skies, and would adhere to San Benito County's Lighting Ordinance (19.31.003-009). As part of the CEQA EIR certification and project approval process, the applicant committed to implementing APM AES-2 and Mitigation Measure AE-1.1, which would eliminate unnecessary lighting to preserve the night sky. Because these measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the direct impact of lighting on aesthetics would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

PG&E Telecommunication Upgrades

KOPs and visual simulations were not developed for the PG&E telecommunication upgrades, so the aesthetic effects were assessed qualitatively. Project elements at the Call Mountain site and the Panoche Mountain site would be collocated on an existing tower and would not change the overall characteristic of the landscapes. The Helm Substation is already substantially developed, and the addition of a 100-foot telecommunications tower would not change the characteristic landscape.

<u>Primary Telecommunication Upgrades</u>. Impacts on aesthetic resources from primary telecommunication upgrades would primarily be from temporary work areas. There would also be localized disturbance at the splice and pull/reel sites and helicopter landing zones, but no vegetation would be removed. Each of the sites would be small enough that they would not detract from the existing landscape. Such impacts would be temporary during the upgrade. Overall, temporary direct impacts would be less than significant. There would be no long-term aesthetic impacts from primary telecommunication upgrades because the upgrades would not change the overall visual character of the Panoche-Moss Landing transmission line within the existing PG&E right-of-way (ROW).

<u>Secondary Telecommunication Upgrades</u>. There would be no impacts on aesthetic resources at Call Mountain or Panoche Mountain because existing towers would be used to collocate the telecommunications equipment. The

addition of a microwave tower within the existing fence line at the Helm Substation would not contrast with infrastructure at that location. The new tower would not be significantly more noticeable; there would be no indirect long-term impacts at this site.

Impacts from constructing the new microwave tower on the project site are the same as those described for the proposed project. The new tower would be next to the proposed substation and switching station, which can be seen from KOP 3. The substation would be next to the existing transmission line, which is supported by steel lattice towers. The microwave tower, at 100 feet tall, would be taller than the equipment and facilities to be placed in the substation and switching station, but not taller than the existing transmission line tower. The tower would not increase impacts above those previously described for KOP 3. This would be an indirect, less than significant impact.

Alternative A (Applicant's Proposed Project)

The proposed project would have similar impacts as those described under the no action (no permit) alternative.

Construction

Temporary and Short-term Impacts

Temporary and short-term impacts associated with construction of the applicant's proposed project would have the same direct and indirect less than significant impacts described for the no action (no permit) alternative. The applicant-proposed measures and County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. Additional grading would occur in the eastern portion of the project site associated with the three drainages considered waters of the U.S.; however, this area would not be in the foreground of KOPs.

As described under the no action (no permit) alternative, because of the limited number of residences near the construction area, the limited number of travelers on nearby roadways, the temporary nature of the impacts, and the measures incorporated as part of Alternative A to minimize activities that could affect the aesthetic environment, short-term aesthetic impacts under Alternative A would be less than significant. No additional mitigation measures were identified to further reduce aesthetic impacts.

Long-term Impacts

Long-term indirect impacts associated with development of the applicant's proposed project would be the same as described under the no action (no permit) alternative. Under Alternative A, the applicant would construct two single-span bridge crossings over Las Aguilas and Panoche Creeks rather than free-span bridges. These bridges would have a lower profile than the free-span bridges described under no action. In addition, solar arrays would be constructed in the eastern drainages rather than in the potential solar array

areas adjacent to Little Panoche Road. While these changes would result in a reduction in aesthetic change compared with no action, these differences would not change the overall aesthetics as described under the no action (no permit) alternative. The applicant-proposed and County-required mitigation measures identified for the no action (no permit) alternative are also included as part of this alternative.

Overall, the long-term impacts on aesthetics from Alternative A would be less than significant due to the intermittent or low visibility of the solar panels, the short viewing time of solar facility features, the low frequency of use of adjacent roadways, and maintenance of the visual quality of the background views of the Panoche Hills, Tumey Hills, Griswold Hills, and the Coast Range Mountains. No additional mitigation measures were identified to further reduce aesthetic impacts.

Operational and Maintenance Activities

Impacts from operational and maintenance activities would be the same as described for the no action (no permit) alternative. Direct and indirect impacts would be less than significant, and no additional mitigation measures were identified to further reduce impacts,

PG&E Telecommunication Upgrades

Direct and indirect less than significant impacts associated with PG&E primary and secondary telecommunication network upgrades would be the same as those described under the no action (no permit) alternative.

Alternative B (On-Site Alternative)

Construction and Operational and Maintenance Activities

Short-term and long-term impacts under Alternative B would be the same as those described under Alternative A. The applicant-proposed measures and County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. The aesthetic change of multi-span bridges over single-span bridges would not be significantly different than the single-span bridges described under Alternative A. For the reasons described under Alternative A, impacts on aesthetics from Alternative B would be less than significant. No additional mitigation measures were identified to further reduce aesthetic impacts.

PG&E Telecommunication Upgrades

Direct and indirect less than significant impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative.

Alternative C (Off-Site Alternative, Westlands CREZ)

The region of influence for the Westlands CREZ alternative includes the area surrounding the Westlands CREZ from which the general public would be able

to view the facilities. Because the applicant has not applied for a permit to construct a solar facility in the CREZ, no specific project location has been identified. Therefore, KOPs and visual simulations were not developed for the Westlands CREZ. A qualitative discussion of impacts is provided, but the impacts would vary based on the exact project location.

Construction

Temporary and Short-term Impacts

Direct visual impacts during construction would be varied and changing based on the type and location of the construction activities. Where grading occurs, removing vegetation would reveal the brown layers of soil, which could range from a low to moderate short-term contrast, depending on the size and location of grading activities and their visibility from surrounding roadways. Such grading would not contrast with the relatively flat landscape and the already disturbed nature of the lands within the CREZ and would be a less than significant direct impact.

During construction, depending on the facility location, the use of heavy equipment, including excavators, cranes, dozers, and post drivers, would be visible from Interstate 5, Highway 41, South Lassen Avenue, Avenal Cutoff Road, and West Jayne Avenue/Nevada Avenue moving in the direction of the CREZ. Construction activities and components would become less visible farther away from the project area. If applicable, access road construction, site grading, and truck traffic on unpaved access roads would cause dust to be mobilized in the air. This would create dust plumes around these activities similar to those created by agricultural equipment now used in the area. Because of the temporary nature of these impacts and because these impacts would be similar to those already occurring on surrounding agricultural lands, aesthetic impacts from the creation of dust plumes would be less than significant.

Long-term Impacts

Because of the flat terrain, the CREZ area is highly visible in the area north and west of Interstate 5. The level of long-term indirect impacts would vary, depending on the location of the solar facility within the CREZ boundary. For example, there is a large substation that services five high-capacity transmission lines in the far western boundary of the CREZ. While a solar facility would look different on the landscape than the substation and transmission lines, there would be less of an impact in this area than in some other areas of the CREZ that are relatively flat with fewer structures and fewer opportunities for such a facility to blend into the landscape.

Except for near the existing substation, the gray solar arrays at a diagonal slant would create uniform horizontal lines parallel to the ground. This would create a moderate contrast to the generally matte white agricultural structures that are distributed across the landscape in the CREZ. If the facility were developed near

the existing substation, it would still contrast with the taller structures; however, there would be weak contrast due to the existing level of development in the area.

Overall, indirect impacts would be less than significant due to the topography and existing visual character of the Westlands CREZ area.

Operational and Maintenance Activities

The primary aesthetic impacts associated with operational and maintenance activities would be dust plumes from travel on unpaved surfaces and operational lighting. Given the low viewer sensitivity and the more developed nature of the area near the Westlands CREZ, aesthetic impacts from the low level of dust generated and lighting required would be less than significant.

3.2.4 Cumulative Impacts

No Action (No Permit) Alternative, Alternative A, and Alternative B

The aesthetic resources geographic scope for the cumulative effects analysis includes local sensitive receptors within five miles of the proposed project site as well as the Panoche Valley as a whole. The cumulative analysis considers existing structures and natural features of the landscape, along with features of the proposed project.

As described above, there has been minimal development of the landscape surrounding the proposed project site. This rural character extends eastward along the Moss Landing-Panoche 230-kV transmission line. The line itself is one of the primary developed features in the valley, along with Panoche Road and Little Panoche Road. The towers associated with the transmission line are visible vertical elements. Other structures in the valley are distribution lines on wooden poles, dirt roads, and rural residences, including farms and ranches with their associated fencing, dirt lanes, outbuildings, and farm equipment.

The no action (no permit) alternative, Alternative A, and Alternative B would have indirect long-term, less than significant impacts on aesthetics, which would occur primarily to travelers along local roadways. Because no other projects are proposed within the viewshed of the proposed project, the only impacts are those impacts described for the project and there would be no cumulative impacts. PG&E telecommunication upgrades would have no cumulative impacts, as they would result in only minor alterations of existing viewsheds.

Alternative C

The visual resources geographic scope for the cumulative effects analysis includes local sensitive receptors within five miles of the Westlands CREZ. The cumulative analysis considers existing structures and natural features of the landscape, along with features of the proposed project and other planned and reasonably foreseeable projects in the area.

The Westlands CREZ is in an agricultural region of Fresno and Kings Counties. The terrain in and around the Westlands CREZ is flat except for the mountains and foothills of the Coast Ranges, visible on the horizon in distant views to the south and west. Much of the land within and surrounding the CREZ is farmed, interspersed with parcels that are denuded of vegetation. Agriculture buildings are sparsely scattered throughout the CREZ.

Existing transmission infrastructure parallels the northern boundary of the CREZ. The tallest structures in and surrounding the CREZ are at and emanate from the Gates Substation in the westernmost arm of the CREZ. High-capacity transmission lines enter the substation from the northeast, southeast, and south, and two lines enter from the northwest. The lattice steel structures are highly visible in the flat green/brown landscape. Due to the flat terrain, the Westlands CREZ is highly visible from area roadways, especially State Highways 41 and 198. However, viewer sensitivity is likely low, given the lower scenic quality of the area.

The development of a 2,506-acre solar facility in this environment would have a less than significant indirect impact on visual resources, due to contrast and visibility. The impact would depend on the facility's location within the CREZ, though it would be a minor impact due to low viewer sensitivity. This would be a small incremental cumulative impact in combination with a proposal to develop the entire 24,000-acre Westlands Solar Park for PV solar use.

As described in its Notice of Preparation (Westlands Water District 2013), the Westlands Solar Park would include solar development features similar to those of the proposed project, plus six electrical substations with structures up to 125 feet tall and a new transmission line parallel to the existing Henrietta-Gates transmission line. The proposed and reasonably foreseeable actions would transform 24,000 acres of agricultural lands into passive solar use, a high degree of contrast over the existing visual environment. These structures, in addition to those in the proposed project, could be a potentially significant indirect long-term cumulative impact; it is unknown whether Kings County would require mitigation measures or if these mitigation measures would reduce cumulative visual impacts to a less than significant level, when combined with the structures of the proposed project.

3.3 AGRICULTURAL RESOURCES

3.3.1 Regulatory Environment

California Land Conservation Act (Williamson Act)

The California Land Conservation Act of 1965, also called the Williamson Act, is in place to protect farmlands from conversion to urban uses. The Williamson Act enables agricultural landowners to voluntarily restrict the use of their land to agriculture or open space by entering into a 10-year rolling contract with the applicable local government. In return, the property owner benefits from a

reduced property tax assessment. City and county governments have the responsibility to implement the Williamson Act.

The California Land Conservation (Williamson) Act Status Report (California Department of Conservation 2010a) describes the Williamson Act. In accordance with state law, each local government determines which land uses are compatible with Williamson Act contracts and the Williamson Act itself. By adopting local ordinances, local governments can identify compatible land uses and establish agricultural preserves. In an agricultural preserve, the landowners and County enter into a contract to preserve the land for agricultural use. Contracts are automatically renewed each year but can be terminated through nonrenewal, in which case the 10-year contract is allowed to lapse, or through cancellation.

Solar-Use Easements

The California Department of Conservation established procedures, fees, standards, and criteria for solar-use easements, under regulations adopted early in 2014 (Title 14 of the California Code of Regulations, Chapter 6, Article 2, Solar-Use Easements). Senate Bill 618 (Wolk Act; Statutes of 2011, Chapter 596) authorizes the parties to a Williamson Act contract, after an eligibility determination and management plan review, to mutually agree to rescind a contract (or a portion of) in order to simultaneously enter into a solar-use easement. A new easement requires that the land be used for solar PV facilities for 20 years, or if the landowner requests, for a term of not less than 10 years (California Department of Conservation 2013).

San Benito County General Plan

The San Benito County General plan contains goals related to agriculture in its land use element and conservation and open space element. Agricultural policies are also included in its land use and environmental regulations and zoning ordinances. In general, policy statements emphasize a desire to accommodate population growth while preserving the county's rural character (San Benito County 1992a).

San Benito County Code of Ordinances

San Benito County Code of Ordinances, Title 19.01 establishes specific procedures for implementing the Williamson Act within San Benito County.

Fresno County General Plan

The Fresno County general plan was adopted in 2000 and is being updated. The September 2014 Revised Public Review Draft (Fresno County 2014a) proposes updated goals and policies for land use and other elements under County jurisdiction. While many policies aim to conserve and protect agricultural lands in the county, the land use element also states that energy conservation and use of renewable resources should be given prominent consideration (Land Use H.7; Fresno County 2014a).

Kings County General Plan

The Kings County 2035 general plan was updated in 2010. The plan groups land use policies into five categories that reflect the county's unincorporated environment: natural lands, agriculture open space, rural interface, community districts, and urban fringe. The Westlands CREZ area is categorized as Agriculture Open Space (Kings County 2010a). The agricultural land use designations define distinct areas of agricultural intensity to protect agricultural lands from incompatible uses. Land Use Policy B7.1.3 states that power generation facilities for commercial markets shall be allowed and regulated through the conditional use permit approval process.

3.3.2 Affected Environment

Proposed Project

Regional Setting

The proposed project is within the Panoche Valley of southeastern San Benito County. Agriculture is the primary land use within San Benito County, with approximately 75 percent of the land area classified as agricultural land. Approximately 90 percent of agricultural lands in the county are used for grazing (San Benito County 2010c).

Project Setting

The proposed project site is agricultural land used for cattle grazing. No field crops are produced on the project site. Surrounding lands also support cattle grazing, with some orchards, vineyards, and field crops grown approximately one mile southeast of the project site (San Benito County 2010b). Lands within the project site are no longer subject to the Williamson Act. During an initial review of the proposed project, the County determined the proposed solar project would be incompatible with the Williamson Act. Landowners on the project site with existing Williamson Act contracts subsequently initiated full or partial cancellation of 12 contracts. The San Benito County Board of Supervisors approved the cancellation of these contracts in 2010 (San Benito County 2010b).

The Natural Resources Conservation Service (NRCS) and the California Department of Conservation identify agricultural resources nationwide and in California, respectively. Classification of land as farmland is based on physical and chemical characteristics of soils as well as the actual land use.

Prime farmland, as defined in the Code of Federal Regulations, Title 7, Part 657.5, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is also available for these uses. Prime farmland must have an adequate and dependable water supply from precipitation or irrigation and must meet specific soil criteria. Additional categories of farmland in the NRCS classification system are unique farmland, farmland of statewide importance, farmland of local

importance, and not prime farmland. The former three categories do not possess all of the characteristics of prime farmland; however, they usually include certain soil, moisture, or geographic characteristics that make the lands suitable for agricultural production, while the latter category is not suitable for crops but may be useful for grazing.

The NRCS bases its farmland classifications partially on the soil land capability class, which takes into consideration such factors as the fertility, permeability, texture, depth, and erosive potential of the soil. A variety of loamy soil types in the project area, including within the project footprint, are consistent with prime farmland and farmland of statewide importance; however, the lack of irrigation significantly limits the capacity of the land for agricultural production.

The California Department of Conservation's Farmland Mapping and Monitoring Program identifies important farmland throughout California, based on both current use and soil quality. In order to be classified as prime farmland or farmland of statewide importance, land must have been used for irrigated agricultural production at some time during the four years before the mapping date. The 2010 Farmland Monitoring and Mapping Program mapping update completed for San Benito County identifies portions of the project site as Prime Farmland and Farmland of Statewide Importance (California Department of Conservation 2010b). However, the area is not irrigated and was not irrigated within four years prior to the mapping of the area in 2010. As a result, the land would not be considered prime farmland. Approval for cancellation of all Williamson Act contracts within the project site by the San Benito County Board of Supervisors further nullifies any previous prime farmland designations within the project site. The Farmland Mapping and Monitoring Program classifies the entire project site and proposed conservation lands as grazing land.

PG&E Telecommunications Upgrades

The PG&E primary telecommunications upgrades would occur in the existing PG&E right-of-way corridor of the Moss Landing-Panoche 230-kV transmission line. This corridor is between the project site and the Panoche Substation, 17 miles east of the project site. Approximately 6.4 miles of the corridor run through BLM-administered lands. Rural undeveloped land surrounds the transmission line between the project site and Interstate 5 to the east; rural agricultural land surrounds the line between Interstate 5 and the Panoche Substation. The PG&E right-of-way supports both crop production and grazing at various points along the right-of-way corridor. BLM-administered lands within the PG&E right-of-way and at the Panoche Mountain microwave tower are managed as grazing lands by the BLM Hollister Field Office.

Westlands CREZ

Project Setting

The Westlands CREZ is within western Fresno and Kings County and is composed of privately held parcels of land. The lands of the Westlands CREZ and surrounding areas consist almost entirely of cultivated agricultural.

NRCS data indicate that there are Prime Farmlands and Farmlands of Statewide Importance in the CREZ boundary (**Table 3-2** and **Figure 3-7**). NRCS data also indicate that there are excellent and good acres of farmland, as identified using the Storie Index Rating classification, as shown in **Table 3-3**.

Table 3-2
Farmland Designation in the CREZ Boundary

Farmland Classification	Acres
Prime Farmland if Irrigated	7,680
Farmland of Statewide Importance	27,730
Not Prime Farmland	60
Total	***35,470***

Source: NRCS 2014

Table 3-3
Storie Index Ratings in the CREZ Boundary

Storie Index Rating	Acres
Grade 1 - Excellent	2,930
Grade 2 - Good	3,910
Grade 3 - Fair	22,280
Grade 4 - Poor	0
Grade 5 - Very Poor	410
Grade 6 - Nonagricultural	500
Not applicable/not rated	5,350

Source: NRCS 2014

Much of the land in the CREZ boundary is subject to Williamson Act Land Conservation contracts or Farmland Security Zone contracts (Kings County 2010b). As described under Regulatory Framework, the Williamson Act enables local governments to enter into 10-year contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space use. In return, landowners receive property tax assessments, which are generally lower than normal because they are based on farming and open space uses as opposed to full market value. A Farmland Security Zone contract is a 20-year contract that has similar restrictions as Williamson Act contracts for land use. In recognition of the longer term, Farmland Security Zones offer landowners greater property tax reduction.

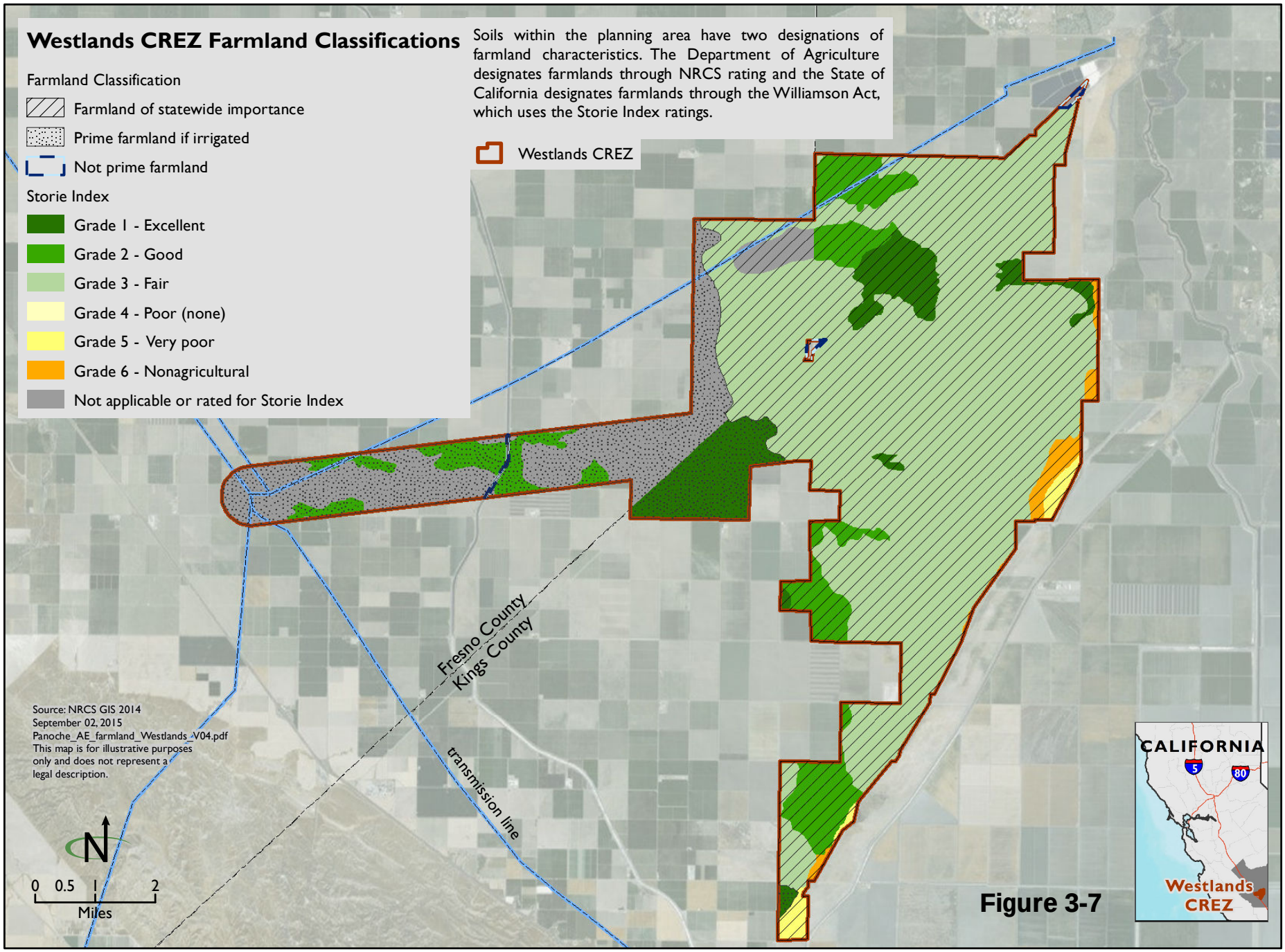

Westlands CREZ Farmland Classifications
Soils within the planning area have two designations of farmland characteristics. The Department of Agriculture designates farmlands through NRCS rating and the State of California designates farmlands through the Williamson Act, which uses the Storie Index ratings.
Farmland Classification
Farmland of statewide importance
Prime farmland if irrigated
Not prime farmland
Storie Index
Grade 1 - Excellent
Grade 2 - Good
Grade 3 - Fair
Grade 4 - Poor (none)
Grade 5 - Very poor
Grade 6 - Nonagricultural
Not applicable or rated for Storie Index
Westlands CREZ
Fresno County
Kings County
transmission line
Source: NRCS GIS 2014
September 02, 2015
Panoche_AE_farmland_Westlands_V04.pdf
This map is for illustrative purposes only and does not represent a legal description.
N
0 0.5 1 2
Miles
CALIFORNIA
5
80
Westlands CREZ

Figure 3-7

All of the lands in the CREZ are formally recognized as "drainage impaired" by the US Bureau of Reclamation (Westlands Water District 2013). The accumulation of naturally occurring salts combined with high groundwater conditions has created severe limitations on agricultural land capability. Due to lack of agricultural drainage facilities, these near-surface soil conditions limit crop choices to salt-tolerant and lower value crops. The lower levels of crop revenue combined with the higher costs associated with managing these impaired lands substantially reduces their agricultural viability.

The Westlands Water District has identified these drainage-impaired lands for retirement from irrigated agriculture. Once retired, these lands would no longer be eligible to receive surface water deliveries from the San Luis Unit of the Central Valley Project. As nonirrigated lands, all of the soils in the Westlands CREZ would be classified by the NRCS as having a land capability rating of VII, indicating non-prime agricultural soils. Under the Williamson Act amendments contained in Senate Bill 618 (Wolk), signed into law in October 2011, the drainage-impaired lands comprising the Westlands CREZ site would be eligible for conversion to solar access easements for a term no less than 20 years (Westlands Water District 2013).

3.3.3 Environmental Impacts

Impacts on agricultural resources would be considered significant if the proposed action or alternatives would result in any of the following:

- Convert prime farmland, unique farmland, or farmland of statewide importance
- Conflict with any applicable land use plan, policy, or regulation
- Disrupt agriculture uses on surrounding lands such that it impaired the use of these lands for agricultural uses

No Action (No Build) Alternative

Under the no action (no build) alternative, the proposed project would not be constructed and no telecommunication upgrades would occur. Current agricultural uses on the proposed project site would continue as described in **Section 3.3.2.**

No Action (No USACE Permit) Alternative

Construction

The following County-required measures were included as conditions of approval in the conditional use permit for the proposed project to reduce impacts on agricultural resources and are considered part of the no action (no permit) alternative in this EIS. The full text of these measures is included in **Appendix C**, **Table C-1** and **Table C-2**. The impacts of the no action (no permit) alternative on agricultural resources with incorporation of these measures is discussed below.

- **APM AG-1. Grazing sheep on the project site**. If necessary for vegetation control, sheep would be grazed throughout the project site, except on the 50 to 65 acres where new roads, buildings, and switching station/substation are constructed or where safety concerns would prevent grazing. The grazing operation would be a rotational system using short-duration intensive grazing alternating with periods of rest. The project site would be divided into pastures, which could provide forage for between 750 and 3,600 adult sheep depending on annual rainfall and temperatures. The project site would be grazed between January and May. The Applicant would construct new sheep fencing as necessary. Each pasture would have access to water from existing livestock watering facilities.
- **APM AG-2. Allow grazing on lands covered by conservation easement created for biological resource mitigation**. Cattle grazing would be used as appropriate to increase biodiversity and maintain the suitability of mitigation lands for protected species habitat. The grazing program would be developed in accordance with grazing BMPs outlined by the Bureau of Land Management and protected species habitat requirements as determined by the California Department of Fish and Wildlife (CDFW) and the United States Fish and Wildlife Service (USFWS). The grazing management plan would be developed, implemented, and monitored by the land trust or public conservation agency that holds the habitat conservation easement in consultation with CDFW and USFWS.
- **Mitigation Measure AG-2.1. Create agricultural conservation easement(s)**. Prior to the issuance of building permits, the Applicant shall pay for the creation of either (a) 4,563-acre conservation easement(s) on grazing land, or (b) 285-acre conservation easement(s) on high quality cropland classified as prime farmland in the San Juan Valley. The 285 acres in (b) shall be classified as Prime Farmland by the Department of Conservation's Farmland Mapping and Monitoring Program. Conservation easement(s) or adequate funds to create them shall be given to a qualified agricultural land trust, as determined by the Department of Planning and Building.
- **APM AQ-3. Reduce fugitive dust emissions during construction**. Implement best management practices: water graded/ excavated areas and active unpaved roadways, unpaved staging areas, and unpaved parking areas at least three times daily or apply chemical soil stabilizers per manufacturer recommendations; apply chemical soil stabilizers or water on inactive construction areas; stabilize all disturbed soil areas not subject to revegetation by using approved chemical soil binders, jute netting, or gravel for temporary roads; place gravel on all perimeter roadways and

driveways as soon as possible after grading for said roadways; cover all trucks hauling dirt, sand, or soil or maintain at least two feet of freeboard; and install gravel track systems where vehicles enter and exit unpaved roads onto streets and inspect equipment tires to ensure free of soil prior to carry-out to paved roadways.

- **Mitigation Measure AQ-1.1. Further reduce fugitive dust emissions during construction**. Implement additional measures to significantly reduce fugitive dust emissions and require measures to be shown on grading and building plans. Such measures include limiting grading to 50 acres per day, and grading and excavation to 2.2 acres per day; watering graded/excavated areas and active unpaved roadways, unpaved staging areas, and unpaved parking areas at least three times daily or apply non-toxic chemical soil stabilization materials per manufacturer's recommendations; prohibiting all grading activities during periods of high wind (sustained over 15 mph); and minimizing dust leaving the site through wheel washers, street sweepers, gravelling roadways and driveways, and maintaining two feet of freeboard on haul trucks.

The no action (no permit) alternative would convert the 2,506-acre project footprint from grazing land to solar development, converting this acreage to a nonagricultural use. As described above under *Affected Environment*, project site lands are not considered prime farmland, unique farmland, or farmland of statewide importance due primarily to the lack of irrigation. The California Farmland Mapping and Monitoring Program classifies the entire project footprint and proposed conservation lands as grazing land.

As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, the applicant will provide funding for 4,563 acres of conservation easement(s) on grazing land, or 285 acres of conservation easement(s) on high quality cropland classified as prime farmland in the San Juan Valley. In addition, the applicant will use sheep grazing within the project footprint as needed for vegetation control and allow cattle grazing as appropriate on the conservation easements created for biological resource mitigation, further offsetting the impact of conversion of the project footprint out of agricultural use. These measures would offset the loss of grazing lands in San Benito County caused by development of the project through the preservation of farmland with a permanent conservation easement. Because APM-1, APM-2, and mitigation measure AG-2.1 have been incorporated into the no action (no permit) alternative evaluated in this EIS, the direct effect of agricultural conversion to nonagricultural use would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

The no action (no permit) alternative would not conflict with any applicable land use plan, policy, or regulation. In approving the conditional use permit for the proposed project, San Benito County determined that development of the proposed project was an allowable use of the land for this purpose under County zoning regulations. In addition, the no action (no permit) alternative would not conflict with the Williamson Act, because the County approved the cancellation of the Williamson Act contracts associated with the project site. The no action (no permit) alternative would therefore have no direct effects associated with conflicts with land use plans, policies, or regulations. No additional mitigation measures were identified to further reduce these impacts.

Perimeter road construction, site grading, and truck traffic on unpaved roadways could cause dust to be mobilized in the air and be deposited on crops or forage on lands surrounding the project site and along area roadways. Deposition of dust on vegetation can impair the growth of this vegetation. This would be most likely to occur on the vegetation immediately adjacent to roadways and the project footprint boundary. The closest cultivated crops are approximately one mile away from the project footprint boundary and would not be affected by construction activities or entrained dust from traffic. Vegetation that would be affected would be forage for livestock grazing. As part of the CEQA EIR certification and project approval process, the applicant committed to implementing APM AQ-3 and Mitigation Measure AQ-1.1, which would require the applicant's contractors to implement a number of measures to minimize the amount of dust created on the proposed project site and minimize the amount of dust that would be carried off the project site by vehicles or during windy conditions. Because these measures have been incorporated into the no action (no permit) alternative and given the nearly mile distance between the project footprint boundary and the nearest cultivated crops, indirect impacts on surrounding agricultural land uses would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Operational and Maintenance Activities

Operational and maintenance activities associated with the no action (no permit) alternative would have no impacts on agricultural resources. These activities would not disrupt agricultural uses on surrounding lands. Operational and maintenance activities would not produce excessive dust that could travel off-site, and traffic related to both personnel vehicle trips and occasional material deliveries would be low. No mitigation measures are required.

PG&E Telecommunication Upgrades

Primary Telecommunication Upgrades. Primary telecommunication upgrades would occur within the existing PG&E right-of way. Upgrades would include overhead installation of OPGW on existing towers and the replacement of 12 wood distribution poles. These actions would have no permanent impacts on

agricultural resources. Construction activities associated with primary telecommunication upgrades would temporarily impact lands within the PG&E right-of-way. To the extent that construction activities affected actively farmed or grazed areas, construction of the primary telecommunication upgrades would have temporary, short-term direct impacts on agricultural lands within the transmission line corridor. Because these activities would occur within PG&E's right-of-way, they would not conflict with any applicable land use plan, policy, or regulation pertaining to agriculture or with the Williamson Act. Therefore, impacts would be less than significant. No mitigation measures were identified to reduce impacts.

Similar to the impact described for the project footprint, construction activities at temporary work areas and area roadways could cause dust to be mobilized in the air and be deposited on vegetation on surrounding agricultural lands. PG&E-proposed avoidance and minimization measures were included as conditions of approval in the conditional use permit for the proposed project and are considered part of the no action (no permit) alternative in this EIS. Measure AMM AQ-1 requires PG&E to implement measures to reduce fugitive dust such as watering active construction areas at least twice daily, covering trucks hauling soil, sand, and other loose materials, stabilizing soils on unpaved roads, and sweeping paved access roads (see **Table C-3** of **Appendix C**, for the complete text of this measure). Because this measure has been incorporated into the proposed action, indirect impacts on surrounding agricultural land uses would be less than significant. No additional mitigation measures were identified to further reduce this impact.

Secondary Telecommunication Upgrades. Secondary telecommunication upgrades include collocating microwave equipment on existing towers at Panoche Mountain and Call Mountain and building a new microwave tower within the fence line of the existing Helm Substation and would not convert any lands to a nonagricultural use or impact surrounding agricultural land uses. Agricultural impacts for converting agricultural lands within the project footprint for a new microwave tower are discussed above for the proposed project.

Alternative A (Applicant's Proposed Project)

Construction and Operational and Maintenance Activities

Direct and indirect impacts on agricultural resources under Alternative A would be the same as described above for the no action (no permit) alternative. The applicant-proposed measures and County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. No additional mitigation measures were identified to further reduce impacts.

PG&E Telecommunication Upgrades

Less than significant direct impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative.

Alternative B (On-Site Alternative)

Construction and Operational and Maintenance Activities

Direct and indirect impacts on agricultural resources under Alternative B would be the same as described above for the no action (no permit) alternative. The applicant-proposed measures and County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. No additional mitigation measures were identified to further reduce impacts.

PG&E Telecommunication Upgrades

Less than significant direct impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative.

Alternative C (Off-Site Alternative, Westlands CREZ)

Construction

Development of a 247 MW solar facility on lands within the Westlands CREZ would be consistent with both the Fresno County and Kings County General Plans, resulting in no direct impact. Both plans allow development of commercial solar generation facilities on lands zoned as agriculture through the conditional use permitting process.

Development of a 2,506-acre solar facility would convert cultivated farmlands out of agricultural use. Depending on the location of the project, it could also occur on lands that are now subject to Williamson Act contracts or Farmland Security Zone contracts. These contracts would need to be cancelled before a conditional use permit is issued.

Lands within the Westlands CREZ are formally recognized as drainage impaired by the US Bureau of Reclamation (Westlands Water District 2013) and have been identified for retirement from irrigated agriculture by the Westlands Water District. The inability to irrigate these lands would remove them from consideration as prime farmland. In addition, under the Williamson Act amendments contained in Senate Bill 618 (Wolk), signed into law in October 2011, the drainage-impaired lands comprising the Westlands CREZ site would be eligible for conversion to solar access easements for a term of no less than 20 years. Therefore, the proposed Westlands CREZ alternative would have a less than significant direct impact on agricultural resources.

Construction would have a potentially significant indirect effect on surrounding cultivated agricultural land uses by depositing particulate matter on row crops, altering drainage and flow patterns during site construction, and impeding agricultural-related traffic on area roadways. To minimize impacts on surrounding agricultural land uses, the following mitigation measures are recommended:

- Develop and implement a fugitive dust plan
- Develop and implement a stormwater pollution prevention plan
- Develop and implement an erosion control plan
- Develop and implement a traffic control plan are recommended.

The USACE has no jurisdiction over these mitigation measures apart from developing the stormwater pollution prevention plan. It is uncertain whether these measures would be required as conditions of approval in the conditional use permit process of Fresno or Kings Counties; therefore, the level of impact would remain potentially significant.

Operational and Maintenance Activities

Operational and maintenance activities would have no impacts on agricultural resources. These activities would not disrupt agricultural uses on surrounding lands. Operational and maintenance activities would not produce excessive dust that could travel off-site, and traffic related to operational activities would be low. No mitigation measures are required.

3.3.4 Cumulative Impacts

No Action (No Permit) Alternative, Alternative A, and Alternative B

The geographic scope for the agricultural cumulative effects analysis is San Benito County. Because the proposed transmission line upgrade would occur within an existing utility corridor, it would not permanently affect farmland or grazing. Likewise, the microwave towers would be located on previously disturbed lands. Therefore, no contribution to cumulative impacts on farmlands are anticipated with implementation of the telecommunications upgrades, and this action is not discussed further.

The no action (no permit) alternative, Alternative A, and Alternative B would directly convert 2,506 acres of agricultural land from grazing use, which represents approximately 1.5 percent of agricultural lands within San Benito County (Oster 2015). The 2035 San Benito County General Plan Draft EIR indicated that approximately 75 percent of the San Benito County is agricultural land, with most (90 percent) used for grazing.

San Benito County lost 1.2 percent of agricultural land to other uses between 1992 and 2010 and almost half of that land converted was prime farmland. The

amount of prime farmland declined by over 33 percent, and other important farmland declined by almost 44 percent (San Benito County 2013).

The proposed project lands are not prime farmland because they are not irrigated (Oster 2015). The proposed project lands were considered farmlands of local importance before the Williamson Act contracts were approved for cancellation. The loss of these project lands, along with other agricultural lands in San Benito County, would have an incremental adverse cumulative impact on agriculture. This impact would be less than significant, as project site lands represent a small percentage of agricultural lands overall in San Benito County. Moreover, Mitigation Measure AG-2.1, which is included as part of the proposed project under each of these alternatives, requires the applicant to pay for the creation of either a 4,563-acre conservation easement on grazing land or a 285-acre conservation easement on high quality cropland in the San Juan Valley of San Benito County. This measure would compensate for the individual and cumulative adverse impacts on agriculture from converting project site lands out of agricultural use.

In addition, the project would conserve 24,176 acres of adjacent lands in perpetuity, which would continue to allow grazing, resulting in less than significant impacts on agriculture.

Alternative C

The geographic scope for the cumulative agricultural impacts analysis for Alternative C is Fresno and Kings Counties.

The Westlands CREZ contains lands used historically and presently for agricultural crop production. All of the lands in the Westlands CREZ are formally recognized as "drainage impaired" by the US Bureau of Reclamation (Westlands Water District 2013) due to the accumulation of naturally occurring salts combined with high groundwater conditions that reduces their agricultural viability. The Westlands Water District has identified these drainage-impaired lands for retirement from irrigated agriculture.

Much of the land in the Westlands CREZ is under Williamson Act contract or Farmland Security Zone contract, both of which are considered lands of local importance within their respective counties. Conversion of over 35,000 acres in the Westlands CREZ, along with other past, present, and reasonably foreseeable projects in the study area, would constitute a potentially significant cumulative impact on agriculture, particularly in Kings County, where most of the CREZ is located. The inability to irrigate the lands in the Westlands CREZ, however, would remove them from consideration as prime farmland. In addition, Williamson Act amendments contained in California Senate Bill 618 (2011) authorize counties to rescind Williamson Act contracts and enter into solar access easements on agricultural lands that have limited agricultural value, including Westlands CREZ lands. As a result, construction of a proposed

project under Alternative C would result in a less than significant cumulative impact on agriculture.

3.4 AIR QUALITY

Ambient air quality is affected by the type and amount of air pollutants emitted into the atmosphere, the size and topography of the air basin, prevailing meteorological conditions, and the conversion of air pollutants and other species by a complex series of chemical and photochemical reactions in the atmosphere. The levels of air pollutants are generally expressed in terms of concentration, either in units of parts per million (ppm), parts per billion (ppb) or micrograms per cubic meter (μg/m³).

3.4.1 Regulatory Environment

Clean Air Act

The Clean Air Act (CAA; 42 USC, Sections 7401-7642) established the principal framework for national, state, and local efforts to protect air quality in the United States. Under the CAA, the EPA has set time-averaged standards known as national ambient air quality standards (NAAQS, **Table 3-4**) for six air pollutants considered to be key indicators of air quality: carbon monoxide, nitrogen dioxide, ozone, sulfur dioxide, lead, and two categories of particulate matter (particulate matter with an aerodynamic diameter of 10 microns or less [PM_{10}] and particulate matter with an aerodynamic diameter of 2.5 microns or less [$PM_{2.5}$]).

Table 3-4
National Ambient Air Quality Standards

Pollutant	Primary Standards		Secondary Standards Level
	Averaging Time	Level	
Carbon Monoxide	8-hour	9 ppm	None
	1-hour	35 ppm	None
Lead	Rolling 3-Mo. Average	0.15 μg/m³	Same as Primary
Nitrogen Dioxide	Annual (Arith. Ave.)	53 ppb	Same as Primary
	1-hour	100 ppb	None
Particulate Matter (PM_{10})	24-hour	150 μg/m³	Same as Primary
Particulate Matter ($PM_{2.5}$)	Annual (Arith. Ave.)	12 μg/m³	15 μg/m³
	24-hour	35 μg/m³	Same as Primary
Ozone	8-hour	0.075 ppm	Same as Primary
Sulfur Dioxide	3-hour	None	0.5 ppm
	1-hour	75 ppb	None

Source: EPA 2014e

The NAAQS are composed of two parts—an allowable concentration of a criteria pollutant and an averaging time over which the concentration is to be measured. Averaging times are based on whether the damage caused by the pollutant is more likely to occur during exposure to a high concentration for a short time or to a lower average concentration over a longer period. For some

pollutants, there is more than one air quality standard, reflecting both short-term and long-term effects. Primary standards set limits to protect public health, including the health of sensitive populations, such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

The CAA also regulates toxic air pollutants, or hazardous air pollutants, that are known or suspected to cause cancer or other serious health effects or adverse environmental impacts. The EPA has issued rules covering 80 categories of major industrial sources, as well as categories of smaller sources. PV solar generating facilities are not included in the list of categories.

Clean Air Act Conformity Requirements

Section 176(c) of the CAA requires that federal actions conform to the appropriate State Implementation Plan. This plan provides for the implementation, maintenance, and enforcement of NAAQS. It is enforceable by the EPA, which has promulgated rules establishing conformity analysis procedures for transportation-related actions and for other general federal agency actions (40 CFR, Parts 6, 51, and 93).

The EPA general conformity rule requires preparation of a formal conformity determination document for federal agency actions that are undertaken, approved, or funded in federal nonattainment or maintenance areas when the total net change in direct and indirect emissions of nonattainment pollutants (or their precursors) exceed specified thresholds. The project site is not in a nonattainment area and is therefore exempt from the CAA general conformity rule. A portion of the PG&E telecommunication upgrades in Fresno County is in a federal nonattainment area for ozone and $PM_{2.5}$; CAA conformity thresholds for Fresno County are discussed under *PG&E Telecommunications Sites* at the end of this section.

Prevention of Significant Deterioration

As an attainment area, San Benito County is a Class II area under CAA Prevention of Significant Deterioration (PSD) guidelines. Air quality control regions are classified either as Class I, II, or III to indicate the degree of air quality deterioration that the state or federal government will allow while not exceeding national ambient air quality standards (though no Class III areas have been designated). As a Class II area, a moderate change would be allowed in air quality due to industrial growth while still maintaining air quality that meets the NAAQS.

Class I areas are special areas of natural wonder and scenic beauty, such as national parks, national monuments, and wilderness areas, where air quality should be given special protection. Class I areas are subject to maximum limits on air quality degradation. There is one Class I area within 100 kilometers of

the project site—the Pinnacles National Monument is 15 kilometers west of the project site (National Park Service 2012).

PSD guidelines require major sources or major modification of sources to obtain permits for attainment pollutants. The proposed project is a new source that does not have a rule-listed emissions source; therefore, the PSD trigger levels are 250 tons per year for each criteria pollutant. This limit applies only to project operation and is therefore not applicable to the scope of this EIS, which is evaluating only impacts associated with construction of the proposed project.

3.4.2 Affected Environment

Proposed Project

Regional Air Quality

Based on measured ambient criteria air pollutant concentrations, the EPA classifies areas of the United States according to whether they meet the NAAQS. Areas that violate air quality standards are designated as nonattainment for the relevant criteria air pollutants. Nonattainment areas are sometimes further classified by degree (marginal, moderate, serious, severe-15, severe-17, and extreme for ozone, and moderate and serious for carbon monoxide, PM_{10}, and $PM_{2.5}$). Areas that comply with air quality standards are designated as attainment areas for the relevant criteria air pollutants. Areas that have been redesignated from nonattainment to attainment are considered maintenance areas. Areas of uncertain status are generally designated as unclassifiable but are treated as attainment areas for regulatory purposes. All of San Benito County, and the proposed project site, is either unclassified or attainment for all of the NAAQS.

San Benito County is in the jurisdiction of the Monterey Bay Unified Air Pollution Control District (APCD), which administers air quality programs in the county. The Monterey Bay Unified APCD operates two monitoring stations in San Benito County. The monitoring station nearest to the project site is in the Pinnacles National Monument. It monitors ozone to assess general background levels and transport levels (ozone that originates outside the Monterey Bay Unified APCD boundaries). This station reported one exceedance of the federal 8-hour ozone standard in the last three years for which monitoring data are available (2011 to 2013). This exceedance of the NAAQS occurred in 2012. The Hollister-Fairview monitoring station, approximately 29 miles northwest of the project site, measures 8-hour ozone, PM_{10}, and $PM_{2.5}$. No exceedances of NAAQS for PM_{10} and $PM_{2.5}$ were recorded at this monitoring station from 2011 through 2013 (EPA 2014c).

Emissions associated with current activities on the project site are fugitive dust from agricultural activities and travel on unpaved roadways and emissions associated with farm equipment and vehicles.

PG&E Telecommunications Upgrades

The PG&E telecommunication network would be upgraded in both San Benito and Fresno Counties. The air quality of San Benito County is described above. Actions in Fresno County are telecommunication upgrades along the portion of the Moss Landing-Panoche 230-kV transmission line between the San Benito-Fresno County Line and the Panoche Substation, at Panoche Mountain, and at the Helm Substation.

Fresno County is in the jurisdiction of the San Joaquin Valley APCD, which administers air quality programs in eight counties. The San Joaquin Valley is an extreme nonattainment area for the federal ozone standard and a moderate nonattainment area for the federal $PM_{2.5}$ standard.

The San Joaquin Valley APCD operates eight monitoring stations in Fresno County; all but one of these stations is 25 miles or more from the PG&E proposed telecommunication upgrade sites. The Tranquility air monitoring station is 12 miles east of the Helm Substation and monitors ozone and $PM_{2.5}$. This station reported three exceedances of the 8-hour ozone standard in 2013, six exceedances in 2012, and seven exceedances in 2011. No exceedances of $PM_{2.5}$ were recorded at this monitoring station from 2011 through 2013 (EPA 2014d).

CAA conformity thresholds applicable to Fresno County are 10 tons per year for ozone precursor emissions and 100 tons per year for direct $PM_{2.5}$ emissions.

Westlands CREZ

The Westlands CREZ is in both Fresno and Kings Counties in the San Joaquin Valley APCD. As described above, the San Joaquin Valley is an extreme nonattainment area for the federal ozone standard and a moderate nonattainment area for the federal $PM_{2.5}$ standard. Applicable Clean Air Act conformity thresholds are 10 tons per year for ozone precursor emissions and 100 tons per year for direct $PM_{2.5}$ emissions.

The San Joaquin Valley APCD operates eight monitoring stations in Fresno County and two monitoring stations in Kings County (San Joaquin Valley APCD 2013). The Huron air monitoring station, six miles northwest of the CREZ in Fresno County, is the closest monitoring station to the CREZ. However, this is a nonregulatory station and no air monitoring data are available.

The next closest air monitor is 14 miles northeast in Hanford. This station monitors for ozone, PM_{10}, $PM_{2.5}$, and nitrogen dioxide. This site exceeded the national 8-hour ozone standard and $PM_{2.5}$ numerous times in 2011, 2012, and 2013 and the PM_{10} standard in 2013; no exceedances of the nitrogen dioxide standard occurred at this station in the 2011 to 2013 timeframe (EPA 2014d). Air quality conditions at the Hanford site may not be representative of the Westlands CREZ air quality conditions, which is a more rural environment.

3.4.3 Environmental Impacts

Air quality impacts would be considered significant if the proposed project were to result in any of the following:

- Emissions would exceed applicable air district significance thresholds or CAA conformity thresholds
- The project would be inconsistent with any adopted air quality plans or policies

The project site is in San Benito County, with PG&E telecommunication network upgrades occurring in both San Benito and Fresno Counties. Construction of the proposed project would occur within the Monterey Bay Unified APCD, while telecommunications upgrades would occur within both the Monterey Bay Unified (for actions in San Benito County) and San Joaquin Valley APCDs (for actions in Fresno County).

The Monterey Bay Unified APCD and San Joaquin Valley APCD have set thresholds of significance for criteria pollutant emissions. These thresholds identify the level of construction and operational activity that could result in significant temporary impacts if not mitigated. The thresholds of significance are displayed in **Table 3-5** and **Table 3-6**.

No Action (No Build) Alternative

Under the no action (no build) alternative, the proposed project would not be constructed and no telecommunication upgrades would occur. No change in existing air emissions would occur; existing emissions from agricultural-related use of the project site would continue. Potential impacts from offsetting fossil-fuel power generation with renewable energy generation would not be realized.

No Action (No USACE Permit) Alternative

The following County-required measures were included as conditions of approval in the conditional use permit for the proposed project to reduce impacts on air quality and are considered part of the no action (no permit) alternative in this EIS. The full text of these measures is included in **Appendix C**, **Table C-1**, **Table C-2**, and **Table C-3**. The impacts of the no action (no permit) alternative on air quality with incorporation of these measures is discussed below.

- **APM AQ-1**. All requirements of those entities having jurisdiction over air quality matters would be adhered to and any necessary permits for construction activities would be obtained. Open burning of construction trash would not be allowed.
- **APM AQ-2**. Implement best management practices to further reduce construction vehicle emissions during project construction, including maintaining all construction equipment in proper tune

Table 3-5
Monterey Bay Unified APCD Air Quality Thresholds of Significance–Criteria Pollutants

Pollutant/Precursor	Threshold(s) of Significance	
	Operational Emissions[1]	Construction Emissions[2]
CO	550 lb/day (direct)	--
NO_x as NO_2	137 lb/day (direct and indirect)	--
SO_x as SO_2	150 lb/day (direct)[3]	--
PM_{10}	82 lb/day (on-site)[3]	82 lbs/day (on-site)
VOC	137 lb/day (direct and indirect)	--

Source: Monterey Bay Unified APCD 2008
[1]Thresholds of significance for criteria pollutants not listed in the tables would have a significant impact if emissions resulting from the proposed project were to cause or substantially contribute to the violation of state or National Ambient Air Quality Standards (Monterey Bay Unified APCD 2008).
[2]In 2000 the Monterey Bay Unified APCD set a construction impact threshold for PM_{10} of 82 lb/day.
[3]The APCD's 82 lb/day operational phase threshold of significance applies only to on-site emissions and project-related exceedances along unpaved roads.

Table 3-6
San Joaquin Valley APCD Air Quality Thresholds of Significance–Criteria Pollutants

Pollutant/ Precursor	Construction Emissions	Operational Emissions	
		Permitted Equipment and Activities	Non-Permitted Equipment and Activities
	Emissions (tons per year)	*Emissions (tons per year)*	*Emissions (tons per year)*
CO	100	100	100
NO_x	10	10	10
VOC	10	10	10
SO_x	27	27	27
PM_{10}	15	15	15
$PM_{2.5}$	15	15	15

Source: San Joaquin Valley APCD 2012

according to manufacturer's specifications; use diesel construction equipment that meets California Air Resources Board Tier 2 standards or better, prohibiting on and off-road diesel equipment idling for more than 5 minutes, prohibiting diesel idling, staging, or queuing within 1,000 feet of sensitive receptors (occupied residences, senior living centers, parks and recreation areas, medical facilities and schools); electrifying off-road construction equipment when feasible; providing incentives for workers to use carpooling, where feasible; and using alternative fuel construction equipment on-site where feasible.

- **APM AQ-3**. **Reduce fugitive dust emissions during construction**. Implement best management practices: water graded/excavated areas and active unpaved roadways, unpaved staging areas, and unpaved parking areas at least three times daily or

apply chemical soil stabilizers per manufacturer recommendations; apply chemical soil stabilizers or water on inactive construction areas; stabilize all disturbed soil areas not subject to revegetation by using approved chemical soil binders, jute netting, or gravel for temporary roads; place gravel on all perimeter roadways and driveways as soon as possible after grading for said roadways; cover all trucks hauling dirt, sand, or soil or maintain at least two feet of freeboard; and install gravel track systems where vehicles enter and exit unpaved roads onto streets and inspect equipment tires to ensure free of soil prior to carry-out to paved roadways.

- **Mitigation Measure AQ-1.1**. **Further reduce fugitive dust emissions during construction**. Implement additional measures to significantly reduce fugitive dust emissions and require measures to be shown on grading and building plans. Such measures include limiting grading to 50 acres per day, and grading and excavation to 2.2 acres per day; watering graded/excavated areas and active unpaved roadways, unpaved staging areas, and unpaved parking areas at least three times daily or apply non-toxic chemical soil stabilization materials per manufacturer's recommendations; prohibiting all grading activities during periods of high wind (sustained over 15 mph); and minimizing dust leaving the site through wheel washers, street sweepers, gravelling roadways and driveways, and maintaining two feet of freeboard on haul trucks.
- **Mitigation Measure AQ-1.2. Designate a dust complaint monitor.** Require the contractor(s) or builder(s) to designate a person or persons to monitor the fugitive dust emissions and enhance the implementation of the measures as necessary to minimize dust complaints, reduce visible emissions below 20 percent opacity, and to prevent transport of dust off-site. Their duties shall include monitoring during holidays and weekend periods only when work is in progress. The name and telephone number of such persons shall be provided to the Monterey Bay Unified APCD Compliance Division prior to the start of any grading, earthwork, or demolition. The Applicant shall provide and post a publicly visible sign that specifies the telephone number and name to contact regarding dust complaints. This person shall respond to complaints and take corrective action within 48 hours. The phone number of the Monterey Bay Unified APCD shall also be visible to ensure compliance with Rule 402 (Nuisance).
- **AMM AQ-1. Minimize fugitive dust**. PG&E will minimize dust emissions during construction by implementing the following measures: water all active construction areas at least twice daily; cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard; pave, apply water three times daily, or apply (non-toxic) soil stabilizers on

all unpaved access roads, parking areas, and staging areas at construction sites; sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites; sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets; and post a publicly visible sign with the telephone number and person to contact regarding dust complaints.

- **AMM AQ-2. Limit equipment idling**. PG&E will limit idling times on trucks and equipment used during construction.

Construction

The no action (no permit) alternative would result in construction-related emissions associated with the following activities:

- Exhaust emissions from construction equipment
- Exhaust emissions from commute vehicles and delivery trucks
- Emissions from the use of materials that contain volatile organic compounds
- Fugitive dust emissions from surface disturbance and travel on paved and unpaved surfaces

These emissions would occur during the 18-month construction period and would be short term and temporary.

The anticipated construction emissions for the applicant's proposed project (Alternative A) are displayed in **Table 3-7**; emissions under the no action (no permit) alternative would be similar to those described in this table. These emissions take into account the applicant-proposed measures and mitigation measures described above to reduce construction-related emissions. These estimated emissions were derived from the Air Quality Analysis for Panoche Valley Solar Farm Technical Report prepared in support of San Benito County's EIR for the Panoche Valley Solar Facility (SCEC 2010). While the currently proposed project would affect a smaller area than evaluated in the 2010 report, because the construction schedule would be compressed, emissions are expected to be either less severe or not substantially different from those listed in **Table 3-7** for most pollutants except PM_{10}.

A technical memorandum (AMEC 2014) was prepared as part of San Benito County's supplemental EIR process to evaluate PM_{10} emissions resulting from a compressed construction schedule, which would require an increased level of daily grading to construct the project in a shorter timeframe. The anticipated maximum area disturbed per day is expected to be 50 acres. To provide flexibility in construction, however, the California Emission Estimation Model was run to calculate how many acres of grading could be performed per day so

Table 3-7
Daily and Annual Mitigated Construction Emissions

	VOC	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Peak mitigated on-site source emissions [pounds per day (lbs/day)]	27.42	229.48	109.66	<1	80.6[1]	11.05
Daily on-road indirect emissions (lbs/day)	25.50	278.99	346.41	0.68	13.43	10.63
Mitigated annual on-site direct emissions (tons/year)	2.27	19.09	9.01	<0.01	1.69	1.00
Annual on-road indirect emissions (tons/year)	2.59	28.67	34.33	0.07	1.38	1.09
Monterey Bay Unified APCD Significance Threshold (lb/day)	-	-	-	-	82	-
Exceeds Significance Threshold?	-	-	-	-	*No*	-

Sources: SCEC 2010, AMEC 2014
[1]Daily PM_{10} emissions assume 175 acres of grading per day. Emissions for 165 acres of grading per day would be 76.5 lbs/day, and emissions for 50 acres of grading would be 28.9 lbs/day (AMEC 2014). Only on-site PM_{10} emissions were considered when determining the significant of construction impacts, pursuant to Monterey Bay Unified APCD 2008 CEQA Air Quality Guidelines (Monterey Bay Unified APCD 2008).

as not to exceed Monterey Bay Unified APCD significance thresholds for peak mitigated PM_{10} construction emissions. The technical memorandum preparers concluded that 175 acres could be graded per day without exceeding the Monterey Bay Unified APCD significance threshold for PM_{10} construction emissions, assuming watering of the construction site three times daily (AMEC 2014). While this maximum level of PM_{10} emissions is shown in **Table 3-7**, actually daily PM_{10} emissions would be less on most construction days.

As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above to reduce fugitive dust (APM AQ-3 and Mitigation Measure AQ-1.1) and criteria and toxic air pollutant emissions associated with equipment and vehicle use (APM AQ-2). With implementation of these measures, construction emissions under the no action (no permit) alternative would not exceed the Monterey Bay Unified APCD PM_{10} significance threshold for construction of 82 pounds per day. Because APM AQ-1, APM AQ-2, and mitigation measure AG-1.1 have been incorporated into the no action (no permit) alternative, the direct effect of construction-related emissions would be less than significant. No additional mitigation measures were identified to further reduce these impacts. There would be no indirect air quality effects associated with the long-term presence of the solar facility.

In addition to the criteria pollutant emissions shown in **Table 3-7**, minor emissions of toxic air pollutants would occur during vehicle and equipment combustion processes and from minor solvent and coating use. Measures to reduce construction vehicle emissions described in APM AQ-2 and incorporated into the no action (no permit) alternative would also decrease air toxics associated with fuel combustion, including reducing diesel particulate

matter emissions. With minimization of combustion-related emissions, the direct effect of construction-related toxic air emissions would be less than significant. No additional mitigation measures were identified to further reduce this impact.

The no action (no permit) alternative would not conflict with Monterey Bay Unified APCD air quality plans or policies. As described above, construction emissions under the no action (no permit) alternative would not exceed the Monterey Bay Unified APCD PM_{10} significance threshold for construction. As part of the CEQA EIR certification and project approval process, the applicant committed to providing funding to San Benito County to ensure monitoring for all measures requiring environmental mitigation. Because this mitigation monitoring program would ensure compliance with San Benito County conditions of approval and EIR mitigation measures, project impacts would be sufficiently managed to ensure that construction-related emissions remain consistent with regional air quality plans.

Construction within the project footprint would produce fugitive dust that could affect surrounding sensitive land uses, including residences and the Panoche Elementary School, by creating dust nuisance conditions. The closest residence to the project footprint boundary is approximately 1,700 feet southwest of the southwest corner of the project footprint; all other residences are at least 0.5 mile from the project footprint boundary. The Panoche Elementary School, a one-room schoolhouse, is over one mile south of the project footprint boundary. As part of the CEQA EIR certification and project approval process, the applicant committed to implementing Mitigation Measure AQ-1.2. This measure requires that the applicant's contractor designate a person or persons to monitor the fugitive dust emissions and enhance the implementation of the measures as necessary to minimize dust complaints, reduce visible emissions below 20 percent opacity, and prevent the transport of dust off-site. Because this measure has been incorporated into the no action (no permit) alternative and given the distance between residences and the Panoche Elementary School and the nearest construction activities, indirect impacts on off-site sensitive land uses would be less than significant. No additional mitigation measures were identified to further reduce this impact.

Operational and Maintenance Activities

The no action (no permit) alternative would result in operational-related emissions associated with the following activities:

- Exhaust emissions from commute vehicles, on-site light-duty vehicles, and occasional delivery trucks
- Emissions from the use of materials that contain volatile organic compounds
- Fugitive dust emissions from surface disturbance and travel on paved and unpaved surfaces

Operation of the no action (no permit) alternative would not result in emissions of criteria air pollutants from operation of the solar generating equipment itself.

Operational emissions for the applicant's proposed project (Alternative A) are displayed in **Table 3-8**; emissions under the no action (no permit) alternative would be the same as those described in this table. These emissions are from the Air Quality Analysis for Panoche Valley Solar Farm Technical Report prepared in support of San Benito County's EIR for the Panoche Valley Solar Facility (SCEC 2010). Because the currently proposed project is smaller than the one evaluated in the 2010 report, actual operational emissions are likely to be lower than shown in **Table 3-8**.

Table 3-8
Daily and Annual Operating Emissions

	VOC	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Daily Emissions						
Peak mitigated on-site source emissions (lb/day)	3.90	8.80	61.70	0.01	6.54	3.38
Peak daily on-road emissions (lb/day)	1.57	9.40	41.20	0.05	0.66	0.44
Total daily emissions (lb/day)	*5.49*	*18.20*	*102.90*	*0.06*	*7.20*	*3.82*
Monterey Bay Unified APCD Significance Threshold (lb/day)	137	137	550	150	82	-
Exceeds Significance Threshold?	*No*	*No*	*No*	*No*	*No*	-
Annual Emissions[1]						
On-Site Source Emissions (tons/year)	0.35	0.40	6.10	<0.01	2.83	1.42
Annual On-Road Emissions (tons/year)	0.17	0.63	5.58	<0.01	0.06	0.04
Total annual emissions (tons/year)	*0.52*	*1.03*	*11.68*	*<0.01*	*2.89*	*1.46*

Source: SCEC 2010
[1]The Monterey Bay Unified APCD does not have annual significance thresholds.

Operational emissions would not exceed the Monterey Bay Unified APCD significance threshold listed in **Table 3-5**. In addition to the emissions shown on **Table 3-8,** minor emissions of toxic air pollutants would occur from vehicle and equipment use and from any minor solvent and coating use associated with equipment maintenance and building upkeep. No notable odor sources would be associated with operational activities. Direct impacts of operation-related emissions would be less than significant. No mitigation measures were identified to reduce these impacts.

Under PSD guidelines, emissions below annual threshold levels are considered to not have an adverse effect on Class I areas. Because operational emissions under the no action (no permit) alternative would be well below the 250 ton per year threshold, the no action (no permit) alternative would not have an adverse effect on the Pinnacles National Monument Class I area or on BLM-administered lands to the east of the project site. Impacts on Class I areas would be less than significant. No mitigation measures were identified to reduce these impacts.

The proposed solar facility would produce renewable electricity that could displace electricity produced by fossil fuel-fired power plants or lessen the need for new or expanded fossil fuel-fired power plants. This could indirectly benefit regional air quality by offsetting criteria pollutant and toxic emissions that would otherwise by emitted from fossil fuel-fired power plants.

The no action (no permit) alternative would not violate the NAAQS or PSD thresholds. It would also not exceed any of the criteria air pollutant significance thresholds. The no action (no permit) alternative would be consistent with applicable plans by implementing measures to reduce dust and minimize exhaust-related emissions. Overall impacts on air quality from operational and maintenance activities would be less than significant.

PG&E Telecommunication Upgrades

Construction. PG&E telecommunication upgrade actions would result in temporary, short-term and localized emissions. These emissions would be associated with primary and secondary upgrade activities over the 16-month construction period. The primary sources of air pollutant emissions during construction are as follows:

- Exhaust emissions from helicopters used to pull the OPGW and deliver personnel and materials to areas without roads
- Construction equipment, including dump trucks, excavators, hauling pullers, bucket trucks, crawler cranes, and drill rigs
- Exhaust emissions from commute vehicles and delivery trucks
- Fugitive dust from limited ground-disturbing activities and from travel on unpaved roadways

Construction associated with primary telecommunications upgrades would disturb a maximum of 5.73 acres along the 17 miles of transmission line. Construction associated with secondary telecommunications upgrades would disturb 0.92 acre over four locations. Approximately two-thirds of the work would occur in Fresno County within the jurisdiction of the San Joaquin Valley APCD, while the remainder of the work would occur within the jurisdiction of the Monterey Bay Unified APCD.

Emission estimates from construction of PG&E upgrade actions were developed for the Final Supplemental EIR that San Benito County prepared for the applicant's proposed project (San Benito County 2015). These emissions take into account the PG&E avoidance and minimization measures (AMM AQ-1 and AMM AQ-2) described above to reduce construction-related emissions. These anticipated construction emissions are displayed in **Table 3-9**. Because the majority of these emissions would occur within the San Joaquin Valley APCD, emissions are conservatively compared against this threshold.

Table 3-9
Annual Construction Emissions, PG&E Telecommunication Upgrades

Activity	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Survey	0.1	0.1	1.0	0.0	8.4	1.8
ROW Clearing	47.3	370.4	171.3	0.8	320.8	75.6
Guard Structure Installation	24.9	173.6	94.2	0.4	254.0	57.7
Install OPGW	311.7	920.7	670.7	1.7	744.7	181.4
Guard Structure Removal	13.8	98.0	47.8	0.2	214.2	28.6
Restoration	13.7	102.6	51.2	0.3	157.4	35.5
Total (lbs per year)	411.59	1,665.42	1,036.21	3.30	1.609.58	381.46
Total (tons per year)	0.206	0.833	0.518	0.002	0.805	0.191
SJVAPCD Significance Threshold (tons per year)	10	10	100	27	15	15
CAA Conformity Threshold (tons per year)	10	10	-	-	-	100
Exceeds Significance Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Source: San Benito County 2015

As shown in **Table 3-9**, emissions associated with PG&E's telecommunication upgrades would not exceed applicable San Joaquin Valley APCD significance thresholds or Clean Air Act conformity thresholds for emission-generating activities in Fresno County. Because the emissions would be below the applicable significance thresholds, direct effects of construction-related emissions would be less than significant and consistent with regional air quality plans. No additional mitigation measures were identified to further reduce these impacts.

In addition to annual emissions, peak daily fugitive dust emissions from PG&E upgrade actions were calculated as part of the supplemental Final EIR that San Benito County prepared for the proposed project (San Benito County 2015). These calculations showed a peak daily PM_{10} emission rate of 85.32 pounds per day. Because the majority of the activities would occur within the San Joaquin Valley APCD, peak daily emissions from PG&E upgrade actions within San Benito County would not exceed the Monterey Bay Unified APCD PM_{10} significance threshold of 82 pounds per day. Because PM_{10} construction emissions would be below the applicable significance threshold, direct effects of construction-related emissions would be less than significant and consistent with regional air quality plans. No additional mitigation measures were identified to further reduce these impacts.

Alternative A (Applicant's Proposed Project)

Construction and Operational and Maintenance Activities

Direct and indirect impacts on air quality under Alternative A would be the same as described above for the no action (no permit) alternative. The applicant-proposed measures and County-required mitigation measures

identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. No additional mitigation measures were identified to further reduce impacts.

PG&E Telecommunication Upgrades

Less than significant direct impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative.

Alternative B (On-Site Alternative)

Construction and Operational and Maintenance Activities

Direct and indirect impacts on air quality under Alternative B would be the same as described above for the no action (no permit) alternative. The applicant-proposed measures and County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. No additional mitigation measures were identified to further reduce impacts.

PG&E Telecommunication Upgrades

Less than significant direct impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative.

Alternative C (Off-Site Alternative, Westlands CREZ)

Construction

Under Alternative C, construction of a proposed solar facility would occur within Fresno County or Kings County, both of which are in the San Joaquin Valley APCD.

The nature of construction-related air quality impacts under the Westlands CREZ alternative are similar to those discussed under the no action (no permit) alternative, assuming construction of a similar 247 MW solar facility. Emissions estimates prepared for the proposed project are assumed to be representative of emissions that would occur during construction of a similarly sized solar facility in the Westlands CREZ (see **Table 3-7**). These emissions may be a conservative estimate, as the topography of the CREZ would likely require less grading, and the CREZ is closer to Interstate 5 and may require shorter vehicle trips for commuters and material deliveries.

The Westlands CREZ is in an extreme nonattainment area for the federal ozone standard and a moderate nonattainment area for the federal $PM_{2.5}$ standard. Significance thresholds described in **Table 3-6** would apply to a project within the CREZ, as would Clean Air Act conformity thresholds of 10 tons per year

each for ozone precursor emissions and 100 tons per year for direct $PM_{2.5}$ emissions if the proposed project required a federal permit. Comparing the thresholds in **Table 3-6** to the emissions in **Table 3-7**, a similar 247 MW project within the CREZ would exceed the San Joaquin Valley APCD construction emissions threshold and the Clean Air Act conformity threshold for NOx. This would be a direct significant impact on air quality. The following enhanced mitigation measures would be required to mitigate NOx emissions:

- Use enhanced emissions controls for construction equipment
- Provide funding for off-site mitigation reduction fees

Implementation of these measures would reduce air quality impacts to less than significant levels. The USACE does not have the authority to require or implement these mitigation measures; however, it is likely that these measures would be required and implemented through the Fresno County or Kings County conditional use permitting process for a project constructed within the Westlands CREZ in order to bring project emissions to below the required CEQA threshold established by the San Joaquin Valley APCD.

Operational and Maintenance Activities

The nature of operational air quality impacts under the Westlands CREZ alternative are similar to those discussed under no action (no permit) alternative, assuming construction of a similar 247 MW solar facility. Comparing the San Joaquin Valley APCD thresholds in **Table 3-6** to the operational emissions in **Table 3-8**, a similar 247 MW project in the Westlands CREZ would comply with the San Joaquin Valley APCD operational emissions thresholds and Clean Air Act conformity thresholds (10 tons per year for ozone precursor emissions and 100 tons per year for direct $PM_{2.5}$ emissions).

3.4.4 Cumulative Impacts

Air pollution control districts manage attainment of criteria pollutant standards by adopting rules, regulations, and attainment plans. These plans comprise a programmatic approach to attainment of federal and state air quality standards. This approach accounts for the fact that individual projects rarely affect air quality designations; rather, the cumulative effect of many projects along with local meteorological conditions are among the factors that determine the air quality of a region.

The Monterey Bay Unified APCD manages air quality in Monterey County and San Benito County, while the San Joaquin Valley APCD manages air quality in a multi-county area, which includes Kings and Fresno Counties. Therefore, the geographic scope for criteria air pollutants includes the portions of Kings, Fresno, and San Benito Counties that are managed by the San Joaquin Valley APCD and the Monterey Bay Unified APCD.

No Action (No Permit) Alternative, Alternative A, and Alternative B

The geographic scope for the cumulative air quality analysis is the Monterey Bay Unified APCD, particularly San Benito County where the bulk of the construction of the proposed project would occur.

Air quality in San Benito County is good. The county is either unclassified or in attainment for all of the national ambient air quality standards. Sources of emissions in the Panoche Valley are limited primarily to agricultural equipment and vehicle exhaust, as well as fugitive dust from travel on unpaved roadways and from agriculture.

The no action (no permit) alternative, Alternative A, and Alternative B would have less than significant direct impacts on air quality from construction of the solar facility. These impacts would be short term and temporary and would be minimized through measures to reduce fugitive dust (APM AQ-3 and Mitigation Measure AQ-1.1) and criteria and toxic air pollutant emissions associated with equipment and vehicle use (APM AQ-2) included as part of these alternatives. Because there are no reasonably foreseeable projects proposed in the project area, construction of the solar facility would not contribute to cumulative impacts on air quality.

The PG&E telecommunication network upgrades that would occur in Fresno County would have no incremental cumulative effect on air quality in that county, given the limited activities and short-term nature of the construction.

Alternative C

The geographic scope for the cumulative impacts air quality analysis for Alternative C is the San Joaquin Valley APCD. The San Joaquin Valley is an extreme nonattainment area for the federal ozone standard and a moderate nonattainment area for the federal $PM_{2.5}$ standard. The natural geography, topography, and meteorology of the air basin are largely responsible for concentrations of ozone in summer and $PM_{2.5}$ in the winter. This is because surrounding mountains trap pollution and block air flow, and the mild climate prevents winds that disperse pollutants out of the basin. Temperature inversions during the winter hold in nighttime accumulations of pollutants, leading to most valley exceedances of $PM_{2.5}$ concentrations. Sources of emissions in the Westlands CREZ are on- and off-road mobile sources and fugitive dust. Air quality conditions near the CREZ are likely better than the APCD as a whole due to the rural nature of western Fresno and Kings Counties.

Constructing a 247 MW solar facility in the Westlands CREZ would have a significant and direct impact on air quality because construction activities would exceed the construction significance threshold for NOx set by the San Joaquin Valley APCD. Constructing a solar facility would require a conditional use permit from either Kings or Fresno County, triggering CEQA compliance. CEQA compliance would require the applicant to mitigate significant air quality impacts through measures to reduce NOx emissions or through NOx emission

offsets, reducing the individual project NOx contribution to a less than significant impact.

The proposed project could have a construction period that would overlap those of other projects listed in **Table 3-1**, resulting in overlapping air quality impacts. Emission-producing sources would occur on the individual project sites, as well as on area roadways, resulting in both direct and indirect air quality impacts. The types of construction-related emissions would be fairly consistent across projects, and regulating agencies in California prescribe BMPs and mitigation measures to reduce equipment emissions and fugitive dust. Each project listed in **Table 3-1** has had and would have direct impacts on air quality in the air basin during project construction. These impacts would be short term and temporary but would contribute to adverse air quality conditions in the air basin. A 247 MW solar facility, in combination with development of the 24,000-acre Westlands Solar Park, would present incremental ongoing construction within the CREZ of 2,000 acres per year over 12 years. This would have a potentially significant cumulative impact on air quality. Individual project impacts, however, would be reduced by implementing mitigation measures required through the Kings County permitting processes. Long-term impacts on air quality would be incrementally and cumulatively less than significant because prior sources of emissions related to cultivated agricultural practices would be replaced with a more passive use.

3.5 CLIMATE CHANGE

This section addresses the affected environment and environmental consequences of the proposed project on climate change and greenhouse gas emissions.

3.5.1 Regulatory Environment

The analysis for the impact the proposed project may have on climate change and greenhouse gases relies on guidelines, policies, and plans established by federal, state, and local entities. This regulatory framework aims to reduce greenhouse gas emissions and increase renewable energy production. Because California leads the nation in progressive climate change legislation, much of the regulatory framework is state imposed. The regulatory framework used in this analysis is described below.

Western Climate Initiative

The Western Climate Initiative, a partnership among seven western states (including California) and four Canadian provinces, seeks to implement a cap and trade system with a goal of reducing emissions that cause global warming by 15 percent below 2005 levels by 2020.

California Global Warming Solutions Act

The California Global Warming Solutions Act (California Assembly Bill 32), signed into law in 2006, requires the California Air Resources Board to develop

regulations and market mechanisms to reduce California's greenhouse gas emissions to 1990 levels by 2020, an estimated 25 percent reduction.

California Senate Bill SBX1-2

California Senate Bill SBX1-2, passed in 2011, mandates that the state adopt a 33 percent Renewable Portfolio Standard by 2020. This is a mechanism used to increase the demand for renewable energy by requiring electric utilities and providers to use a minimum amount of renewable energy in customer load.

San Benito County General Plan

The San Benito County General Plan, released in draft form in 2012, is designed to address planning issues through 2035. One of its goals is to reduce greenhouse gas emissions to 15 percent below 2010 levels by 2020 and to 80 percent below 1990 levels by 2050 (San Benito County 2012, Section 9, Health and Safety Element).

Fresno County General Plan

The Public Review Draft General Plan (September 2014) includes several proposed goals to address climate change. Among them are a new goal to develop a climate action plan that would establish specific strategies to reduce greenhouse gases and a commitment to improve stormwater and flood protection infrastructure (Fresno County 2014a).

Kings County General Plan

The Kings County General Plan addresses climate change and greenhouse gases in its air quality element. Specifically, the plan aims to reduce greenhouse gas emissions, increase multi-jurisdictional coordination, improve public understanding, strengthen project review processes, and minimize and mitigate the impacts of new projects on climate change (Kings County 2010a).

3.5.2 Affected Environment

<u>Proposed Project</u>

Climate

The climate of Panoche Valley is characterized by low precipitation, light winds, and plentiful sun. The average annual precipitation recorded between 1900 and 1960 was about 15 inches (Fire Resource Assessment Program 2000). Between 1961 and 1990 the average annual precipitation was between 15 and 25 inches (National Oceanic and Atmospheric Administration 1995). The valley is surrounded by mountains, which, along with minimal wind and rain, contribute to the accumulation of pollutants in the valley (San Benito County 1994).

Greenhouse Gas Emissions and Climate Change

Greenhouse gases allow short-wave solar radiation to enter the Earth's atmosphere and absorb long-wave infrared radiation reemitted from the planet's surface, trapping heat. Most studies indicate that the Earth's climate has warmed

over the past century and that human activities producing greenhouse gases are an important contributing factor. Climate models predict that if greenhouse gases continue to increase, the average temperature at the Earth's surface could increase from 3.2 to 7.2 °F (1.8 to 4.0 °C) above 1990 levels by the end of this century (EPA 2014f).

An increase in the average temperature of the Earth may produce changes in sea levels, rainfall patterns, and intensity and frequency of extreme weather events. Collectively, these effects are referred to as climate change. The Intergovernmental Panel on Climate Change, in its Fifth Assessment Report, stated that warming of the Earth's climate system is unequivocal. Members of the panel also stated that it is extremely likely—95 to 100 percent probability—that human influence has been the dominant cause of the greenhouse gas concentrations and the observed warming since the mid-twentieth century (Intergovernmental Panel on Climate Change 2013).

There are six greenhouse gases tracked by the Intergovernmental Panel on Climate Change: carbon dioxide, methane, nitrous oxide, hydroflourocarbons, perfluorocarbons, and sulfur hexafluoride (EPA 2014h). The latter three gases are known as high global warming potential gases due to their warming effectiveness (140 to 23,900 times greater than carbon dioxide) and because of their essential permanence in the atmosphere (3,000+ years; EPA 2014h). Carbon dioxide, methane, and nitrous oxide have both natural and human-generated sources, while high global warming potential gases are strictly human generated from various industrial processes. Greenhouse gas emissions are tracked as carbon dioxide equivalents, with one gram of carbon dioxide molecule counting as one and other greenhouse gas molecules counting as some multiple (EPA 2014g).

California generates about 450 to 500 million metric tons of carbon dioxide equivalents ($MMTCO_2e$) annually. Greenhouse gas emissions in 2012 were 459 $MMTCO_2e$, compared with 466 $MMTCO_2e$ generated in 2000. Greenhouse gas emissions peaked in 2004 at 493 $MMTCO_2e$ (California Environmental Protection Agency 2014).

The Panoche Valley has relatively few anthropogenic (human-caused) greenhouse gas emission sources due to low population and agricultural activity and a lack of large stationary sources of emissions. The project site is currently used for cattle grazing. The closest significant source of greenhouse gas emissions may be motorized vehicle emissions from traffic on Interstate 5, which is about seven miles east of the proposed project site. In addition to having few anthropogenic greenhouse gas emission sources, native vegetation provides a natural carbon sink in the valley.

PG&E Telecommunications Upgrades

The climate change conditions at the PG&E telecommunications sites would be the same as those described above for the proposed project site.

Westlands CREZ

The Westlands CREZ, which is located in a more developed area, contains more sources of greenhouse gases, including agricultural farm equipment associated with more intensive agricultural practices.

3.5.3 Environmental Impacts

Climate change impacts would be considered significant if the proposed project were to conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of greenhouse gases.

No Action (No Build) Alternative

Under the no action (no build) alternative, the proposed project would not be constructed and no telecommunication upgrades would occur. No changes in greenhouse gas emissions or carbon sequestration associated with the project site would occur.

No Action (No USACE Permit) Alternative

Construction

Construction of the no action (no permit) alternative would result in a short-term increase in greenhouse gas emissions from vehicle and equipment activity. Estimated greenhouse gas emissions were derived from the Air Quality Analysis for Panoche Valley Solar Farm Technical Report prepared in support of the County's EIR (SCEC 2010). The emissions estimate was reduced proportionally to account for a smaller project footprint. This estimate provides that construction would emit 22,390 $MTCO_2e$.

While it is not possible to directly correlate greenhouse gas emissions from a project to specific local or regional effects on climate change, the proposed project would not be a locally, regionally, or nationally significant source of greenhouse gases. For context, 22,390 $MTCO_2e$ represents 0.005 percent of California's annual greenhouse gas emissions in 2012, which would be a less than significant impact. No mitigation is required.

In addition to fuel combustion sources, land use conversion related to the no action (no permit) alternative would release greenhouse gases by altering natural carbon sinks. The total permanent disturbance of the project footprint under no action (no permit) is 1,796 acres. This would displace some native soils and vegetation that currently act as a carbon sink. However, because only a portion of the vegetation of the project site would be cleared and because the carbon uptake rate is low for existing soils and vegetation, the direct impact from reducing the amount of natural carbon sinks would be less than significant. Additionally, conservation lands would include 24,176 acres that would be held as conservation easements in perpetuity; these lands would thus contribute to carbon sequestration in perpetuity. No mitigation is required.

Operational and Maintenance Activities

The no action (no permit) alternative would contribute minimal annual emissions from operation of the facility. These operational emissions would be associated with commute vehicles, on-site maintenance vehicles and equipment, and delivery trucks. No generators or pumps would be used during operations.

The no action (no permit) alternative is estimated to emit approximately 500 tons of CO_2 per year from on-site and off-site activities related to operational and maintenance activities, which is equivalent to 480 $MTCO_2e$ per year (derived from SCEC 2010, proportionally reduced to account for a smaller footprint). PV panels generate electricity without producing carbon emissions, but associated activities (such as employees being transported to and from the site and the use of equipment during maintenance) would generate carbon dioxide and other greenhouse gas emissions. The proposed solar facility would be exempt from the California Air Resources Board mandatory greenhouse gas reporting rule [17 California Code of Regulations (CCR) 95100].

The project switching station would contain a small amount of sulfur hexafluoride (SF_6) in the insulation for its transformers. SF_6 is a greenhouse gas with a high global warming potential. California Air Resources Board regulations would require the applicant to annually report SF_6 emissions, determine the emission rate, and keep information current for California Air Resources Board staff inspection (17 CCR 95350).

The no action (no permit) alternative would produce approximately 435,000 megawatt hours (MWh) of electrical energy per year. Production of 435,000 MWh of electrical energy from fossil fuel-fired California and western US power plants would result in an estimated 271,000 $MTCO_2e$ per year (SCEC 2010, reduced proportionally to account for a smaller project MW output).

By potentially displacing natural gas and other fossil fuels used to produce electricity, PV solar installations reduce generation of carbon dioxide and other greenhouse gases. The no action (no permit) alternative would generate a small amount of greenhouse gas emissions from operational and maintenance activities but overall would save approximately 155,460 $MTCO_2e$ per year, compared to a fossil fuel-fired power plant (SCEC 2010, reduced proportionally to account for a smaller project MW output). The no action (no permit) alternative would help meet California's Renewable Portfolio Standard and would contribute to the implementation of the California Global Warming Solutions Act [Assembly Bill (AB) 32].

PG&E Telecommunication Upgrades

PG&E telecommunication upgrades would produce minor amounts of greenhouse gases from vehicles, helicopters, and construction equipment. The level of greenhouse gases produced would be less than for construction of the solar facility and would not be a locally, regionally, or nationally significant

source of greenhouse gases. These upgrades would have a less than significant impact. No mitigation is required.

Alternative A (Applicant's Proposed Project)

Construction and Operational and Maintenance Activities

Impacts under Alternative A would be the same as those described under the no action (no permit) alternative. As described for the no action (no permit) alternative, impacts would be less than significant. No mitigation is required.

PG&E Telecommunication Upgrades

Less than significant direct impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative.

Alternative B (On-Site Alternative)

Construction and Operational and Maintenance Activities

Impacts under Alternative B would be the same as those described under the no action (no permit) alternative. As described for the no action (no permit) alternative, impacts would be less than significant. No mitigation is required.

PG&E Telecommunication Upgrades

Less than significant direct impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative.

Alternative C (Off-Site Alternative, Westlands CREZ)

Construction

Under the Westlands CREZ alternative, greenhouse gas emissions associated with constructing a 247 MW solar facility would be similar to those described under the no action (no permit) alternative. The level of greenhouse gases produced would not be a locally, regionally, or nationally significant source of greenhouse gases, and direct impacts would be less than significant. No mitigation is required.

Depending on the site selected, the Westlands CREZ alternative could result in the removal of vegetation. However, much of the land in the CREZ has rotational crops that do not provide a high level of carbon sequestration. Direct impacts would be less than significant. No mitigation is required.

Operational and Maintenance Activities

Impacts from operation of a proposed solar facility are the same as those described for the no action (no permit) alternative.

3.5.4 Cumulative Impacts

No Action (No Permit) Alternative, Alternative A, and Alternative B

Because climate change is a global phenomenon, the geographic scope for the cumulative effects analysis includes all of California, as greenhouse gas emissions and climate change regulations are applied at a statewide level.

Construction of the proposed project would result in a short-term increase in greenhouse gas emissions from vehicle and equipment activity. In addition to fuel combustion sources, land use conversion related to the no action (no permit) alternative, Alternative A, and Alternative B would release greenhouse gases by altering natural carbon sinks. Greenhouse gas emissions are estimated to be 0.005 percent of California's 2012 annual greenhouse gas emissions, a negligible contribution to state emission levels.

Past, present, and reasonably foreseeable future projects listed in **Table 3-1**, as well as renewable energy projects, nonrenewable energy projects, and other construction actions occurring throughout the state, have had or would have adverse incremental impacts in the form of emissions of greenhouse gases. Measures to reduce vehicle and equipment exhaust-related criteria pollutant emissions from individual projects also reduce greenhouse gas emissions.

California regulators have been working to reduce annual greenhouse gas emissions to 1990 levels by 2020. From 2000 to 2012, California's greenhouse gas emissions decreased by 1.6 percent, while its population increased by 11 percent (California Air Resources Board 2014). The proposed project, in combination with other renewable energy projects throughout the state, would contribute to this goal and to the goal of providing 20 percent of California's energy needs through renewable sources by 2020. By potentially displacing the use of natural gas and other fossil fuels to produce electricity, proposed renewable energy projects could contribute to long-term beneficial cumulative effects on climate change through the reduced generation of carbon dioxide and other greenhouse gases. Cumulative impacts associated with the Panoche Valley Solar Facility in conjunction with other past, present, and reasonably foreseeable future actions would be less than significant.

Alternative C

Cumulative impacts under Alternative C would be the same as those described above.

3.6 BIOLOGICAL RESOURCES

This section addresses the affected environment and environmental consequences of the proposed project on waters of the U.S., vegetation communities, wildlife, and special status species in the proposed project area.

The vegetation discussion addresses the affected environment and environmental consequences of the proposed project on vegetation

communities in the proposed project area. A vegetation community is an assemblage of individual plant species that grows together in the same general geographic location. Individual special status plant species are addressed in the special status species discussion.

The wildlife discussion addresses the affected environment and environmental consequences of the proposed project on general wildlife in the proposed project area. Individual special status wildlife species, including federal and state listed species, are addressed in the special status species discussion.

The special status species discussion addresses the affected environment and environmental consequences of the proposed project on special status species. These are species for which state or federal agencies afford an additional level of protection by law, regulation, or policy or are considered sufficiently rare or threatened to qualify for such protection. Much of the detail and analysis presented in the vegetation and wildlife discussions are applicable to special status species. This is because special status species rely on the vegetation for habitat and associate with other wildlife species through such interactions as predator-prey, mutualistic, or commensal relationships between two organisms, one of which benefits and the other derives neither benefit nor harm.

3.6.1 Regulatory Environment

Clean Water Act

Under Section 404 of the Clean Water Act, a permit is required from USACE prior to the discharge of dredged or fill material into the waters of the U.S., including wetlands. When an application for a Section 404 permit is submitted, the applicant must show evidence of the following:

- Taken steps to avoid impacts on wetlands or waters of the U.S.
- Minimized unavoidable impacts on waters of the U.S. and wetlands
- Provided compensatory mitigation for unavoidable impacts

For the proposed project, federal jurisdiction over a non-wetland water of the U.S. extends to the ordinary high water mark (OHWM; USACE 2008). The OHWM is "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (33 CFR, Part 328.3[e]).

Federal Noxious Weed Act

The Federal Noxious Weed Act of 1974 provides for the control and management of nonindigenous weeds that injure or have the potential to injure the interests of agriculture and commerce, wildlife resources, or public health. The act prohibits importing or moving any noxious weeds identified by the

regulation and allows for inspection and quarantine to prevent the spread of noxious weeds.

Executive Order 13112, Invasive Species

Signed in 1999, Executive Order 13112 directs federal agencies to prevent the introduction of invasive species, to provide for their control, and to minimize the economic, ecological, and human health impacts that invasive species cause. To accomplish this, the executive order established the National Invasive Species Council, with 13 departments and agencies.

Migratory Bird Treaty Act of 1918, as amended

The Migratory Bird Treaty Act (MBTA; 16 USC, Sections 703-712) makes it unlawful to, among other things, pursue, hunt, take, capture, kill, or possess any migratory bird or part, nest, or egg of such bird listed in four separate wildlife protection treaties among the United States, Great Britain, Mexico, Japan, and Russia. The MBTA currently covers 1,007 species, as specified in 50 CFR, Part 10.13.

Endangered Species Act of 1973

The Endangered Species Act (ESA) of 1973 (16 USC, Section 1531 et seq.), as amended, provides for the conservation of federally listed plant and animal species and their habitats. The ESA directs federal agencies to conserve listed species and imposes an affirmative duty on these agencies to ensure that their actions are not likely to jeopardize the continued existence of a listed species or adversely modify its designated critical habitat.

Critical habitat is defined in the ESA as "the specific areas within the geographical area occupied by the species, …, on which are found those physical or biological features (I) essential to the conservation of the species, and (II) which may require special management considerations or protection; and… specific areas outside the geographical area occupied by the species… upon a determination by the Secretary [of the Interior] that such areas are essential for the conservation of the species" (16 USC, Section 1532[5][A]).

Under Section 7 of the ESA, federal agencies must consult with the USFWS when a federal action may affect a listed endangered or threatened species. Consultation generally begins with informal consultation. If the federal agency determines the action will have no effect, or is not likely to adversely affect listed endangered or threatened species, and the USFWS concurs, Section 7 consultation is complete. Section 7 formal consultation is required when a federal action may affect, and is likely to adversely affect, a listed species or designated critical habitat. During this process, the federal action agency may submit a biological assessment to the USFWS or the National Marine Fisheries Service (NMFS) to assist in the determination of the project's effect on a listed endangered or threatened species. The assessment must meet requirements in ESA regulations, including a list of potentially and actually occurring listed species and designated critical habitat that may be affected by a project. It also

includes a description of the proposed project and an evaluation of the potential effects of the project on such species and habitat.

During formal consultation, the USFWS and the federal action agency exchange information and gather any necessary additional information. Section 7 formal consultation concludes with the USFWS issuing a biological opinion, detailing its conclusion of jeopardy or no jeopardy to a species. The opinion covers adverse modification/no adverse modification to a critical habitat. All reasonable and prudent measures and any incidental take statements are contained in the biological opinion. Section 7 consultation for the proposed project began on November 17, 2014, when the applicant submitted a biological assessment and requested addenda to USFWS.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 USC, Sections 668-668d) applies primarily to taking, hunting, and trading activities that involve bald or golden eagles. The act prohibits the "taking" of any individuals of these two species, as well as any part, nest, or egg. The term "take" as used in the act means to "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb."

Fish and Wildlife Coordination Act of 1934, as amended

The Fish and Wildlife Coordination Act (16 USC, Sections 661-667e) authorizes the Secretaries of Agriculture and Commerce to provide assistance to and cooperate with federal and state agencies to protect, rear, stock, and increase the supply of game and fur-bearing animals, as well as to study the effects of domestic sewage, trade wastes, and other polluting substances on wildlife. The amendments enacted in 1946 require consultation with the USFWS and the fish and wildlife agencies of states where the "waters of any stream or other body of water are proposed or authorized, permitted or licensed to be impounded, diverted… or otherwise controlled or modified" by any agency under a federal permit or license. Consultation is to be undertaken for the purpose of "preventing loss of and damage to wildlife resources."

California Endangered Species Act (California Fish and Game Code Sec. 2062 and 2067)

The California Endangered Species Act (CESA) is the California equivalent of the federal ESA. It has different provisions and different lists of species and is administered by the CDFW. CESA was enacted to protect sensitive resources and their habitats. It prohibits the take of listed species unless specifically provided for under another state law. CESA does allow for incidental take associated with otherwise lawful development projects.

The CDFW recommends consultation early in project planning stages. This is to avoid potential impacts on rare, endangered, and threatened species and to develop appropriate mitigation planning to offset project-induced losses of listed species. A project applicant is responsible for consulting with the CDFW, if

applicable, to preclude activities that are likely to jeopardize the continued existence of any CESA-listed threatened or endangered species or destroy or adversely affect habitat essential for any given species.

Fully Protected Species (California Fish and Game Code, Sections 3511, 4700, 5515, and 5050)

These sections prohibit the taking and possession of birds, mammals, fish, and reptiles listed as fully protected. The administering agency is the CDFW.

California Native Plant Protection Act of 1977; California Fish and Game Code 1900 et seq.

This law includes provisions that prohibit the taking of listed rare or endangered plants from the wild. The law also includes a salvage requirement for landowners. Furthermore, it gives the CDFW the authority to designate native plants as endangered or rare and provides specific protection measures for identified populations.

Noxious Weeds Management; California Food and Agriculture Code 7270-7224

This code designates the Department of Food and Agriculture as the lead department in noxious weed management for California. It creates a Noxious Weed Management Account for the control and abatement of noxious weeds. Money in the account can be used for the following:

- Directly control noxious weeds
- Fund research on the biology, ecology, or management of noxious and invasive weeds
- Develop noxious weed control strategies
- Seek new, effective biological control agents for the long-term control of noxious weeds
- Conduct private and public workshops to discuss and plan weed management strategies
- Appoint a noxious weed coordinator and weed mapping specialist to assist in weed inventory, mapping, and control strategies

A list of noxious weeds in California is maintained by the Natural Resources Conservation Service (2014).

San Benito County General Plan

San Benito County is updating the general plan, and the Draft San Benito County 2035 General Plan is available for public review (San Benito County 2013). The natural and cultural resources element of the draft 2035 general plan outlines the management of natural resources in San Benito County.

Goals NCR-1 and NCR-2 address open space and wildlife habitat management, including habitats that support special status plant and wildlife species. The open space and conservation element of the current general plan (San Benito County 1995) will be enforced until San Benito County adopts the draft 2035 general plan. Goal 3, Natural Resources, sets forth policies for preserving natural wildlife habitats, among other natural resource-oriented policies.

Fresno County General Plan

The Open Space and Conservation Element of the Fresno County General Plan (Fresno County 2014a) protects and preserves natural resources in the county. Parts D (Wetland and Riparian Areas), E (Fish and Wildlife Habitat), and F (Vegetation) set out specific policies relating to natural resources, including native and nonnative vegetation, in Fresno County.

OS-E.1 Avoid Habitat Loss

Fresno County shall support efforts to avoid the "net" loss of important wildlife habitat where practicable. In cases where habitat loss cannot be avoided, Fresno County shall impose adequate mitigation for the loss of wildlife habitat that is critical to supporting special status species and other valuable or unique wildlife resources.

Mitigation shall be at sufficient ratios to replace the function and value of the habitat that was removed or degraded. It may be achieved through any combination of creation, restoration, conservation easements, or mitigation banking. Conservation easements should provide for maintenance and management in perpetuity.

Fresno County shall recommend coordination with the USFWS and the CDFG to ensure that appropriate mitigation measures and the concerns of these agencies are adequately addressed. Important habitat and habitat components are nesting, breeding, and foraging areas, important spawning grounds, migratory routes and stopover areas, oak woodlands, vernal pools, wildlife movement corridors, and other unique wildlife habitats (e.g., alkali scrub) critical to protecting and sustaining wildlife populations.

OS-E.2 Construction Buffers

Fresno County shall require adequate buffer zones between construction activities and significant wildlife resources. This includes both on-site habitats that are purposely avoided and significant habitats that are next to the project site. This measure is to avoid the degradation and disruption of critical life cycle activities, such as breeding and feeding. The width of the buffer zone should vary depending on such factors as the location and species. A final determination shall be made based on informal consultation with the USFWS and the CDFW.

OS-E.3 Wildlife Habitat Protection

Fresno County shall require that development in areas known to have particular value for wildlife be carefully planned and, where possible, located so that the value of the habitat for wildlife is maintained.

OS-E.4 Wildlife Habitat Management Practices

Fresno County shall encourage private landowners to adopt sound wildlife habitat management practices, as recommended by the CDFW officials and the USFWS.

OS-E.6 Habitat Corridors

Fresno County shall ensure the conservation of large continuous expanses of native vegetation to provide suitable habitat for maintaining abundant and diverse wildlife populations, as long as this preservation does not threaten the economic well-being of the county.

OS-E.9 Biological Resource Evaluation

Before approving discretionary development permits, Fresno County shall require, as part of any required environmental review process, a biological resources evaluation of the project site by a qualified biologist. The evaluation shall be based on field reconnaissance performed at the appropriate time of year to determine the presence or absence of significant resources and special status plants or animals. Such evaluation would consider the potential for significant impact on these resources and would either identify feasible mitigation measures or indicate why mitigation is not feasible.

OS-E.13 Habitat Protection

Fresno County should protect to the maximum extent practicable wetlands, riparian habitat, and meadows, since they are recognized as essential habitats for birds and wildlife.

OS-E.14 Wildlife Corridors

Fresno County shall require a minimum 200-foot-wide wildlife corridor along particular stretches of the San Joaquin River and Kings River, whenever possible. The exact locations for the corridors should be determined based on the results of biological evaluations of these watercourses. Exceptions may be necessary where the minimum width is infeasible due to topography or other physical constraints. In these instances, an offsetting expansion on the opposite side of the river should be considered.

OS-E.15 Wildlife Migration Routes Protection

Fresno County should preserve, to the maximum extent practicable, significant wildlife migration routes, such as the north Kings deer herd migration corridors and fawn production areas.

OS-E.16 High Value Fish and Wildlife Areas
Fresno County should preserve in a natural state to the maximum possible extent areas that have unusually high value for fish and wildlife propagation.

Kings County General Plan
The Resource Conservation Element of the Kings County General Plan (Kings County 2010a) identifies natural resources throughout the county and establishes guiding policies for the conservation, development, and use of these resources. Section II of the element identifies resources in Kings County, and Section III lays out policies relating to the resources. Part II.D, Natural and Plant Animal Habitats, and Part II.E, Threatened and Endangered Species, contain policies relating to special status species and habitats supporting special status species.

Section D. Natural Plant and Animal Habitats

<u>RC Objective D1.1</u>
Require that development in or next to important natural plant and animal habitats minimize the disruption of such habitats.

RC Policy D1.1.1: Evaluate all discretionary land use applications in accordance with the screening procedures contained in the Biological Resources Survey in Appendix C. If the results of the project screening indicate the potential for important biological resources to exist on the site, a qualified biologist shall perform a biological evaluation. If the evaluation indicates that the project could have a significant adverse impact, mitigation shall be required or the project would be redesigned to avoid such impacts.

Mitigation shall be provided consistent with CEQA and applicable state and federal guidelines as appropriate. Mitigation may include habitat improvement or protection, acquisition of other habitat, or payment to an appropriate agency to purchase, improve, or protect such habitat.

Types of Special Status Species

Federally Listed Species
Species listed as endangered under the ESA are those that are "in danger of extinction throughout all or a significant portion of its range" (16 USC, Section 1532[6]). A species listed as threatened under the ESA is considered "likely to become an endangered species in the foreseeable future throughout all or a significant portion of its range" (16 USC, Section 1532[20]). Listed species may include both wildlife and plant species.

A candidate species is any "for which the Fish and Wildlife Service has sufficient information on their biological status and threats to propose them as endangered or threatened under the ESA, but for which development of a proposed listing regulation is precluded by other higher priority listing activities"

(USFWS 2011). Candidate species receive no statutory protection under the ESA. Proposed species for ESA listing are those that were found to warrant listing as either threatened or endangered. These species also were officially proposed as such in a Federal Register notice after the completion of a status review and consideration of other protective conservation measures.

State-Listed Species

The definition of California endangered and threatened species is similar to the federal definition. These species, which can include both wildlife and plant species, are protected under the CESA.

The classification of fully protected species was the state's initial effort to identify and provide additional protection to those animals that were rare or facing possible extinction. These species "…may not be taken or possessed at any time and no provision of this code or any other law would be construed to authorize the issuance of permits or licenses to take any fully protected"; however, take may be authorized for necessary scientific research. Many, but not all, fully protected species have since been listed as threatened or endangered under the CESA.

Certain vertebrate species have been designated as species of special concern (SSC). This is because declining population levels, limited ranges, or continuing threats have made them vulnerable to extinction. The goal of designating SSC is to halt or reverse their decline by calling attention to their plight and addressing the issues of concern early enough to secure their long-term viability.

Special animals is a general term that refers to all of the animal species inventoried by the California Natural Diversity Data Base (CNDDB), regardless of their legal or protection status (CDFW 2014d). The CDFW also refers to the special animals list as the list of species at risk or special status species. These species may be listed or proposed for listing under the California and federal ESAs; they may also be unprotected species deemed biologically rare, restricted in range, declining in abundance, or otherwise vulnerable.

CNPS-Ranked Species

The California Native Plant Society (CNPS) maintains several lists of special status plant species in California. CNPS-ranked plant species may also be listed under the ESA or CESA. These lists are as follows:

- Rank 1A—Presumed extinct in California
- Rank1B—Rare or endangered in California and elsewhere
- Rank 2A—Plants presumed extirpated in California but common elsewhere
- Rank 2B—Plants rare, threatened, or endangered in California but more common elsewhere

- Rank 3—Plants for which more information is needed (review list)
- Rank 4—Plants of limited distribution (watch list)

Some lists have numerical extensions describing the threats to the species in California, as follows:

- 1—Seriously endangered in California
- 2—Fairly endangered in California
- 3—Not very endangered in California

All of the categories of species described above are considered special status species for the purposes of this section.

3.6.2 Affected Environment

Proposed Project Site

Vegetation Surveys

Live Oak Associates mapped the vegetation communities using data collected during focused floristic and wildlife surveys in the summer and fall of 2009 and focused floristic surveys in the spring of 2010. Their biologists conducted seasonally timed, focused botanical surveys in the project footprint on the following dates: August 17 to 19, August 24 to 26, September 14 to 18, September 21 to 25, and September 30 to October 2, 2009, and March through April 2010. During these surveys, the survey team walked the entire site in evenly spaced transects, ensuring 100 percent visual coverage. Plant nomenclature for the Live Oak Associates surveys followed Hickman (1993). Names given in this report follow the Jepson Manual, 2nd Edition (Baldwin et al. 2012), with synonyms from Hickman (1993) noted in brackets where applicable.

Noxious weeds are defined by the Federal Noxious Weed Act as "any living stage (including seeds and reproductive parts) of a parasitic or other plant of a kind which is of foreign origin, is new to or not widely prevalent in the United States, and can directly or indirectly injure crops, other useful plants, livestock, poultry, or other interests of agriculture, including irrigation, navigation, fish and wildlife resources, or the public health."

Nonnative plant species are those that evolved in one region of the world but were moved by humans to another region. Often, these species thrive in the new environment and crowd out native vegetation and the wildlife that feed on it. Some nonnative species can even change ecosystem processes, such as hydrology, fire regimes, and soil chemistry. These plants have a competitive advantage and can quickly spread in new territories because they are no longer controlled by their natural predators (California Invasive Plant Council 2014a).

The California Invasive Plant Inventory (California Invasive Plant Council 2014b) categorizes nonnative invasive plants that threaten the state's wildlands. Categorization is based on an assessment of the ecological impacts of each plant. The inventory categorizes plants as high, moderate, or limited, reflecting the level of each species' negative ecological impact in California.

Regional and Project Site Habitat Types

The project site is in eastern San Benito County in the Panoche Valley; there is no urban development on the project site or in the surrounding area. Much of the project site was used for crop production; however, for approximately the past forty years, the project site and the surrounding area have been used for livestock grazing. Vegetation is low lying and sparse and primarily consists of annual nonnative grass species (Bloom Biological Inc. 2010). Vegetation on the project site is depicted in **Figure 3-8**.

Introduced Annual Grassland

Introduced annual grassland is the dominant habitat on the project site. Prominent grass species observed by Live Oak Associates during repeated botanical surveys were ripgut brome (*Bromus diandrus*), soft chess (*B. hordeaceus*), red brome (*B. madritensis*), foxtail barley (*Hordeum murinum* ssp. *leporinum*), and rat-tail fescue (*Festuca* [syn. *Vulpia*] *myuros*). Dominant forbs were broad-leaved filaree (*Erodium botrys*), red-stemmed filaree (*E. cicutarium*), vinegarweed (*Trichostema lanceolatum*), and shining peppergrass (*Lepidium nitidum*). Other species common to the site, especially along ranch roads, are common fiddleneck (*Amsinckia intermedia* [*A. menziesii* var. *intermedia*]), devils lettuce (*A. tessellata*), shepherd's purse (*Capsella bursa-pastoris*), turkey mullein (*Croton* [syn. *Eremocarpus*] *setigerus*), and bur clover (*Medicago polymorpha*; Live Oak Associates 2009a).

The project site supports inclusions of wildflower field communities dominated by numerous species of native annual wildflowers in the spring (Sawyer et al. 2009). Species characterizing the wildflower fields on the project site are goldfields (*Lasthenia californica*), blow wives (*Achyrachaena mollis*), blue dicks (*Dichelostemma capitatum*), tidy-tips (*Layia platyglossa*), and California creamcups (*Platystemon californicus*; Live Oak Associates 2009a).

Noxious Weeds and Nonnative Species

Nonnative annual vegetation is found throughout California where cultivation and grazing for the past century or more has converted native annual or perennial grasslands to nonnative annual grasslands. Most plant species on the site consist of nonnative species, such as ripgut brome, soft chess, red brome, foxtail barley, and rat-tail fescue.

State-listed noxious weeds observed o the project site are summarized in **Table 3-10**; brief summaries of each noxious weed appear below.

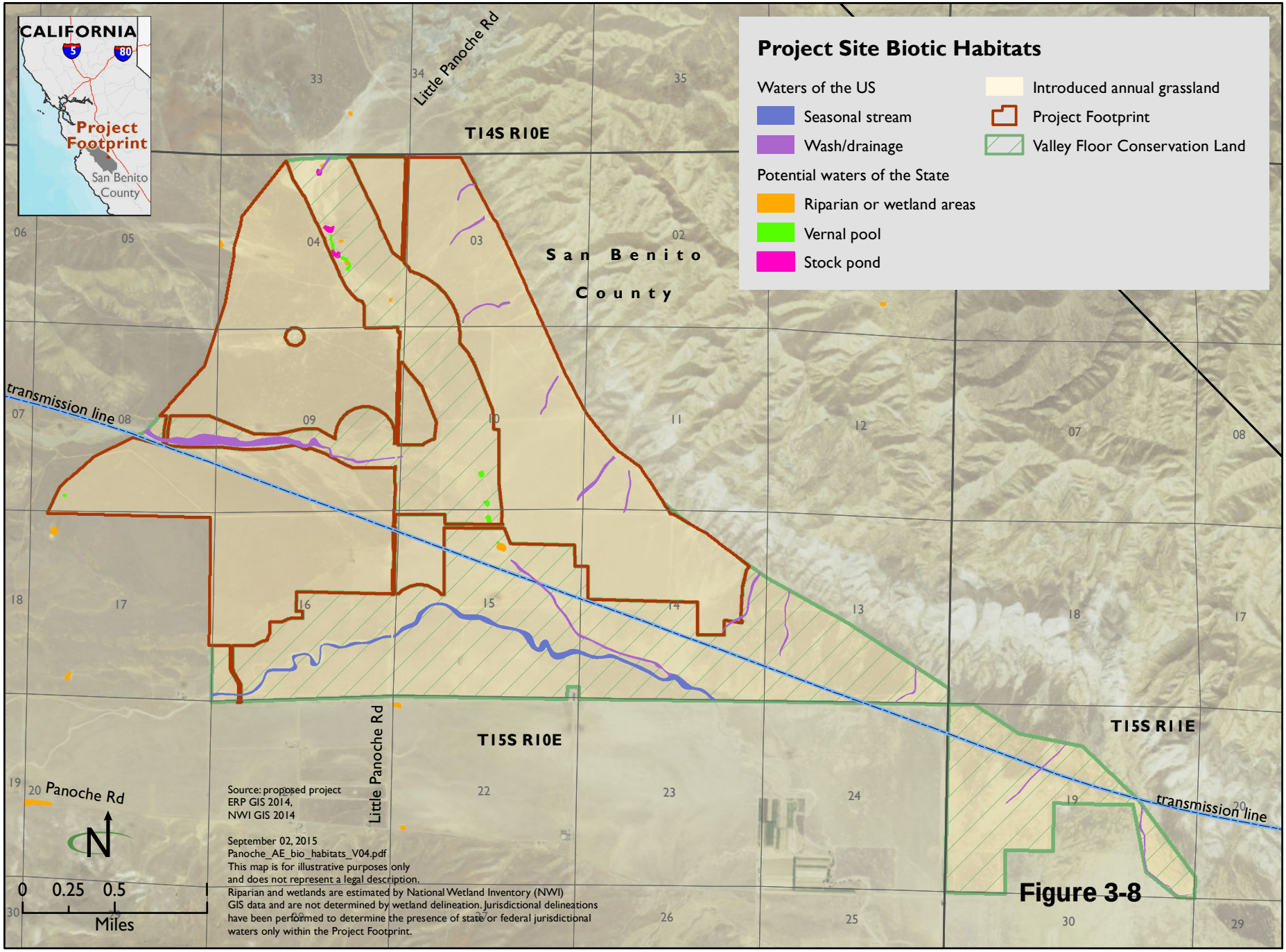

CALIFORNIA
5
80
Project Footprint
San Benito County
Project Site Biotic Habitats
Waters of the US
Seasonal stream
Wash/drainage
Potential waters of the State
Riparian or wetland areas
Vernal pool
Stock pond
Introduced annual grassland
Project Footprint
Valley Floor Conservation Land
Little Panoche Rd
T14S R10E
San Benito County
transmission line
T15S R10E
T15S R11E
Panoche Rd
N
0 0.25 0.5
Miles
Source: proposed project
ERP GIS 2014,
NWI GIS 2014
September 02, 2015
Panoche_AE_bio_habitats_V04.pdf
This map is for illustrative purposes only
and does not represent a legal description.
Riparian and wetlands are estimated by National Wetland Inventory (NWI)
GIS data and are not determined by wetland delineation. Jurisdictional delineations
have been performed to determine the presence of state or federal jurisdictional
waters only within the Project Footprint.

Figure 3-8

Table 3-10
Noxious Weeds Observed on the Project Site

Common Name	Scientific Name	Noxious Weed Rating[1]
Field bindweed	*Convolvulus arvensis*	C list
Bermuda grass	*Cynodon dactylon*	C list
Russian thistle	*Salsola tragus*	C list
Puncturevine	*Tribulus terrestris*	C list

Sources: Live Oak Associates 2010b; NRCS 2014
[1]Noxious weeds are rated for potential damage to agriculture, with A representing the greatest potential threat, B an intermediate potential threat, and C the least potential threat. C list weeds require eradication only when found in a nursery; action to retard spread outside of nurseries is at the discretion of the state agricultural commissioner.

Field bindweed is a perennial broadleaf in the morning glory family (Convolvulaceae). It is considered one of the most problematic weeds in agricultural fields throughout temperate regions worldwide, and it is abundant throughout California (UCIPM 2014a). The NRCS noxious weed rating for this species is C list (NRCS 2014). This species is not rated in the California Invasive Plant Council inventory (California Invasive Plant Council 2014b).

Bermuda grass is a creeping perennial grass (family Poaceae) commonly used in garden plantings and as a turf species. However, it can escape cultivation and outcompete native species, particularly in riparian areas. The NRCS noxious weed rating for this species is C list (NRCS 2014). The California Invasive Plant Council inventory rating for this species is Moderate (California Invasive Plant Council 2014b).

Russian thistle is a large, bushy summer annual in the goosefoot family (Chenopodiaceae). It can be found throughout California, including in agricultural areas, deserts, roadsides, and other disturbed areas. Russian thistle can impede traffic and create fire hazards. It is a host of the beet leaf-hopper, an agricultural insect pest. The NRCS noxious weed rating for this species is C list (NRCS 2014). The California Invasive Plant Council inventory rating for this species is Limited (California Invasive Plant Council 2014b).

Puncturevine is a prostrate, summer annual, mat-forming broadleaf plant in the caltrop family (Zygophyllaceae). Puncturevine produces many burs with sharp spines that can injure humans and animals and can puncture bicycle tires. In addition, leaves contain compounds called saponins, which can be toxic to livestock (especially sheep) when eaten in quantity. It is prevalent in areas with hot summers and is found throughout California (UCIPM 2014b). The NRCS noxious weed rating for this species is C list (NRCS 2014). This species is not rated in the California Invasive Plant Council inventory (California Invasive Plant Council 2014b).

Sensitive Habitats

Sensitive habitats include those that are of special concern to resource agencies. Because this EIS has been prepared to comply solely with NEPA, only Federally protected habitats are addressed in the remainder of this section. Thus, this section describes waters subject to federal jurisdiction under the Clean Water Act. The discussion of these water features covers all sensitive habitats on the project site.

Waters of the U.S., Including Wetlands

Waters of the U.S. subject to Section 404 of the CWA are defined in USACE regulations at 33 CFR 328.3(a). USACE regulations at 33 CFR 328.3(b) define wetlands as those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

On October 18, 2010, the USACE issued an approved jurisdictional determination for the proposed project site (USACE 2010). The jurisdictional determination indicated that the project site (project footprint and the Valley Floor Conservation Lands) contains 31.8 acres of waters of the U.S., consisting of intermittent and ephemeral drainages. Drainages subject to USACE jurisdiction in the proposed project site are Panoche Creek, Las Aguilas Creek, and portions of an unnamed ephemeral drainage. On June 24, 2015, USACE issued a preliminary jurisdictional determination for 967 acres on the eastern portion of the project site (contained within the project footprint). The preliminary jurisdictional determination indicated that the proposed project site contains an additional 0.36 acre of potential waters of the U.S., consisting of intermittent and ephemeral drainages. The proposed project site contains a total of 32.2 acres of potential waters of the U.S.

No jurisdictional wetlands were identified on the project site (Power Engineers 2009a). No other special aquatic sites (i.e., sanctuaries and refuges, mud flats, vegetated shallows, coral reefs, or riffle and pool complexes) are present within the project site.

Vernal Pools

The EPA describes vernal pools as "seasonal depressional wetlands that occur under the Mediterranean climate conditions of the West Coast. They are covered by shallow water for variable periods from winter to spring, but may be completely dry for most of the summer and fall. These wetlands range in size from small puddles to shallow lakes and are usually found in a gently sloping plain of grassland. Western vernal pools are sometimes connected to each other by small drainages known as vernal swales, forming complexes. Beneath vernal pools lies either bedrock or a hard clay [or mineral] layer in the soil that helps keep water in the pool" (EPA 2014b).

Vernal pools are a valuable and increasingly threatened ecosystem, as more than 90 percent of California's vernal pools have been destroyed (EPA 2014b). They provide a unique environment for plants and animals since they are flooded in the winter, moist in the spring, and dry through summer and fall. Over 200 species of plants can be present in California's vernal pools; half are entirely restricted to this habitat type (Witham 2006). Numerous rare plants and animals are able to survive and thrive in these conditions. Many of these organisms spend the dry season as seeds, eggs, or cysts and then grow and reproduce when the ponds are again filled with water. Birds such as egrets, ducks, and hawks use vernal pools as a seasonal source of food and water (EPA 2014b).

During project surveys, Live Oak Associates identified 128 ephemeral depressions (Live Oak Associates 2010a). Up to 15 known ephemeral depressions have identified vegetative and hydrological indicators representative of vernal pools (County of San Benito 2015). Vegetation in these areas is consistent with vernal pool species, including slender woollyheads (*Psilocarphus tenellus*), finebranched popcornflower (*Plagiobothrys leptocladus*), and whitetip clover (*Trifolium variegatum*). Most of these ephemeral pools occur in low areas associated with ephemeral drainages and on compacted soil along unpaved roads.

The USACE determined that the vernal pools and ephemeral depressions on the site do not meet the definition of wetland and do not contain an ordinary high water mark, and therefore are not aquatic resources. However, the Regional Water Quality Control Board and CDFW have determined that the vernal pools and ephemeral depressions on the site are aquatic resources that are considered waters of the State and are regulated under applicable state laws and regulations.

Wash/Drainage/Seasonal Stream

Surface water in the area is generally ephemeral, present only in response to precipitation. Surface water sources are described in detail in **Section 3.9** and also depicted on **Figure 3-17**. The project site is traversed by multiple intermittent and ephemeral streams and washes, including Panoche Creek, Las Aguilas Creek, and portions of an unnamed ephemeral drainage. Vegetation in the drainages is typically sparse to absent.

Stock Ponds

Three stock ponds were observed in the northern portion of the project site, within the Valley Floor Conservation Lands (Live Oak Associates 2009a). The jurisdictional delineation identified three palustrine unconsolidated bottom wetlands, totaling approximately 1.46 acres associated with these ponds (Power Engineers 2009a). Unconsolidated bottoms lack large stable surfaces for plant and animal attachment and consist of mud, sand, cobble, gravel, or organic matter. Vegetation is absent over most of the area. USACE determined that these stock ponds were not waters of the U.S. in the October 18, 2010 approved jurisdictional determination.

Wildlife Surveys

Reconnaissance wildlife surveys were conducted throughout the project site (project footprint and the Valley Floor Conservation lands) from April 1 through April 3, 2009, where biologists recorded all wildlife species observed. General wildlife habitat mapping was also conducted in 2010 on the project footprint and the associated conservation lands (Valley Floor, Silver Creek Ranch, and Valadeao Conservation Lands).

General wildlife data were also recorded concurrently with numerous special status species surveys in 2009, 2010, 2012, 2013, 2014, and 2015. Documentation of wildlife included direct observation of animals, nests, tracks, bones, and other signs of wildlife. Birds were identified by sight using binoculars or by calls. Reptiles, amphibians, and mammals were identified by sight and tracks (Live Oak Associates 2009a).

Wildlife in the General Project Area

Over 50 animal species were recorded on the project site. These species included numerous invertebrates, 4 amphibians, 10 reptiles, 20 birds, and 13 mammals specifically mentioned in the biotic resources report for the project site (Live Oak Associates 2009a). It is likely that additional species have been observed on the site as well but not specifically noted in biological survey reports. Due to the lack of perennial water sources on the project site, fish are unlikely to occur. Below is a description of general wildlife on the project site and on the interspersed and adjacent conservation lands.

Invertebrates

Two species of aquatic arthropods were observed at the project site, vernal pool fairy shrimp (*Branchinecta lindahli*) and California fairy shrimp (*Linderiella occidentalis*). Vernal pool fairy shrimp are federally listed and are included in the special status species discussion. Other aquatic arthropod species could inhabit vernal pools and ephemeral wetland depressions on the project site. A number of other invertebrates, such as spiders, bees, wasps, moths, and ticks, are likely to occur on the project site but were not noted in survey reports.

Amphibians

Amphibian populations are limited due to the dominance of upland habitat; however, amphibians are likely to use the stock ponds found in the northern portion of the project site and to use the waters of the creeks and drainages when they are flowing. Amphibian species observed on the project site are the California tiger salamander (*Ambystoma californiense*), which was observed in the vicinity of the project site during protocol surveys in 2010 (Live Oak Associates 2010a, 2010c, 2010j), western toad (*Bufo boreas*), Pacific chorus frog (*Hyla regilla*), and bullfrog (*Rana catesbeiana*).

Reptiles

The rangelands of the project site and conservation lands offer suitable habitat for a number of locally occurring reptilian species. During the April 2009

surveys of the project site, biologists observed the Pacific gopher snake (*Pituophis catenifer catenifer*) and western rattlesnake (*Crotalus viridis*; Live Oak Associates 2009a). During 2010 surveys, they observed side-blotched lizard (*Uta stansburiana*), blunt-nosed leopard lizard (*Gambelia silus*), western whiptail (*Cnemidophorus tigris*), Pacific gopher snake (*Pituophis catenifer catenifer*), and San Joaquin coachwhip (*Masticophis flagellum ruddocki*; Live Oak Associates 2010b).

These same rangelands are expected to support the western fence lizard (*Sceloporus occidentalis*), California horned lizard (*Phyrnosoma coronatum frontale*), southern alligator lizard (*Elgaria multicarinatus*), common king snake (*Lampropeltis getula*), and common garter snake (*Thamnophis sirtalis*), among other species.

Birds

Both resident and migratory birds, particularly raptors and grain-eating birds, use the project site as foraging habitat. Resident and migratory birds adapted to ground-nesting also likely use the project site for nesting during the breeding season. Raptors observed on the project and valley floor included red-tailed hawk (*Buteo jamacensis*), northern harrier (*Circus cyaneus*), prairie falcon (*Falco mexicanus*), American kestrel (*F. sparverius*), and turkey vulture (*Cathartes aura*; Live Oak Associates 2009a). Other raptors that may forage on-site are white-tailed kite (*Elanus leucurus*), ferruginous hawk (*Buteo regalis*), Swainson's hawk (*B. swainsoni*), and golden eagle (*Aquila chrysaetos*).

Additional bird species observed on the project site or in the vicinity were the greater roadrunner (*Geococcyx californianus*), burrowing owl (*Athene cunicularia*), Say's phoebe (*Sayornis saya*), Anna's hummingbird (*Calypte anna*), loggerhead shrike (*Lanius ludovicianus*), yellow-billed magpie (*Pica nuttalli*), American crow (*Corvus brachyrhynchos*), common raven (*C. corax*), California horned lark (*Eremophila alpestris actia*), mountain bluebird (*Sialia currucoides*), European starling (*Sturnus vulgaris*), red-winged blackbird (*Agelaius phoeniceus*), tricolored blackbird (*A. tricolor*), western meadowlark (*Sturnella neglecta*), and purple finch (*Carpodacus purpureus*; Live Oak Associates 2009a, 2010b). California condors (*Gymnogyps californianus*), a federal and state endangered species, is also expected to occasionally forage over the site, given its proximity to the Pinnacles National Monument, where they are known to occur.

Mammals

<u>Small mammal species</u>. Small mammals likely to occur on the site are the Botta's pocket gopher (*Thomonys bottae*) and western harvest mouse (*Reithrodontomys megalotis*). Other small mammals could occur on the site rarely, including San Joaquin pocket mouse (*Perognathus inornatus*); grasshopper mouse (*Onychomys torridus*); deer mouse (*Peromyscus maniculatus*); and Tulare grasshopper mouse (*O. t. tularensis*). However, the site currently lacks the thick grass and herbaceous cover preferred by these latter species.

San Joaquin kit fox (*Vulpes macrotis mutica*) occur within the project site and wider Panoche Valley and vicinity. A number of California ground squirrels (*Spermophilus beecheyi*) and their burrows were observed within and adjacent to the project site, as were American badger (*Taxidea taxus*). The region supports various kangaroo rat species and a number of precincts were observed, including some of the giant kangaroo rat (*Dipdomys ingens*). The San Joaquin antelope squirrel (*Ammospermophilus nelsoni*) was documented near the site in April 2009 and abundantly on-site during the 2010 surveys (Live Oak Associates 2010b).

Bats. The scarcity of trees and lack of structures on the project site limit roosting habitat for bat species. Some tree-roosting bats may occur on larger trees on the site, and the project site could provide foraging habitat for insectivorous bats, such as the big brown bat (*Eptesicus fuscus*) and Brazilian free-tailed bat (*Tadarida brasiliensis*).

Big game species. Mule deer (*Odocoileus hemionus*) occur in this region and likely graze many areas of the site. Game predators such as cougar (*Puma concolor*) and bobcat (*Lynx rufus*) also occur here; a bobcat jaw was observed during the April 2009 site visit.

Big game movement. A wildlife movement corridor is an area of land that primarily functions to connect significant habitat areas. Movement corridors are generally considered on a regional scale, whereby land managers designate and attempt to protect swaths of land potentially suitable for facilitating wildlife movements between core habitat areas. Designating and protecting wildlife movement corridors limits habitat fragmentation in landscapes where wildlife movements are constrained by surrounding land uses.

The Panoche Valley is a rural area of agricultural and ranching land use; urban development does not constrain wildlife movement at this location. Topographical constraints are present on both sides of the Panoche Valley and make it an important wildlife movement corridor. The Valley Floor Conservation Lands component of the project design would preserve wildlife movement corridors in on-site drainages and 100-year floodplains. Big game species are not prevalent in the vicinity; however, the corridors may support mule deer and cougars, as well as smaller predators, including the endangered San Joaquin kit fox (*Vulpes macrotis*).

Special Status Species Surveys

Numerous surveys have been conducted on the project site, conservation lands, and telecommunications upgrades sites between 2009 and 2015 (see **Table 3-11**). Special status species data have been collected during periods of both above average rainfall (2009-2011) and below average rainfall (2012-2014) and represent an accurate description of the baseline biological conditions within the project site (San Benito County 2015).

Table 3-11
Surveys Conducted for the Proposed Project

Survey Name	Survey Description	Dates	Lands Surveyed	Special Status Species Detected
Reconnaissance Surveys				
Reconnaissance survey of original 10,000-acre project site and additional 900-acre project site, with some restricted access at the time of the survey	Reconnaissance survey (walking/driving surveys for potential habitat for special status species)	April 1-3, 2009	Project footprint and Valley Floor Conservation Lands	Burrowing owl, loggerhead shrike, tri-colored blackbird, giant kangaroo rat, San Joaquin kit fox
Reconnaissance surveys	Reconnaissance survey (walking surveys for special status species)	April-July 2010	Valadeao Ranch Conservation Lands	Giant kangaroo rat, San Joaquin kit fox, American badger, golden eagle
Reconnaissance surveys	Reconnaissance survey (walking surveys for special status species and potential habitat and spotlight surveys for San Joaquin kit fox)	August 30-September 3, 2010	Silver Creek Ranch Conservation Lands	Blunt-nosed leopard lizard, loggerhead shrike, giant kangaroo rat, San Joaquin kit fox, San Joaquin antelope squirrel, American badger
Blunt-Nosed Leopard Lizard Surveys				
Blunt-nosed leopard lizard abridged protocol survey (2009)[1]	Abridged-protocol blunt-nosed leopard lizard surveys on over 2,560 acres	Summer 2009	Project footprint and Valley Floor Conservation Lands	Blunt-nosed leopard lizard, San Joaquin coachwhip, golden eagle, burrowing owl, loggerhead shrike, San Joaquin antelope squirrel, giant kangaroo rat, San Joaquin kit fox, American badger
Blunt-nosed leopard lizard protocol survey (2010)	Protocol-level blunt-nosed leopard lizard surveys on 640 acres	Summer 2010	Portions of project footprint and Valley Floor Conservation Lands	Blunt-nosed leopard lizard, San Joaquin coachwhip, golden eagle, loggerhead shrike, giant kangaroo rat, San Joaquin kit fox, American badger
Blunt-nosed leopard lizard focused survey (2012)	Focused blunt-nosed leopard lizard surveys, following time-of-day and weather protocols, targeting drainages, on approximately 10,890 acres	September 10-17, 2012	Silver Creek Ranch Conservation Lands	Blunt-nosed leopard lizard, golden eagle, burrowing owl, San Joaquin antelope squirrel, giant kangaroo rat, San Joaquin kit fox, American badger, western pond turtle
Blunt-nosed leopard lizard protocol survey - adult (2013)	Protocol-level adult blunt-nosed leopard lizard surveys	58 days between May 9 and July 13, 2013	Project footprint, portions of the Valley Floor Conservation Lands	Blunt-nosed leopard lizard, golden eagle, burrowing owl, giant kangaroo rat
Blunt-nosed leopard lizard protocol survey – hatchling (2013)	Protocol-level hatchling blunt-nosed leopard lizard surveys	Between August 1 and September 10, 2013	Project footprint, portions of the Valley Floor Conservation Lands	Adult and hatchling blunt-nosed leopard lizard

Table 3-11
Surveys Conducted for the Proposed Project

Survey Name	Survey Description	Dates	Lands Surveyed	Special Status Species Detected
Blunt-nosed leopard lizard abbreviated survey (2014)	Protocol-level adult blunt-nosed leopard lizard survey on 600 acres	May 21-29, 2014 (adult survey); August 4-10, 2014 (juvenile survey)	A 600-acre portion of the project footprint and the Valley Floor Conservation Lands	No blunt-nosed leopard lizard observed in the 600-acre study area; blunt-nosed leopard lizard observed in adjacent Valley Floor Conservation Lands
Vernal Pool Branchiopod Surveys				
Wet season protocol-level vernal pool branchiopod surveys	Protocol-level vernal pool branchiopod surveys	Several days per month, from December 2009 to June 2010	Project footprint, Valley Floor Conservation Lands, and Valadeao Ranch Conservation Lands	Vernal pool fairy shrimp, California tiger salamander, San Joaquin antelope squirrel
Non-protocol vernal pool branchiopod survey	Non-protocol survey	April 14, 2010	Four pools within Valadeao Ranch Conservation Lands, three pools adjacent to the project footprint and Valadeao Ranch Conservation Lands	Vernal pool tadpole shrimp, California tiger salamander
Dry season protocol-level vernal pool branchiopod surveys	Protocol-level vernal pool branchiopod surveys	September 27-30, 2010	Project footprint, Valley Floor Conservation Lands, and Valadeao Ranch Conservation Lands	Vernal pool fairy shrimp
California Tiger Salamander Surveys				
Evaluation of historical breeding ponds identified in 1992 in the CNDDB	Evaluation of suitability of ponds in Section 4 to support California tiger salamander, resulting in confirmation of suitable breeding habitat	April 10, 2009	Valley Floor Conservation Lands	California tiger salamander
Protocol California tiger salamander larval sampling I	Protocol California tiger salamander larval surveys	March 23-26, 2010	Project footprint, Valley Floor Conservation Lands, and Valadeao Ranch Conservation Lands	California tiger salamander
Protocol California tiger salamander larval sampling II	Protocol California tiger salamander larval surveys	April 13, 14, and 21, 2010	Project footprint, Valley Floor Conservation Lands, and Valadeao Ranch Conservation Lands	California tiger salamander

Table 3-11
Surveys Conducted for the Proposed Project

Survey Name	Survey Description	Dates	Lands Surveyed	Special Status Species Detected
Protocol California tiger salamander larval sampling II	Protocol California tiger salamander larval surveys	May 21, 2010	Project footprint, Valley Floor Conservation Lands, and Valadeao Ranch Conservation Lands	California tiger salamander
Hydrology and California tiger salamander reconnaissance survey	Identify locations to construct new California tiger salamander ponds	June 28, 2012	Valadeao Ranch Conservation Lands, Silver Creek Ranch Conservation Lands	Giant kangaroo rat, San Joaquin kit fox
Rare Plant Surveys				
Rare plant I (late summer/early fall)	Protocol-level rare plant surveys on 6,200 acres of the original 10,000-acre project site	August-October 2009	Portions of the project footprint and Valley Floor Conservation Lands	Blunt-nosed leopard lizard, giant kangaroo rat, San Joaquin kit fox, American badger; no special status plants detected
Rare plant II (early spring)	Protocol-level rare plant surveys on a portion of the original 10,000-acre project site	March 8-April 9, 2010	Portions of the project footprint and Valley Floor Conservation Lands	Giant kangaroo rat, San Joaquin kit fox, American badger; recurved larkspur, gypsum-loving larkspur,[2] serpentine leptosiphon
Rare plant III (late spring)	Protocol-level rare plant surveys on a portion of the original 10,000-acre project site	May 4-June 4, 2010	Portions of the project footprint and Valley Floor Conservation Lands	Recurved larkspur, gypsum-loving larkspur,[2] serpentine leptosiphon, giant kangaroo rat, San Joaquin kit fox, American badger
Follow-up rare plant survey	To determine the species of 28 *Blepharizonia* populations found during the rare plant III surveys	July 26-27, 2010	Portions of the project footprint and Valley Floor Conservation Lands	No additional special status plants detected
Early season rare plant survey		March 3-13, 2015	Project footprint and 100-foot buffer, portions of the PGE Panoche-Moss Landing 230 kilovolt transmission line	Forked fiddleneck, serpentine leptosiphon, California groundsel, *Navarretia* sp., *Delphinium* sp.
San Joaquin Kit Fox Surveys				
Scat-sniffing dog survey	Describe transects and collect scat	July 30-August 16, 2010	Project footprint, Valley Floor Conservation Lands, and Valadeao Ranch Conservation Lands	San Joaquin kit fox

Table 3-11
Surveys Conducted for the Proposed Project

Survey Name	Survey Description	Dates	Lands Surveyed	Special Status Species Detected
Scat-sniffing dog genetic testing with the Smithsonian Institute	Genetic testing of 69 scat samples found during scat-sniffing dog survey	September 9-15, 2010	Project footprint, Valley Floor Conservation Lands, and Valadeao Ranch Conservation Lands	San Joaquin kit fox
Camera trapping	Camera trapping with bait at 20 locations	Summer/fall 2012	Silver Creek Ranch Conservation Lands	San Joaquin kit fox, American badger, giant kangaroo rat, burrowing owl, tricolored blackbird
Spotlighting for San Joaquin kit fox	Spotlighting surveys	Summer/fall 2012	Silver Creek Ranch Conservation Lands and public roads in the vicinity	San Joaquin kit fox, American badger, giant kangaroo rat, burrowing owl
Trapping and radio collaring	Preliminary camera trapping to inform Havahart trap locations; 20 Havahart traps deployed; radio collar captured individuals	January 5-11, 2015	Project footprint	Three successful captures of two individual San Joaquin kit fox, both of which were radio collared and released.
Golden Eagle/Raptor Survey				
Golden eagle survey	Conducted within a 10-mile radius via helicopter	August 6 and 7, 2010	10-mile radius around project footprint and Valley Floor Conservation Lands	Golden eagle
Golden eagle use survey	USFWS protocol golden eagle surveys	Fall and winter 2013-2014	Project footprint, Valley Floor Conservation Lands, Valadeao Ranch Conservation Lands, and Silver Creek Ranch Conservation Lands	Golden eagle
Golden eagle nesting survey	USFWS protocol golden eagle nesting surveys	January 15-24, and April 2-8, 2014	10-mile buffer around the project footprint; including Valley Floor, Valadeao Ranch, and Silver Creek Ranch Conservation Lands	Golden eagle; incidental special status species observations included bald eagle, loggerhead shrike, American badger
Habitat Suitability Surveys				
Detailed habitat mapping		June 15-July 1, 2010	Valadeao Ranch Conservation Lands	n/a

Table 3-11
Surveys Conducted for the Proposed Project

Survey Name	Survey Description	Dates	Lands Surveyed	Special Status Species Detected
General habitat mapping		September 3-5, 2010	Silver Creek Ranch Conservation Lands	n/a
Occupancy sampling	Surveying for special status species in five-acre plots over five survey periods	May 10-July 27, 2010	Project footprint and Valley Floor Conservation Lands	Blunt-nosed leopard lizard, coast horned lizard, San Joaquin coachwhip, golden eagle, giant kangaroo rat, San Joaquin kit fox, American badger
Distance sampling	Surveying for burrows and special status species along transects	February 18-March 18, 2010	Project footprint, Valley Floor Conservation Lands, and Valadeao Ranch Conservation Lands	Blunt-nosed leopard lizard, coast horned lizard, mountain plover, golden eagle, burrowing owl, loggerhead shrike, San Joaquin antelope squirrel, giant kangaroo rat, San Joaquin kit fox, American badger
Ephemeral pool evaluation	Evaluated 40 pools previously identified within project footprint for vernal pool characteristics	March 12-13, 2015	Project footprint	No special status species detected. Two pools determined to be potential vernal pools based on based on observation of evidence of wetland hydrology and characteristic vernal pool or wetland vegetation
Giant Kangaroo Rat Surveys				
Giant kangaroo rat focused surveys	Focused surveys in source population polygons identified in the recovery plan (USFWS 1998)	September 2012	Silver Creek Ranch Conservation Lands	Giant kangaroo rat, San Joaquin kit fox, San Joaquin antelope squirrel, blunt-nosed leopard lizard, golden eagle, American badger
Giant kangaroo rat distribution surveys	Identified potential and occupied habitat for giant kangaroo rat	February/ March 2013	Project footprint and Valley Floor Conservation Lands, portions of Silver Creek Ranch Conservation Lands and Valadeao Ranch Conservation Lands	Giant kangaroo rat, San Joaquin kit fox, golden eagle, burrowing owl, coast horned lizard, mountain plover, San Joaquin antelope squirrel

Table 3-11
Surveys Conducted for the Proposed Project

Survey Name	Survey Description	Dates	Lands Surveyed	Special Status Species Detected
PG&E Panoche-Moss Landing 230 kilovolt transmission line telecommunication upgrades				
Transmission line natural resources assessment	Biological resources—special status wildlife species, special status plant species, vegetation, wetlands, weeds	September 15-18, 2014	Surveys in temporary work areas along ROW, as identified by PG&E	Blunt-nosed leopard lizard, golden eagle, burrowing owl, Swainson's hawk, mountain plover, northern harrier, loggerhead shrike, San Joaquin antelope squirrel, giant kangaroo rat, American badger, San Joaquin kit fox

[1]Abridged protocol-level blunt-nosed leopard lizard surveys were conducted according to the blunt-nosed leopard lizard survey protocol, with the exception of having less replication than the 12 adult and 5 juvenile surveys described in the blunt-nosed leopard lizard survey protocol.
[2]Gypsum-loving larkspur was a CNPS Rank 4.2 species at the time of the surveys; it has since been removed from the CNPS ranking system and is no longer considered a special status species (CNPS 2014).

Description of Special Status Plant and Wildlife Species

Special Status Plant Species

Table 3-12 lists the special status plant species that have the potential to occur on the proposed project site and PG&E telecommunications upgrades sites, based on availability of suitable habitat and soil conditions. Descriptions of the species are provided after the table.

Of the species listed in **Table 3-12**, three CNPS-ranked special status plant species were identified on the project site:

- Recurved larkspur (*Delphinium recurvatum*), CNPS Rank 1B.2
- California groundsel (*Senecio aphanactis*), CNPS Rank 2B.2
- Serpentine leptosiphon (*Leptosiphon ambiguous*), CNPS Rank 4.2

Additionally, one potential rare plant in the genus *Navarretia* was observed in the northern and eastern portions of the project footprint, as well as the northern portion of the Valley Floor Conservation Lands (McCormick Biological, Inc. 2015a). To date this species has not been identified to the taxonomic level necessary to determine rarity. Additional protocol-level surveys for plants that may not have been evident or identifiable during the early season 2015 survey will be performed by the applicant in summer 2015 (San Benito County 2015).

Table 3-12
Special Status Plant Species with Potential to Occur on the Project Site, Conservation Lands, and PG&E Telecommunications Upgrades Sites

Species[1]	Status	Habitat Preference	Potential Habitat on the Project Site?	Detected In Project Site?	Potential Habitat in Conservation Lands?	Detected in Conservation Lands?[1]	Potential Habitat in the Telecomm. Sites?	Detected In Telecomm. Sites?
Forked fiddleneck *Amsinckia furcata (A. vernicosa* var. *f.)*	CNPS: 4.2	Cismontane woodland, valley and foothill grassland; 50 to 1,000 meters	Yes; suitable grasslands present in project site	Yes, observed during surveys in 2015	Yes; woodland habitat present in Valadeao Ranch, suitable grassland habitat present throughout conservation lands	No	Yes; suitable grassland habitat present in telecomm sites	No
California androsace *Androsace elongata* ssp. *acuta*	CNPS: 4.2	Chaparral, cismontane woodland, coastal scrub, meadows and seeps, pinyon and juniper woodland, valley and foothill grassland; 150 to1200 meters	Yes; suitable grasslands present in project site	No	Yes; woodland habitat present in Valadeao Ranch, suitable grassland habitat present throughout conservation lands	No	Yes; suitable grassland habitat present in telecomm sites	No
Salinas milk-vetch *Astragalus macrodon*	CNPS: 4.3	Eroded pale shales or sandstone, or serpentine alluvium; 300 to 950 meters	Yes; suitable serpentine alluvium soils present in project site	No	Likely; suitable soils may be present in conservation lands	No	Unlikely; suitable soils unlikely within telecomm. sites	No
Heartscale *Atriplex cordulata* var. *cordulata*	CNPS: 1B.2	Saline or alkaline soils in chenopod scrub, meadows and seeps and sandy soils in valley and foothill grasslands, up to 560 meters in elevation	Unlikely; saline or alkaline soils are limited within the project site	No	Likely. Suitable soils and vegetation are likely present in portions of the Valadeao Ranch and Silver Creek Ranch Conservation Lands	No	Likely. Suitable soils and chenopod scrub vegetation may be present in portions of the telecomm. sites	No

Table 3-12
Special Status Plant Species with Potential to Occur on the Project Site, Conservation Lands, and PG&E Telecommunications Upgrades Sites

Species[1]	Status	Habitat Preference	Potential Habitat on the Project Site?	Detected In Project Site?	Potential Habitat in Conservation Lands?	Detected in Conservation Lands?[1]	Potential Habitat in the Telecomm. Sites?	Detected In Telecomm. Sites?
Crownscale *Atriplex coronata* var. *coronata*	CNPS: 4.2	Chenopod scrub, valley and foothill grassland, vernal pools (alkaline, often clay); 1 to 590 meters	Yes; suitable grassland and ephemeral pools present in project site	No	Yes; suitable grassland, chenopod scrub, and ephemeral pools present in conservation lands	No	Yes; suitable chenopod scrub present in telecomm. sites	No
Lost Hills crownscale *Atriplex coronata* var. *vallicola* [*A. v.*]	CNPS: 1B.2	Chenopod scrub, valley and foothill grassland, vernal pools (alkaline); 50 to 635 meters	Yes; suitable grassland and ephemeral pools present in project site	No	Yes; suitable grassland, chenopod scrub, and ephemeral pools present in conservation lands	No	Yes; suitable chenopod scrub present in telecomm. sites	No
Brittlescale *A. depressa*	CNPS: 1B.2	Alkaline or clay soils in chenopod scrub, meadows and seeps, playas, valley and foothill grasslands, and vernal pools, at elevations below 320 meters	Unlikely; saline or alkaline soils are limited within the project site	No	Likely. Suitable soils and vegetation are likely present in portions of the Valadeao Ranch and Silver Creek Ranch Conservation Lands	No	Likely. Suitable soils and chenopod scrub vegetation may be present in portions of the telecomm. sites	No

Table 3-12
Special Status Plant Species with Potential to Occur on the Project Site, Conservation Lands, and PG&E Telecommunications Upgrades Sites

Species[1]	Status	Habitat Preference	Potential Habitat on the Project Site?	Detected In Project Site?	Potential Habitat in Conservation Lands?	Detected in Conservation Lands?[1]	Potential Habitat in the Telecomm. Sites?	Detected In Telecomm. Sites?
San Joaquin spearscale *Extriplex joaquinana* [*Atriplex joaquiniana*]	CNPS: 1B.2	Meadows of shadscale scrub and valley grassland communities	Unlikely; saline or alkaline soils are limited within the project site	No	Likely. Suitable soils and vegetation are likely present in portions of the Valadeao Ranch and Silver Creek Ranch Conservation Lands	No	Likely. Suitable soils and chenopod scrub vegetation may be present in portions of the telecomm. sites	No
Lesser saltscale *A. miniscula*	CNPS: 1B.1	Sandy, alkaline soils in chenopod scrub, playas, and valley and foothill grassland, from 15 to 200 meters	Unlikely; saline or alkaline soils are limited within the project site	No	Likely. Suitable soils and vegetation are likely present in portions of the Valadeao Ranch and Silver Creek Ranch Conservation Lands	No	Likely. Suitable soils and chenopod scrub vegetation may be present in portions of the telecomm. sites	No
Big tarplant *Blepharizonia plumosa*	CNPS: 1B.1	Valley and foothill grassland, usually clay; 30 to 505 meters	Yes. Suitable grassland habitat present	No	Yes. Suitable grassland habitat present.	No	Yes. Suitable grassland habitat present	No
Round-leaved filaree *California macrophylla*	Federal: E CNPS: 1B.1	Clay soils in cismontane woodland, valley and foothill grassland; 15 to 1,200 meters	Yes. Suitable grassland habitat present	No	Yes. Suitable grassland habitat present	No	Yes. Suitable grassland habitat present	No
California jewelflower *Caulanthus californicus*	Federal: E State: E CNPS: 1B.1	Grasslands (non-alkaline), flatlands	Yes. Suitable grassland habitat present	No	Yes. Suitable grassland habitat present	No	Yes. Suitable grassland habitat present	No

Table 3-12
Special Status Plant Species with Potential to Occur on the Project Site, Conservation Lands, and PG&E Telecommunications Upgrades Sites

Species[1]	Status	Habitat Preference	Potential Habitat on the Project Site?	Detected In Project Site?	Potential Habitat in Conservation Lands?	Detected in Conservation Lands?[1]	Potential Habitat in the Telecomm. Sites?	Detected In Telecomm. Sites?
Lemmon's jewelflower *C. coulteri* var. *lemmonii*	CNPS 1B.2	Pinyon and juniper woodland, valley and foothill grassland; 80 to 1,220 meters	Yes. Suitable grassland habitat present	No	Yes. Suitable grassland habitat present	No	Yes. Suitable grassland habitat present	No
Hall's tarplant *Deinandra halliana*	CNPS 1B.1	Chenopod scrub, cismontane woodland, valley and foothill grassland (clay); 260 to 950 meters	Yes. Suitable grassland habitat present	No	Yes. Suitable grassland habitat present	No	Yes. Suitable grassland habitat present	No
Recurved larkspur *Delphinium recurvatum*	CNPS: 1B.2	Poorly drained alkaline soils in chenopod scrub, grassland, cismontane woodland; 3 to 685 meters	Yes, potentially suitable habitat is present in untilled annual grasslands	Yes, observed during surveys in 2010	Yes. Suitable grassland habitat present	Yes, observed in the Valley Floor Conservation Lands	Only low potential to occur	No
Hoover's eriastrum *Eriastrum hooveri*	CNPS: 4.2	Alkaline, sometimes gravelly soils, in chenopod scrub, valley and foothill woodland, and pinyon-juniper woodland, from 50 to 915 meters	Unlikely; alkaline soils are limited within the project site	No	Likely. Suitable soils and vegetation are likely present in portions of the Valadeao Ranch and Silver Creek Ranch Conservation Lands	No	Likely. Suitable soils and chenopod scrub vegetation may be present in portions of the telecomm. sites	No
Cottony buckwheat *Eriogonum gossypinum*	CNPS: 4.2	Clay soils in chenopod scrub and valley and foothill grassland, from 100 to 550 meters	Likely. Suitable soils and vegetation are likely present in the project site	No	Likely. Suitable soils and vegetation are likely present in portions of the conservation lands	No	Likely. Suitable soils and vegetation are likely present in portions of the telecomm sites	No

Table 3-12
Special Status Plant Species with Potential to Occur on the Project Site, Conservation Lands, and PG&E Telecommunications Upgrades Sites

Species[1]	Status	Habitat Preference	Potential Habitat on the Project Site?	Detected In Project Site?	Potential Habitat in Conservation Lands?	Detected in Conservation Lands?[1]	Potential Habitat in the Telecomm. Sites?	Detected In Telecomm. Sites?
Naked buckwheat *Eriogonum nudum* var. *indictum*	CNPS 4.2	Clay or serpentine soils in chaparral, chenopod scrub, or cismontane woodland from 150 to 1,400 meters	Unlikely. Suitable habitat is likely not present in the project site	No	Likely. Suitable soils and vegetation are likely present in portions of the Valadeao Ranch Conservation Lands	No	Likely. Suitable soils and vegetation are likely present in the western portion of the telecomm upgrade sites	No
Temblor buckwheat *Eriogonum temblorense*	CNPS: 1B.2	Valley and foothill grassland, sandstone outcrops	Yes. Suitable grassland habitat present	No	Yes. Suitable grassland habitat present	No	Yes. Suitable grassland habitat present	No
Idria buckwheat *Eriogonum vestitum*	CNPS: 4.3	Barren clay in grassland, sandstone outcrops; 300 to 1,000 meters	Yes. Suitable grassland habitat present	No	Yes. Suitable grassland habitat present	No	Yes. Suitable grassland habitat present	No
Pale yellow layia *Layia heterotricha*	CNPS: 1B.1	Alkaline or clay soils, open areas, in pinyon-juniper woodland, grassland; 270 to 1,705 meters	Yes, potentially suitable habitat is present in grasslands with clay soil	No	Yes. Suitable grassland habitat present	No	Yes. Suitable grassland habitat present	No
Munz's tidytips *Layia munzii*	CNPS: 1B.2	Shadscale scrub, valley grassland, and wetland-riparian communities; usually occurs in wetlands, alkaline, or clay soils	Yes. Suitable grassland habitat present	No	Yes. Suitable grassland habitat present	No	Yes. Suitable grassland habitat present	No
Panoche pepper-grass *Lepidium jaredii* ssp. *album*	CNPS: 1B.2	Valley and foothill grassland (steep slopes, clay); 185 to 275 meters	Yes. Suitable grassland habitat present	No	Yes. Suitable grassland habitat present	No	Yes. Suitable grassland habitat present	No

Table 3-12
Special Status Plant Species with Potential to Occur on the Project Site, Conservation Lands, and PG&E Telecommunications Upgrades Sites

Species[1]	Status	Habitat Preference	Potential Habitat on the Project Site?	Detected In Project Site?	Potential Habitat in Conservation Lands?	Detected in Conservation Lands?[1]	Potential Habitat in the Telecomm. Sites?	Detected In Telecomm. Sites?
Serpentine leptosiphon *Leptosiphon ambiguus*	CNPS 4.2	Cismontane woodland, coastal scrub, valley and foothill grassland (usually serpentinite); 120 to 1,130 meters	Yes. Suitable grassland habitat present	Yes, observed during surveys in 2010 and 2015	Yes. Suitable grassland habitat present	Yes, observed in Valadeao Ranch and Valley Floor Conservation Lands	Yes. Suitable grassland habitat present	No
Showy madia *Madia radiata*	CNPS: 1B.1	Grassy slopes, often in heavy clay; less than 900 meters	Yes. Suitable grassland habitat present	No	Yes. Suitable grassland habitat present	No	Yes. Suitable grassland habitat present	No
Gray bushmallow *Malacothamnus aboriginum*	CNPS 1B.2	Rocky, granitic soils in chaparral and cismontane woodland.	No. No suitable habitat exists on the project site	No	Yes. Suitable habitat likely exists within scrub and woodlands in the Valadeao Ranch Conservation Lands	No	No. No suitable habitat exists on the telecomm. sites	No
San Joaquin woollythreads *Monolopia congdonii*	Federal: E CNPS: 1B.2	Chenopod (saltbush) scrub, sandy grasslands	Yes. Limited suitable habitat is present	No	Yes. Limited suitable habitat is present	No	Yes. Limited suitable habitat is present	No
Shining navarretia *Navarretia nigelliformis* ssp. *radians*	CNPS 1B.2	Cismontane woodland, valley and foothill grassland, vernal pools (sometimes clay); 76 to 1,000 meters	Yes. Suitable grassland habitat present	No	Yes. Suitable grassland habitat present	No	Yes. Suitable grassland habitat present	No
Prostrate navarretia *Navarretia prostrata*	CNPS 1B.1	Mesic soils in coastal scrub, meadows and seeps, valley and foothill grassland (alkaline), and vernal pools	Yes. Suitable habitat is likely present in ephemeral pools and other mesic features	No	Yes. Suitable habitat is likely present in ephemeral pools and other mesic features	No	No. No suitable habitat is present	No

Table 3-12
Special Status Plant Species with Potential to Occur on the Project Site, Conservation Lands, and PG&E Telecommunications Upgrades Sites

Species[1]	Status	Habitat Preference	Potential Habitat on the Project Site?	Detected In Project Site?	Potential Habitat in Conservation Lands?	Detected in Conservation Lands?[1]	Potential Habitat in the Telecomm. Sites?	Detected In Telecomm. Sites?
California groundsel *Senecio aphanactis*	CNPS 2B.2	Chaparral, cismontane woodland, coastal scrub (sometimes alkaline); 15 to 800 meters	Yes. Suitable grassland habitat present	Yes, observed during surveys in 2015	Yes. Suitable grassland habitat present	Yes, observed in Valadeao Ranch and Valley Floor Conservation Lands	Only low potential to occur	No

[1]Protocol-level rare plant surveys have not been conducted within the Valadeao Ranch and Silver Creek Conservation Lands. Portions of the Valley Floor Conservation Lands were covered by previous rare plant surveys in 2010 and 2015.

Sources: Live Oak Associates 2010e, 2010f; Energy Renewal Partners 2014a; McCormick Biological, Inc. 2015a, San Benito County 2015

Status:

Federal: Endangered (E) or Threatened (T) listing under the federal ESA

CNPS: California Native Plant Society rare plant rank. The listing categories range from species with a low threat (Rank 4) to species that are presumed extinct (Rank 1A). The Rank 1B species are rare throughout their range. All of them are judged to be vulnerable under present circumstances or to have a high potential for becoming vulnerable.

[1]Gypsum-loving larkspur (*Delphinium gypsophilum* ssp. *gypsophilum*) was also observed on the project site in 2010 (Live Oak Associates 2010e), but it has since been removed from CNPS listing because it was found to be too common (CNPS 2014).

Special Status Plant Species Observed on the Project Site

Forked fiddleneck (*Amsinckia furcata* [*A. vernicosa* var. *f.*]) is an annual herb on CNPS Rank 4.2 that occurs in the Central Valley and interior Coast Range, from San Benito to San Luis Obispo and Kings County. It usually occurs in cismontane woodland or valley and foothill grassland, between 50 and 1,000 meters. Surveys in 2015 located a relatively small population of forked fiddleneck in the eastern portion of the project footprint. Numbers of individuals observed are not reported (McCormick Biological, Inc. 2015a).

Serpentine leptosiphon (*Leptosiphon ambiguus*) is an annual herb on CNPS Rank 4.2. It is found in cismontane woodland, coastal scrub, or valley and foothill grassland (usually serpentinite) in the Coast Range and Central Valley, from Alameda County south to Merced and Stanislaus Counties. It has been observed on the project site. Four populations were found in bloom during the 2010 surveys, including three populations in the northern portion of the project footprint and north of the project footprint, in the southern portion of the Valadeao Ranch Conservation Lands (Live Oak Associates 2010e), and one isolated individual in the eastern portion of the Valley Floor Conservation Lands, north of Panoche Road. All other located populations numbered in the several hundreds and occurred in more typical serpentine alluvium to the west of Little Panoche Road. In all, several tens of thousands of serpentine leptosiphon individuals were observed to bloom and set seed in 2010 (Live Oak Associates 2010e, 2010f). Serpentine leptosiphon was also observed in 2015, both in the previously documented populations in the northern portion of the project footprint and in an additional population in the western portion of the project footprint (McCormick Biological, Inc. 2015a).

Recurved larkspur (*Delphinium recurvatum*) is a CNPS Rank 1B.2 perennial herb in the buttercup family (Ranunculaceae) that blooms from March to June. It is endemic to California and occurs in the San Joaquin Valley, southern Inner South Coast Ranges, and western Mojave Desert, in Alameda, Contra Costa, Fresno, Glenn, Kings, Kern, Madera, Merced, Monterey, San Joaquin, San Luis Obispo, Solano, Sutter, and Tulare Counties. It is extirpated from the Sacramento Valley. Suitable habitat is poorly drained, fine, alkaline soils in chenopod scrub and valley and foothill grassland, from 3 to 790 meters elevation. It is threatened by agricultural conversion, grazing, trampling, and nonnative plants. It has been observed on the project site.

In 2010, plants classifiable as recurved larkspur were found widely scattered in the northern and eastern portions of the project footprint, as well as in the northern portion of the Valley Floor Conservation Lands. In total, seven groups of this species were observed, with numbers of individuals in each group ranging from a single individual to up to 20 individuals. All occur in relatively flat, open pasture. These plants had uncharacteristic traits, including weak sepal coloration and variations that suggested they may be hybrids of *D. recurvatum* and the

common gypsum-loving larkspur and pale western larkspur (*D. hesperium* ssp. *pallescens*; Live Oak Associates 2010e, 2010f). Attempts to locate mature fruits during subsequent surveys in 2010 were not successful though few sterile, underdeveloped fruits were located. This supports the opinion that these plants may be hybrids (Live Oak Associates 2010f).

California groundsel (*Senecio aphanactis*), also known by the common name chaparral ragwort, is an annual herb on CNPS Rank 2B.2 that occurs in the Coast Range of California, from the Bay Area south to Los Angeles and Riverside Counties. It is found in chaparral, cismontane woodland, and coastal scrub habitats. Surveys in 2015 located a relatively small population of forked fiddleneck in the northern portion of the project footprint; number of individuals observed is not reported. Surveys in 2015 also observed over 50 individuals scattered in several populations in the northern and southern portions of the Valley Floor Conservation Lands, and west of the project footprint in eastern Valadeao Ranch Conservation Lands (McCormick Biological, Inc. 2015a).

Special Status Plant Species Not Observed on the Project Site

California androsace (*Androsace elongata* ssp. *acuta*) is an annual herb listed on CNPS Rank 4.2 that ranges south from Oregon throughout California. It occurs in habitats from chaparral, coastal scrub, meadows and seeps, and valley and foothill grassland to cismontane woodland and pinyon and juniper woodland. Suitable annual grassland habitat is present in the project site and conservation lands, and oak and juniper woodlands within Valadeao Ranch Conservation Lands may also provide suitable habitat. It has not been observed on the project site or conservation lands.

Salinas milk-vetch (*Astragalus macrodon*) is a CNPS Rank 4.3 perennial species that ranges from San Benito County south to San Luis Obispo County and east to Kern County. It is uncommon in most areas but occurs regularly in appropriate soil conditions. It usually occurs on sandstone, pale shales, or serpentinite soils in grassland, chaparral, and woodland habitats. Suitable soil and habitat conditions likely occur in the project site and conservation lands. It has not been observed on the project site or conservation lands.

Heartscale (*Atriplex cordulata* var. *cordulata*) is a CNPS Rank 1B.2 annual herb in the goosefoot family (Chenopodiaceae) that blooms from April to October. It is endemic to California and occurs in the Central Valley, in Alameda, Butte, Contra Costa, Colusa, Fresno, Kern, Madera, Merced, San Luis Obispo, and Tulare Counties. Suitable habitat is saline or alkaline soils in chenopod scrub, meadows and seeps, and sandy soils in valley and foothill grasslands, up to 560 meters in elevation. It is threatened by competition from nonnative plants and possibly by trampling. Suitable soil and habitat conditions are unlikely to occur in the project site, and are likely to occur in portions of

the conservation lands. It has not been observed within the project site or conservation lands.

Crownscale (*Atriplex coronata* var. *coronata*) is a CNPS Rank 4.2 annual herb in the goosefoot family (Chenopodiaceae) that blooms from March to October. It is endemic to California and occurs in the southern Sacramento Valley, San Joaquin Valley, and eastern Inner South Coast Ranges, in Alameda, Contra Costa, Fresno, Glenn, Kings, Kern, Merced, Monterey, potentially San Joaquin, San Luis Obispo, Solano, and Stanislaus Counties. Suitable habitat includes alkaline often clay soils in chenopod scrub, valley and foothill grassland, and vernal pools, at elevations below 590 meters. Suitable chenopod scrub habitat is likely present in the Valadeao Ranch Conservation Lands and within portions of the project site along the PG&E transmission line primary upgrades. It has not been observed on the project site or conservation lands.

Lost Hills crownscale (*A. c.* var. *vallicola* [*A. v.*]) is a CNPS Rank 1B.2 annual herb in the goosefoot family (Chenopodiaceae) that blooms from April to August. It is endemic to California and occurs in suitable habitat in the San Joaquin Valley, in Fresno, Kings, Merced, San Luis Obispo, and Tulare Counties. Suitable habitat includes alkaline soils in chenopod scrub, valley and foothill grassland, and vernal pools, from 50 to 635 meters in elevation. It is threatened by grazing, agricultural conversion, and energy development. Suitable chenopod scrub habitat is likely present in the Valadeao Ranch Conservation Lands and within portions of the project site along the PG&E transmission line primary upgrades. It has not been observed on the project site or conservation lands.

Brittlescale (*A. depressa*) is a CNPS Rank 1B.2 annual herb in the goosefoot family (Chenopodiaceae) that blooms from April to October. It is endemic to California and occurs in suitable habitat throughout the Great Valley and San Francisco Bay Area, in Alameda, Contra Costa, Colusa, Fresno, Glenn, Kern, Merced, Solano, Stanislaus, Tulare, and Yolo Counties. Suitable habitat is alkaline or clay soils in chenopod scrub, meadows and seeps, playas, valley and foothill grasslands, and vernal pools, at elevations below 320 meters. It is threatened by development, grazing, and trampling. Suitable soil and habitat conditions are unlikely to occur in the project site, and are likely to occur in portions of the conservation lands. It has not been observed within the project site or conservation lands.

San Joaquin spearscale (*Extriplex joaquinana* [*A. joaquinana*]) is a CNPS Rank 1B.2 annual herb in the goosefoot family (Chenopodiaceae) that blooms from April to October. It is endemic to California and occurs in suitable habitat in the Inner North Coast Ranges, Great Central Valley, Central Coast, San Francisco Bay Area, and Inner South Coast Ranges in Alameda, Contra Costa, Colusa, Fresno, Glenn, Merced, Napa, San Benito, Solano, and Yolo Counties. Suitable habitat is alkaline soils in chenopod scrub, meadows and seeps, playas, and valley and foothill grassland. It is threatened by grazing, agriculture, and

development. Suitable soil and habitat conditions are unlikely to occur in the project site, and are likely to occur in portions of the conservation lands. It has not been observed within the project site or conservation lands.

Lesser saltscale (*A. minuscula*) is a CNPS Rank 1B.1 annual herb in the goosefoot family (Chenopodiaceae) that blooms from May to October. It is endemic to California and occurs in suitable habitat in the San Joaquin Valley, in Alameda, Butte, Fresno, Kern, Madera, Merced, and Tulare Counties. Occurrences in Stanislaus County are extirpated. Suitable habitat is sandy, alkaline soils in chenopod scrub, playas, and valley and foothill grassland, from 15 to 200 meters. Historical occurrences have been extirpated by agriculture, and currently the species is possibly threatened by solar energy development. Suitable soil and habitat conditions are unlikely to occur in the project site, and are likely to occur in portions of the conservation lands. It has not been observed within the project site or conservation lands.

Big tarplant (*Blepharizonia plumosa*) is a CNPS Rank 1B.1 annual herb found in valley and foothill grassland, usually clay. It occurs in the Coast Range from Contra Costa south to San Joaquin County. Suitable annual grassland habitat is likely present in the project site and conservation lands. It has not been observed in the project site or conservation lands.

Round-leaved filaree (*California macrophylla*) is a CNPS Rank 1B.1 annual species known from sporadic occurrences throughout the interior region of California. Round-leaved filaree occurs in clay soils in woodland and grassland habitats. Suitable annual grassland habitat for this species is likely present within the project site and conservation lands. It has not been observed on the project site or conservation lands.

California jewelflower (*Caulanthus californicus*) is a federal- and state-listed endangered and Rank 1B.1 an annual herb in the mustard family (Brassicaceae). It blooms from February to May. It is endemic to California and occurs in the southern San Joaquin Valley and western Transverse Ranges, in Fresno, Kern, Santa Barbara, and San Luis Obispo Counties. Over 35 historical occurrences are extirpated, including all occurrences in Kings and Tulare Counties. Suitable habitat includes sandy soils in chenopod scrub, pinyon-juniper woodland, and valley and foothill grassland, from 61 to 1,000 meters in elevation. It is threatened by agriculture, urbanization, energy development, and grazing and possibly by nonnative plants. Suitable habitat for this species occurs in the project site and conservation lands. It has not been observed on the project site or conservation lands.

Lemmon's jewelflower (*C. lemmonii* [*C. coulteri* var. *l.*]) is a CNPS Rank 1B.2 annual herb in the mustard family (Brassicaceae) that blooms from March to May. It is a California endemic that occurs in suitable habitat in southwest San Joaquin Valley, southeast San Francisco Bay Area, eastern Outer South Coast Ranges, and the Inner South Coast Ranges, including in Fresno and Kings

Counties. Suitable habitat includes pinyon and juniper woodland and valley and foothill grassland, from 80 to 1,220 meters in elevation. It is threatened by development and grazing. Suitable grassland habitat occurs within the project site and conservation lands; suitable juniper woodland habitat may also be present in the Valadeao Ranch Conservation Lands. It has not been observed on the project site or conservation lands.

Hall's tarplant (*Deinandra halliana*) is a CNPS Rank 1B.1 species that occurs in Fresno, San Benito, Monterey, and San Luis Obispo Counties, where it blooms in April and May. It is reported most commonly in clay soils in annual grassland habitat but may also occur in sandy washes and in woodland vegetation communities. Suitable grassland habitat occurs within the project site and conservation lands; suitable woodland habitat may also be present in the Valadeao Ranch Conservation Lands. It has not been observed on the project site or conservation lands.

Hoover's eriastrum (*Eriastrum hooveri*) is a CNPS Rank 4.2 annual herb in the phlox family (Polemoniaceae) that blooms from March to July. It was previously listed as threatened under the ESA but was delisted in 2003. It is endemic to California and occurs in the southern Sierra Nevada foothills, San Joaquin Valley, and western Transverse Ranges in Fresno, Kings, Kern, Los Angeles, Santa Barbara, San Benito, and San Luis Obispo Counties. Suitable habitat is alkaline, sometimes gravelly soils, in chenopod scrub, valley and foothill woodland, and pinyon-juniper woodland, from 50 to 915 meters in elevation. It is threatened by agriculture, grazing, urbanization, energy development, and off-road vehicles. Suitable soil and habitat conditions are unlikely to occur in the project site, and are likely to occur in portions of the conservation lands. It has not been observed within the project site or conservation lands.

Cottony buckwheat (*Eriogonum gossypinum*) is a CNPS Rank 4.2 annual herb in the buckwheat family (Polygonaceae) that blooms from March to September. It is endemic to California and occurs in the southern Sierra Nevada Foothills and southwestern San Joaquin Valley in Fresno, Kings, Kern, and San Luis Obispo Counties. Suitable habitat is clay soils in chenopod scrub and valley and foothill grassland, from 100 to 550 meters in elevation. It is threatened by development and potentially by off-road vehicles. Suitable soil and habitat conditions are likely to occur in the project site, and are likely to occur in portions of the conservation lands. It has not been observed within the project site or conservation lands.

Naked buckwheat (*Eriogonum nudum* var. *indictum*) is a CNPS Rank 4.2 perennial herb in the buckwheat family (Polygonaceae) that blooms from April to December. It is endemic to California and occurs in the inner Central Coast ranges in Fresno, Kern, Merced, Monterey, San Benito, and San Luis Obispo Counties. Suitable habitat is clay or serpentine soils in chaparral, chenopod scrub, or cismontane woodland from 150 to 1,400 meters in elevation. Suitable

habitat and soil conditions are unlikely to occur in the project site, but likely occur in portions of the conservation lands, particularly Valadeao Ranch. It has not been observed within the project site or conservation lands.

Temblor buckwheat (***Eriogonum temblorense***) is an annual herb in the knotweed family (Polygonaceae). A CNPS Rank 1B.2 species, it is endemic to California and occurs in the inner South Coast ranges. It is found on clay or sandstone substrates in valley and foothill grassland. Suitable grassland habitat occurs within the project site and conservation lands. It has not been observed on the project site or conservation lands.

Idria buckwheat (*E. vestitum*) is a CNPS Rank 4.3 annual herb endemic to California. It has been found in San Benito, Merced, and Fresno Counties. It occurs on sandstone outcrops and on barren clay areas in grasslands. Suitable thin or barren annual grassland habitat occurs within the project site and conservation lands. It has not been observed on the project site or conservation lands.

Pale yellow layia (*Layia heterotricha*) is a CNPS Rank 1B.1 species known from alkaline or clay soils in cismontane woodland, chaparral, and grassland habitats of central California. Suitable grassland habitat occurs within the project site and conservation lands; suitable woodland habitat may also be present in the Valadeao Ranch Conservation Lands. It has not been observed at the project site.

Munz's tidytips (***L. munzii***) is a CNPS Rank 1B.2 annual herb in the sunflower family (Asteraceae) that blooms from March to April. It is a California endemic that occurs on suitable habitat in the southern San Joaquin Valley, in Fresno, Kern, San Benito, and San Luis Obispo Counties. Suitable habitat includes alkaline clay soils in chenopod scrub and valley and foothill grassland, from 150 to 700 meters in elevation. It is threatened by nonnative plants and possibly by vehicles and foot traffic. Suitable grassland habitat occurs within the project site and conservation lands. It has not been observed on the project site or conservation lands.

Panoche pepper-grass (*Lepidium jaredii* ssp. *album*) is a CNPS Rank 1B.2 annual herb in the mustard family (Brassicaceae) that blooms from February to June. It is a California endemic that occurs in suitable habitat in the San Joaquin Valley and inner South Coast Ranges, in Fresno, San Benito, and San Luis Obispo Counties. Suitable habitat includes clay soils on steep slopes in valley and foothill grassland, from 185 to 275 meters in elevation. It is potentially threatened by wind energy development and possibly by grazing and vehicles. Suitable grassland habitat occurs within the project site and conservation lands. It has not been observed at the project site or conservation lands.

Showy madia (*Madia radiata*) is a CNPS Rank 1B.1 species known to occur in interior areas of California, from Contra Costa County to northeastern Santa

Barbara County. Showy madia occurs in grassland, woodland, and chenopod scrub habitats, usually on clay soils. Suitable grassland habitat occurs within the project site and conservation lands; suitable woodland habitat may also be present in the Valadeao Ranch Conservation Lands. This species has not been observed on the project site or conservation lands.

Gray bushmallow (*Malacothamnus aboriginum*) is a CNPS Rank 1B.2 perennial deciduous shrub in the mallow family (Malvaceae) that blooms from April to October. It is a California endemic species that occurs in the inner and outer Central Coast Ranges and San Francisco Bay Area in Fresno, Kings, Monterey, San Benito, Santa Clara, and San Mateo Counties. Suitable habitat is rocky or granitic soil in chaparral or cismontane woodland, from 150 to 1,700 meters in elevation. This species can appear in abundance following fire. It is threated by grazing, vehicles, and road maintenance. Suitable habitat is not present on the project site, but suitable habitat is likely present in portions of the conservation lands, particularly within scrub and woodland habitats on Valadeao ranch. It has not been observed within the project site or conservation lands.

San Joaquin woollythreads (*Monolopia congdonii*) is a federally listed endangered and CNPS Rank 1B.2 annual herb in the sunflower family (Asteraceae) that blooms from February to May. It is a California endemic that occurs in the southern San Joaquin Valley, in Fresno, Kings, Kern, Santa Barbara, San Benito, and San Luis Obispo Counties. Approximately half of all historic occurrences, including all occurrences in Tulare County, have been extirpated. Suitable habitat includes chenopod scrub and alkaline or sandy soils in valley and foothill grassland, from 60 to 800 meters in elevation. It is seriously threatened by agricultural conversion, energy development, urbanization, grazing, trampling, and off-road vehicles. Suitable chenopod scrub habitat is likely present in the Valadeao Ranch Conservation Lands and within portions of the project site along the PG&E transmission line primary upgrades. It has not been observed on the project site or conservation lands.

Shining navarretia (*Navarretia nigelliformis* ssp. *radians*) is a CNPS Rank 1B.2 species known from Fresno, Merced, Monterey, San Benito, and San Luis Obispo Counties. Shining navarretia reportedly grows in vernal pools, valley and foothill grassland, and woodland habitats. Suitable habitat may be present in mesic soils in annual grasslands in the project site and conservation lands. It has not been observed on the project site or conservation lands.

Prostrate navarretia (*Navarretia prostrata*) is a CNPS 1B.1 annual species in the phlox family (Polemoniaceae) that blooms from April to July. It is a California endemic species that occurs in the South and Central Coast Ranges, San Joaquin Valley, and San Francisco Bay Area. Suitable habitat includes mesic soils in coastal scrub, meadows and seeps, valley and foothill grassland (on alkaline soils), and in vernal pools. It is threatened by vehicles, road

maintenance, and recreational activities. Suitable mesic habitat is present in the project site and conservation lands in ephemeral pools and other wetland features. This species has not been observed within the project site or conservation lands.

Special Status Wildlife Species

Table 3-13 lists special status wildlife species that have been documented within or could occur on the project site, project conservation lands, or PG&E telecommunications upgrades sites, based on availability of suitable habitat.

The following 15 special status wildlife species have been observed on the project site and/or conservation lands:

- Vernal pool fairy shrimp (Federal Threatened)
- Blunt-nosed leopard lizard (Federal Endangered, State Endangered)
- California tiger salamander (Federal Threatened, State Threatened)
- San Joaquin coachwhip (CDFW Species of Special Concern)
- Blainville's (coast) horned lizard (CDFW Species of Special Concern)
- Western pond turtle (CDFW Species of Special Concern)
- Tricolored blackbird (State Endangered, CDFW Species of Special Concern)
- Golden eagle (CDFW Fully Protected)
- Western burrowing owl (USFWS Bird of Conservation Concern, CDFW Species of Special Concern)
- Swainson's hawk (USFWS Bird of Conservation Concern, State Threatened)
- Mountain plover (USFWS Bird of Conservation Concern, CDFW Species of Special Concern)
- Loggerhead shrike (USFWS Bird of Conservation Concern, CDFW Species of Special Concern
- Giant kangaroo rat (Federal Endangered, State Endangered)
- San Joaquin antelope squirrel (State Threatened, CDFW Species of Special Concern)
- American badger (CDFW Species of Special Concern)
- San Joaquin kit fox (Federal Endangered, State Endangered)

Detailed descriptions of special status species observed or with potential to occur in the project site or conservation lands are presented after **Table 3-13**.

Table 3-13
Special Status Wildlife Species with Potential to Occur on the Project Site, Conservation Lands, and PG&E Telecommunications Upgrades Sites

Species	Status	Nesting/ Breed-ing Period	Habitat Preference	Potential Habitat in Project Site?	Detected at Project Site?	Potential Habitat in Conserva-tion Lands?	Detected in Conserva-tion Lands?	Potential Habitat in Telecommuni-cation Sites?	Detected at Telecommuni-cation Sites?
Invertebrates									
Conservancy fairy shrimp *Branchinecta conservation*	Federal: E	Rainy season	Vernal pools on varying landforms, geologic formations and soil types	Yes. Ephemeral pools in the project site provide suitable habitat	No	Yes. Ephemeral wetland habitat provide suitable habitat	No	No suitable ephemeral pool habitat is present in telecomm sites	No
Vernal pool fairy shrimp *Branchinecta lynchi*	Federal: T	Rainy season	Grasslands, swales, slumps, or depressions with grass or mud bottoms	Yes. Ephemeral pools in the project site provide suitable habitat	Yes, detected in two adjacent but hydro-logically connected pools in northern portion of project footprint (Live Oak Associates 2010a, 2010c)	Yes. Ephemeral wetland habitat provide suitable habitat	No	No suitable ephemeral pool habitat is present in telecomm sites	No
Longhorn fairy shrimp *B. longiantenna*	Federal: E	Rainy season	Clear water depressions in sandstone and clear to turbid clay or grass-bottomed pools in shallow swales	Yes. Ephemeral pools in the project site provide suitable habitat	No	Yes. Ephemeral wetland habitat provide suitable habitat	No	No suitable ephemeral pool habitat is present in telecomm sites	No

Table 3-13
Special Status Wildlife Species with Potential to Occur on the Project Site, Conservation Lands, and PG&E Telecommunications Upgrades Sites

Species	Status	Nesting/ Breed-ing Period	Habitat Preference	Potential Habitat in Project Site?	Detected at Project Site?	Potential Habitat in Conserva-tion Lands?	Detected in Conserva-tion Lands?	Potential Habitat in Telecommuni-cation Sites?	Detected at Telecommuni-cation Sites?
Vernal pool tadpole shrimp *Lepidurus packardi*	Federal: E	Rainy season	Turbid water ephemeral pools in shallow swales or depressions	Yes. Ephemeral pools in the project site provide suitable habitat	No	Yes. Ephemeral wetland habitat provide suitable habitat	No[1]	No suitable ephemeral pool habitat is present in telecomm sites	No
Amphibians									
California tiger salamander *Ambystoma californiense*	Federal: T, State: T	Rainy season	Large vernal pools for breeding; surrounding uplands with small mammal burrows for estivation	Yes, pools at the site provide suitable breeding habitat and surrounding uplands with burrows for estivation. Two historic breeding ponds are located in Valley Floor Conservation Lands	Larvae observed in two pools west of and outside of the project footprint; suitable upland habitat surrounding these pools extends into the project footprint. No larvae or adults observed within the project site	Yes, suitable breeding and upland habitat present within conservation lands	Yes. Larvae observed in Valadeao Ranch Conservation Lands. Not observed to date in Silver Creek Ranch Conservation Lands	Suitable upland estivation habitat is present. No suitable breeding habitat exists	No
Western spadefoot toad *Spea hammondii*	CDFW: SSC	January through August	Vernal pools in grassland and woodland habitats	Yes. Suitable breeding habitat may be present in ephemeral pools	No	Yes. Suitable breeding habitat may be present in ephemeral pools	No	No suitable breeding habitat present. Suitable upland habitat is present	No

Table 3-13
Special Status Wildlife Species with Potential to Occur on the Project Site, Conservation Lands, and PG&E Telecommunications Upgrades Sites

Species	Status	Nesting/ Breed-ing Period	Habitat Preference	Potential Habitat in Project Site?	Detected at Project Site?	Potential Habitat in Conserva-tion Lands?	Detected in Conserva-tion Lands?	Potential Habitat in Telecommuni-cation Sites?	Detected at Telecommuni-cation Sites?
California red-legged frog *Rana draytonii*	Federal: T	Rainy season	Found in slow-moving or standing ponds, pools and streams with emergent vegetation for cover	No, suitable water bodies with emergent vegetation are not present at the project site	No	No, suitable water bodies with emergent vegetation are not present within the conservation lands	No	No suitable aquatic habitat is present in the telecomm sites	No
Reptiles									
Silvery legless lizard *Anniella pulchra pulchra*	CDFW: SSC	Early spring to summer	Sandy or loose loamy soils with adequate soil moisture	Yes. Suitable habitat may be present in the project site	No	Yes. Suitable habitat may be present within the conservation lands	No	Yes. Suitable habitat may be present within the telecomm sites	No
Western pond turtle *Emys (=Actinemys) marmorata*	CDFW: SSC	Spring	Calm waters with vegetated banks and rocks or logs for basking; use adjacent uplands for nesting and refugia	No, suitable vegetated water bodies are not present at the site	No	Yes, suitable vegetated water bodies are present on the Silver Creek Ranch Conservation Lands	Yes. Observed within the Silver Creek Ranch Conservation Lands	No, suitable vegetated water bodies are not present within telecomm sites	No

Table 3-13
Special Status Wildlife Species with Potential to Occur on the Project Site, Conservation Lands, and PG&E Telecommunications Upgrades Sites

Species	Status	Nesting/ Breed-ing Period	Habitat Preference	Potential Habitat in Project Site?	Detected at Project Site?	Potential Habitat in Conserva-tion Lands?	Detected in Conserva-tion Lands?	Potential Habitat in Telecommuni-cation Sites?	Detected at Telecommuni-cation Sites?
Blunt-nosed leopard lizard *Gambelia sila*	Federal: E State: E CDFW: Fully Protected	Spring	Semiarid grasslands, alkali flats, and washes of San Joaquin Valley; 30 to 730 meters	Yes. Suitable burrows and vegetative conditions are present in the project site	Yes, surveys have documented adults and juveniles within the Valley Floor Conserva-tion Lands and to a much lesser extent within the project footprint (San Benito County 2015)	Yes, suitable habitat exists in the Valadeao Ranch and Silver Creek Ranch Conservation Lands	Yes, observed in the Silver Creek Ranch Conservation Lands. Not observed in the Valadeao Ranch Conservation Lands though suitable habitat is present	Yes, suitable small mammal burrows and vegetation conditions are present within the western portion of the telecomm upgrade route on undeveloped lands	Yes, observed in adjacent project site and conservation lands and assumed to be present within the telecomm. upgrade sites work areas, though not directly observed (Energy Renewal Partners 2014a)
San Joaquin coachwhip *Coluber (=Masticophis) flagellum ruddocki*	CDFW: SSC	May	Open, dry, treeless areas, including grasslands and saltbush scrub; takes refuge in burrows and under shaded vegetation	Yes, suitable habitat and burrows exist.	Yes, reconnaissan ce surveys in the project site observed this species (Live Oak Associates 2010b)	Yes, suitable habitat and burrows exist in the conservation lands	Yes. Observed within the Silver Creek Ranch Conservation Lands. Not observed in Valadeao Ranch Conservation Lands	Yes, suitable habitat and small mammal burrows exist	No

Table 3-13
Special Status Wildlife Species with Potential to Occur on the Project Site, Conservation Lands, and PG&E Telecommunications Upgrades Sites

Species	Status	Nesting/ Breed-ing Period	Habitat Preference	Potential Habitat in Project Site?	Detected at Project Site?	Potential Habitat in Conserva-tion Lands?	Detected in Conserva-tion Lands?	Potential Habitat in Telecommuni-cation Sites?	Detected at Telecommuni-cation Sites?
Blainville's (coast) horned lizard *Phrynosoma blainvillii*	CDFW: SSC	May through Sept	Frequents a wide variety of habitats, including annual grassland with loose friable soil and native ant colonies	Yes. Suitable habitat and ant colonies are present in the project site	Yes. Observed during occupancy sampling in 2010 within the project site	Yes. Suitable habitat and ant colonies are present in the conservation lands	Yes, observed in several locations in Valadeao Ranch Conservation Lands. Not observed within Silver Creek Ranch Conservation Lands	Yes. Suitable habitat and ant colonies are present in the telecomm upgrade sites	No
Birds									
Tricolored blackbird *Agelaius tricolor*	Federal: USFWS BCC State: E CDFW: SSC	March 15 through August 15	Nests in marshy areas with access to open water; forages in valley and foothill grassland and agricultural fields	Yes. Suitable foraging habitat may be present, though nesting habitat is not present	Yes, species observed foraging in the project site	Yes. Suitable foraging habitat may be present. Nesting habitat may be present particularly in Silver Creek Ranch Conservation Lands	Yes. Two colonies observed in 2005 in Silver Creek Ranch Conservation Lands	Yes. Suitable foraging habitat may be present, though nesting habitat is not present	No
Grasshopper sparrow *Ammodramus savannarum*	CDFW: SSC	March 15 through August 15	Nests in grassland habitats on mountain slopes, foothills, and valleys; may nest colonially	Yes. Suitable nesting habitat is present	No	Yes. Suitable nesting habitat is present	No	Yes. Suitable nesting habitat is present	No

Table 3-13
Special Status Wildlife Species with Potential to Occur on the Project Site, Conservation Lands, and PG&E Telecommunications Upgrades Sites

Species	Status	Nesting/ Breed-ing Period	Habitat Preference	Potential Habitat in Project Site?	Detected at Project Site?	Potential Habitat in Conserva-tion Lands?	Detected in Conserva-tion Lands?	Potential Habitat in Telecommuni-cation Sites?	Detected at Telecommuni-cation Sites?
Golden eagle *Aquila chrysaetos*	CDFW: Fully Protected	March 15 through August 15	Nests in large prominent trees or cliffs in valley and foothill woodland; forages in adjacent open country	Yes. Project site provides foraging habitat for this species, but it lacks nesting habitat	Yes. Golden eagle observed foraging in the project site. No nests in the project site. Four nests (two active in 2014) observed within four miles of the project site	Yes. Conservation lands provide foraging habitat, but may lack nesting habitat	Yes. Golden eagle observed foraging in the conservation lands. No nesting observed in the conservation lands	Yes. Suitable foraging habitat is present, though nesting habitat is not present	Yes. Golden eagle observed foraging in the telecommunication upgrades sites
Short-eared owl *Asio flammeus*	CDFW: SSC	March 15 through August 15	Fresh and salt swamps, lowlands; nests on dry ground in tules/tall grasses	Yes. Suitable wintering habitat and limited nesting habitat is present in grasslands in the project site	No	Yes. Suitable wintering habitat and limited nesting habitat is present in grasslands in the conservation lands	No	Yes. Suitable foraging habitat is present	No

Table 3-13
Special Status Wildlife Species with Potential to Occur on the Project Site, Conservation Lands, and PG&E Telecommunications Upgrades Sites

Species	Status	Nesting/ Breed-ing Period	Habitat Preference	Potential Habitat in Project Site?	Detected at Project Site?	Potential Habitat in Conserva-tion Lands?	Detected in Conserva-tion Lands?	Potential Habitat in Telecommuni-cation Sites?	Detected at Telecommuni-cation Sites?
Long-eared owl *A. otus*	CDFW: SSC	March 15 through August 15	Roosts and nests in woodlands; requires adjacent open land with mice and old nests of crows, hawks, or magpies for breeding	Suitable foraging habitat is present, but nesting habitat is limited due to lack of woodlands	No	Suitable foraging habitat is present. Suitable nesting habitat may be present in woodlands within Valadeao Ranch Conservation Lands	No	Yes. Suitable foraging habitat is present, but nesting habitat is limited due to lack of woodlands	No
Burrowing owl *Athene cunicularia*	Federal: USFWS BCC State: CDFW: SSC	February 1 through August 31	Uses small mammal burrows in open habitats with low vegetation, such as dry grasslands, and deserts	Yes. Suitable foraging and nesting habitat is present	Yes, burrowing owl observed within project site, including project footprint and Valley Floor Conserva-tion Lands	Yes. Suitable foraging and nesting habitat is present	Yes, burrowing owl observed within Valadeao Ranch and Silver Creek Conservation Lands	Yes. Suitable foraging and nesting habitat is present	Yes, burrowing owl sign including whitewash and pellets observed in pole 237 work site buffer area. Burrowing owl also observed near the Helm Substation

Table 3-13
Special Status Wildlife Species with Potential to Occur on the Project Site, Conservation Lands, and PG&E Telecommunications Upgrades Sites

Species	Status	Nesting/ Breed-ing Period	Habitat Preference	Potential Habitat in Project Site?	Detected at Project Site?	Potential Habitat in Conserva-tion Lands?	Detected in Conserva-tion Lands?	Potential Habitat in Telecommuni-cation Sites?	Detected at Telecommuni-cation Sites?
Swainson's hawk *Buteo swainsoni*	USFWS: BCC State: T	March 15 through August 15	Breeds in tall trees scattered in grasslands, juniper-sage flats, riparian areas, savannahs, and agricultural fields	Yes. Suitable foraging habitat is present, though nesting habitat is likely not present	No	Yes. Suitable foraging habitat is present, though nesting habitat is likely not present	No	Yes. Suitable foraging habitat is present, though nesting habitat is likely not present within work sites or buffers. Swainson's hawk is known to nest and forage in the Central Valley east of I-5 in the upgrade route vicinity	Yes, two dead juvenile hawks observed adjacent to Interstate 5 along the upgrade route. No evidence of nesting Swainson's hawk observed within the work sites or buffers
Ferruginous hawk *B. regalis*	USFWS: BCC CDFW: SSC	March 15 through August 15	No breeding records from California; winters in open grasslands of the Central Valley and Coast ranges, among other habitats	Yes. Suitable foraging and wintering habitat is present	No	Yes. Suitable foraging and wintering habitat is present	No	Yes. Suitable foraging habitat is present	No

Table 3-13
Special Status Wildlife Species with Potential to Occur on the Project Site, Conservation Lands, and PG&E Telecommunications Upgrades Sites

Species	Status	Nesting/ Breed-ing Period	Habitat Preference	Potential Habitat in Project Site?	Detected at Project Site?	Potential Habitat in Conserva-tion Lands?	Detected in Conserva-tion Lands?	Potential Habitat in Telecommuni-cation Sites?	Detected at Telecommuni-cation Sites?
Mountain plover *Charadrius montanus*	Federal: USFWS BCC State: CDFW: SSC (Wintering)	Nov through February	Short grasslands, plowed fields; winters in California grasslands and recently tilled agricultural fields	Yes. Winters in the vicinity of the project site. Suitable wintering habitat is present within the project site	Yes. Mountain plover incidentally observed in the project site during vernal pool branchiopod surveys in 2010	Yes. Suitable wintering habitat is present	No	Yes. Suitable wintering habitat is present	No
Northern harrier *Circus cyaneus*	CDFW: SSC	March 15 through August 15	Nests on ground in grassland, usually near water; forages in meadows, grasslands, and wetlands	Yes, suitable foraging habitat is present. Nesting habitat is limited	Yes, observed foraging in the project site. No evidence of nesting northern harrier observed	Yes, suitable foraging habitat is present. Nesting habitat is limited	No.	Yes, suitable foraging habitat is present. Nesting habitat is limited	Yes, observed foraging in area. No evidence of nesting northern harrier observed

Table 3-13
Special Status Wildlife Species with Potential to Occur on the Project Site, Conservation Lands, and PG&E Telecommunications Upgrades Sites

Species	Status	Nesting/ Breed-ing Period	Habitat Preference	Potential Habitat in Project Site?	Detected at Project Site?	Potential Habitat in Conserva-tion Lands?	Detected in Conserva-tion Lands?	Potential Habitat in Telecommuni-cation Sites?	Detected at Telecommuni-cation Sites?
White-tailed kite *Elanus leucurus*	CDFW: Fully Protected	March 15 through August 15	Nests in tree canopy and forages over open grasslands and agricultural areas	Yes. Suitable foraging habitat is present, and landscape trees may provide limited suitable nesting habitat	Yes. Observed foraging within the project site	Yes. Suitable foraging habitat present throughout conservation lands. Suitable nesting habitat may be present in woodlands in Valadeao Ranch Conservation Lands	No	Yes. Suitable foraging habitat is present, and landscape trees may provide limited suitable nesting habitat	No
California condor *Gymnogyps californianus*	Federal: E State: E	March 15 through August 15	Wide-ranging over Coast Ranges from Ventura to Big Sur; nest sites are in cavities in cliffs, in large rock outcrops, or in large trees	Yes. Foraging habitat is present in the project site; breeding habitat is not present	No	Yes. Foraging habitat is present in the conservation lands; breeding habitat is not present	No	Yes. Foraging habitat is present in the telecomm. sites; breeding habitat is not present	No

Table 3-13
Special Status Wildlife Species with Potential to Occur on the Project Site, Conservation Lands, and PG&E Telecommunications Upgrades Sites

Species	Status	Nesting/ Breed-ing Period	Habitat Preference	Potential Habitat in Project Site?	Detected at Project Site?	Potential Habitat in Conserva-tion Lands?	Detected in Conserva-tion Lands?	Potential Habitat in Telecommuni-cation Sites?	Detected at Telecommuni-cation Sites?
Bald eagle *Haliaeetus leucocephalus*	Federal: D, USFWS BCC State: E	March 15 through August 15	Nests near water in tall live tree with open branches	No. Suitable nesting or foraging habitat is not present on the project site or vicinity	No	No. Suitable nesting or foraging habitat is not present in the conservation lands	No	No. Suitable nesting habitat is not present in the telecomm upgrade sites	No
Loggerhead shrike *Lanius ludovicianus*	USFWS: BCC CDFW: SSC	March 15 through August 15	Nests in tall shrubs and trees; forages in grasslands, marshes and agricultural fields	Yes. Nesting and foraging habitat is present	Yes. Observed foraging in the project site	Yes. Nesting and foraging habitat is present	Yes. Observed foraging within Silver Creek Ranch Conservation Lands	Yes. Nesting and foraging habitat is present	Yes, observed foraging in work site buffer area. No evidence of nesting loggerhead shrike observed
Oregon vesper sparrow *Pooecetes gramineus affinis*	CDFW: SSC	March 15 through August 15	Winters in grassland habitats and may frequent agricultural fields	Yes. Suitable wintering habitat is present; does not breed locally	No	Yes. Suitable wintering habitat is present; does not breed locally	No	Yes. Suitable wintering habitat is present; does not breed locally	No

Table 3-13
Special Status Wildlife Species with Potential to Occur on the Project Site, Conservation Lands, and PG&E Telecommunications Upgrades Sites

Species	Status	Nesting/ Breed-ing Period	Habitat Preference	Potential Habitat in Project Site?	Detected at Project Site?	Potential Habitat in Conserva-tion Lands?	Detected in Conserva-tion Lands?	Potential Habitat in Telecommuni-cation Sites?	Detected at Telecommuni-cation Sites?
Yellow-headed blackbird *(Xanthocephalus xanthocephalus)*	CDFW SSC	March 15 through August 15	Nests and forages in fresh emergent wetland with dense vegetation and deep water, often along borders of lakes or ponds.	Unlikely. Only marginal habitat present.	No	Yes, suitable wetlands with emergent vegetation may be present within Silver Creek Conservation Lands	No	Unlikely, only marginal habitat present.	No
Mammals									
San Joaquin antelope squirrel *Ammo-spermophilus nelsoni*	State: T CDFW: SSC	Late winter to early spring	Dry, sparsely vegetated loamy soils in western San Joaquin Valley; 200 to 1,200 feet	Yes. Project site contains suitable habitat	Yes. CNDDB records species at site, and many individuals were observed during site surveys (Live Oak Associates 2010b)	Yes. Conservation Lands contain suitable habitat.	Yes. Observed on both the Valadeao Ranch and Silver Creek Ranch Conservation Lands	Yes. Suitable habitat is present in the western portion of the upgrade sites in undisturbed lands	Yes, individual observed in work site buffer area

Table 3-13
Special Status Wildlife Species with Potential to Occur on the Project Site, Conservation Lands, and PG&E Telecommunications Upgrades Sites

Species	Status	Nesting/ Breed-ing Period	Habitat Preference	Potential Habitat in Project Site?	Detected at Project Site?	Potential Habitat in Conserva-tion Lands?	Detected in Conserva-tion Lands?	Potential Habitat in Telecommuni-cation Sites?	Detected at Telecommuni-cation Sites?
Pallid bat *Antrozous pallidus*	CDFW: SSC	Spring - summer	Occurs in open habitats and oak woodlands; nests in rock crevices, caves, tree hollows, mines, old buildings; highly sensitive to disturbance	Yes. Site contains foraging habitat but lacks roosting habitat	No	Yes. Site contains foraging habitat; conservation lands may contain roosting habitat in rock crevices, tree hollows	No	Yes. Site contains foraging habitat but lacks roosting habitat	No
Townsend's big-eared bat *Corynorhinus townsendii*)	State: T (Candidate) CDFW: SSC	Spring - summer	Requires caves, mines, tunnels, buildings, or other human-made structures for roosting. Prefers moist habitats for foraging, and needs water to drink	Yes. Site contains foraging habitat but lacks roosting habitat	No	Yes. Conservation Lands contain foraging habitat but likely lack roosting habitat	No	Yes. Site contains foraging habitat but lacks roosting habitat	No

Table 3-13
Special Status Wildlife Species with Potential to Occur on the Project Site, Conservation Lands, and PG&E Telecommunications Upgrades Sites

Species	Status	Nesting/ Breed-ing Period	Habitat Preference	Potential Habitat in Project Site?	Detected at Project Site?	Potential Habitat in Conserva-tion Lands?	Detected in Conserva-tion Lands?	Potential Habitat in Telecommuni-cation Sites?	Detected at Telecommuni-cation Sites?
Giant kangaroo rat *Dipodomys ingens*	Federal: E State: E	Spring - summer	Occurs in grasslands and shrub commun-ities on gentle slopes (less than 11%); primarily feeds on seeds, also on green plants and insects	Yes. Suitable habitat is present within the project site	Yes. Focused surveys found active and inactive precincts within project site	Yes. Suitable habitat is present in the conservation lands	Yes. Surveys documented active and inactive precincts within Valadeao Ranch and Silver Creek Ranch Conservation Lands	Yes. Suitable habitat is present in the western portion of the upgrade sites in undisturbed lands	Yes, active and inactive precincts were observed in the western portion of the upgrade sites in the vicinity of poles 64, 51, and 35
Short-nosed kangaroo rat *D. nitratoides brevinasus*	CDFW: SSC	Spring - summer	Grasslands with scattered shrubs, desert shrub association on powdery soils	Yes. Suitable grassland habitat is present, and project site is in species' range	No	Yes. Suitable grassland habitat is present and conservation lands are within species' range	No	Yes. Suitable grassland habitat is present and telecomm upgrade sites are within species' range	No

Table 3-13
Special Status Wildlife Species with Potential to Occur on the Project Site, Conservation Lands, and PG&E Telecommunications Upgrades Sites

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California mastiff bat *Eumops perotis californicus*	Federal: Candid-ate CDFW: SSC	Spring - summer	Semiarid to arid open habitats, foraging for moths, grass-hoppers and crickets; roosts in crevices of steep cliffs, mines, tall trees, and buildings	Yes, The project site contains foraging habitat for this species. No roosting habitat is present	No	Yes. Conservation Lands contain foraging habitat but lack roosting habitat	No	Yes. Site contains foraging habitat but lacks roosting habitat	No
Western red bat *Lasiurus blossevillii*	CDFW: SSC	Spring – summer	Roosts in forests and woodlands. Forages in a wide variety of habitats including grasslands, shrublands, open woodlands and forests, and croplands	Yes. Foraging habitat is present in the project site. The project site does not contain roosting habitat	No.	Yes. Conservation lands contain foraging habitat but likely lack roosting habitat	No	Yes. Site contains foraging habitat but lacks roosting habitat.	No

Table 3-13
Special Status Wildlife Species with Potential to Occur on the Project Site, Conservation Lands, and PG&E Telecommunications Upgrades Sites

Species	Status	Nesting/ Breed-ing Period	Habitat Preference	Potential Habitat in Project Site?	Detected at Project Site?	Potential Habitat in Conserva-tion Lands?	Detected in Conserva-tion Lands?	Potential Habitat in Telecommuni-cation Sites?	Detected at Telecommuni-cation Sites?
Hoary bat *Lasiurus cinereus*	CDFW: SSC	Spring-summer	Open habitats or habitat mosaics, using trees for cover and open areas or habitat edges for feeding; generally roosts in dense foliage of medium to large trees	Yes, the site contains foraging habitat for this species but not roosting habitat	No	Yes. Conservation lands contain foraging habitat but likely lack roosting habitat	No	Yes. Site contains foraging habitat but lacks roosting habitat.	No
Tulare grasshopper mouse *Onychomys torridus tularensis*	CDFW: SSC	May through July	Found in shrubland of hot arid valleys and scrub deserts in southern San Joaquin Valley	Yes, suitable habitat is present; species last documented in the area in 1938	No	Yes, suitable habitat is present	No	Yes. Suitable habitat is present	No

Table 3-13
Special Status Wildlife Species with Potential to Occur on the Project Site, Conservation Lands, and PG&E Telecommunications Upgrades Sites

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San Joaquin pocket mouse *Perognathus inornatus inornatus*	CDFW: SSC	Spring and early summer	Dry, open grassland or scrub on fine-textured soils in the Central and Salinas valleys	Yes, suitable grassland habitat is present	No	Yes, suitable grassland habitat is present	No	Yes, suitable grassland habitat is present	No
American badger *Taxidea taxus*	CDFW: SSC	February through May	Found in dry open areas of shrub, forest, and grasslands with abundant food source, such as California ground squirrels	Yes. Suitable foraging and denning habitat is present	Yes, species observed during surveys (Live Oak Associates 2010b)	Yes. Suitable foraging and denning habitat is present	Yes. Species observed within the Silver Creek Ranch Conservation Lands. Likely present within the Valadeao Ranch Conservation Lands	Yes. Suitable foraging and denning habitat is present	Yes, dens and other sign observed in work site buffer area outside of planned ground disturbance

Table 3-13
Special Status Wildlife Species with Potential to Occur on the Project Site, Conservation Lands, and PG&E Telecommunications Upgrades Sites

Species	Status	Nesting/ Breed-ing Period	Habitat Preference	Potential Habitat in Project Site?	Detected at Project Site?	Potential Habitat in Conserva-tion Lands?	Detected in Conserva-tion Lands?	Potential Habitat in Telecommuni-cation Sites?	Detected at Telecommuni-cation Sites?
San Joaquin kit fox *Vulpes macrotis mutica*	Federal: E State: T	Dec-ember through July	Annual grasslands or desert alkali scrub with scattered shrubby vegetation; needs loose-textured sandy soil for burrows and rodent prey base	Yes. Suitable habitat exists in the project site. Project site is in a core habitat area for this species	Yes. Individuals, tracks, and scat observed during focused surveys	Yes. Suitable habitat exists in the conservation lands. Conservation lands are in a core habitat area for this species	Yes. Individuals and sign observed in Valadeao Ranch and Silver Creek Ranch Conservation Lands	Yes. Suitable foraging and denning habitat is present	Yes, den, scat, and other sign observed in work site buffer areas, outside of planned ground disturbance

Sources: Live Oak Associates 2010a, 2010b, 2010g, 2011b; Panoche Valley Solar 2012; Energy Renewal Partners 2014a, San Benito County 2015

[1]Vernal pool tadpole shrimp were observed outside of the project site, and adjacent to but outside of the Valadeao Ranch Conservation Lands (Live Oak Associates 2010d)

Status:

Federal: Endangered (E), Threatened (T), Proposed (P), or Delisted (D) listing under the federal Endangered Species Act

USFWS BCC: USFWS Bird of Conservation Concern are "species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act (ESA) of 1973." BCCs in the California-Nevada Region (USFWS Region 8) are identified in this table.

State: Endangered (E) or Threatened (T) listing under the California Endangered Species Act

CDFW: *Special Animals:* "species at risk" or "special status species." Listed or proposed for listing under the California and federal Endangered Species Acts, but they may also be species deemed biologically rare, restricted in range, declining in abundance, or otherwise vulnerable.

SSC: California Species of Special Concern. Considered rare or declining in abundance in California. Intended to provide the CDFW, biologists, land planners, and managers with lists of species that require special consideration during the planning process in order to avert continued population declines and potential costly listing under federal and state endangered species laws. For many species of birds, the primary emphasis is on the breeding population in California. For some species that do not breed in California but winter here, emphasis is on wintering range.

Fully Protected: Species considered by CDFW as rare or faced with possible extinction. May not be taken or possessed at any time and no provision of the CDFW code authorizes the issuance of permits or licenses to take any fully protected species.

Invertebrates

Vernal pool fairy shrimp (*Branchinecta lynchi*, federal status: threatened), **longhorn fairy shrimp (*B. longiantenna*)**, **Conservancy fairy shrimp (*B. conservatio*)**, and **vernal pool tadpole shrimp (*Lepidurus packardi*), federal status: endangered**. These rare fairy shrimp occur in vernal pools and other ephemeral pool types. Vernal pool fairy shrimp are the short-lived species, requiring only six to seven weeks of continuous inundation to complete their life cycles (Live Oak Associates 2010a, 2010c). Appropriate seasonal aquatic habitat is present for vernal pool invertebrates in approximately 121 ephemeral pools located throughout the project site.

A search of CNDDB records in 2010 did not show any of these species present within three miles of the project site. Nonetheless, due to the presence of suitable habitat, protocol-level dry and wet season surveys were conducted in 2010. The wet season survey found vernal pool fairy shrimp in two adjacent but hydrologically connected pools in the northern portion of the project site west of Little Panoche Road (Live Oak Associates 2010c); this pool and a surrounding buffer have since been incorporated into the Valley Floor Conservation Lands (see **Figure 3-9**, Proposed Project Aquatic Special Status Species). Dry season surveys found *Branchinecta* cysts in the same location, which were presumed to be cysts of the same species (Live Oak Associates 2010a). Longhorn fairy shrimp and Conservation fairy shrimp have not been documented within the project site or conservation lands to date.

A non-protocol branchiopod survey of pools in the vicinity of the project site documented vernal pool tadpole shrimp in 2010 (Live Oak Associates 2010d). Vernal pool tadpole shrimp were observed in one pool west of the northern portion of Valadeao Ranch Conservation Lands, outside the conservation lands boundary (see **Figure 3-9**). This is the only pool that vernal pool tadpole shrimp were documented in. No vernal pool tadpole shrimp have been observed within the project site or conservation lands.

Amphibians

California tiger salamander (*Ambystoma californiense*); federal status: threatened; state status: threatened, CDFW SSC. The California tiger salamander Central California Distinct Population Segment (DPS) is federally and state listed as threatened. Critical habitat for the Central California DPS was designated in 2005 (USFWS 2004, 2005). California tiger salamander is typically found in ephemeral pools in open grasslands, oak savannas, and edges of woodlands; some breeding ponds may be alkaline (Stebbins 2003). It exists in isolated populations from Sonoma County south to Santa Barbara County, along the central coast and in foothills of the Central Valley. It requires large vernal pools or stock ponds lacking predatory fish and amphibians for breeding and

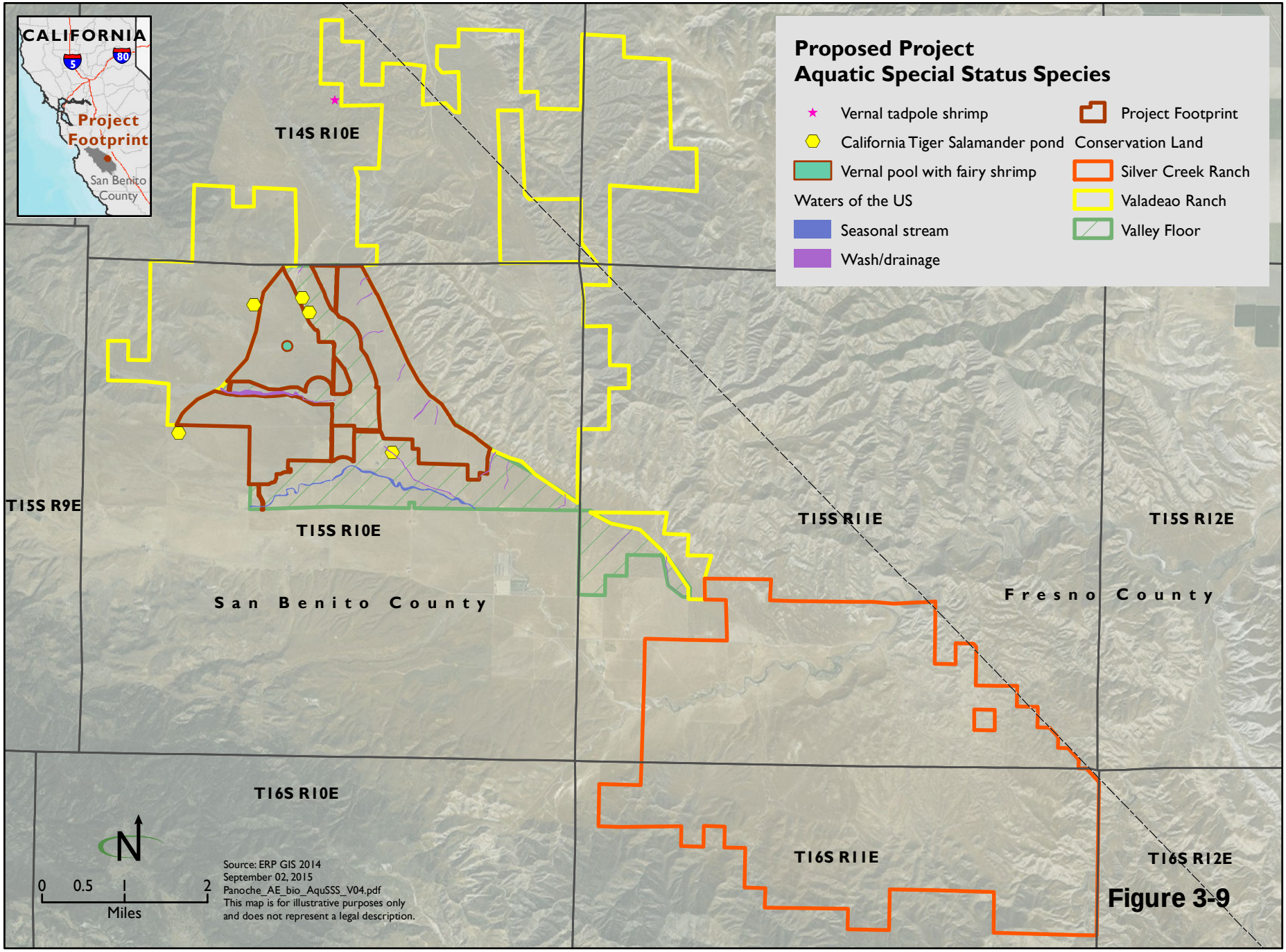

CALIFORNIA
5
80
Project Footprint
San Benito County
Proposed Project
Aquatic Special Status Species
Vernal tadpole shrimp
California Tiger Salamander pond
Vernal pool with fairy shrimp
Waters of the US
Seasonal stream
Wash/drainage
Project Footprint
Conservation Land
Silver Creek Ranch
Valadeao Ranch
Valley Floor
T14S R10E
T15S R9E
T15S R10E
T15S R11E
T15S R12E
San Benito County
Fresno County
T16S R10E
T16S R11E
T16S R12E
N
0 0.5 1 2
Miles
Source: ERP GIS 2014
September 02, 2015
Panoche_AE_bio_AquSSS_V04.pdf
This map is for illustrative purposes only
and does not represent a legal description.

Figure 3-9

surrounding uplands with small mammal burrows for estivation. Breeding occurs from December through March, and larvae metamorphose usually in late spring or early summer, though the process may extend into mid-summer (Stebbins 2003).

During the 2009-2010 rainy season, California tiger salamander larvae were detected in two ponds located outside of and immediately adjacent to the project site. Suitable California tiger salamander habitat occurs in pools and stock ponds on the project site and in the Conservation Lands, but no larval California tiger salamander were detected in other survey locations. Pond #3 is located outside of the westernmost portion of the project site. Pond #12 is located adjacent to the northern portion of the project site, in the Valadeao Ranch Conservation Lands (see **Figure 3-9**). Sampling in May 2010 within these pools documented several larvae attempting to metamorphose during rapidly drying conditions; it is unknown if successful breeding occurred over the 2009 2010 season in these pools (Panoche Valley Solar 2014). Additional ponds within the Valley Floor Conservation Lands that have historically supported California tiger salamander breeding in 1992 (Ponds #8 and #9; **Figure 3-9**; LOA 2009a, Panoche Valley Solar 2014) were also surveyed during the 2009-2010 rainy season though no California tiger salamander were detected. Though no breeding California tiger salamander have been detected within the project site, the project site does support suitable upland estivation habitat for California tiger salamander within the off-site breeding ponds.

California red-legged frog (*Rana draytonii*); federal status: threatened; state status: CDFW SSC. Red-legged frog is the largest native frog in California. Historically, this species was found along the coast, from Mendocino County south to northern Baja California, and inland to the foothills of the Sierra Nevada; presently, it is found in the Northern and Central California Coast Range. It is found in lowlands or foothills near ponds or streams with emergent wetland vegetation in woodlands, grasslands, or coastal scrub. Its breeding habitat is in permanent or ephemeral water sources: lakes, ponds, reservoirs, slow streams, marshes, bogs, and swamps. It requires moist refuges for estivation during the dry season. Although California red-legged frogs are known to occur in vicinity of the Panoche Valley, the project site lacks suitable aquatic habitat with emergent wetland vegetation or upland estivation habitat next to suitable aquatic habitat (Live Oak Associates 2010b). Therefore, it is unlikely that California red-legged frogs would be present on the project site. It is unknown whether there is suitable habitat on the proposed conservation lands. No focused surveys for this species were conducted.

Western spadefoot toad (*Spea hammondii*); federal status: none; state status: CDFW SSC. Western spadefoot toads are known from ephemeral pools in open grassland habitats across the interior region of the state. Occasional populations also occur in valley-foothill hardwood woodlands, and some populations persist temporarily in orchard or vineyard habitats (Morey

1990). During the dry season, spadefoot toads estivate in burrows up to three feet deep, dug into sandy, gravelly, or other crumbly soils; some individuals use existing mammal burrows (Morey 1990). Between February and May, spadefoot toads emerge from their burrows and move into ephemeral pools to breed. Larval development is typically completed in three to eleven weeks in shallow warm pools. After metamorphosis is complete, young spadefoot toads disperse into the surrounding upland habitat.

There are no CNDDB records of occurrences within a 10-mile radius of the proposed project site. Multiple site-wide biological surveys, including sampling of water bodies conducted by Live Oak Associates in 2009 and 2010, did not detect this species (San Benito County 2010a).

Though suitable habitat for Western spadefoot toads may occur in the project site in pools that form during winter rains, to date it has not been observed on the project site. No specific surveys were conducted for this species; however, surveyors would have noted its presence during protocol-level surveys for vernal pool fairy shrimp and other species. Therefore, it is unlikely that this species occurs on the proposed project site. This species has not been observed on the conservation lands. Though suitable habitat likely exists on the conservation lands, only reconnaissance-level surveys have been completed on Valadeao Ranch and Silver Creek Ranch Conservation Lands, and this species would not necessarily have been detected during these surveys.

Reptiles

Silvery legless lizard (*Anniella pulchra pulchra*); federal status: none; state status: CDFW SSC. Silvery legless lizard occurs in sandy or loose loamy soils under the sparse vegetation of beaches, chaparral, pine-oak woodland, or under sycamores, cottonwoods, or oaks that grow on stream terraces. Legless lizards forage for insects and spiders underneath leaf litter or underneath sandy soil, usually at the base of shrubs or other vegetation (Jennings and Hayes 1994). Their adaptation for burrowing, which requires soils with a high sand component, makes legless lizards vulnerable to ground-disturbing activities such as agriculture. Suitable habitat for this species may exist within the project site and conservation lands. This species has not been observed on the project site or conservation lands.

Western pond turtle (*Emys* [= *Actinemys*] *marmorata*); federal status: none; state status: CDFW SSC. Western pond turtle is a medium-sized olive or brown aquatic turtle found in suitable habitat throughout California, west of the Sierra and Cascade Ranges. The pond turtle is normally found in and along riparian areas, although pregnant females may occur up to 0.25 mile away from water in search of an appropriate nest site (Jennings and Hayes 1994). The preferred habitat for these turtles is ponds or slow-moving water with numerous basking sites (e.g., logs and rocks), food sources (plants, aquatic

invertebrates, and carrion), and few predators (raccoons, introduced fishes, and bullfrogs). Juvenile and adult turtles are commonly seen basking in the sun at appropriate sites, although they are extremely wary animals and often dive into the water at any perception of danger. The project site lacks suitable permanent aquatic habitat, and the species has not been observed on the project site. Suitable habitat is present on the Silver Creek Ranch Conservation Lands, and the species has been observed (Live Oak Associates 2010h). Suitable habitat is likely not present at the Valadeao Ranch Conservation Lands, and the species has not been observed.

Blunt-nosed leopard lizard (*Gambelia sila*); federal status: endangered; state status: endangered, fully protected. Blunt-nosed leopard lizard was listed as endangered by the USFWS (1967) and endangered, and fully protected by the state of California in 1971 (USFWS 1998). It is a California fully protected species, meaning no take may be authorized except for scientific research. No critical habitat has been designated for the species. Blunt-nosed leopard lizard is endemic to the San Joaquin Valley (Montanucci 1970; Tollestrup 1979 in USFWS 1998). It is thought to have once occurred from the Tehachapi Mountains in Kern County northward to Stanislaus County (USFWS 1998). The current range is thought to include scattered populations throughout the undeveloped San Joaquin Valley and in the foothills of the Coast Range below 2,600 feet (Montanucci 1970; Alborn 1988 in USFWS 1998).

Blunt-nosed leopard lizards occur in the San Joaquin Valley in expansive dry areas with sparse vegetation. They inhabit nonnative grassland and alkali sink scrub communities of the valley floor marked by poorly drained soils. Blunt-nosed leopard lizards are generally absent from areas with steep slopes and dense vegetation. They are opportunistic foragers, with insects comprising the major portion of their diet. Blunt-nosed leopard lizards use small mammal burrows, such as those of ground squirrels and kangaroo rats, for permanent shelter and dormancy.

Seasonal activity aboveground depends on weather conditions; optimum activity period occurs when air temperatures are between 77 and 95°F and soil temperatures are between 86 and 122°F. Adults emerge from below ground dormancy in early to mid-April and remain active into July and August. Hatchlings emerge in July and remain active into late October and early November. Blunt-nosed leopard lizard home range estimates range from less than 2.4 acres to 52.4 acres. Population density estimates from the literature range from 0.1 per acre to 33.32 per acre (Panoche Valley Solar 2014). Climate change is anticipated to strongly impact blunt-nosed leopard lizards along with other lizard species, with local extinction rates approaching 40 percent by 2080 (Sinervo et al. 2010); habitat management planning for the blunt-nosed leopard lizard has indicated the importance of the Panoche Valley habitat, which has contiguity with other suitable habitat, allowing the species to migrate

successfully in the event climate change renders current habitat unsuitable (Illowsky 2014; Westphal et al. in review).

Blunt-nosed leopard lizards are known to occur in the project site from both historic and contemporary occurrence records. The CNDDB has records of the species occurring on USGS 7.5-minute quadrangle maps for Cerro Colorado, Chounet Ranch (1958), Hammonds Ranch (1978), Idria (1980), Laguna Seca Ranch (1993), Mercey Hot Springs (2005), Panoche (2004), and Tumey Hills (1993; Panoche Valley Solar 2014).

In 2009, surveys in the project site detected blunt-nosed leopard lizard within an ephemeral reach of Panoche Creek and in grasslands on either side of Panoche Creek. In 2010, protocol-level surveys for both adult and juvenile blunt-nosed leopard lizard showed that blunt-nosed leopard lizard were more tightly associated with the Panoche Creek drainage, and relatively few animals were found in the upland areas associated with the creek. There were 105 blunt-nosed leopard lizard observations during the 2009-2010 surveys seasons, all of which were located within the proposed Valley Floor Conservation Lands. Since 2010, several adult and hatchling blunt-nosed leopard lizard surveys were conducted within the project footprint and portions of the Valley Floor Conservation Lands. A total of 40 observations of blunt-nosed leopard lizard were recorded during the 2013 survey season for an overall total of 145 blunt-nosed leopard lizard observations. Of those observations, all were within the Valley Floor Conservation Lands. A single individual observed within the project footprint was found just north of the Valley Conservation Lands boundary that encompassed Las Aguilas Creek. This location and associated buffer area has since been incorporated into the Valley Conservation Lands boundary and would be avoided under all alternatives. In 2014, five blunt-nosed leopard lizard observations were made within the Silver Creek Ranch Conservation Lands as reference observations for additional surveys in the project footprint (San Benito County 2015).

Figure 3-10, Blunt-nosed Leopard Lizard Habitat Suitability on the Project Site, shows the habitat suitability for this species and documented observations within the project site and conservation lands. The habitat suitability model uses presence/absence data from blunt-nosed leopard lizard surveys in the project site, as well as habitat factors important for the species, including soils, hydrology, and slope, to make a predictive model of blunt-nosed leopard lizard distribution within the project site. The model found that close proximity to river washes and river wash soil types were the strongest predictors of species occurrence, and high slopes were a strong negative predictor of occurrence (Panoche Valley Solar 2014). Habitat suitability modeling found 110 acres of highly suitable habitat, 450 acres of moderately suitable habitat, and 1,840 acres of low suitability habitat for blunt-nosed leopard lizard in the project footprint (Live Oak Associates GIS 2010).

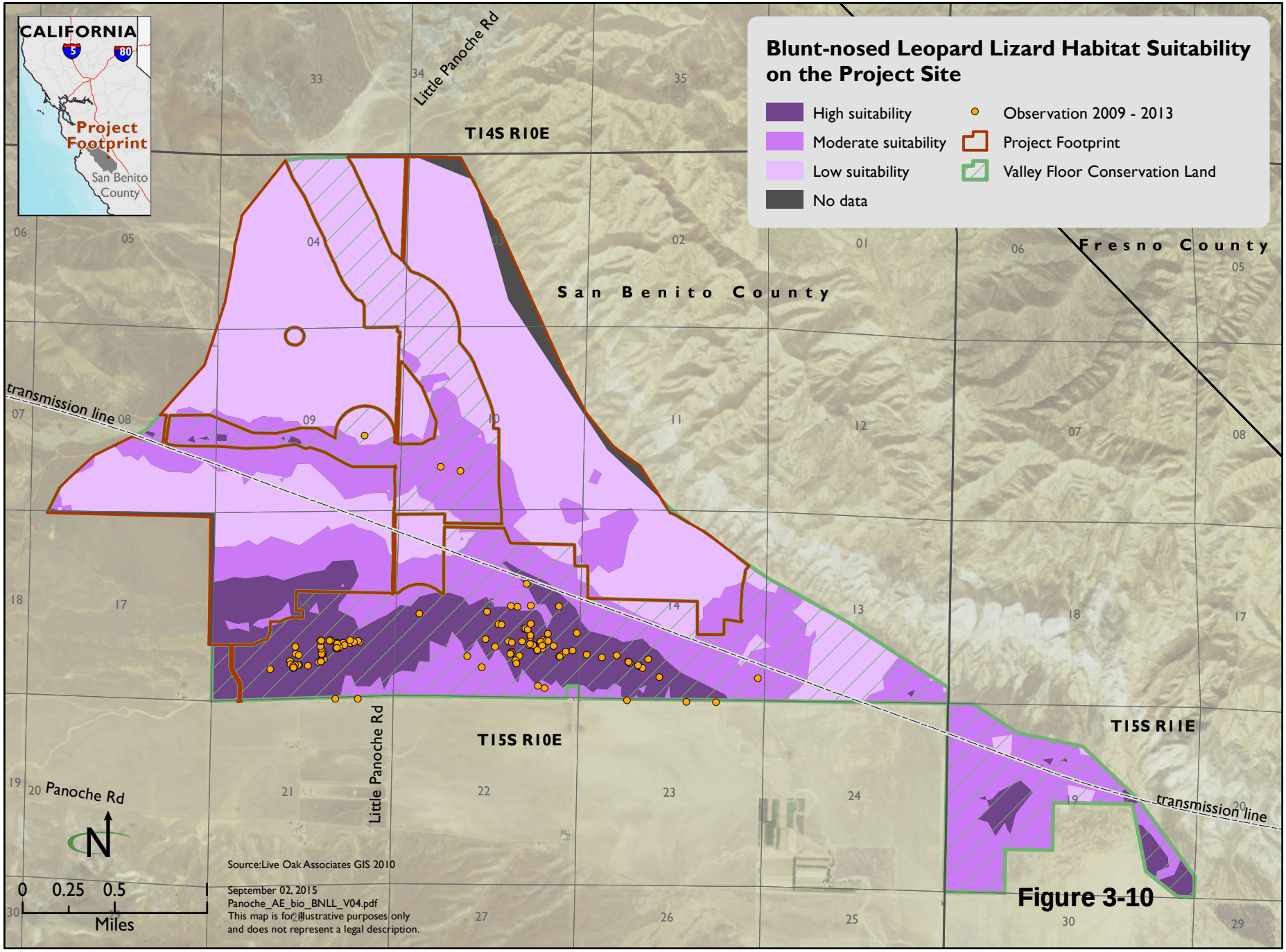

Blunt-nosed Leopard Lizard Habitat Suitability on the Project Site
High suitability
Moderate suitability
Low suitability
No data
Observation 2009 - 2013
Project Footprint
Valley Floor Conservation Land
CALIFORNIA
Project Footprint
San Benito County
T14S R10E
T15S R10E
T15S R11E
San Benito County
Fresno County
Little Panoche Rd
Panoche Rd
transmission line
N
0 0.25 0.5
Miles
Source:Live Oak Associates GIS 2010
September 02, 2015
Panoche_AE_bio_BNLL_V04.pdf
This map is for illustrative purposes only
and does not represent a legal description.

Figure 3-10

Conservation Lands—Valley Floor. During surveys in 2009 and 2010, 105 blunt-nosed leopard lizards were observed. During the 2013 full protocol surveys, 27 adult lizards and 12 hatchlings or sub-adults were observed, with most observations associated with the wash habitat along Panoche Creek (Panoche Valley Solar 2014). In 2014, two blunt-nosed leopard lizard observations were made within the Valley Floor Conservation Lands as reference observations for additional surveys in the project footprint (San Benito County 2015).

The entire 2,514 acres of the Valley Floor Conservation Lands were found to have suitable habitat for blunt-nosed leopard lizards. Habitat suitability modeling found 650 acres of highly suitable habitat, 1,220 acres of moderately suitable habitat, and 600 acres of low suitability habitat on these conservation lands (Live Oak Associates GIS 2010).

Conservation Lands—Silver Creek Ranch. Four blunt-nosed leopard lizards were observed in dry washes during reconnaissance surveys in 2010. During focused surveys in 2012, 31 juvenile lizards were observed in drainages, on hill slopes, and on top of ridges. In addition, 30 blunt-nosed leopard lizards were observed incidentally during giant kangaroo rat surveys in 2012; most of these observations were not associated with a drainage (Panoche Valley Solar 2014). In 2014, five blunt-nosed leopard lizard observations were made within the Silver Creek Ranch Conservation Lands as reference observations for additional surveys in the project footprint (San Benito County 2015).

Habitat suitability predictions based on slope and proximity to washes estimate that there are at least 7,875 acres of suitable habitat for the species on the 10,890-acre Silver Creek Ranch Conservation Lands (Panoche Valley Solar 2014).

Conservation Lands—Valadeao Ranch. No blunt-nosed leopard lizards have been observed to date on Valadeao Ranch, including during surveys in 2010, although suitable habitat is contiguous with the western and southeastern edges of the project site. Additional potential habitat occurs on the floor of Little Panoche Valley in the northern portion of Valadeao Ranch (Panoche Valley Solar 2014, San Benito County 2015).

Habitat suitability predictions based on slope and proximity to washes estimate that there are 1,485 acres of suitable habitat for blunt-nosed leopard lizards in the 10,772-acre Valadeao Ranch Conservation Lands (Panoche Valley Solar 2014).

San Joaquin coachwhip (*Coluber* [=*Masticophis*] *flagellum ruddocki*); federal status: none; state status: CDFW SSC. San Joaquin coachwhips occur in the Sacramento Valley, San Joaquin Valley, and in the South Coast Ranges, in sparse grasslands and saltbush scrub communities with little or no tree cover (Jennings and Hayes 1994). They require the presence of mammal

burrows for refuge, temperature regulation, and possibly egg laying. This species was documented by CNDDB in Section 29 in 1984.

During blunt-nosed leopard lizard surveys in 2009, one individual and one shed skin of a San Joaquin coachwhip were observed in the northern portion of the project site (Live Oak Associates 2010b). San Joaquin coachwhip individuals were also observed in the Silver Creek Ranch Conservation Lands (Live Oak Associates 2010h). This species has not been observed in the Valadeao Ranch Conservation Lands.

Blainville's (Coast) horned lizard (*Phrynosoma blainvillii*); federal status: none; state status: CDFW SSC. Blainville's horned lizard is distributed along the coast, from Contra Costa County in the north to central Baja California in the south, and in patches throughout the Central Valley (Jennings and Hayes 1994; Montanucci 2004). Blainville's horned lizard populations have declined significantly due to loss of habitat and possibly the influx of invasive invertebrate species, including Argentine ants (*Ridomyrmex humilis*), which potentially displace native prey (Fisher et al. 2002). Blainville's horned lizards occupy a variety of open habitats comprised of sandy, loosely textured soils in chaparral, coastal scrub, annual grassland, and clearings in riparian woodlands (Jennings and Hayes 1994). Blainville's horned lizards are most strongly associated with loose soils free of plant debris and with the presence of native ants (Fisher et al. 2002). Blainville horned lizards breed between April and August and disperse to overwintering habitats where they hibernate from November through March (Jennings and Hayes 1994).

Suitable habitat for the Blainville's horned lizard is present at the project site in the form of loose sandy soils abundant on this site. Furthermore, there are a number of native ant colonies, the species' preferred prey, on the site. Blainville's horned lizard has been documented in the vicinity of the project site. During quantitative sampling conducted on-site for blunt-nosed leopard lizard, Blainville's horned lizard was observed on the project site (Live Oak Associates 2010b). Suitable habitat also occurs on the conservation lands, though Blainville's horned lizard has only been observed on the Valadeao Ranch Conservation Lands to date.

<u>Birds</u>

Tricolored blackbird (*Agelaius tricolor*); federal status: USFWS BCC; state status: endangered, CDFW SSC. Tricolored blackbird is highly colonial in its nesting habits and forms dense breeding colonies of up to tens of thousands of pairs. This species typically nests primarily in tall, dense stands of cattails or tules but also nests in blackberry (*Rubus* spp.), wild rose (*Rosa* spp.), and tall herbs. Nesting colonies are typically near standing or flowing freshwater. Tri-colored blackbirds form large, often multi-species, flocks during the non-breeding period and range more widely than during the reproductive season.

They forage on the ground in croplands and grasslands, along the edges of ponds, and flooded land (HT Harvey & Associates 2010).

A number of tricolored blackbird nesting colonies occur in the vicinity of the project site (http://tricolor.ice.ucdavis.edu). Two colonies totaling 160 individuals were observed in 2005 in the Silver Creek Ranch Conservation Lands. Three additional colonies were observed to the south of the project site within 1.6 miles of the project in 2008 (Conservation Organizations 2015). A large tricolored blackbird colony of approximately 500 individuals was identified approximately six miles north of the project site in 2011 (San Benito County 2015). An additional large tricolored blackbird colony is known approximately eight miles north of the proposed project at Little Panoche Reservoir (San Benito County 2010a). Tricolored blackbirds have been observed foraging on the project site; suitable foraging habitat is present throughout, although nesting habitat (i.e., cattail marshes, blackberry thickets, and thistle stands) is absent. Foraging habitat is similarly present throughout the conservation lands, through nesting habitat is likely limited. Suitable nesting habitat may be present in portions of Silver Creek Ranch Conservation Lands. Tricolored blackbird has not been observed within the conservation lands.

Grasshopper sparrow (*Ammodramus savannarum*); federal status: none; state status: CDFW SSC. Grasshopper sparrows breed in grassland habitats in central California. They have been extirpated from much of their former range in Southern California but continue to breed locally in ungrazed grasslands.

The grassland habitats of the proposed project site are heavily grazed and therefore generally lack the heterogeneous structure this species typically prefers. However, suitable conditions may occur in the proposed project site during some years, especially following periods of above-average rainfall. The project site is within the range of this species (Cooper 2004). Although they could occur on the site, there are no records of them occurring with a 10-mile radius of the proposed project site. Biological surveys conducted in 2009 and 2010 did not detect this species on the proposed project site (San Benito County 2010a). Suitable foraging and nesting habitat is similarly present within the conservation lands, though this species has not been observed within the conservation lands to date.

Golden eagle (*Aquila chrysaetos*); federal status: none; state status: fully protected species. The primary federal legislation governing golden eagles is the Bald and Golden Eagle Protection Act. Golden eagles occur throughout the western United States, Alaska, and large portions of Canada and Mexico. They occupy nearly all habitats in the western United States, including deserts, grasslands, and woodlands. Their basic needs are suitable nesting sites (typically large trees or cliffs), dependable food supplies, and large open areas for foraging. California supports both wintering and nesting golden eagle

populations. Territory size of a breeding pair is highly variable, depending on the resources available, and may range from 30 to 50 square miles.

An aerial survey for golden eagle nesting habitat was conducted in 2010 and included a ten-mile radius around the project site (Live Oak Associates 2010i). Fifteen golden eagle nests were identified in the vicinity, nine of which appeared to be active. None of the nests were on the project site, Valadeao Ranch, or Silver Creek Ranch Conservation Lands.

In coordination with the USFWS Ventura office, a golden eagle study documenting golden eagle occurrence, frequency, and behavior during the migratory and wintering phase (September 2013 through January 2014) within the project site and associated conservation lands was carried out. The 2013/2014 point count surveys resulted in 15 golden eagle observations within the project site. Of these observations, seven observations were made during a single carcass feeding event within the project footprint. The study concluded that there was a greater use by golden eagle in the hills in the Valadeao Ranch Conservation Lands than within the project site (San Benito County 2015).

In addition, aerial surveys conducted in January and March 2014 were completed to determine the number and locations of occupied nests and the approximate centers of occupied nesting territories of golden eagle within a 10-mile radius of the project site. This survey resulted in the documentation of 46 golden eagle nests and an estimated 30 golden eagle territories, with 9 of them active. None were located within three miles of the project site; however, four nests comprising four breeding territories were located within four miles of the project site. Two of these four nests were active in 2014, though neither nest was ever found to contain eggs or nestlings. The next closest active golden eagle nest to the project site in 2014 was 5.8 miles north-northwest of the project footprint (Bloom Biological, Inc. 2014).

The project site contains no trees or cliffs suitable for nesting habitat for golden eagles, however, suitable nesting sites occur within two miles putting the project site well within foraging range (San Benito County 2015). Grassland habitats on the project site are suitable foraging grounds for golden eagles, especially in winter, and the species has been observed foraging in the project site (Live Oak Associates 2010b, Panoche Valley Solar 2012, Energy Renewal Partners 2014, San Benito County 2015). Similarly, the conservation lands likely lack suitable nesting habitat for golden eagle but provide suitable foraging grounds. Golden eagle has been observed foraging on the Valadeao Ranch and Silver Creek Ranch Conservation Lands.

Short-eared owl (*Asio flammeus*); federal status: none; state status: CDFW SSC. Short-eared owl is one of the most globally widespread owls; however, it is declining in certain areas of its range. The short-eared owl can be active during the day and night and usually roosts and nests on the ground, concealed by tall grass or other vegetation. It is a year-round resident in select

areas of California, where its breeding range fluctuates with prey availability. In winter, the California population of short-eared owls inflates dramatically with the influx of migrants. In the winter it often roosts communally and may sometimes roost in trees. Short-eared owls commonly prey on small mammals, such as vole, shrew, pocket gopher, and pocket mice, and occasionally small birds.

Short-eared owls have nested in the project vicinity typically in response to abnormally large vole population increases following exceptional rain years (Roberson 2008). Conditions on the project site are generally drier than short-eared owls prefer during most years and do not provide the abundant prey and cover as would a site that received higher rainfall. However, the Panoche Valley is in the range of this species, and it could occur on the project site; biological surveys conducted by Live Oak Associates in 2009 and 2010 did not detect the species on-site (San Benito County 2010a). Similarly, while suitable habitat for this species occurs within the conservation lands, this species has not been observed to date in either Valadeao Ranch or Silver Creek Ranch Conservation Lands.

Long-eared owl (*A. otus*); federal status: none; state status: SSC. Long-eared owls prefer riparian woodland habitats and belts of live oak (*Quercus* spp.) paralleling stream courses. The long-eared owl requires adjacent open land for foraging and the presence of old nests of crows, hawks, or magpies for breeding.

Suitable foraging habitat for long-eared owls is present throughout the project site, although only marginally suitable nesting habitat is present in the few trees associated with dwellings on or next to the project site. Long-eared owls have been observed nesting approximately three miles north of the project site at Mercy Hot Springs. The Panoche Valley is in the range of this species; they could occur on the project site, although biological surveys conducted by Live Oak Associates in 2009 and 2010 did not detect the species (San Benito County 2010a). Oak and juniper woodlands within Valadeao Ranch Conservation Lands may provide suitable nesting habitat for this species. Suitable foraging habitat is present throughout the conservation lands. This species has not been observed to date in the conservation lands.

Burrowing owl (*Athene cunicularia*); federal status: USFWS BCC; state status: CDFW SSC. Burrowing owls prefer open, dry, annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Burrowing owls usually nest in abandoned burrows of ground squirrels, badgers, or other small mammals, although they may dig their own burrows in soft soil. Primarily nocturnal, the burrowing owl hunts insects, small mammals, and birds from a perch or in low flights. During daylight they are often seen perched conspicuously at the entrance to their burrow.

Burrowing owls show high site fidelity from year to year; therefore, a site should be considered occupied if a burrowing owl has been observed occupying

a burrow within the last three years (California Burrowing Owl Consortium 1993). Annual grassland habitat with small mammal burrows present on the project site provides suitable foraging and breeding habitat for burrowing owls. Burrowing owl has been documented in the vicinity of the project site in 2004. During blunt-nosed leopard lizard surveys in 2010, multiple individual burrowing owls and evidence of their presence, including whitewash, feathers, and pellets, were observed in the project site, including within the project footprint and Valley Floor Conservation Lands (Live Oak Associates 2010b; Panoche Valley Solar 2012). Burrowing owl has been observed on both Valadeao Ranch and Silver Creek Ranch Conservation Lands.

Swainson's Hawk (*Buteo swainsoni*); federal status: USFWS BCC; state status: threatened. The Swainson's hawk was once one of the most common birds of prey in the grasslands of California; however, populations have declined by at least 90 percent since 1900 and are still believed to be declining (Bloom and Van De Water 1994). Currently, the nesting range is primarily restricted to portions of the Sacramento and San Joaquin Valleys and northeastern California (Bloom 1980), although the species once nested in most of the lowland areas in the state. The State of California listed it as threatened in 1983.

Swainson's hawks require large areas of foraging habitat, preferably grassland or pastures because their preferred prey is voles, gophers, birds, and insects, such as grasshoppers (Estep 1989). They have persisted in large part by using some croplands as foraging habitat, particularly alfalfa; however, they will also forage in fields of hay, grain, tomatoes, beets, and other row crops (Estep 1989). Crops such as cotton, corn, and rice and orchard and vineyards are not suitable because they either lack suitable prey or the prey is inaccessible to Swainson's hawks due to the vegetative structure of the crop.

In the San Joaquin Valley, Swainson's hawks are generally tied to riparian habitat for nesting sites (Bloom 1980), but eucalyptus trees outside riparian areas are occasionally used (CNDDB 2010 in HT Harvey & Associates 2010). In the fall, Swainson's hawks collect in flocks called kettles, sometimes in large numbers, and migrate together to winter in South America. The project site contains suitable foraging habitat for this species but lacks nesting habitat and no Swainson's hawk observations have been made within the project site. There are no CNDDB records of this species within three miles of the project site (Live Oak Associates 2010b). Similarly, the conservation lands contain suitable foraging habitat for Swainson's hawk but likely lack suitable nesting habitat. No Swainson's hawk have been observed within the conservation lands.

Ferruginous hawk (*B. regalis*); federal status: USFWS BCC; state status: CDFW SSC. Ferruginous hawk winters in grassland habitats in California, although it does not breed in San Benito County or California (Polite and Pratt 1990); nevertheless, it is considered a sensitive wintering raptor.

Ferruginous hawks choose open perches, both man-made and natural, while they are hunting. They generally feed on small mammals, snakes, insect swarms, and occasionally birds taken on the ground. Ferruginous hawks have not been observed within the project site or conservation lands but may forage or roost in these locations.

Mountain plover (*Charadrius montanus*); federal status: USFWS BCC; state status: CDFW SSC. Mountain plover was proposed for listing as federally threatened on June 29, 2010; however, on May 11, 2011, the USFWS formally decided not to list the mountain plover as a threatened or endangered species. Nevertheless, wintering mountain plover birds in California are designated SSC. The species winters in California and nests in short-grass prairie habitats from Wyoming to New Mexico. The wintering population in California accounts for approximately 50 percent of the total mountain plover population.

Mountain plovers prefer short grass habitats, such as heavily grazed pastures, burned fields, fallow fields, and tilled fields (without furrows). Historic wintering colonies in the Central Valley were often associated with kangaroo rat precincts and California ground squirrel den complexes. Wintering (non-breeding) mountain plovers are highly nomadic. Mountain plovers were documented by the CNDDB adjacent to the project site to the south in 2003. During branchiopod surveys in 2010, they were incidentally observed in the southeastern portion of the project footprint and are therefore present within the project site to an unknown extent (Live Oak Associates 2010b). Suitable wintering and foraging habitat exists throughout the conservation lands, through mountain plover has not been documented in the conservation lands.

Northern harrier (*Circus cyaneus*); federal status: none; state status: CDFW SSC. Northern harriers reside year-round in the state. The species is frequently seen soaring low over meadows, grasslands, open rangelands, and freshwater emergent wetlands; it is uncommon in wooded habitats. Harriers hunt for a variety of prey, such as rodents, birds, frogs, reptiles, and insects by flying low and slow in a traversing manner, using both sight and sound to detect prey. Northern harriers are common in the Central Valley, especially during winter. Nests are constructed on the ground in grasslands near water or in wetlands where marsh plants provide cover and protection. This species has been observed several times during various biological surveys foraging over grasslands on the project site (Live Oak Associates 2010b; Energy Renewal Partners 2014a). Suitable foraging habitat exists throughout the Conservation lands, though no observations of northern harrier have been made in these locations.

White-tailed kite (*Elanus leucurus*); federal status: none; state status: CDFW fully protected. White-tailed kite nests primarily in solitary evergreen trees near meadows, marshes, or grasslands. They are year-round residents of the state, establishing breeding territories that encompass open areas with

healthy prey populations and snags, shrubs, trees, or other nesting substrates (Dunk 1995). Nonbreeding birds typically remain in the same area over the winter, although some movements do occur (Polite 1990a). The presence of white-tailed kites is closely tied to the presence of prey species, particularly California voles (*Microtus californicus*). Prey base may be the most important factor in determining habitat quality for white-tailed kites (Dunk and Cooper 1994; Skonieczny and Dunk 1997).

White-tailed kites have been observed foraging over the project site, but potential nesting habitat is limited and of low quality, consisting of scattered landscape trees. Nesting habitat may be present in the woodlands within Valadeao Ranch Conservation Lands, and foraging habitat is present throughout the conservation lands. However, no observations of white-tailed kite have been made in these locations.

California condor (*Gymnogyps californianus*); federal status: endangered; state status: endangered, CDFW fully protected. California condors use vast expanses of open savannah, grasslands, and foothill chaparral in mountain ranges of moderate altitude. Deep canyons containing clefts in rocky walls provide nesting sites. California condor may forage up to 100 miles from its nightly roosting site. From the late 1970s until 1987, wild condors foraged in foothills bordering the San Joaquin Valley. The USFWS designated nine critical habitat areas for the California condor; the closest unit to the project site is Hi Mountain-Beartrap Condor Area in San Luis Obispo County, approximately 98 miles south-southeast of the project site.

There is no adequate roosting or nesting on the project site for California condor. However, large open areas for foraging are present, and cattle and wild ungulate carcasses in the region may attract condors to the Panoche Valley periodically. The California condor could feed on the project site if a large mammal carcass were present. Similarly, there is likely no adequate roosting or nesting habitat in the conservation lands, though foraging habitat is present throughout the conservation lands. There are no CNDDB records of California condor in the project site vicinity. Two condors were observed approximately 10.2 miles southwest of the project site during golden eagle surveys in 2014 (San Benito County 2015). California condor has not been observed in the project site or conservation lands.

Bald eagle (*Haliaeetus leucocephalus*); federal status: delisted, USFWS BCC; state status: endangered, CDFW fully protected. Bald eagle is delisted from the ESA and is listed as endangered under CESA. The bald eagle is also a California fully protected species, with additional protections provided under the Bald and Golden Eagle Protection Act. Bald eagles are wide-ranging migrants that typically nest in mature trees within one mile of water. Adults and young are wide ranging and often migratory. Preferred prey is fish, although bald eagles occasionally hunt waterfowl and small mammals and scavenge carrion.

The project site and conservation lands lack suitable nesting and foraging habitat for this species, and it has not been observed in these locations.

Loggerhead shrike (*Lanius ludovicianus*); federal status: USFWS BCC; state status: CDFW SSC. Loggerhead shrikes occur widely throughout the United States and breed throughout most of Central and Southern California, with the exception of the Sierra Nevada and other high-elevation areas. The species breeds in shrublands or open woodlands with a fair amount of grass cover and areas of bare ground (Humple 2008).

Loggerhead shrikes require tall shrubs or trees (they also use fences or power lines) for hunting perches. They also need impaling sites for prey manipulation or storage, including sharp plants or barbed wire fences. The project site supports limited breeding and plentiful foraging habitat for the loggerhead shrike; the species was observed foraging in the central portion of the project site during blunt-nosed leopard lizard surveys in 2009. It was also observed along Panoche Road in the project site vicinity (Live Oak Associates 2010b). The conservation lands provide breeding and foraging habitat for loggerhead shrike; this species was observed foraging in the Silver Creek Ranch Conservation Lands during reconnaissance surveys.

Oregon vesper sparrow (*Pooecetes gramineus affinis*); federal status: none; state status: CDFW SSC. Oregon vespers winter in grassland habitats in California. They nest in the Pacific Northwest, from Oregon into Canada, so nesting habitat is not present on the project site or conservation lands. It is considered rare on its nesting grounds and is a regular but uncommon winter migrant to the Central Coast between mid-September and March. The species is frequently observed in weedy areas and around ungrazed fence lines. This species has not been observed on the project site or conservation lands to date, but suitable wintering habitat is present in these locations.

Yellow-headed blackbird (*Xanthocephalus xanthocephalus*); federal status: none; state status: CDFW SSC. Yellow-headed blackbird breeds commonly, but locally, east of the Cascade Range and Sierra Nevada, in Imperial and Colorado River Valleys, in the Central Valley, and at selected locations in the coast ranges west of the Central Valley. This species nests in fresh emergent wetland with dense vegetation and deep water, often along borders of lakes or ponds. It forages in emergent wetlands and moist, open areas, especially cropland and muddy shores of lacustrine habitat (Granholm 1990d). Suitable nesting and foraging habitat is limited within the project site though may be present especially in the Silver Creek Conservation Lands. Yellow-headed blackbird has not been observed in the project site or conservation lands.

Mammals

San Joaquin antelope squirrel (*Ammospermophilus nelsoni*); federal status: none; state status: threatened. San Joaquin antelope squirrel, also known as Nelson's antelope squirrel, was state-listed as threatened in 1980 due to population declines that resulted from extensive conversion of habitat for agricultural and urban development and petroleum extraction (USFWS 1998).

The historical distribution of the San Joaquin antelope squirrel extended along the western edge of the San Joaquin Valley, from western Merced County to the very southern and southeastern edge of the valley, reaching as far north as Tipton. In the southernmost portion of the valley (Kern County) San Joaquin antelope squirrels occurred throughout the valley floor, an area once dominated by arid grasslands and scrub communities. Nearly complete conversion of the San Joaquin Valley floor for agriculture has extirpated San Joaquin antelope squirrels from most of the historically occupied range. The remaining populations have been relegated to marginal and fragmented habitats along the western edge of the San Joaquin Valley.

San Joaquin antelope squirrels are diurnal, typically active early and late in the day. They have long been known to strongly associate with plant communities dominated by desert saltbush (*Atriplex* spp.) and ephedra (*Ephedra californica*; Hawbecker 1953 in Ahlborn 1990a). San Joaquin antelope squirrels are typically found in areas with loosely compacted soils, such as alluvial deposits, where they can excavate burrows; although they more often will occupy burrows previously excavated by kangaroo rats. Their diet consists mainly of insects but also includes green vegetation, fungi, and seeds.

There are 21 records of San Joaquin antelope squirrel within dispersal distance of the project site dating from the 1930s to 2006, with one record within the northern portion of the project site (San Benito County 2015). Antelope squirrels were regularly observed less than a mile from the easternmost edge of the project site along Panoche Road. One male was observed in the northern portion of the project site during blunt-nosed leopard lizard surveys (Live Oak Associates 2010b). During various surveys in 2009, 2010, and 2012, antelope squirrels were regularly observed in the more diverse habitats on the Valadeao Ranch Conservation Lands and Silver Creek Ranch Conservation Lands, with over 234 observations. During these surveys, relatively few individuals were observed on the project footprint (3 in 2009) and the Valley Floor Conservation Lands (2 in 2010) (San Benito County 2015).

Pallid bat (*Antrozous pallidus*); federal status: none; state status: CDFW SSC. This large long-eared bat occurs throughout the state from deserts to moist forests. Pallid bats are primarily a crevice-roosting species, highly sensitive to disturbance. They frequently occur in oak woodlands where they roost in tree cavities. Buildings and other human-made structures may also

be used as pallid bat roosts. Communal wintering or maternity colonies are more commonly found in caves or rock crevices.

During botanical surveys in 2015, bats were observed at an abandoned mine approximately 0.25 mile west of the project site. Though pallid bat was not positively identified at this time, the mine could provide suitable day or maternity roosting habitat for pallid bat (San Benito County 2015). While the project site lacks suitable roosting habitat, it does provide foraging habitat for pallid bat. Woodlands or crevices in rock outcrops on the conservation lands may support suitable day roosting habitat for pallid bat, and the conservation lands provide suitable foraging habitat. To date, the species has not been detected on the project site or conservation lands.

Townsend's big-eared bat (*Corynorhinus townsendii*); federal status: none; state status: threatened (candidate), CDFW SSC. Townsend's big-eared bat is found throughout California, but the details of its distribution are not well known. This species is found in all but subalpine and alpine habitats, and may be found at any season throughout its range. Townsend's big-eared bat requires caves, mines, tunnels, buildings, or other human-made structures for roosting, and may use separate sites for night, day, hibernation, or maternity roosts. Townsend's big-eared bat prefers mesic (moist) habitats, where it captures prey in flight using echolocation, or by gleaning from foliage. It requires water for drinking (Harris 1990d).

Townsend's big-eared bat has not been documented in the project site vicinity, though the project site is within the range of this species. An abandoned mine site approximately 0.25 mile west of the project site may provide roosting opportunities for this species (San Benito County 2015). No roosting habitat is present within the project site or conservation lands; however, the project site and conservation lands provide suitable foraging habitat for this species.

Giant kangaroo rat (*Dipodomys ingens*); federal status: endangered; state status: endangered. Giant kangaroo rats are found in level or gently sloping semi-arid grasslands with sparse vegetative cover and loose soils for burrows. Giant kangaroo rats were federally listed as endangered in 1987 (USFWS 2010b). No critical habitat has been established for the species. It persists in isolated populations along the arid southwestern edge of Central California's San Joaquin Valley and the adjacent Inner Coastal Ranges, including Panoche Valley.

Giant kangaroo rats are skilled diggers and often change their burrows by closing old entrances and excavating new ones. They function as "ecosystem engineers" by creating shelter for other species, including blunt-nosed leopard lizard, antelope squirrel, and other animals in their burrows and by serving as prey for multiple predators (Prugh and Brashares 2012). Both sexes of giant kangaroo rats defend individual territories called precincts, which typically do

not overlap except during the breeding season, when male and female territories overlap.

Each precinct is almost exclusively occupied by a single adult giant kangaroo rat, except during the breeding season when young may be present. Estimates of giant kangaroo rat density range from fewer than one to 271.7 per acre, and Williams (1992) estimated 0.82 per acre for the Panoche Valley (Panoche Valley Solar 2014).

Giant kangaroo rats are known to occur on the project site and vicinity; the CNDDB has records of giant kangaroo rats occurring on the USGS 7 ½-minute quadrangles for Chounet Ranch (1958), Idria (1979), Mercey Hot Springs (1992), Monocline Ridge (1992), Panoche (2004), and Tumey Hills (2006; Panoche Valley Solar 2014).

During multiple, focused biological surveys conducted between 2009 and 2013, giant kangaroo rats were documented in numerous locations on the project site and conservation lands. In addition, several other surveys were conducted to characterize giant kangaroo rat habitat for the proposed project and conservation lands. A quantitative distance sampling was conducted to evaluate the density of burrowing clusters on the project site and the proposed conservation lands. The density estimate for the project footprint was 21.27 burrow clusters per square kilometer (Panoche Valley Solar 2014). Analysis of giant kangaroo rat study techniques has found that expert rapid assessment of sites performed nearly as well as trapping in determining range extent, while aerial surveys showed less precision. Burrow counts were adequate to determine relative abundance, but were not reliable as an estimate of annual population size or growth (Bean et al. 2012).

Figure 3-11, Proposed Project Giant Kangaroo Rat Habitat and Observations, shows the suitable habitat for the giant kangaroo rat on the project site and documented observations of giant kangaroo rat individuals within the project site and conservation lands. In addition, a habitat suitability model was derived for giant kangaroo rats. The habitat suitability model uses sampling data from giant kangaroo rat surveys in the project site, as well as habitat characteristics important for the species, to make a predictive model of giant kangaroo rat occurrence based on the underlying habitat characteristic variable (Panoche Valley Solar 2014). Based on the predictive model, 100 acres of the project footprint support highly suitable habitat, 1,480 acres support moderately suitable habitat, and 840 acres support low suitability habitat. The high quality habitat occurs primarily on the southeastern portion of the site, traversing through the center from east to west; the lower quality habitat occurs primarily along the western edge of the site (Live Oak Associates GIS 2010).

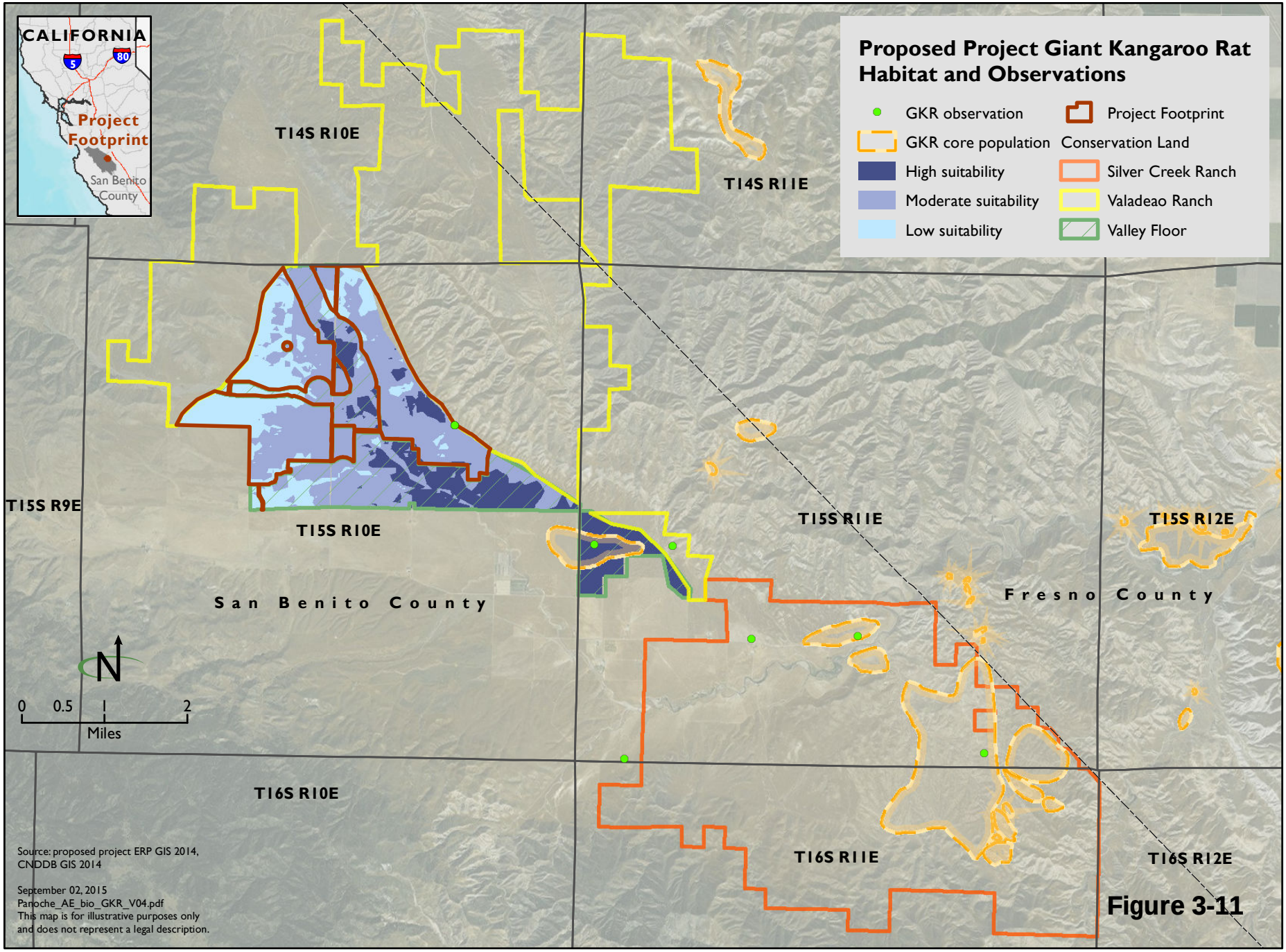

Proposed Project Giant Kangaroo Rat Habitat and Observations
GKR observation
GKR core population
High suitability
Moderate suitability
Low suitability
Project Footprint
Conservation Land
Silver Creek Ranch
Valadeao Ranch
Valley Floor
CALIFORNIA
5
80
Project Footprint
San Benito County
T14S R10E
T14S R11E
T15S R9E
T15S R10E
T15S R11E
T15S R12E
San Benito County
Fresno County
N
0 0.5 1 2
Miles
T16S R10E
T16S R11E
T16S R12E
Source: proposed project ERP GIS 2014, CNDDB GIS 2014
September 02, 2015
Panoche_AE_bio_GKR_V04.pdf
This map is for illustrative purposes only and does not represent a legal description.

Figure 3-11

A full coverage survey for giant kangaroo rats was conducted on the project site and the conservation lands to evaluate the number of active and inactive giant kangaroo rat precincts. Burrow precincts were considered occupied based on presence of scat, tracks, tail-drags, pit caches, fresh excavations, and cropped vegetation around a series of suitably sized horizontal and vertical burrow openings. Based on the results of this survey, as of 2013, a minimum of 197 giant kangaroo rats are estimated to occur in the project footprint, with up to 506 individual giant kangaroo rats expected to have the potential to be supported in the project footprint. In general, the lands in the project footprint support small colonies of giant kangaroo rats (Panoche Valley Solar 2014).

Conservation Lands—Valley Floor. Quantitative distance sampling estimated 36.74 burrow clusters per square kilometer for the Valley Floor Conservation Lands. This density estimate is 72 percent greater than the estimate for the project footprint. Based on the habitat suitability model, the Valley Floor Conservation Lands support giant kangaroo rats in similar densities as the project footprint, with similarly small colonies. The habitat suitability model predicted approximately 1,060 acres of highly suitable habitat, 1,090 acres of moderately suitable habitat, and 2,430 acres of low suitability giant kangaroo habitat on the Valley Floor Conservation Lands (Panoche Valley Solar 2014). Estimates of numbers of giant kangaroo rats in the Valley Floor Conservation Lands are between 1,572 and 2,800 individuals (San Benito County 2015).

Conservation Lands—Silver Creek Ranch. According to the Recovery Plan (USFWS 1998) and five-year review (USFWS 2010b), the Silver Creek Ranch Conservation Lands support 90.3 percent of the giant kangaroo rat source population area in the Panoche Valley. Giant kangaroo rats prefer habitat with slope of less than nine percent but occur in slopes up to 22 percent (USFWS 1998). Overall, the Silver Creek Ranch Conservation Lands support giant kangaroo rats in higher numbers and densities than the project footprint (Panoche Valley Solar 2014). Estimates of numbers of giant kangaroo rats in the Silver Creek Ranch Conservation Lands likely exceed 3,300 to 5,700 individuals (San Benito County 2015).

Conservation Lands—Valadeao Ranch. Quantitative distance sampling estimated 36.74 burrow clusters per square kilometer for the Valley Floor and Valadeao Ranch Conservation Lands combined. This density estimate is 72 percent greater than the estimate for the project footprint. Valadeao Ranch habitat is less suitable than Silver Creek Ranch because of its higher slope, but also contains more gently sloped areas of suitable habitat. Source population estimates, based on average giant kangaroo rat density estimates, predict that Valadeao Ranch has 2,137 giant kangaroo rats (Panoche Valley Solar 2014).

Short-nosed kangaroo rat (*Dipodomys nitratoides brevinasus*); federal status: none; state status: CDFW SSC. The short-nosed kangaroo rat is one of three subspecies of *D. nitratoides*, the San Joaquin kangaroo rat.

Historically, short-nosed kangaroo rats occurred on the western, southern, and extreme southeastern sides of the San Joaquin Valley, generally above the valley floor (Bolster 1998). The outline of the current range of the short-nosed kangaroo rat approximates its historic range; the number of localities has diminished as a result of habitat loss, fragmentation, and degradation. Estimates of extant occupied area represent only about 1.5 to 3.75 percent of the subspecies' estimated historical habitat (Williams et al. 1997 in Bolster 1998).

Short-nosed kangaroo rats are generally found on friable soils on flat or gently rolling terrain in grassland and desert-shrub vegetation (primarily *Atriplex* spp. and *Ephedra californica*). Burrows are in friable soils in slightly elevated areas to reduce likelihood of seasonal flooding; examples are the berms of roads, canal embankments, railroad beds, and the bases of shrubs and fences, where wind-blown soils accumulate above the level of surrounding terrain (Williams 1986; Williams et al. 1993 in Bolster 1998).

To date, the short-nosed kangaroo rat has not been observed on the project site or within the conservation lands, but suitable grassland habitat is present throughout the project site and conservation lands.

California mastiff bat (*Eumops perotis californicus*); federal status: candidate; state status: CDFW SSC. California mastiff bat was proposed as a category 2 candidate for federal listing in 1985 (USFWS 1985b). It is a very large free-tailed bat, the largest bat in California (CDFG 1995). California mastiff bats inhabit semiarid to arid open habitats, foraging for moths, crickets, and grasshoppers. The distribution of California mastiff bat is not completely known, and new sightings in Northern California are expanding its previously recorded range. In California, the California mastiff bat ranges from San Francisco to the Sierra Nevada and south, encompassing the southern half of the state (Hall 1981 in CDFG 1995). The California mastiff bat primarily roosts in crevices in vertical cliffs, usually granite or consolidated sandstone, and in broken terrain with exposed rock faces. They may also be found occasionally in high buildings, trees, and tunnels. Due to its large size, this bat needs vertical faces to drop from in order to take flight (CDFG 1995, Ahlborn 1990c).

California mastiff bat has been documented within 10 miles of the project site (San Benito County 2015). Potential roost sites are not present within the project site or conservation lands. However, California mastiff bats may forage over the project site and conservation lands. California mastiff bat has not been documented within the project site or conservation lands to date.

Western red bat (*Lasiurus blossevillii*); federal status: none; state status: CDFW SSC. Western red bat is locally common in some areas of California, occurring from Shasta County to the Mexican border, west of the Sierra Nevada/Cascade crest and deserts. The winter range includes western lowlands and coastal regions south of San Francisco Bay. Roosting habitat includes forests and woodlands from sea level up through mixed conifer forests.

Western red bat forages over a wide variety of habitats, including grasslands, shrublands, open woodlands and forests, and croplands (Harris 1990c).

Western red bat has been documented within 10 miles of the project site (San Benito County 2015). The project site does not contain the preferred roosting habitat of cottonwood/sycamore riparian woodland, or contain typical trees used for roosting. However, the project site provides foraging habitat for this species. Oak and juniper woodlands within the Valadeao Ranch Conservation Lands may provide marginal roosting habitat for this species. The species has not been observed within the project site or conservation lands.

Hoary bat (*Lasiurus cinereus*); federal status: none; state status: CDFW SSC. This solitary species may be found at any location in California, although its distribution is patchy in southeastern deserts. It winters along the coast and in Southern California, breeding inland and north of the winter range. Mating occurs in autumn, followed by delayed fertilization, and the young are born between mid-May and early July. The hoary bat prefers open habitats or habitat mosaics, using trees for cover and open areas or habitat edges for feeding. It feeds primarily on moths and generally roosts in dense foliage of medium to large trees (Black 1974 in Harris 1990a; Whitaker et al. 1977, 1981). Suitable foraging habitat exists on the project site and conservation lands, but suitable roosting habitat is not likely present on the project site or conservation lands, though larger trees on the conservation lands may provide marginal roosting habitat. Hoary bat has not been observed within the project site or conservation lands to date.

Tulare grasshopper mouse (*Onychomys torridus tularensis*); federal status: none; state status: CDFW SSC. This small predatory mouse occurs in arid grassland and scrubland habitats in Central California. It preys on small animals, including insects, scorpions, and even other species of mice. The Tulare grasshopper mouse historically occurred from western Merced County and eastern San Benito County east to Madera County and south to the Tehachapi Range (USFWS 1998). Currently, its distribution is limited to the western margin of the Tulare basin, including western Kern County, the Carrizo Plain, and the Cuyama Valley side of the Caliente Mountains in San Luis Obispo County; the Ciervo-Panoche region in Fresno and San Benito counties; and the Allensworth Natural Area in Tulare County (USFWS 1998). The CNDDB recorded this species in the project site in 1938, and though there are no more recent records of this species in Panoche Valley it could be present in the project site due to the extent of suitable habitat. Similarly, suitable habitat exists in the conservation lands, but this species has not been documented there to date.

San Joaquin pocket mouse (*Perognathus inornatus inornatus*); federal status: none; CDFW: SSC. San Joaquin pocket mouse occurs in dry, open grasslands or scrub areas on fine-textured soils between 350 and 600 meters

(1,100 and 2,000 feet) in the Central and Salinas Valleys, where it digs burrows for cover. Seeds constitute the majority of the diet, through green vegetation and insects are also consumed. Seeds are gathered and carried to the burrow in cheek pouches for storage. San Joaquin pocket mouse is nocturnal and may become torpid during periods of extreme heat or cold (Harvey and Ahlborn 1990). Suitable habitat for San Joaquin pocket mouse is present throughout the project site and conservation lands; however, this species has not been documented within these areas to date.

American badger (*Taxidea taxus*); federal status: none; state status: CDFW SSC. American badger is known from open grassland habitats throughout California in drier open stages of shrub, forest, and grassland habitats with loose soils suitable for burrowing (Ahlborn 1990b). Badgers reside in grassland areas but may forage in croplands in areas where California ground squirrels have become established. During 2009 surveys for blunt-nosed leopard lizards, several badger burrows were observed in the central portions of the project site (Live Oak Associates 2010b). Given the quality of habitat on the project site, the number of observations, and known badger ecology, several males and multiple females likely occur within the project site (San Benito County 2015). American badger was observed in the Silver Creek Ranch Conservation Lands during reconnaissance surveys in 2009, and though this species has not been observed within the Valadeao Ranch Conservation Lands, highly suitable habitat exists and badger are likely present.

San Joaquin kit fox (*Vulpes macrotis mutica*); federal status: endangered; state status: threatened. No critical habitat has been designated for the species. The recovery plan that includes San Joaquin kit fox (USFWS 1998) identifies three core populations for the species: Carrizo Plain in San Luis Obispo County, western Kern County, and the Ciervo-Panoche area in western Fresno and eastern San Benito Counties. The proposed project is in the Ciervo-Panoche core habitat area. Core populations in these areas will foster smaller satellite populations by means of habitat linkages, creating a range-wide metapopulation (USFWS 1998).

Optimal habitat for San Joaquin kit fox includes arid habitats with relatively low grassland vegetation. Preferred habitat is often dependent on the density of kangaroo rats and lagomorphs (i.e., rabbits, cottontails, and hares), the two favored prey items for the species. San Joaquin kit fox are predominantly nocturnal, with peaks in activity at dawn and dusk. They are occasionally seen in the day during late spring and early summer.

Home ranges may vary from 2.6 to 31 square kilometers (USFWS 1998) and may overlap, depending on prey density and allocation. San Joaquin kit fox occupy several dens throughout their home range during the year. Dens are usually modified ground squirrel, badger, or coyote dens and can be up to 2.3

meters deep (Panoche Valley Solar 2014). Natal dens are used to whelp (birth) and rear their pups.

San Joaquin kit fox are known to occur in the project footprint. The CNDDB has records of San Joaquin kit fox occurring in the USGS 7 ½-minute quadrangles for Chounet Ranch (1977), Hammonds Ranch (1920), Idria (1975), Laguna Seca Ranch (2001), Llanada (1994), Mercey Hot Springs (2006), Ortigalita Peak (1975), Panoche (2006), Topo Valley (1987), and Tumey Hills (1989; Panoche Valley Solar 2014).

During multiple, focused biological surveys conducted between 2009 and 2015, San Joaquin kit fox were documented in numerous locations on the project site and conservation lands. Genetic analysis of kit fox scat identified 22 separate individual San Joaquin kit fox (11 male and 11 female) on the project site, Valley Floor Conservation Lands, and Valadeao Ranch Conservation Lands. Nine individuals were documented on the project site, though only one male was found exclusively on the project site. The other eight individuals were located on both the project site and the conservation lands. Scat was collected from up to 35 percent slopes, which is much steeper than typically reported for this species (Panoche Valley Solar 2014).

In addition, all known San Joaquin kit fox den and natal den locations were recorded and mapped in 2013, with two known dens and one known natal den in the project footprint (Panoche Valley Solar 2014). Camera-trapping, live-trapping, and radio collaring was conducted in 2015 within the survey area. The study results included three captures of two individuals; one male and one female (Amec Foster Wheeler 2015). **Figure 3-12**, Proposed Project San Joaquin Kit Fox Observations, depicts results of the various San Joaquin kit fox surveys within the project site and conservation lands.

Habitat suitability at the project site was assessed and ranked according to slope classes. Lands between zero and 11 percent slope were considered optimally suitable. Lands with slope over 11 percent were presumed to be less than optimally suitable, with the proportion of lands considered suitable contingent upon the slope value. For example, half of all lands between 11.01 and 21 percent slope were considered suitable, one-quarter of all lands between 21.01 and 35 percent slope were considered suitable, and no lands over 35 percent slope were considered suitable. These classes and proportions are based on results of scat-sniffing dog survey results. Using this method, the project footprint was found to contain 2,492 acres of suitable San Joaquin kit fox habitat (Panoche Valley Solar 2014).

<u>Conservation Lands—Valley Floor and Valadeao Ranch</u>. Of the 22 individual San Joaquin kit fox documented on the project site, Valley Floor Conservation Lands, and Valadeao Ranch Conservation Lands during scat-sniffing dog surveys, 13 were located exclusively on either the Valley Floor or the Valadeao Ranch

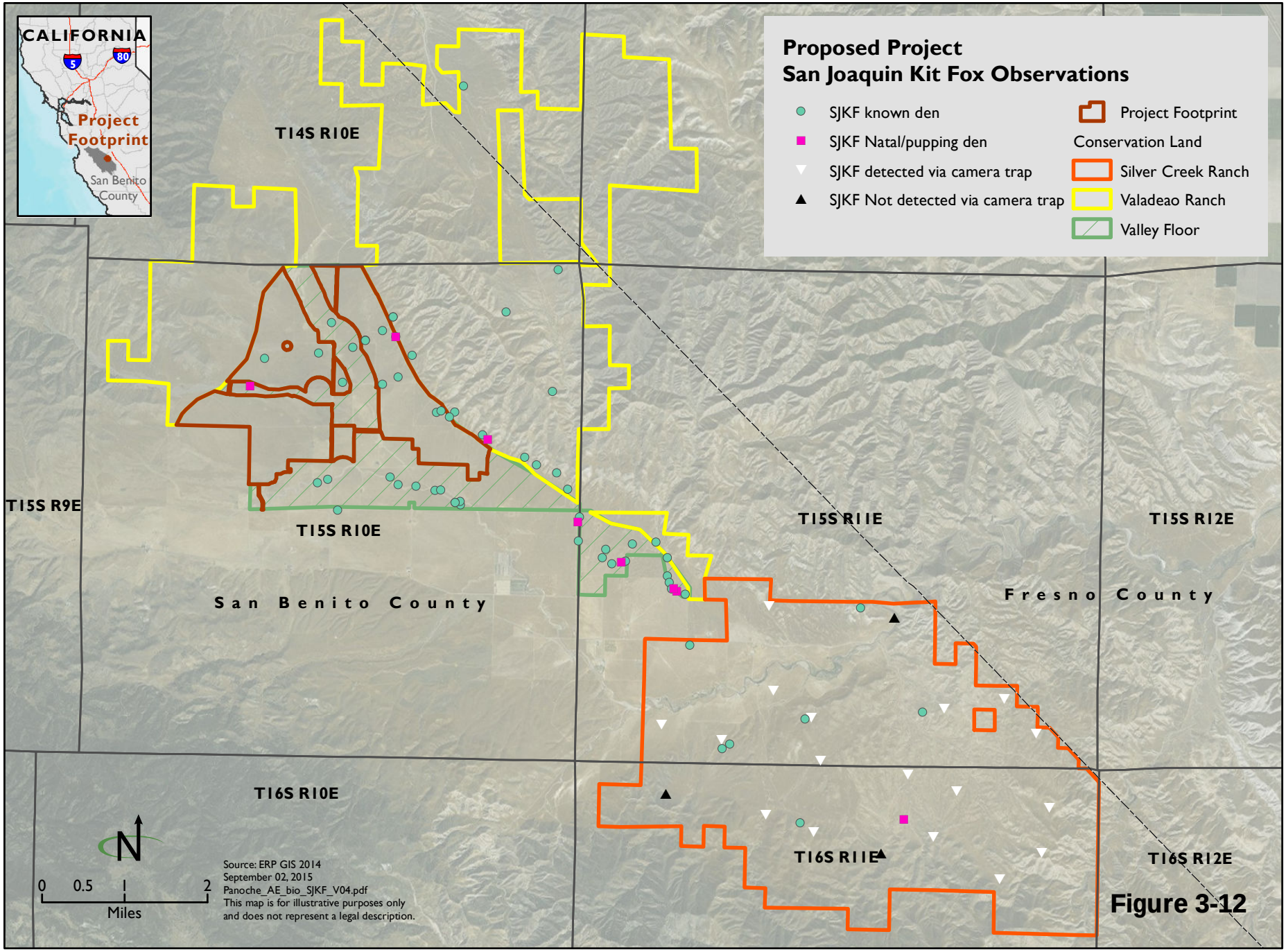

CALIFORNIA
5
80
Project Footprint
San Benito County
Proposed Project
San Joaquin Kit Fox Observations
SJKF known den
SJKF Natal/pupping den
SJKF detected via camera trap
SJKF Not detected via camera trap
Project Footprint
Conservation Land
Silver Creek Ranch
Valadeao Ranch
Valley Floor
T14S R10E
T15S R9E
T15S R10E
T15S R11E
T15S R12E
San Benito County
Fresno County
T16S R10E
T16S R11E
T16S R12E
N
0 0.5 1 2
Miles
Source: ERP GIS 2014
September 02, 2015
Panoche_AE_bio_SJKF_V04.pdf
This map is for illustrative purposes only
and does not represent a legal description.

Figure 3-12

Conservation Lands. Using the habitat suitability model described above, Valadeao Ranch Conservation Lands provide approximately 4,700 acres of suitable habitat for San Joaquin kit fox.

Conservation Lands—Silver Creek Ranch. Spotlighting surveys on the Silver Creek Ranch detected 137 San Joaquin kit fox sightings and 11 probable kit fox detections over 20.5 nights. Similar to the results of the scat-sniffing dog survey, the species was found on a variety of terrain, including in drainages, on flat land, on hill slopes, and even on ridges or hills. Camera trap surveys were also conducted on Silver Creek Ranch, documenting 17 San Joaquin kit fox over 119 nights. Using the habitat suitability model described above, Silver Creek Ranch Conservation Lands provide approximately 6,800 acres of suitable habitat for San Joaquin kit fox.

PG&E Telecommunications Upgrades

PG&E Primary Telecommunications Upgrades

From September 15 to 18, 2014, Energy Renewal Partners conducted biological surveys in the primary telecommunication disturbance sites along the Moss Landing-Panoche transmission line right-of-way. A map of vegetation in the sites has not been produced; however, given the relatively small size and discrete location of each site, each was typically dominated by one vegetation type (Energy Renewal Partners 2014a).

The biological surveys assessed potential federal and state jurisdictional waters in the field (Energy Renewal Partners 2014a; **Appendix G**). The report analyzed resources within proposed work areas plus a 500-foot buffer. The work area plus buffer were called study areas; the only study areas that were found to have jurisdictional waters issues were Study Area 6 (wire pull sites 8 and 9; see **Figure 2** of **Appendix G**) and Study Area 8 (landing zone 2; see **Figure 2** of **Appendix G**). These are just north of Panoche Road and west of Interstate 5, and both have buffer zones that extend into Panoche Creek. There are no potential jurisdictional waters within the actual disturbance area of either study area.

On June 24, 2015, USACE issued a preliminary jurisdictional determination for the Panoche-Moss Landing 230 kV transmission line sites. The preliminary jurisdictional determination indicates that the 230 kV transmission line sites contain a total of 0.03 acre of potential waters of the U.S.

Vegetation in the westernmost telecommunications sites is composed of annual nonnative grasslands used mainly to graze livestock; ephedra and allscale saltbush scrub habitat dominate the central telecommunication sites. The easternmost telecommunication sites are generally disturbed due to the development of agriculture (e.g., almond orchard and vineyard) and transportation (Interstate 5 and public roadways). Additional details of the vegetation types in the telecommunication sites are included below.

Introduced Annual Grassland

Introduced annual grassland is the dominant vegetation in the westernmost telecommunications sites (Energy Renewal Partners 2014a). This disturbed grassland habitat has long supported grazing and is dominated by nonnative and native species, such as red brome, soft chess, Russian thistle, procumbent pigweed (*Amaranthus blitoides*), field bindweed, lamb's quarters (*Chenopodium album*), turkey mullein, Jimson weed (*Datura wrightii*), and redstem filaree. Additional species observed included allscale saltbush (*Atriplex polycarpa*), vinegar weed (*Trichostema lanceolatum*), tumbling orach (*Atriplex rosea*), prostrate spurge (*Chamaesyce ocellata* ssp. *ocellata*), common fiddleneck, and shiny peppergrass.

Ephedra Shrublands

Ephedra shrublands are the dominant vegetation in telecommunications sites in the central portion of the alignment (Energy Renewal Partners 2014a). Common shrub species observed in this area were interior goldenbush (*Ericameria linearifolia*), California ephedra (*Ephedra californicus*), and California matchweed (*Guitierrezia californica*); herbaceous understory species were Mediterranean grass (*Schismus arabicus*), vinegar weed, red brome, shiny peppergrass, and common fiddleneck.

Saltbush Shrublands

Saltbush shrublands are also dominant in telecommunications disturbance sites in the central portion of the alignment (Energy Renewal Partners 2014a). Common shrub species are allscale saltbush, California buckwheat (*Eriogonum fasciculatum*), saltcedar (*Tamarix ramosissima*), alkali goldenbush (*Isocoma acradenia* var. *bracteosa*), California matchweed, and tumbling orach. Herbaceous understory species are wirelettuce (*Stephanomeria pauciflora*), alkali heliotrope (*Heliotropium curassavicum* var. *osculatum*), Russian thistle, tocalote (*Centaurea melitensis*), common fiddleneck, prostrate spurge, angle-stem buckwheat, and redstem filaree.

Disturbed Land

The easternmost telecommunication sites are generally disturbed due to the development of agriculture (e.g., almond orchard, pomegranate orchard, and vineyard) and transportation (Interstate 5 and public roadways). Common native and weedy species observed in these sites were red gum (*Eucalyptus camaldulensis*), puncturevine, Russian thistle, common fiddleneck, redstem filaree, and field bindweed.

Noxious Weeds and Nonnative Species

Most plant species in the telecommunication upgrade disturbance sites consist of nonnative species (Energy Renewal Partners 2014a). State-listed noxious weeds observed in the telecommunications upgrades sites are summarized in **Table 3-14**. Descriptions for these noxious weeds are provided earlier in this section.

Table 3-14
Noxious Weeds Observed in the Primary Telecommunication Disturbance Sites

Common Name	Scientific Name	Site Weed Observed In[1]	Noxious Weed Rating
Field bindweed	*Convolvulus arvensis*	1, 9, 10, 12, 13	C list
Bermudagrass	*Cynodon dactylon*	13	C list
Russian thistle	*Salsola tragus*	1, 2, 3, 6, 8, 10, 11, 12, 13	C list
Puncturevine	*Tribulus terrestris*	1, 10, 12, 13	C list

Source: Energy Renewal Partners 2014a; NRCS 2014
[1]See Figure 2 in Energy Renewal Partners 2014a for site locations.

Saltcedar is a nonnative invasive species observed in Panoche Creek, next to at least one telecommunication upgrade disturbance site (Energy Renewal Partners 2014a). Saltcedar is a shrub or a tree found along streams and lake shores throughout California. It is associated with dramatic changes in geomorphology, groundwater availability, soil chemistry, fire frequency, plant community composition, and native wildlife diversity. The California Invasive Plant Council inventory rating for this species is High (California Invasive Plant Council 2014b).

Sensitive Communities

No sensitive communities were observed in temporary disturbance sites associated with the primary telecommunications upgrades. However, sites 6 and 8 as described in Energy Renewal Partners (2014a), are within 500 feet of Panoche Creek, and portions of the creek and associated vegetation are in the survey buffer. Vegetative species observed in Panoche Creek were tree tobacco (*Nicotiana glauca*), saltcedar, big saltbush (*Atriplex lentiformis*), common sow thistle (*Sonchus oleraceus*), prostrate spurge, Jimson weed, procumbent pigweed, alkali goldenbush, saltgrass (*Distichlis spicata*), and annual beard grass (*Polypogon monspeliensis*). No disturbance is planned in Panoche Creek associated with telecommunication upgrades.

Wildlife

The primary telecommunication upgrade sites are dominated by invasive annual grassland, and there are no stock ponds, wetlands, vernal pools, or swales at these sites. The sites contain grasslands, saltbush and ephedra shrublands, and disturbed or agricultural lands.

PG&E conducted a natural resources assessment at the telecommunications upgrade sites in fall 2014. Work site locations were identified for upgrades, though some of these locations may be subject to alteration. Common wildlife species were not noted, but the sites had evidence of a number of special status species that use grassland habitat, including birds, small mammals, and small predators as discussed under the special status species results. The presence of these species indicates that suitable habitat is present for common upland birds,

reptiles, and small mammals such as rabbits and ground squirrels (Energy Renewal Partners 2014a).

Special Status Plants

Special status plant species with potential to occur in the PG&E primary telecommunication upgrade work sites (Energy Renewal Partners 2014a, 2014b) are listed in **Table 3-12** and are described above.

Lists of special status plant species with potential to occur on the project site and the telecommunication upgrade sites are not identical. Although the project site and the telecommunication upgrade sites are both dominated by invasive annual grassland, no stock ponds, wetlands, vernal pools, or swales are in the telecommunication upgrades sites. Similarly, the telecommunication upgrade sites contain ephedra and saltbush shrublands, which are lacking from the project site.

No special status plant species were observed in the PG&E telecommunication upgrades sites. One potential rare plant in the genus *Delphinium* was observed in a work area north of pole site 278 (McCormick Biological, Inc. 2015a; of note, the Final Supplemental EIR [San Benito County 2015] describes the potential rare plant within the PG&E telecommunications upgrades route as being in the genus *Navarretia*, located outside of the planned disturbance area near Wire Pull Sites 3, 4, and 5). To date, this species has not been identified to the taxonomic level necessary to determine rarity. Additional protocol-level surveys for plants that may not have been evident or identifiable during the early season 2015 survey will be performed by the applicant in the summer of 2015 (San Benito County 2015).

Special Status Wildlife

Special status wildlife species with a high or moderate potential to occur in the PG&E primary telecommunication upgrade work sites (Energy Renewal Partners 2014a, 2014b) are listed in **Table 3-13** and are described above.

Lists of special status wildlife species with potential to occur on the project site and the primary telecommunication upgrade sites are not identical. Although the project site and the telecommunication upgrade sites are both dominated by invasive annual grassland, no stock ponds, wetlands, vernal pools, or swales are on the sites. Similarly, the telecommunication upgrades sites contain ephedra and saltbush shrublands and agricultural lands, which are lacking from the project site.

Eight special status wildlife species have been observed in the PG&E primary telecommunications work sites or buffers, including:

- Western burrowing owl (USFWS Bird of Conservation Concern, CDFW Species of Special Concern)

- Swainson's hawk (USFWS Bird of Conservation Concern, State Threatened)
- Northern harrier (CDFW Species of Special Concern)
- Loggerhead shrike (USFWS Bird of Conservation Concern, CDFW Species of Special Concern
- San Joaquin antelope squirrel (State Threatened, CDFW Species of Special Concern)
- Giant kangaroo rat (Federal Endangered, State Endangered)
- American badger (CDFW Species of Special Concern)
- San Joaquin kit fox (Federal Endangered, State Endangered)

These species are described below. Additionally, species with a high potential to occur in the PG&E primary telecommunication sites are described below.

Amphibians

California tiger salamander. No aquatic breeding habitat for California tiger salamander is present within the primary telecommunications upgrades sites. However, California tiger salamander have a high potential to occur in these sites, particularly in the western portion of the ROW in sites 1 through 6 (Energy Renewal Partners 2014a). Sites contained small mammal burrows in grasslands and other habitats suitable for upland estivation. Documented California tiger salamander breeding ponds are within one mile of several of these sites, within the range that this species is known to travel from breeding habitat to estivate (1.2 miles; San Benito County 2015). This species was not observed during the biological assessment survey in 2014.

Western spadefoot toads may occur in the primary telecommunications upgrades sites, as suitable upland habitat may be present particularly in the western portion on sites 1 through 8 (Energy Renewal Partners 2014a). Sites contained suitable open habitat with sandy or gravelly soils. No suitable breeding habitat is present in the primary telecommunication sites. This species was not observed during the biological survey in 2014.

Reptiles

Silvery legless lizards may occur in the primary telecommunications upgrades sites, particularly in the western portion sites 1 through 8 (Energy Renewal Partners 2014a) where suitable undisturbed habitat may exist. However, this species was not observed during the 2014 biological survey.

Blunt-nosed leopard lizards were not directly observed during the survey in 2014; however, this species has been documented in the adjacent solar project site and Silver Creek Ranch Conservation Lands. Occurrence buffers from

several blunt-nosed leopard lizard observations on the solar project site extend into the primary telecommunication upgrades sites. Suitable habitat, vegetative conditions, and small mammal burrows for blunt-nosed leopard lizard are present particularly in the western portion in sites 1 through 7 (Energy Renewal Partners 2014a).

San Joaquin coachwhip was not observed during the telecommunication upgrades sites survey; however, this species was determined to have a high potential to occur in the sites where suitable habitat is present (Energy Renewal Partners 2014a), particularly in the western half of the alignment. Many of the individual upgrade sites contained suitable arid and open habitats for this species.

Blainville's (coast) horned lizards were not observed during the primary telecommunication upgrades sites survey; however, this species was determined to have a high potential to occur, particularly in the western portion in sites 1 through 7 (Energy Renewal Partners 2014a) where suitable undisturbed habitat is present.

Birds

Tricolored blackbird suitable foraging habitat is present throughout the sites, although nesting habitat (i.e., cattail marshes, blackberry thickets, and thistle stands) is absent. Tricolored blackbird has not been observed within the primary telecommunication upgrade sites but has a high potential to forage there.

Grasshopper sparrow suitable foraging and nesting habitat is likely present in ungrazed annual grasslands in the primary telecommunications upgrades sites; however, they have not been observed within the upgrade sites to date.

Golden eagle nesting habitat was surveyed in 2010 and 2014 via helicopter. Surveys covered a ten-mile radius around the project site (Live Oak Associates 2010i; Bloom Biological 2010, 2014), which included portions of the telecommunications upgrades sites. Though active and inactive golden eagle nests were observed during surveys in 2010 and 2014, none of the nests were in the telecommunications upgrades sites, which contain limited potential nesting habitat for golden eagles. No evidence of nesting golden eagle has been observed in subsequent surveys within the PG&E primary telecommunication upgrades sites (San Benito County 2015).

There are few trees of sufficient size for golden eagle nest construction, and no cliff faces or other suitable nesting areas on-site. PG&E transmission lines could be used for by golden eagles or other raptors for nesting. Grassland habitats in the telecommunications upgrades sites are suitable foraging grounds for golden eagles, especially in winter, and the species has been observed foraging in the area (Live Oak Associates 2010b).

Short-eared owls may forage in the primary telecommunication upgrades sites. However, only limited nesting habitat is available. This species was not observed during the 2014 survey.

Long-eared owls were not detected in the primary telecommunications upgrade sites. Suitable foraging habitat is present throughout the upgrade sites. It is possible the long-eared owl could nest on the rare occasion in isolated trees in or next to the primary telecommunications upgrade sites, but the species likely does not regularly nest there. This species was not observed during the 2014 survey.

Burrowing owl signs, including whitewash and pellets, were observed in the buffer area of primary telecommunication upgrade site 3 (southeast of pole 237), outside of the planned ground disturbance area (Energy Renewal Partners 2014a, San Benito County 2015). This species also could occur throughout the western portion of the primary telecommunication upgrade sites 1 through 8, where suitable habitat is present (Energy Renewal Partners 2014a). Burrowing owl has also been documented near the Helm Substation outside of the planned work area (San Benito County 2015).

Swainson's hawk suitable foraging habitat is found in the primary telecommunication upgrade sites, but the sites lack nesting habitat. Swainson's hawk was observed in primary telecommunication upgrade site 10 (Energy Renewal Partners 2014a). Two dead juvenile Swainson's hawks were observed next to Interstate 5 and are assumed to have been killed by traffic. Swainson's hawk is known to nest and forage in the Central Valley, east of Interstate 5 in the vicinity of the primary telecommunications upgrade route.

Ferruginous hawks have not been observed in the primary telecommunication upgrade sites, but wintering and foraging habitat is present.

Mountain plovers have not been observed in the primary telecommunication upgrades sites; however, suitable wintering and foraging habitat is present in the western portion of the primary telecommunications upgrade sites 1 through 7 (Energy Renewal Partners 2014a).

Northern harriers have been observed in the western primary telecommunication upgrade sites, where suitable foraging habitat is present (Energy Renewal Partners 2014a). No suitable nesting habitat is present, and no evidence of nesting northern harrier has been documented within the primary telecommunication upgrade sites.

White-tailed kites have not been observed in the primary telecommunication upgrades sites, but suitable foraging habitat is present. Suitable nesting habitat is limited and low quality, consisting of scattered landscape trees.

California condor roosting and nesting habitat is inadequate in primary telecommunications upgrade sites. However, large open areas for foraging are present, and cattle and wild ungulate carcasses in the region may provide feeding opportunities that could attract condors to the area periodically. California condors could forage in the primary telecommunications upgrade sites if a large mammal carcass were present, but no roosting or nesting habitat is present. This species has not been observed on the primary telecommunication sites.

Loggerhead shrikes have been observed foraging in the primary telecommunication upgrade sites, which provide suitable foraging but limited nesting habitat for this species.

Oregon vesper sparrows have not been observed in the primary telecommunications upgrade sites to date, but suitable wintering habitat is present.

Mammals

San Joaquin antelope squirrels were observed in primary telecommunication update site 3 buffer, outside of the planned work area (Energy Renewal Partners 2014a). One individual was observed, but its sex was not reported. This species is potentially present in the western portions of sites 1 through 7, where suitable habitat is present (Energy Renewal Partners 2014a).

Pallid bat foraging habitat is present within the primary telecommunication upgrades sites; however, roosting habitat is absent. To date, the species has not been detected in the primary telecommunication upgrades sites.

Townsend's big-eared bat foraging habitat is present within the primary telecommunication upgrades sites; however, roosting habitat is absent. To date, the species has not been detected in the primary telecommunication upgrades sites.

Giant kangaroo rat evidence was observed in several locations in the western portions of the primary telecommunication upgrades sites, in buffers for site 1, 3, and 4 (Energy Renewal Partners 2014a). In site 1, an active precinct was observed near the western edge of the site. Inactive and active precincts were observed throughout the southern portion of the site 3 buffer, and an inactive precinct was observed in site 4. Inactive precincts were considered inactive due to the presence of bleached scat, hardened backfilled vertical burrows, and lack of fresh sign. No evidence of giant kangaroo rat observed in the upgrade sites was in the limits of planned ground disturbance (Energy Renewal Partners 2014a).

Short-nosed kangaroo rat suitable habitat is present in the western portions of the primary telecommunication site upgrades, in sites 1 through 6; however, this species was not observed during the 2014 survey.

California mastiff bats may forage over the primary telecommunications upgrade sites, but these areas lack suitable roosting habitat.

Western red bats may forage over the primary telecommunications upgrade sites, but these areas lack suitable roosting habitat.

Hoary bats may forage over the primary telecommunications upgrades sites, but these areas lack suitable roosting habitat.

Tulare grasshopper mouse suitable habitat is present in the western portions of the primary telecommunication sites upgrade sites 1 through 7; however, this species was not observed during the 2014 survey.

San Joaquin pocket mouse was not addressed or observed in the 2014 biological surveys; however, suitable habitat is likely present in the western portions of the primary telecommunication sites upgrade sites.

American badger evidence was observed in several locations in the western portions of the primary telecommunication upgrade sites, in the buffers for sites 1, 2, 4, and 8 (Energy Renewal Partners 2014a). In sites 1 and 2, fresh badger digs were observed near the survey buffer boundaries. No badger scat was noted near the dig at site 1. American badger burrows were observed at sites 4 and 8. The burrow at site 4 was in good condition but had no sign of recent use, and at site 8, two burrows were located in Panoche Creek, northwest of the planned work site. No evidence of American badger observed in the upgrade sites was in the limits of planned ground disturbance (Energy Renewal Partners 2014a).

San Joaquin kit fox evidence was observed in several locations of the primary telecommunications upgrades sites, in the buffers for sites 3, 4, 5, and 12 (Energy Renewal Partners 2014a). In sites 3 and 4, San Joaquin kit fox latrines were observed. At site 5, a known San Joaquin kit fox den was observed. Fresh scat and prey bones were noted near the den site. At site 12, potential San Joaquin kit fox tracks were observed in an agricultural field. No evidence of San Joaquin kit fox observed in the upgrade sites is within the limits of planned ground disturbance (Energy Renewal Partners 2014a).

PG&E Secondary Telecommunication Upgrades

All ground disturbance required to complete the secondary telecommunication service upgrades would be conducted in disturbed lands associated with the existing Helm Substation and tower sites (Energy Renewal Partners 2014b). It is expected that no native vegetation or special status plant species exist at these previously disturbed sites.

No biological surveys of the secondary telecommunication work sites has been completed to date; however, limited biological resources could be present at these sites.

General wildlife species could utilize the secondary telecommunication work sites. Migratory birds or raptors could use the facilities for nesting, or for perching while foraging in adjacent undisturbed lands. Small mammals may use the facilities for cover, and reptiles, including western fence lizard, may use the facilities for basking and cover. Bats may day roost within buildings or sheltered spaces in tower equipment.

Special status wildlife species may also be found within the secondary telecommunication work sites. Existing towers may provide suitable, if marginal, nesting habitat for special status raptor species, or provide perches to use while hunting or foraging.

Westlands CREZ

Vegetation Surveys

Field surveys to map vegetation in the Westlands CREZ have not been completed. In 2010, HT Harvey & Associates completed a desktop review of the Westlands CREZ in order to determine potential constraints related to solar energy development. This review primarily focused on special status species with potential to occur in the Westlands CREZ; however, very general habitat descriptions were developed as part of this study.

Additional documents reviewed were the Notice of Preparation for the Westlands Solar Park Master Plan EIR (Westlands Water District 2013), the Westlands CREZ alternative description from the Project EIR (San Benito County 2010c), the Fresno County General Plan (Fresno County 2014a), and the Kings County General Plan (Kings County 2010a), and nearby environmental documents (Department of the Navy 2014). Additional desktop review for vegetation communities, plant species, and weeds (Calflora 2014) potentially present in the Westlands CREZ was completed by EMPSi for this EIS.

Regional Habitat Types

The approximately 35,000-acre Westlands CREZ is in Kings and Fresno Counties, east of Huron, north of Kettleman City, and southwest of Lemoore. Most of the land included in the Westlands CREZ boundary is either currently or until recently under active row crop agriculture, which often displaces native flora and fauna; even so, there is land in the CREZ that appears to contain nonagriculture vegetation, and some parcels appear to be at least partially undisturbed (HT Harvey & Associates 2010).

The Westlands CREZ is in the Great Central Valley Region and the San Joaquin Valley Subregion of California (Baldwin et al. 2012). The San Joaquin Valley Subregion comprises the larger, drier, hotter southern portion of the Great

Central Valley. Although now primarily converted to agriculture, this subregion still supports grasslands, marshes, vernal pools, riparian woodlands, alkali sink vegetation (chenopod scrub), and stands of oak woodland in undisturbed areas. General descriptions of habitat types likely occurring in the Westlands CREZ are provided below. A recent assessment of solar potential in the western San Joaquin Valley found this area to be suitable for solar development with minimal conflict with biological resources (Butterfield et al. 2013).

Agriculture

Most of the Westlands CREZ has been converted to agricultural purposes. Most of the land area is covered in cultivated agricultural fields, access roads, irrigation canals, and other agriculture-related infrastructure. Margins of fields, irrigation canal berms, and other ruderal areas likely support a limited suite of native and nonnative vegetation, even though these areas are largely dominated by cultivated crops.

Introduced Annual Grassland

Several parcels in the Westlands CREZ appear to be largely undisturbed, and support nonagricultural vegetation (HT Harvey & Associates 2010). The Westlands CREZ likely supported substantial areas of nonnative annual grasslands before it was largely converted to agriculture. Though field surveys of the Westlands CREZ have not been completed to date, nonnative annual grasslands near Lemoore, just north of the Westlands CREZ, are dominated by annual grasses, including wild oats (*Avena fatua*), ripgut brome, soft chess, hare barley (*Hordeum murinum* ssp. *leporinum*), and rat-tail fescue (Department of the Navy 2014).

Nonnative and native forb species are also likely present in this community and may include prickly lettuce (*Lactuca serriola*), red-stemmed filaree (*Erodium cicutarium*), musky stork's bill (*E. moschatum*), annual yellow sweetclover (*Melilotus indica*), burclover, winter vetch (*Vicia villosa* ssp. *varia*), Indian paintbrush (*Castilleja* spp.), California goldfields, and several clover species (*Trifolium* spp.; Department of the Navy 2014).

Chenopod Scrub

Undisturbed parcels in the Westlands CREZ likely also support areas of chenopod scrub. This is a general term for shrublands that are dominated by plants in the goosefoot family (Chenopodiaceae). The Westlands CREZ likely supported substantial areas of this habitat type before it was largely converted to agriculture. In the San Joaquin Valley, chenopod scrubs include habitats dominated by the various saltbush (*Atriplex* spp.) scrubs, including common saltbush (*A. polycarpa*) and spiny saltbush (*A. spinifera*; USFWS 1998).

Waters of the U.S., Including Wetlands

No jurisdictional delineations have been performed to determine the presence of federal jurisdictional waters of the U.S., including wetlands, within the Westlands CREZ. Aerial photography and USGS topographic maps show what

appear to be two wetland areas that are estimated at 20 acres in the center of the Westlands CREZ (Energy Renewal Partners, LLC 2014c). There are also wetlands and riparian areas just east of the Westlands CREZ (NWI GIS 2014).

Freshwater Wetlands

Interspersed in the Westlands CREZ are several irrigation ditches and retention basins that support emergent wetland vegetation. These wetlands generally receive irrigation and other runoff from adjacent agricultural lands. Though no field surveys have been conducted in the Westlands CREZ to document these areas, common species in similar wetlands in the San Joaquin Valley are tules, cattails, and saltgrass (*Distichlis spicata*), among others.

Riparian Scrub

A tail water pond in the center of the Westlands CREZ supports woody riparian scrub species. Though no field surveys have been conducted to document this area, common species in similar situations in the San Joaquin Valley are willows (*Salix* spp.) and salt cedars (*Tamarix* spp.), among others.

Noxious Weeds and Nonnative, Invasive Species

State-listed noxious weeds that have been documented in or next to the Westlands CREZ (Calflora 2014) are summarized in **Table 3-15**. Since no surveys have been conducted in the Westlands CREZ, there may be additional noxious weeds present. Brief summaries of each noxious weed are included after the table.

Table 3-15
Noxious Weeds Documented in the Westlands CREZ Vicinity

Common Name	Scientific Name	Noxious Weed Rating*
Syrian beancaper	*Zygophyllum fabago*	A list
Russian knapweed	*Acroptilon repens*	B list
Perennial peppergrass	*Lepidium latifolium*	B list
White horsenettle	*Solanum elaeagnifolium*	B list
Field bindweed	*Convolvulus arvensis*	C list
Bermuda grass	*Cynodon dactylon*	C list
Russian thistle	*Salsola tragus*	C list
Puncturevine	*Tribulus terrestris*	C list

Sources: Calflora 2014; NRCS 2014
*"A list" weeds require eradication, containment, rejection or other holding actions at the state-county level;
B list weeds require eradication, containment, rejection or other holding actions at the discretion of the state agricultural commissioner; C list weeds require eradication only when found in a nursery; action to retard spread outside of nurseries is at the discretion of the state agricultural commissioner.

Syrian beancaper is a bushy perennial forb in the caltrop family (Zygophyllaceae) that is native to the desert climates of Syria, Iran, Turkey, Iraq, and southwest Asia (Davison and Wargo, undated). Its distribution in the

western United States is in California, Nevada, Washington, Idaho, Montana, New Mexico, and Texas. This species grows in dry alkaline soils and reproduces by seed and spreading roots; root segments can propagate new plants. Syrian beancaper can easily dominate disturbed sites, such as roadsides, fallow fields, corrals, or pits. The NRCS noxious weed rating for this species is A list (NRCS 2014); it is not rated by the California Invasive Plant Council.

Russian knapweed is a widely distributed perennial fob in the sunflower family (Asteraceae). Except for the wettest areas of the northwest and the driest areas of the southeast and Great Basin, it is found throughout California and in other western states (UC-IPM 2014c). Russian knapweed can easily colonize agricultural land and other disturbed areas, reproducing mostly by shoots from creeping roots and less often by seed. Russian knapweed is toxic to certain livestock. The NRCS noxious weed rating for this species is B list (NRCS 2014); the California Invasive Plant Council inventory rating for this species is Moderate (California Invasive Plant Council 2014b).

Perennial peppergrass is an erect perennial forb in the mustard family (Brassicaceae). It is a highly aggressive colonizer and forms dense stands that outcompete native plants, reproducing by seed, creeping roots, and root fragments. It is found throughout California, with the exception of the deserts and northern North Coast (UC-IPM 2014d). It is toxic to certain livestock. The NRCS noxious weed rating for this species is B list (NRCS 2014); the California Invasive Plant Council inventory rating for this species is High (California Invasive Plant Council 2014b).

White horsenettle is a deep-rooted perennial forb in the nightshade family (Solanaceae). It is particularly widespread in the desert valleys of southern California, especially in poorly managed fields (UC-IPM 2014e). This species can also be troublesome in some agricultural areas, particularly in tomato and cotton fields. Leaves and berries can be toxic to humans and livestock when consumed, though berries are eaten and dispersed by many birds and small mammals. The NRCS noxious weed rating for this species is B list (NRCS 2014); it is not rated by the California Invasive Plant Council.

Field bindweed is a perennial broadleaf in the morning glory family (Convolvulaceae). It is considered one of the most problematic weeds in agricultural fields throughout temperate regions worldwide. It is abundant throughout California (UC-IPM 2014a). The NRCS noxious weed rating for this species is C list (NRCS 2014); this species is not rated in the California Invasive Plant Council inventory (California Invasive Plant Council 2014b).

Bermuda grass is a creeping perennial grass (family Poaceae) commonly used in garden plantings and as a turf species. However, it can escape cultivation and outcompete native species, particularly in riparian areas. The NRCS noxious weed rating for this species is C list (NRCS 2014); the California Invasive Plant

Council inventory rating for this species is Moderate (California Invasive Plant Council 2014b).

Russian thistle is a large bushy summer annual in the goosefoot family (Chenopodiaceae). It can be found throughout California, including in agricultural areas, desert, roadsides, and other disturbed areas. Russian thistle can impede traffic and create fire hazards and is a host of the beet leaf-hopper, an agricultural insect pest. The NRCS noxious weed rating for this species is C list (NRCS 2014); the California Invasive Plant Council inventory rating for this species is Limited (California Invasive Plant Council 2014b).

Puncturevine is a prostrate, summer annual, mat-forming, broadleaf plant in the caltrop family (*Zygophyllaceae*). Puncturevine produces many burs with sharp spines that can injure humans and animals, as well puncture bicycle tires. In addition, leaves contain compounds called saponins, which can be toxic to livestock (especially sheep) when eaten in quantity. It is prevalent in areas with hot summers and is found throughout California (UC-IPM 2014b). The NRCS noxious weed rating for this species is C list (NRCS 2014); this species is not rated in the California Invasive Plant Council inventory (California Invasive Plant Council 2014b).

Additional nonnative invasive plant species are likely present and widespread throughout the Westland CREZ. These species are likely present in nonagricultural parcels containing native vegetation and along roadsides, ditches, and other disturbed areas.

Wildlife

The Westland CREZ consists mainly of cultivated agricultural land that has been disturbed from its natural state. The farmland is less productive due to high salinity in the soils of the Tulare Lake Basin. Interstate 5 to the west and State Highways 41 and 198 circle the site to the north and east, preventing its use as a wildlife corridor. Two high voltage transmission corridors pass through the area and more could be constructed as part of the Westlands Solar Park (Westlands Water District 2013).

The development of Westlands CREZ for row crop agriculture displaced native plants and removed habitat and forage for wildlife. Scattered shrubland, irrigation canals, agricultural ditches, and other ephemeral waterways with limited riparian vegetation presently provide habitat for wildlife (Westlands Water District 2013).

The CDFW California Natural Diversity Database (CNDDB) revealed no records of sensitive species in the Westlands CREZ boundaries, and the area does not contain any identified critical habitat or proposed habitat linkages (HT Harvey & Associates 2010). However, the lack of records may represent a data gap. Studies from other areas of the central San Joaquin Valley suggest that a

number of special status species may occur in the CREZ (HT Harvey & Associates 2010).

Although biological surveys have not been conducted for the CREZ, the presence of such species as San Joaquin kit fox in the vicinity indicates that they likely forage for prey, such as rabbits, kangaroo rats, and ground squirrels, in the Westlands CREZ. Western burrowing owls also prey on ground squirrels, and other raptor species are likely to use the area as foraging habitat. Common grassland, shrubland and desert reptiles, invertebrates, small mammals, and migratory bird species, such as sparrows and meadowlarks, may be present in vegetated areas of the Westlands CREZ. The level of disturbance on the site and the proximity to major highways makes it unlikely the area provides habitat or migration corridors for big game wildlife species.

Special Status Species

To determine those special status species with potential to occur in the Westlands CREZ, a literature and database search was conducted. Database searches for special status species focused on the Westhaven USGS 7.5-minute quadrangle map and the eight surrounding USGS quadrangle maps.

The following sources were reviewed to determine which special status species have been documented to occur in the Westlands CREZ vicinity:

- Review of Potential Biotic Constraints to Development of Solar Power Production Facilities at the Proposed Westlands Water District Competitive Renewable Energy Zone (HT Harvey & Associates 2010)
- USFWS quadrangle species lists (USFWS 2014)
- CNDDB records (CDFW 2014b)
- CNPS Online Inventory of Rare and Endangered Plants (CNPS 2014)
- CWHR Life History Accounts and Range Maps (CDFW 2014c)
- California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California (Shuford and Gardali 2008)
- CDFG Publication: Amphibians and Reptile Species of Special Concern in California (Jennings and Hayes 1994)
- *A Field Guide to Western Reptiles and Amphibians* (Stebbins 2003)

Description of Special Status Vegetation and Wildlife in the Westlands CREZ region

Special Status Plants

Special status plant species with potential to occur in the Westlands CREZ are listed in **Table 3-16**. Detailed accounts for these species, including a discussion on potential for occurrence in the Westlands CREZ, follow **Table 3-16**.

Table 3-16
Special Status Plant Species with Potential to Occur in the Westlands CREZ

Species	Status	Habitat Preference	Potential Habitat in the Westlands CREZ Site?	Detected In Westlands CREZ Site?
Heartscale *Atriplex cordulata* var. *cordulata*	CNPS: 1B.2	Saline or alkaline soils in chenopod scrub, meadows and seeps and sandy soils in valley and foothill grasslands, up to 560 meters in elevation	Yes	No
Crownscale *Atriplex coronata* var. *coronata*	CNPS: 4.2	Chenopod scrub, valley and foothill grassland, vernal pools (alkaline, often clay); 1 to 590 meters	Yes	No
Lost Hills crownscale *A. c.* var. *vallicola* [*A. v.*]	CNPS: 1B.2	Chenopod scrub, valley and foothill grassland, vernal pools (alkaline); 50 to 635 meters	Yes	No
Brittlescale *A. depressa*	CNPS: 1B.2	Alkaline or clay soils in chenopod scrub, meadows and seeps, playas, valley and foothill grasslands, and vernal pools, at elevations below 320 meters	Yes	No
Lesser saltscale *A. miniscula*	CNPS: 1B.1	Sandy, alkaline soils in chenopod scrub, playas, and valley and foothill grassland, from 15 to 200 meters	Yes	No
Subtle orache *A. subtilis*	CNPS 1B.2	Saline depressions, and alkaline soils in valley and foothill grassland, from 40 to 100 meters	Yes	No
California jewelflower *Caulanthus californicus*	Federal: E State: E CNPS: 1B.1	Grasslands (non-alkaline), flatlands	Yes	No
Lemmon's jewelflower *C. coulteri* var. *lemmonii*	CNPS 1B.2	Pinyon and juniper woodland, valley and foothill grassland; 80 to 1,220 meters	Yes	No
Recurved larkspur *Delphinium recurvatum*	CNPS: 1B.2	Poorly drained alkaline soils in chenopod scrub, grassland, cismontane woodland; 3 to 685 meters	Yes	No
Hoover's eriastrum *Eriastrum hooveri*	CNPS: 4.2	Alkaline, sometimes gravelly soils, in chenopod scrub, valley and foothill woodland, and pinyon-juniper woodland, from 50 to 915 meters	Yes	No
Cottony buckwheat *Eriogonum gossypinum*	CNPS: 4.2	Clay soils in chenopod scrub and valley and foothill grassland, from 100 to 550 meters	Yes	No

Table 3-16
Special Status Plant Species with Potential to Occur in the Westlands CREZ

Species	Status	Habitat Preference	Potential Habitat in the Westlands CREZ Site?	Detected In Westlands CREZ Site?
San Joaquin spearscale *Extriplex joaquinana* [*Atriplex joaquiniana*]	CNPS: 1B.2	Meadows of shadscale scrub and valley grassland communities	Yes	No
Vernal barley *Hordeum intercedens*	CNPS: 3.2	Coastal dunes, coastal scrub, saline flats and depressions in valley and foothill grassland, and vernal pools, from 5 to 1,000 meters	Yes	No
Munz's tidytips *Layia munzii*	CNPS: 1B.2	Shadscale scrub, valley grassland, and wetland-riparian communities; usually occurs in wetlands, alkaline, or clay soils	Yes	No
Panoche pepper-grass *Lepidium jaredii* ssp. *album*	CNPS: 1B.2	Valley and foothill grassland (steep slopes, clay); 185 to 275 meters	Yes	No
San Joaquin woollythreads *Monolopia congdonii*	Federal: E CNPS: 1B.2	Chenopod (saltbush) scrub, sandy grasslands	Yes	No
San Joaquin bluecurls *Trichostema ovatum*	CNPS 4.2	Chenopod scrub and valley and foothill grassland, including on disturbed soils, from 65 to 320 meters	Yes	No

Sources: HT Harvey & Associates 2010; CDFWB 2014b; CNPS 2014
Status:
Federal: Endangered (E) or Threatened (T) listing under the federal Endangered Species Act
CNPS: California Native Plant Society Rare Plant Rank. The listing categories range from species with a low threat (Rank 4) to species that are presumed extinct (Rank 1A). The Rank 1B species are rare throughout their range. All of them are judged to be vulnerable under present circumstances, or to have a high potential for becoming vulnerable.

In general, special status plant species may occur in the Westlands CREZ in unconverted grassland and chenopod scrub habitats that have sustained little or no disturbance. Vegetation in the Westlands CREZ is described above. According to the results of the literature and database searches, special status plant species with potential to occur in the Westlands CREZ are heartscale, crownscale, Lost Hills crownscale, brittlescale, lesser saltscale, subtle orache, California jewelflower, Lemmon's jewelflower, Recurved larkspur, Hoover's eriastrum, cottony buckwheat, San Joaquin spearscale, vernal barley, Munz's tidytips, Panoche pepper-grass, San Joaquin woollythreads, and San Joaquin bluecurls. However, no CNDDB recorded occurrences or direct observations of special status plant species have been documented to date in the Westlands CREZ.

Heartscale (*Atriplex cordulata* var. *cordulata*) is described under the *Proposed Project Site* subheader. The Westlands CREZ is within the range of heartscale, and contains potential habitat for the species. However, no documented occurrences in the Westlands CREZ have been recorded.

Crownscale (*A. coronata* var. *coronata*) is described under the *Proposed Project Site* subheader. The Westlands CREZ is within the range of crownscale, and contains potential habitat for the species. However, no documented occurrences in the Westlands CREZ have been recorded.

Lost Hills crownscale (*A. c.* var. *vallicola* [*A. v.*]) is described under the *Proposed Project Site* subheader. The Westlands CREZ is within the range of Lost Hills crownscale, and contains potential habitat for the species. However, no documented occurrences in the Westlands CREZ have been recorded.

Brittlescale (*A. depressa*) is described in **Section 3.6.2** under the *Proposed Project Site* subheader. The Westlands CREZ is within the range of brittlescale, and contains potential habitat for the species. However, no documented occurrences in the Westlands CREZ have been recorded.

Lesser saltscale (*A. minuscula*) is described under the *Proposed Project Site* subheader. The Westlands CREZ is within the range of lesser saltscale, and contains potential habitat for the species. However, no documented occurrences in the Westlands CREZ have been recorded.

Subtle orache (*A. subtilis*) is a CNPS Rank 1B.2 annual herb in the goosefoot family (Chenopodiaceae) that blooms from June to October. It is endemic to California and occurs in suitable habitat in the San Joaquin Valley, including in Fresno, Kings, Kern, Madera, Merced, Stanislaus, and Tulare Counties. Suitable habitat is saline depressions and alkaline soils in valley and foothill grassland, from 40 to 100 meters. It is threatened by agriculture and possibly by solar energy development. The Westlands CREZ is within the range of the subtle orache and likely contains potential habitat for the species; however, no occurrences have been documented.

California jewelflower (*Caulanthus californicus*) is described under the *Proposed Project Site* subheader. The Westlands CREZ is within the range of California jewelflower, and contains potential habitat for the species. However, no documented occurrences in the Westlands CREZ have been recorded.

Lemmon's jewelflower (*C. lemmonii* [*C. coulteri* var. *l.*]) is described under the *Proposed Project Site* subheader. The Westlands CREZ is within the range of Lemmon's jewelflower, and contains potential habitat for the species. However, no documented occurrences in the Westlands CREZ have been recorded.

Recurved larkspur (*Delphinium recurvatum*) is described under the *Proposed Project Site* subheader. The Westlands CREZ is within the range of recurved larkspur, and contains potential habitat for the species. However, no documented occurrences in the Westlands CREZ have been recorded.

Hoover's eriastrum (*Eriastrum hooveri*) is described under the *Proposed Project Site* subheader. The Westlands CREZ is within the range of Hoover's eriastrum, and contains potential habitat for the species. However, no documented occurrences in the Westlands CREZ have been recorded.

Cottony buckwheat (*Eriogonum gossypinum*) is described under the *Proposed Project Site* subheader. The Westlands CREZ is within the range of cottony buckwheat, and contains potential habitat for the species. However, no documented occurrences in the Westlands CREZ have been recorded.

San Joaquin spearscale (*Extriplex joaquinana* [*Atriplex joaquinana*]) is described under the *Proposed Project Site* subheader. The Westlands CREZ is within the range of San Joaquin spearscale, and contains potential habitat for the species. However, no documented occurrences in the Westlands CREZ have been recorded

Vernal barley (*Hordeum intercedens*) is a CNPS Rank 3.2 annual herb in the grass family (Poaceae) that blooms from March to June. It occurs in the San Joaquin Valley, Outer South Coast Ranges, South Coast, Channel Islands, Peninsular Ranges, and northwestern Baja California. It has been observed in Fresno and Kings Counties. Suitable habitat is coastal dunes, coastal scrub, saline flats and depressions in valley and foothill grassland, and vernal pools, from 5 to 1,000 meters in elevation. It is threatened by development, habitat loss, road construction, and nonnative plants. The Westlands CREZ is within the vernal barley range, and contains potential habitat for the species. However, no documented occurrences have been recorded.

Munz's tidytips (***Layia munzii***) is described under the *Proposed Project Site* subheader. The Westlands CREZ is within the range of Munz's tidytips, and contains potential habitat for the species. However, no documented occurrences in the Westlands CREZ have been recorded.

Panoche pepper-grass (*Lepidium jaredii* ssp. *album*) is described under the *Proposed Project Site* subheader. The Westlands CREZ is within the range of Panoche pepper-grass, and contains potential habitat for the species. However, no documented occurrences in the Westlands CREZ have been recorded.

San Joaquin woollythreads (*Monolopia congdonii*) is described under the *Proposed Project Site* subheader. The Westlands CREZ is within the range of Panoche pepper-grass, and contains potential habitat for the species. However, no documented occurrences in the Westlands CREZ have been recorded.

San Joaquin bluecurls (*Trichostema ovatum*) is a CNPS Rank 4.2 annual herb in the mint family (Lamiaceae) that blooms from July to October. It is a California endemic that occurs in the southern San Joaquin Valley and western Transverse Ranges, in Fresno, Kings, Kern, and Tulare Counties. Suitable habitat is chenopod scrub and valley and foothill grassland, including on disturbed soils,

from 65 to 320 meters in elevation. It is possibly threatened by recreational vehicles. The Westlands CREZ is within the San Joaquin bluecurls range, and contains potential habitat for the species. However, no documented occurrences have been recorded.

Special Status Wildlife

Special status wildlife species with potential to occur in the Westlands CREZ are listed in **Table 3-17**. Detailed accounts for these species, including a discussion on potential for occurrence in the Westlands CREZ, follow the table.

Table 3-17
Special Status Wildlife Species with Potential to Occur in the Westlands CREZ

Species	Status	Nesting/ Breeding Period	Habitat Preference	Potential Habitat in Westlands CREZ?	Detected at Westlands CREZ? (Y/N)
Invertebrates					
Vernal pool fairy shrimp *Branchinecta lynchi*	Federal: T	Rainy season	Grasslands, swales, slumps or depressions with grass or mud bottoms	Species range includes Fresno and Kings counties; however, there is no potential habitat in Westlands CREZ and species is not likely to occur	No
Longhorn fairy shrimp *Branchinecta longiantenna*	Federal: E	Rainy season	Clear water depressions in sandstone and clear to turbid clay or grass-bottomed pools in shallow swales	Species range includes isolated occurrences in Fresno and Kings counties; however, there is no potential habitat in Westlands CREZ and the species is not likely to occur	No
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	Federal: T	n/a	Elderberry shrubs	Presumed historic species range does not include the Westlands CREZ. Potential habitat exists in undisturbed parcels or ditches or canals containing elderberry shrubs	No
Vernal pool tadpole shrimp *Lepidurus packardi*	Federal: E	Rainy season	Turbid water ephemeral pools in shallow swales or depressions	Species range includes portions of Fresno and Kings counties; however, species is not likely to occur	No
San Joaquin dune beetle *Coelus gracilis*	CDFW: special animal	Cool season	Dunes, sandy soils	Westlands CREZ is within the historic species range (USFWS 1998).Potential habitat exists in undisturbed parcels with sandy soils and native vegetation	No

Table 3-17
Special Status Wildlife Species with Potential to Occur in the Westlands CREZ

Species	Status	Nesting/ Breeding Period	Habitat Preference	Potential Habitat in Westlands CREZ?	Detected at Westlands CREZ? (Y/N)
Molestan blister beetle *Lytta molesta*	CDFW: special animal	Summer	Dried vernal pool habitats in the Central Valley	Species range includes Westlands CREZ; however, species is not likely to occur	No
Amphibians					
California tiger salamander *Ambystoma californiense*	Federal: T State: T	Rainy season	Large vernal pools for breeding; surrounding uplands with small mammal burrows for estivation	Species range does not include Westlands CREZ. Suitable upland habitat may be present in undisturbed parcels; no suitable breeding habitat exists	No
California red-legged frog *Rana draytonii*	Federal: T	Rainy season	Found in slow-moving or standing ponds, pools, and streams with emergent vegetation for cover	Species range does not include Westlands CREZ, and no potential habitat is present. The species is not likely to occur	No
Western spadefoot toad *Spea hammondii*	CDFW: SSC	January through August	Vernal pools in grassland and woodland habitats	Species range includes the Westlands CREZ. Suitable upland habitat may be present in undisturbed parcels; no suitable breeding habitat exists. One occurrence of western spadefoot toad within five-mile radius of the CREZ boundary (HT Harvey & Associates 2010)	No
Reptiles					
Blunt-nosed leopard lizard *Gambelia sila*	Federal: E State: E CDFW: fully protected	Spring	Semiarid grasslands, alkali flats, and washes of San Joaquin Valley; 30 to 730 meters	Westlands CREZ is within the species range. Suitable habitat may be present in undisturbed parcels. Six occurrences exist within a five-mile radius of the CREZ boundary (HT Harvey & Associates 2010)	No
Giant garter snake *Thamnophis gigas*	Federal: T State: T	March through October	Permanent water with emergent aquatic vegetation and steep banks for basking	Westlands CREZ is within the historic range of the giant garter snake. Suitable habitat may be present in irrigation canals	No

Table 3-17
Special Status Wildlife Species with Potential to Occur in the Westlands CREZ

Species	Status	Nesting/ Breeding Period	Habitat Preference	Potential Habitat in Westlands CREZ?	Detected at Westlands CREZ? (Y/N)
Silvery legless lizard *Anniella pulchra pulchra*	CDFW: SSC	Early spring to summer	Sandy or loose loamy soils with adequate soil moisture	Westlands CREZ is marginally in the species range. Potential habitat exists in undisturbed parcels with native vegetation	No
Western pond turtle *Emys* (=*Actinemys*) *marmorata*	CDFW: SSC	Spring	Calm waters with vegetated banks and rocks or logs for basking; use adjacent uplands for nesting and refugia	Westlands CREZ is within species range. Suitable habitat may be present in irrigation canals. One occurrence exists within a five-mile radius of the CREZ boundary (HT Harvey & Associates 2010)	No
San Joaquin coachwhip *Coluber* (=*Masticophis*) *flagellum ruddocki*	CDFW: SSC	May	Open, dry, treeless areas, including grasslands and saltbush scrub; takes refuge in burrows and under shaded vegetation.	Westlands CREZ is within species range. Suitable habitat may be present in undisturbed parcels. One occurrence exists within a five-mile radius of the CREZ boundary (HT Harvey & Associates 2010)	No
Blainville's (coast) horned lizard *Phrynosoma blainvillii*	CDFW: SSC	May through September	Frequents a wide variety of habitats, including coastal sage scrub with loose friable soil and native ant colonies	Westlands CREZ is within the species range. Suitable habitat may be present in undisturbed parcels.	No
Birds					
California condor *Gymnogyps californianus*	Federal: E State: E	March 15 through August 15	Wide-ranging over Coast Ranges from Ventura to Big Sur; nest sites are in cavities in cliffs, in large rock outcrops, or in large trees	Westlands CREZ is within the species range. No suitable nesting habitat is present; it is unlikely that suitable foraging habitat is present	No
Swainson's hawk *Buteo swainsoni*	State: T	March 15 through August 15	Breeds in tall trees scattered in grasslands, juniper-sage flats, riparian areas, savannahs, and agricultural fields	Westlands CREZ is within the species range. Suitable foraging and likely nesting habitat is present	No

Table 3-17
Special Status Wildlife Species with Potential to Occur in the Westlands CREZ

Species	Status	Nesting/ Breeding Period	Habitat Preference	Potential Habitat in Westlands CREZ?	Detected at Westlands CREZ? (Y/N)
California least tern *Sternula antillarum browni*	Federal: E State: E CDFW: fully protected	April through May	Nests colonially in open expanses of sand, dirt, or dried mud close to lagoon or estuary foraging areas; also human-made habitats, including landfills, airports, and managed nesting sites	Westlands CREZ is not within the species range. No suitable habitat is present	No
Tricolored blackbird *Agelaius tricolor*	CDFW: SSC USFWS: BCC	March 15 through August 15	Nests in marshy areas with access to open water; forages in valley and foothill grassland and agricultural fields	Westlands CREZ is within the species range. Suitable foraging and nesting habitat may be present	No
Grasshopper sparrow *Ammodramus savannarum*	CDFW: SSC	March 15 through August 15	Nests in grassland habitats on mountain slopes, foothills, and valleys; may nest colonially	Westlands CREZ is marginally within the species range. No potential habitat is present, and the species is not likely to occur	No
Golden eagle *Aquila chrysaetos*	CDFW: fully protected	March 15 through August 15	Nests in large prominent trees or cliffs in valley and foothill woodland; forages in adjacent open country	Westlands CREZ is within the species range. Suitable foraging habitat is present, though nesting habitat is likely not present	No
Great egret *Ardea alba*	CDFW: special animal (nesting colony)	March 15 through August 15	Nests colonially in large trees, which must be relatively isolated from human activities to prevent nest abandonment	Westlands CREZ is within the species range. Suitable foraging and nesting habitat may be present	No
Great blue heron *A. herodias*	CDFW: special animal (nesting colony)	March 15 through August 15	Nests colonially in large trees, which must be relatively isolated from human activities to prevent nest abandonment	Westlands CREZ is within the species range. Suitable foraging and nesting habitat may be present	No
Short-eared owl *Asio flammeus*	CDFW: SSC	March 15 through August 15	Fresh and salt swamps, lowlands; nests on dry ground in tules/tall grasses	Westlands CREZ is within the species range; however, no suitable habitat is present and species is not likely to occur	No

Table 3-17
Special Status Wildlife Species with Potential to Occur in the Westlands CREZ

Species	Status	Nesting/ Breeding Period	Habitat Preference	Potential Habitat in Westlands CREZ?	Detected at Westlands CREZ? (Y/N)
Long-eared owl *A. otus*	CDFW: SSC	March 15 through August 15	Roosts and nests in woodlands; requires adjacent open land with mice and old nests of crows, hawks, or magpies for breeding	Westlands CREZ is marginally in the species breeding range. No suitable habitat is present, and species is not likely to occur	No
Burrowing owl *Athene cunicularia*	CDFW: SSC USFWS: BCC	February 1 through August 31	Burrows in California ground squirrel holes in open habitats with low vegetation, such as dry grasslands, and deserts	Westlands CREZ is within the species range Yes. Suitable wintering and nesting habitat is present	Yes
Redhead *Aythya americana*	CDFW: SSC	April through August	Nests in freshwater emergent wetlands where dense stands of cattails and tules are interspersed with areas of deep open water	Westlands CREZ is within the species range. Suitable nesting and foraging habitat is likely present	No
Ferruginous hawk *B. regalis*	USFWS: BCC CDFW: SSC	March 15 through August 15	No breeding records from California; winters in the state in open grasslands of the Central Valley and Coast Ranges, among other habitats	Westlands CREZ is within the wintering range. Suitable foraging and wintering habitat is present	No
Mountain plover *Charadrius montanus*	CDFW: SSC (Wintering) USFWS BCC	November through February	Short grasslands, plowed fields; winters in California grasslands and recently tilled agricultural fields	Westlands CREZ is within the wintering range. Suitable wintering habitat is present	No
Black tern *Chlidonias niger*	CDFW: SSC (breeding colony)	May through August	Nests semi-colonially in protected areas of marshes, usually on floating vegetation anchored to emergent wetland vegetation; will breed in flooded agricultural (rice) fields	Westlands CREZ is within the range of the black tern. Suitable foraging habitat is present; suitable nesting habitat is unlikely	No
Northern harrier *Circus cyaneus*	CDFW: SSC	March 15 through August 15	Nests on ground in grassland, usually near water; forages in meadows, grasslands, and wetlands	Westlands CREZ is within the species breeding range, suitable foraging habitat is present. Nesting habitat is likely present	No

Table 3-17
Special Status Wildlife Species with Potential to Occur in the Westlands CREZ

Species	Status	Nesting/ Breeding Period	Habitat Preference	Potential Habitat in Westlands CREZ?	Detected at Westlands CREZ? (Y/N)
Fulvous whistling-duck *Dendrocygna bicolor*	CDFW: SSC	April through August	Nests in rice fields and other flooded areas, including emergent marshes; nests constructed of marsh grasses on dry hummocks	Westlands CREZ is within the species breeding range. Suitable foraging habitat is present; suitable nesting habitat is unlikely	No
White-tailed kite *Elanus leucurus*	CDFW: fully protected	March 15 through August 15	Nests in tree canopy and forages over open grasslands and agricultural areas	Westlands CREZ is within the species range. Suitable foraging habitat is present, and landscape trees may provide limited suitable nesting habitat	No
Merlin *Falco columbarius*	CDFW: special animal (wintering)	March through August	Winter migrant in California; does not breed in the state; frequents coastlines, open grasslands, savannahs, woodlands, lakes, wetlands, edges, and early successional stages; needs dense tree stands close to water for cover	Westlands CREZ is within the species winter range. No suitable nesting habitat is present; it is unlikely that suitable foraging habitat is present	No
Bald eagle *Haliaeetus leucocephalus*	Federal: D State: E USFWS: BCC	March 15 through August 15	Nests near water in tall live trees with open branches	Westlands CREZ is within the species winter range. Suitable nesting habitat is not present on the project site or in the vicinity	No
Loggerhead shrike *Lanius ludovicianus*	CDFW: SSC USFWS: BCC	March 15 through August 15	Nests in tall shrubs and trees; forages in grasslands, marshes and agricultural fields	Westlands CREZ is within the species breeding range. Nesting and foraging habitat is present	No
Long-billed curlew *Numenius americanus*	CDFW: SSC USFWS: BCC	April to September	Breeds in northeastern California; winters in wider area of California, including Central Valley, in upland herbaceous areas and croplands	Westlands CREZ is within the species winter range. Suitable wintering habitat is present. Suitable nesting habitat is not present	No

Table 3-17
Special Status Wildlife Species with Potential to Occur in the Westlands CREZ

Species	Status	Nesting/ Breeding Period	Habitat Preference	Potential Habitat in Westlands CREZ?	Detected at Westlands CREZ? (Y/N)
Black-crowned night heron *Nycticorax nycticorax*	CDFW: special animal (nesting colony)	April to September	Nests in thick-foliaged trees, dense fresh or brackish emergent wetlands, or dense shrubbery or vines near aquatic feeding areas; nests are built of twigs or various marsh plants	Westlands CREZ is within the species breeding range. Nesting and foraging habitat is present	No
American white pelican *Pelecanus erythrorhynchos*	CDFW: SSC	July to January	Breeds in California in Klamath Basin; remote (island) nesting sites subject to minimal disturbance needed	Westlands CREZ is within the species historic breeding range; however the current breeding range does not includes Westlands CREZ lands. No suitable nesting or foraging habitat is present	No
Oregon vesper sparrow *Pooecetes gramineus affinis*	CDFW: SSC	March 15 through August 15	Winters in grassland habitats and may frequent agricultural fields	Westlands CREZ is marginally in the species winter range. Suitable wintering habitat is present; species does not breed locally	No
Forster's tern *Sterna forsteri*	CDFW: special animal (nesting colony)	May through September	Nests colonially in freshwater, brackish, and saltwater marshes, large wetlands with extensive open water and large stands of island-like vegetation or mats of floating vegetation	Westlands CREZ is not within the species range. No suitable breeding habitat is present; wetland habitat is of limited extent	No
Le Conte's thrasher *Toxostoma lecontei*	USFWS: BCC CDFW: SSC	February through June	Nests in gentle to rolling, well-drained slopes bisected with dry washes, on bajadas or alluvial fans, in saltbush scrub	Westlands CREZ is within the species range; however, no suitable nesting habitat is present	No
Yellow-headed blackbird *Xanthocephalus xanthocephalus*	CDFW: SSC	April through July	Breeds almost exclusively in marshes with tall emergent vegetation, such as tules or cattails	Westlands CREZ is within the species breeding range. Suitable, limited nesting habitat is present	No

Table 3-17
Special Status Wildlife Species with Potential to Occur in the Westlands CREZ

Species	Status	Nesting/ Breeding Period	Habitat Preference	Potential Habitat in Westlands CREZ?	Detected at Westlands CREZ? (Y/N)
Mammals					
Giant kangaroo rat *Dipodomys ingens*	Federal: E State: E	Spring - summer	Occurs in grasslands and shrub communities on gentle slopes (less than 11%); feeds primarily on seeds, also on green plants and insects	Westlands CREZ is within the species range; however species is not likely to occur	No
Fresno kangaroo rat *D. n. exilis*	Federal: E State: E	Spring-summer	Scrub and grasslands with level topography and scattered mounds of lighter crumbly soils	Westlands CREZ is within the species range. Potential habitat exists in undisturbed parcels with native vegetation	No
Tipton kangaroo rat *D. n. nitratoides*	Federal: E State: E	Spring-summer	Iodine bush scrubland, saltbush scrub on alluvial fan or floodplain soils, with elevated soil mounds for burrows	Westlands CREZ is marginally in the species winter range. Species is not likely to occur	No
Western mastiff bat *Eumops perotis californicus*	Federal: Candidate CDFW: special animal	Spring - summer	Semiarid to arid open habitats, foraging for moths, grasshoppers and crickets; roosts in crevices of steep cliffs, mines, tall trees, and buildings	Westlands CREZ is within species range. Site contains foraging habitat but lacks high-quality roosting habitat	No
Buena Vista Lake shrew *Sorex ornatus relictus*	Federal: E CDFW: SSC	May through July	In wetlands around the historic Buena Vista Lake and presumably throughout the Tulare Basin	Westlands CREZ is within species historic range. Potential habitat may exist	No
San Joaquin kit fox *Vulpes macrotis mutica*	Federal: E State: T	December through July	Annual grasslands or desert alkali scrub with scattered shrubby vegetation; needs loose-textured sandy soil for burrows and rodent prey base	Westlands CREZ is within species range. Potential habitat exists in undisturbed parcels with native vegetation. Sixteen occurrences exist within a five-mile radius of the CREZ boundary (HT Harvey & Associates 2010)	No
San Joaquin antelope squirrel *Ammo-spermophilus nelsoni*	State: T CDFW: SSC	Late winter to early spring	Dry sparsely vegetated loamy soils in western San Joaquin Valley; 200 to 1,200 feet	Westlands CREZ is within the historic species range (USFWS 1998). Potential habitat exists in undisturbed parcels with native vegetation	No

Table 3-17
Special Status Wildlife Species with Potential to Occur in the Westlands CREZ

Species	Status	Nesting/ Breeding Period	Habitat Preference	Potential Habitat in Westlands CREZ?	Detected at Westlands CREZ? (Y/N)
Pallid bat *Antrozous pallidus*	CDFW: SSC	Spring - summer	Occurs in open habitats and oak woodlands; nests in rock crevices, caves, tree hollows, mines, old buildings; highly sensitive to disturbance	Westlands CREZ is within the species range; however species is not likely to occur	No
Short-nosed kangaroo rat *D. nitratoides brevinasus*	CDFW: SSC	Spring - summer	Grasslands with scattered shrubs, desert shrub association on powdery soils	Westlands CREZ is within the historic species range (USFWS 1998). Potential habitat exists in undisturbed parcels with native vegetation	No
Hoary bat *Lasiurus cinereus*	CDFW: SSC	Spring-summer	Open habitats or habitat mosaics, using trees for cover and open areas or habitat edges for feeding; generally roosts in dense foliage of medium to large trees	Westlands CREZ is within species range. Site contains foraging and likely roosting habitat	No
Tulare grasshopper mouse *Onychomys torridus tularensis*	CDFW: SSC	May through July	Found in shrubland of hot arid valleys and scrub deserts in southern San Joaquin Valley	Westlands CREZ is within species range. Potential habitat exists in undisturbed parcels with native vegetation	No
American badger *Taxidea taxus*	CDFW: SSC	February through May	Found in dry open areas of shrub, forest, and grasslands with abundant food source, such as California ground squirrels	Westlands CREZ is within species range. Potential habitat exists in undisturbed parcels with native vegetation. One occurrence exists in a five-mile radius of the CREZ boundary (HT Harvey & Associates 2010)	No

Sources: HT Harvey & Associates 2010; CDFW 2014b; USFWS 2014

Status:

Federal: Endangered (E), Threatened (T), Proposed (P), or Delisted (D) listing under the federal Endangered Species Act

USFWS BCC: USFWS Bird of Conservation Concern are "species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act (ESA) of 1973." BCCs in the California-Nevada Region (USFWS Region 8) are identified in this table.

State: Endangered (E) or Threatened (T) listing under the California Endangered Species Act

CDFW: *Special Animals:* "species at risk" or "special status species." Listed or proposed for listing under the California and federal Endangered Species Acts, but they may also be species deemed biologically rare, restricted in range, declining in abundance, or otherwise vulnerable.

SSC: California Species of Special Concern. Considered rare or declining in abundance in California. Intended to provide the CDFW, biologists, land planners, and managers with lists of species that require special consideration during the planning process in order to avert continued population declines and potential costly listing under federal and state endangered species laws. For many species of birds, the primary emphasis is on the breeding population in California. For some species that do not breed in California but winter here, emphasis is on wintering range.

Fully Protected: Species considered by CDFW as rare or faced with possible extinction. May not be taken or possessed at any time and no provision of the CDFW code authorizes the issuance of permits or licenses to take any fully protected species.

In general, special status wildlife species could occur in the Westlands CREZ in unconverted grassland and saltbush scrub habitats that have sustained little or no disturbance, or in wetted irrigation canals and associated wetlands that occur on the site to a limited extent. Trees, utility towers, and buildings, if present within the Westlands CREZ, may also provide nesting or roosting opportunities for several species (HT Harvey & Associates 2010).

One special status wildlife species has been documented in the Westlands CREZ: burrowing owl (Westlands Water District 2013).

Descriptions of the following special status wildlife species with potential to occur in the Westlands CREZ are described under the *Proposed Project* subheader, and are therefore not repeated in the text below: vernal pool fairy shrimp, longhorn fairy shrimp, vernal pool tadpole shrimp, California tiger salamander, western spadefoot toad, California red-legged frog, silvery legless lizard, western pond turtle, blunt-nosed leopard lizard, Blainville's (coast) horned lizard, tricolored blackbird, grasshopper sparrow, golden eagle, short-eared owl, long-eared owl, burrowing owl, Swainson's hawk, ferruginous hawk, mountain plover, northern harrier, white-tailed kite, California condor, bald eagle, loggerhead shrike, Oregon vesper sparrow, yellow-headed blackbird, San Joaquin antelope squirrel, pallid bat, giant kangaroo rat, short-nosed kangaroo rat, Tipton kangaroo rat, hoary bat, Tulare grasshopper mouse, American badger, San Joaquin kit fox. Potential habitat in the Westlands CREZ for the species listed above is described in **Table 3-17**.

Species with the potential to occur in the Westlands CREZ but not in the project site and PG&E telecommunications upgrades sites are described below.

<u>Invertebrates</u>

Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*); federal status: threatened; state status: none. The valley elderberry longhorn beetle was listed as threatened, with critical habitat designated by the USFWS in August 1980 (USFWS 1980). At the time the beetle was listed, its known distribution was only 10 locations in the Central Valley (USFWS 2006). The current known distribution extends from Shasta County to Fresno County (USFWS 2006). Adult beetles feed on the leaves of elderberry shrubs (*Sambucus* spp.) and lay their eggs in bark crevices on the plant's stems (Lang et al. 1989). The larvae of the beetle live inside the stem for up to two years before they pupate. On pupation, the adults chew through the bark, leaving a distinctive exit hole that can be used to determine the presence of the species without directly observing individuals (USFWS 2006).

The loss of habitat is the single greatest factor contributing to the decline of this species (USFWS 2006). Riparian habitat throughout the Central Valley has been degraded or completely removed as a result of urban and agricultural development, along with water diversion and conveyance. Conservation efforts

aimed at the species' recovery have included protecting existing elderberry thickets, replanting elderberry shrubs, and transplanting elderberry shrubs inhabited by beetle larvae to new sites. Since the valley elderberry longhorn beetle was listed, approximately 50,000 acres of riparian habitat have been protected and an additional 5,000 acres has been restored for the beetle (USFWS 2006).

According to the CNDDB (2014) no valley elderberry longhorn beetle occurrences have been recorded in the Westlands CREZ. However, potential habitat for this species may exist in undisturbed parcels or along ditches or canals containing elderberry shrubs.

San Joaquin dune beetle (*Coelus gracilis*); federal status: none; state status: CDFW Special Animal. The beetle was originally proposed for federal candidate status in 1984 (USFWS 1984) and was subsequently removed from the candidate list (USFWS 1996). The historic range of the San Joaquin dune beetle extended from the Antioch Dunes in eastern Contra Costa County to the Kettleman Hills, near Kettleman City in Kings County. Current distribution is restricted to small isolated sand dunes along the western edge of the San Joaquin Valley (Sandoval et al. 2006).

San Joaquin dune beetles likely feed on decomposing vegetation buried in the sand. Nothing is known about the mating system or breeding season of San Joaquin dune beetles. In general, female beetles lay eggs singly or in masses, with hatching occurring after several days. Active periods range from about November through April, when cool temperatures allow beetles to emerge from the sand (Sandoval et al. 2006). Activity also coincides with the growth period of the winter ephemeral plants under which San Joaquin dune beetles reside.

According to the CNDDB (CDFW 2014b), no San Joaquin dune beetle occurrences have been recorded in the Westlands CREZ. However, potential habitat for this species may exist in undisturbed parcels containing sandy soils.

Molestan blister beetle (*Lytta molesta*); federal status: none; state status: CDFW special animal. The Molestan blister beetle is a CDFW special animal found in the Central Valley of California from Contra Costa to Kern and Tulare Counties (NatureServe 2015). Adults have been found feeding on flowers and seed pods (including *Lupinus* sp., *Trifolium wormskioldii,* and *Eriodium* sp.) and in dried vernal pools. While little information is available about the life history of species, information on the genus *Lytta* indicates females excavate shallow burrows in which to lay eggs, and larvae are also known nest parasites of solitary bees (Shanks 2013).

<u>Reptiles</u>

Giant garter snake (*Thamnophis gigas*); federal status: threatened; state status: threatened. The giant garter snake is the largest member of the

genus, with adults approaching 4.5 feet or greater. They emerge from over-winter retreats in late March or early April and are active until the end of October. The habitat components most important to giant garter snakes are water, including permanent water that persists through the summer; emergent aquatic vegetation and steep vegetated banks for cover; and an abundant food supply. Other important components are adjacent upland areas with small mammal burrows or other suitable winter retreats.

Land development, especially the diking, channeling, and draining of wetlands has fragmented or eliminated much of the species' original habitat (Hansen and Brode 1980). As a result, the giant garter snake's habitat is now limited to valley floor canals and permanent and seasonal tule-cattail marshes. The snakes are also found in flooded rice fields, streams, and sloughs, especially with muddy bottoms (Stebbins 2003). Giant garter snakes will also use rock piles, small mammal burrows, and other suitable sites next to aquatic habitats as hibernacula.

The giant garter snake was listed as threatened by the State of California in 1971 and then by the USFWS in 1993. Critical habitat has not been designated for this species. Once occurring from Buena Vista Lake southwest of Bakersfield in Kern County into Shasta County in the north, the species' present known range is restricted to Fresno County north through the Central Valley to the vicinity of Gridley, Butte County (Hansen and Brode 1980). Giant garter snakes have survived in a few wetlands managed as duck-hunting preserves or water bird sanctuaries along the San Joaquin River; but the flooding of state and federal preserves in winter and spring and draining by summer is opposite of what these snakes require (Fisher et al. 1994).

The biggest risk to the persistence of viable populations of giant garter snakes is the continued conversion of its habitat through development (Fisher et al. 1994). Additional threats to the snake's existence are the elimination of its prey, such as tadpoles, frogs, and small fish, by pesticides and fertilizers, spills of pollutants into waterways, introduced predators, and incompatible grazing regimes (Fisher et al. 1994).

A records search in 2010 (HT Harvey & Associates 2010) indicated that there are no CNDDB records of the species within a five-mile radius of the Westlands CREZ boundary. Although giant garter snakes are not expected to occur on lands that are currently or recently farmed, there are a number of canals and water bodies and potential upland aestivation habitat in the Westlands CREZ boundary; therefore, it is possible that giant garter snakes may occur in these areas.

San Joaquin coachwhip (*Coluber* [=*Masticophis*] *flagellum ruddocki*); federal status: none; state status: CDFW SSC. San Joaquin coachwhip occur in the Sacramento Valley, San Joaquin Valley, and the South Coast Ranges, in sparse grasslands and saltbush scrub communities with little or no tree cover

(Jennings and Hayes 1994). They require the presence of mammal burrows for refuge, temperature regulation, and possibly egg-laying.

The Westlands CREZ is in the range of the San Joaquin coachwhip. A records search in 2010 (HT Harvey & Associates 2010) indicated that the CNDDB lists one occurrence of San Joaquin coachwhip within a five-mile radius of the Westlands CREZ site. If parcels that contain non-agriculture habitats and native vegetation exist in the Westlands CREZ, it is possible that San Joaquin coachwhips may occur in these areas.

Birds

California least tern (*Sternula antillarum browni*): federal status: endangered; state status: endangered; CDFW: fully protected. The California least tern is a migrant species which usually arrives to its breeding area by the last week of April, departing again in August. The historical breeding range of the species included the Pacific Coast from Moss Landing, Monterey County, California, to San Jose de Cabo, southern Baja California (USFWS 1985c).

Nesting usually occurs in open habitats with light-colored sand, dirt, or dried mud, and near a lagoon or estuary with a readily available food supply. Foraging habitats are primarily near ocean waters. Conflicts between human beach use and habitat protection continue to threaten the species (USFWS 1985c). No suitable habitat for the California least tern occurs within the Westlands CREZ.

Great egret (*Ardea alba*); federal status: none; state status: CDFW special animal (nesting colony). The great egret is a common yearlong resident throughout California, except for high mountains and deserts (Granholm 1990a). It feeds and rests in fresh and saline emergent wetlands, along the margins of estuaries, lakes, and slow-moving streams, on mudflats and salt ponds, and in irrigated croplands and pastures. Great egrets nest colonially in large trees, which must be relatively isolated from human activities to prevent nest abandonment. Nesting colonies are considered special status by CDFW and often will be mixed with great blue heron (*A. herodias*).

Isolated large trees in the Westlands CREZ may provide suitable nesting habitat for great egrets. Foraging habitat is present in open water or wetland habitats, including irrigation canals.

Great blue heron (*A. herodias*); federal status: none; state status: CDFW special animal (nesting colony). The great blue heron is fairly common all year throughout most of California, in shallow estuaries and fresh and saline emergent wetlands (Granholm 1990b). The species is less common along riverine and rocky marine shores, in croplands, pastures, and mountains above foothills. Great blue herons usually nest in colonies (rookeries) in tops of secluded large snags or live trees, usually among the tallest available and rarely

will nest on the ground, rock ledges, sea cliffs, mats of tules, or shrubs. Colonies are prone to nest desertion if there are new human activities. In California, great blue herons often nest in mixed colonies with great egrets. Nesting colonies are considered special status by CDFW.

Isolated large trees in the Westlands CREZ may provide suitable nesting habitat for great blue herons. Foraging habitat is present in open water or wetland habitats, including water diversion canals and impoundments.

Redhead (*Aythya americana*); federal status: none; state status: CDFW SSC. Historically, redheads were permanent residents or winter visitors in suitable wetland habitat throughout much of the state, especially in northeast California, the Central Valley, and the Southern California coast (Beedy and Deuel 2008). Currently, the breeding range has retracted, especially in the Central Valley and south coast due to loss of wetlands. Redheads usually nest in freshwater emergent wetlands where dense stands of cattails (*Typha* spp.) and tules (*Scirpus* spp.) are interspersed with areas of deep open water (Beedy and Deuel 2008). Redheads occur year-round in California, though the breeding season extends from April to August.

The CREZ is within the range of the redhead. A records search in 2010 (HT Harvey & Associates 2010) indicated that the CNDDB did not list any occurrences of redhead within a five-mile radius of the Westlands CREZ boundary. However, suitable breeding and foraging wetland habitat may be present in the Westlands CREZ, although it is not likely to be extensive.

Black tern (*Chlidonias niger*); federal status: none; state status: CDFW SSC (nesting colonies). Black terns occur primarily as migrant and summer residents in California, breeding from May to early August. Historically black terns nested in wetlands in the Central Valley; the nest semi-colonially on floating mats of vegetation anchored to or lodged in emergent wetland vegetation in protected marshes (Shuford and Gardali 2008). Black terns will also nest in suitable flooded agricultural fields, typically rice. Black terns forage for insects and small fish.

The Westlands CREZ is in the range of the black tern. A records search in 2010 (HT Harvey & Associates 2010) indicated that the CNDDB did not list any occurrences of black terns within a five-mile radius of the Westlands CREZ boundary. However, suitable foraging wetland habitat may be present in the Westlands CREZ, although it is not likely to be extensive. Suitable breeding habitat is likely not present.

Fulvous whistling-duck (*Dendrocygna bicolor*); federal status: none; state status: CDFW SSC. Fulvous whistling-ducks occur primarily as a summer resident and migrant in California. Whistling-ducks historically bred in California from south San Francisco Bay, throughout the San Joaquin Valley, and on the South Coast. Current breeding is limited to the Salton Sea, though

suitable nesting habitat is present in the historic breeding range in the San Joaquin Valley (Hamilton 2008). Whistling-ducks show a preference for weedy rice fields and flooded tall grass areas, though emergent marshes are also used outside of rice production areas. Nests are constructed of grasses on dry hummocks above the water.

The Westlands CREZ is in the breeding range of the fulvous whistling duck. A records search in 2010 (HT Harvey & Associates 2010) indicated that the CNDDB did not list any occurrences of whistling-duck within a five-mile radius of the Westlands CREZ boundary. However, suitable foraging wetland habitat may be present in the Westlands CREZ, although it is not likely to be extensive. Suitable breeding habitat is likely not present.

Merlin (*Falco columbarius*): federal status: none; state status: CDFW special animal (wintering). The merlin is an uncommon winter migrant from September to May, found along coastlines, open grasslands, savannahs, woodlands, lakes, wetlands, edges, and early successional stages. The merlin's range in California includes most of the western half of the state below 1500 meters, with rare occurrences in the Mojave Desert and Channel Islands. Prey includes small birds and mammals, as well as insects (Polite 1990b).

Because the merlin is a winter migrant in California, nesting at the Westlands CREZ is highly unlikely, and no suitable foraging habitat is present.

Long-billed curlew (*Numenius americanus*); federal status: none; state status: CDFW SSC. Long-billed curlew is a shorebird that is an uncommon to fairly common breeder from April to September in the wet meadows of northeastern California. They are uncommon to locally very common as a winter visitor along most of the California coast and also in the Central and Imperial Valleys.

The preferred winter habitats of the curlew are large coastal estuaries, upland herbaceous areas, and croplands. Large numbers of summer non-breeders remain during some years in the Central Valley (Cogswell 1977; Page et al. 1979; Garrett and Dunn 1981 in CDFG 1995).

The long-billed curlew uses its distinct long bill to probe deep into the substrate or to grab prey from mud surfaces. Inland, the curlew takes insects (adults and larvae), worms, spiders, berries, crayfish, snails, grasshoppers, and small crustaceans (Bent 1929 in CDFG 1995).

The Westlands CREZ is in the wintering range for long-billed curlew. Undisturbed parcels containing native vegetation and agricultural fields provide suitable wintering habitat for this species.

Black-crowned night heron (*Nycticorax nycticorax*); federal status: none; state status: CDFW special animal (nesting colony). Black-crowned night herons are a fairly common yearlong resident of the foothills and lowlands throughout most of California (Granholm 1990c). Nesting takes place in thick-foliaged trees, dense fresh or brackish emergent wetlands, or dense shrubbery or vines near aquatic feeding areas (CDFG 1995). The nests are built of twigs or various marsh plants. Any human disturbance of nesting colonies results in nest abandonment.

The black-crowned night heron feeds primarily at night. It forages largely along the margins of lacustrine, riverine, and fresh and saline emergent wetlands. The highly variable diet consists of fishes, crustaceans, aquatic insects, other vertebrates, amphibians, reptiles, some small mammals, and rarely a young bird.

The Westlands CREZ is in the breeding range of the black-crowned night heron. A records search in 2010 (HT Harvey & Associates 2010) indicated that the CNDDB did not list any occurrences of nesting colonies within a five-mile radius of the Westlands CREZ boundary. However, suitable breeding and foraging wetland habitat may be present in the Westlands CREZ, although it is not likely to be extensive.

American white pelican (*Pelecanus erythrorhynchos*): federal status: none; state status: CDFW SSC. The American white pelican occurs year round in California, although seasonal status varies by region. White pelicans formerly nested in the lakes and marshes of Klamath Basin, Modoc Plateau, and Great Basin desert of northeastern California, terminal lakes in the Tulare Basin, the Sacramento Valley, and the Salton Sea. The historic breeding range included lands encompassing the Westlands CREZ; however the breeding range has retracted moderately since 1944. Regular breeding activities in California are currently only at the Lower Klamath National Wildlife Refuge and the Clear Lake National Wildlife Refuge. Threats include loss of foraging and nesting habitat, and human disturbance (Shuford and Gardali 2008).

Forster's tern (*Sterna forsteri*): federal status none; state status: CDFW special animal (nesting colony). Forester's tern is common to abundant along the California coast in subtidal and estuarine waters from May to September. The species is common to uncommon at open lacustrine and riverine habitats found inland. Prey includes mall fish in saltwater and freshwater habitats, as well as aquatic insects, crustaceans, and small amphibians. Nesting occurs along salt ponds, lagoons, low islands in lakes, open levees, and matted reedbeds. Nesting typically occurs less than 100 meters from open water habitats (Rigney and Granholm 1990).

A records search in 2010 (HT Harvey & Associates 2010) indicated that the CNDDB did not list any occurrences of this species within a five-mile radius of the Westlands CREZ boundary. Limited open water features occur within the Westlands CREZ boundary, therefore breeding or nesting is unlikely to occur.

Le Conte's thrasher (*Toxostoma lecontei*): federal status: none; USFWS: BCC; state status CDFW: SSC. Le Conte's thrasher is non migratory and occurs on the west side of the San Joaquin Valley from Huron, Fresno County, south to Maricopa, Kern County. Le Conte's thrashers may have occurred or still occur sporadically in the Panoche Hills in western Fresno County, but recent records are few (Weigand and Fitton 2008). Nesting sites consist of cacti (*Opuntia* spp.) saltbrush (genus *Atriplex*) and other chenopod yuccas, mesquites, and shrubs. Most nests are less than a meter from the ground.

Threats to the species include habitat loss and fragmentation from land use conversions to agriculture, urbanization, military infrastructure development, and motorized recreation.

No suitable habitat occurs within the Westlands CREZ, A records search in 2010 (HT Harvey & Associates 2010) indicated that CNDDB did not list any occurrences of Le Conte's thrasher within a five-mile radius of the Westlands CREZ boundary.

<u>Mammals</u>

Fresno kangaroo rat (*D. n. exilis*); federal status: endangered; state status: endangered. The Fresno kangaroo rat was listed as rare by the State of California in 1971 and subsequently listed as endangered in 1980 (see USFWS 1998). It was listed as federally endangered in 1985 (USFWS 1985a). Yearlong range for the species includes lands within the Westlands CREZ (Ahlborn 1990d).

Fragmentation and degradation of suitable habitat are major threats to this subspecies; habitat flooding, rodenticide use, predation, and interspecific competition all pose additional threats (USFWS 1998). Critical habitat has been designated for the Fresno kangaroo rat (USFWS 1985a); the last captured individual was a male caught twice in the 1992 on the Alkali Sink Ecological Reserve, west of Fresno (USFWS 1998).

Fresno kangaroo rats occupy scrub and grasslands with level topography and scattered mounds of lighter crumbly soils (Culbertson 1946 in HT Harvey & Associates 2010). Burrows apparently are excavated in these elevated mounds in order to avoid seasonal floodwaters and are the focus of territories (USFWS 1998). The diet of the Fresno kangaroo rat is primarily seeds of annual and perennial grasses, annual forbs, woody and semi-woody shrubs, and insects (Culbertson 1946 in HT Harvey & Associates 2010; USFWS 1998).

A records search in 2010 (HT Harvey & Associates 2010) indicated that there are no CNDDB records of the Fresno kangaroo rat within a five-mile radius of the Westlands CREZ boundary. However, there is a potential for this species to

occur in the Westlands CREZ boundary in the few remaining parcels containing nonagricultural land cover and native habitat.

Western mastiff bat (*Eumops perotis californicus*); federal status: candidate; state status: CDFW SSC. Western mastiff bats were proposed as a category 2 candidate for federal listing in 1985 (USFWS 1985b). It is a very large free-tailed bat, the largest bat in California (CDFG 1995). Western mastiff bats inhabit semiarid to arid open habitats, foraging for moths, crickets, and grasshoppers. The distribution is not completely known and new sightings in northern California are expanding its previously recorded range. Currently in California, the western mastiff bat ranges from San Francisco across to the Sierra Nevada and south, encompassing the southern half of the state (Hall 1981 in CDFG 1995).

The western mastiff bats primarily roost in crevices in vertical cliffs, usually granite or consolidated sandstone, and in broken terrain with exposed rock faces; they may also be found occasionally in high buildings, trees, and tunnels. Due to their size, these bats need vertical faces to drop from in order to take flight (CDFG 1995).

The Westlands CREZ is in the range of the western mastiff bat, and suitable foraging habitat likely occurs in the approximately 35,000-acre site. Larger trees in the Westlands CREZ provide only low-quality roosting habitat for this species. A records search (HT Harvey & Associates 2010) indicated that the CNDDB (2010) lists one occurrence of western mastiff bat within a five-mile radius of the Westlands CREZ boundary. This species likely forages in the Westlands CREZ, but it is unlikely to roost in these areas.

Buena Vista Lake shrew (*Sorex ornatus relictus*); federal status: endangered; state status: CDFW SSC. The Buena Vista Lake shrew is one of nine identified subspecies of the ornate shrew (*Sorex ornatus*; Owen and Hoffmann 1983), which ranges from south of the San Francisco Bay to Baja California (Hall and Kelson 1959 in USFWS 1998). Ornate shrews are found in a wide variety of habitats, including brackish waters and saline marsh, riparian and palustrine environments, and grassland and chaparral (Owen and Hoffmann 1983), generally below 600 feet in elevation (Bolster 1998). They feed on invertebrates and insects found in vegetation (Harris 1990b), although some shrews will eat vegetable matter (Hall and Kelson 1959 in USFWS 1998).

The Buena Vista Lake shrew was described from the specimen collected near Buena Vista Lake in Kern County. The Buena Vista Lake shrew formerly occurred in wetlands around the historic Buena Vista Lake and presumably throughout the Tulare Basin (USFWS 1998). A records search (HT Harvey & Associates 2010) indicated that the CNDDB (2010) lists no occurrences of the subspecies within a five-mile radius of the Westlands CREZ boundary; however, there is the potential that a relict population of the species occurs in the Westlands CREZ because suitable wetland habitats do appear to exist.

San Joaquin antelope squirrel (*Ammospermophilus nelsoni*); federal status: none; state status: threatened. The San Joaquin antelope squirrel is found in marginal fragmented habitats on the western edge of the San Joaquin valley indry, flat, terrain in sandy or gravelly soils. It often burrows under shrubs in sparsely vegetated loamy soils. The species was observed in Section 10 and CNDDB records show the species in Section 3, and east of the site along Panoche Road. The Westlands CREZ is within the range of the San Joaquin antelope squirrel (two records for the San Joaquin antelope squirrel within 5 miles of the CREZ boundary, in 1893 and 1944), but has not been recorded onsite. Due to loss of native shrub habitat onsite and lack of recent observations, the San Joaquin antelope squirrel is not expected to occur within the CREZ (HT Harvey & Associates 2014).

3.6.3 Environmental Impacts

The region of influence for the environmental impacts analysis includes the project footprint and immediate vicinity to capture direct and indirect effects.

Significance Criteria

Waters of the U.S. and Vegetation and Habitats

Potential impacts on waters of the U.S., vegetation and habitats would be significant if the proposed project were to result in the following:

- Have a substantial adverse effect on federally protected waters of the U.S., including wetlands, as defined by Section 404 of the Clean Water Act, through direct removal, filling, hydrological interruption, or other means
- Substantially affect a plant species, habitat, or natural community recognized for ecological, scientific, recreational, or commercial importance
- Substantially affect a species, habitat, or natural community that is specifically recognized as biologically significant in local, state, or federal policies, statutes, or regulations
- Substantially destroy or alter habitats or vegetation communities in such a way that would render them unfavorable to native species
- Substantially establish or increase noxious or nonnative invasive weed populations

Fish and Wildlife

Potential impacts on fish and wildlife would be significant if the proposed project were to result in the following:

- Adversely affect a population by substantially reducing its numbers, causing a wildlife population to drop below self-sustaining levels, or causing a substantial loss or disturbance to habitat. Such effects

could include vehicle impacts and mortality, increased predation, habitat fragmentation, or loss of seasonal habitat.

- Have a substantial adverse impact, such as take, on nesting migratory birds protected under the MBTA, including raptors.
- Interfere with the movement of any resident or migratory wildlife species with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.

Special Status Plants

For special status plants, significance criteria focus on the amount of disturbance of species habitat, as well as the potential for direct impacts on special status plant species. The region of influence for the special status plants environmental impacts analysis includes the project footprint and immediate vicinity to capture direct and indirect effects.

Special Status Animal Species

Potential impacts on special status animal species would be significant if the proposed project were to result in the following:

- Substantially adversely affect a population of any federally protected species
- Substantially adversely affect the quality or quantity of habitat available for a special status species over the long term

For special status wildlife species, the region of influence includes the entire proposed project boundary (an approximately 247 MW solar facility constructed on 2,506 acres and the permanent preservation and management of 24,176 acres of conservation lands) to capture direct and indirect effects. Measures to reduce or eliminate impacts on biological resources have been incorporated into the proposed project; these measures are summarized at the end of each resources' impact analysis (vegetation, wildlife, and special status species), and the full text of these measures is included in **Tables C-1** and **C-2** in **Appendix C.** When the term "project footprint" is used in this section, it is referring to the permanent or temporary impact areas caused by construction of the project.

No Action (No Build) Alternative

Under the no action (no build) alternative, no new impacts on waters of the U.S., vegetation and sensitive habitats, wildlife, or special status species would occur because no project would be built. Current impacts on waters of the U.S. and vegetation from land use practices, such as ranching and farming, would continue. Effects on wildlife and special status species associated with ongoing agricultural practices would continue.

No Action (No USACE Permit) Alternative

Waters of the U.S. and other aquatic resources

The following San Benito County-required and applicant-proposed measures related to impacts to waters of the U.S. and other aquatic resources were included as conditions of approval in the conditional use permit for the proposed project and are considered part of the no action (no permit) alternative in this EIS. The full text of these measures is included in **Appendix C**, **Table C-1** and **Table C-2**. The impacts of the no action (no permit) alternative on waters of the U.S. and other aquatic resources with incorporation of these measures are discussed below.

- **APM BIO-4.** Prior to construction, all supervisory construction personnel would be instructed on the protection and importance of ecological resources.
- **APM BIO-12. Preserve undisturbed onsite lands.** Of the total project site area, the applicant will limit the total permanent disturbance area to 2,506 acres (1,794 acres of which will be permanently disturbed). Prior to the issuance of building or grading permits, the applicant will submit for the County's review and approval a site plan, building plan, or grading plan that delineates and calculates the total disturbance area for facilities proposed for that area of construction and will include a note on those plans that describes how these areas will be demarcated on the ground through the placement of appropriate staking, signage, or equally effective technique to ensure that construction is confined to the disturbance area. The applicant will implement on the ground demarcation of the disturbance area in accordance with the approved plan(s).
- **APM BIO-21. List of Best Management Practices.** Refer to updated Supplemental EIR (San Benito County 2015) for a list of Best Management Practices. All employees and contractors will be made aware of the BMPs, and those BMPs that are pertinent to employee work conduct will be implemented. Applicable BMPs include APM BIO-30 (All spills of hazardous materials shall be cleaned up immediately in accordance with the Spill Management Plan), APM BIO-38 (Project vehicles shall be confined to existing access routes or to specifically delineated areas. Otherwise, off-road vehicle travel is not permitted), and APM BIO-39 (Upon completion of any project component, all areas that are significantly disturbed and not necessary for future operations shall be stabilized to resist erosion, and re-vegetated and re-contoured if necessary, to promote restoration of the area to pre-disturbance conditions).
- **Mitigation Measure BR-G.2. Implement Best Management Practices (BMPs).** BMPs shall be implemented as standard

operating procedures during all ground disturbance and construction-related activities to avoid or minimize project impacts on biological resources. These BMPs shall include but are not limited to the following:

- No vehicles or equipment shall be refueled within 100 feet of an ephemeral drainage or wetland unless a bermed and lined refueling area is constructed. Spill kits shall be maintained on site in sufficient quantity to accommodate at least three complete vehicle tank failures of 50 gallons each. Any vehicles driven and/or operated within or adjacent to drainages or wetlands shall be checked and maintained daily to prevent leaks of materials.
- Development on the main project site will maintain existing hydrologic patterns with respect to runoff supporting seasonal wetlands, vernal pools and ephemeral drainages.
- Only project features that impact state and federal jurisdictional waters, as measured from the top-of-bank on both sides of these features, will be permitted through approval of a USACE 404 permit and/or Lake and Streambed Alteration Agreement (LSAA) from CDFW. Project access roads shall be designed to reach all portions of the project without direct effect on washes, except as described and allowed by the USACE 404 permit and approved LSAA and/or where this provision conflicts with the San Benito County Fire Code. No bridges shall be installed over washes unless required by the San Benito County Fire Code or the agency responsible for providing fire protection services to the and/or as allowed by the USACE 404 permit and approved LSAA. Driving across washes shall be prohibited except for emergency ingress and egress and as required by the agency responsible for providing fire protection services to the and/or as allowed by the USACE 404 permit and approved LSAA.

- **Mitigation Measure BR-G.6. Develop and implement Wetland Mitigation and Monitoring Plan and Habitat Management Plan for mitigation lands.** To ensure the success of on-site preserved land and acquired mitigation lands, required for compensation of permanent impacts to vegetative communities, wetlands, and listed or Special-Status plants and wildlife, the Applicant shall retain a County-approved, qualified biologist to prepare a Wetland Mitigation and Monitoring Plan (WMMP) and a Habitat Management Plan (HMP). The WMMP will focus on impacts and mitigation for jurisdictional waters and wetlands while the HMP will focus on the habitat and species management measures. The WMMP and HMP will be submitted to the County of San Benito for

approval, prior to the issuance of a construction permit. The WMMP will be subject to approval and conditions set forth by regulatory agencies (USACE, Regional Water Quality Control Board [RWQCB], and CDFW).

- **Mitigation Measure BR-1.1. Prepare and Implement a Weed Control Plan.** A comprehensive Weed Control Plan (WCP) will be developed for the project. The Weed Control Plan will serve to prevent conversion of natural habitats to those dominated by invasive species. The WCP shall be submitted to the County of San Benito for review and approval and shall be updated and utilized for weed eradication and monitoring post-construction. The WCP shall include, but not be limited to, the following: a pre-construction weed survey to document existing conditions, a description of weed control measures, methods to monitor and treat weed infestations, and weed best practices.
- **Mitigation Measure BR-8.3. Avoid seasonal depressions and known waterbodies.** All known seasonal depressions and water bodies that have been verified to be occupied by listed fairy shrimp shall be shown on all applicable construction plans and submitted with the construction permit application. The Applicant shall avoid seasonal depressions known to support listed fairy shrimp. A 100-foot buffer shall be placed around these seasonal depressions and known waterbodies to prevent equipment from entering these areas. This buffer shall be shown on all applicable construction plans (with a highly visible method easily identifiable by construction workers in the field). On-site delineation of this buffer shall be in place prior to the commencement of construction activities. The method used for delineating the buffer shall be kept in good working order for the duration of the construction period, and removed prior to final County inspection.
- **Mitigation Measure WR-6.1. Accidental spill control and environmental training.** The Construction Stormwater Pollution Prevention Plan (SWPPP) to be prepared for the proposed project shall include procedures for quick and safe cleanup of accidental spills. The Construction SWPPP shall prescribe hazardous materials handling procedures for reducing the potential for a spill during construction, and shall include an emergency response program to ensure quick and safe cleanup of accidental spills. Additionally, an environmental training program shall be established to communicate environmental concerns and appropriate work practices, including spill prevention and response measures, and SWPPP measures, to all field personnel. A monitoring program shall be implemented to ensure that the plans are followed during all construction, operational, and maintenance activities.

- **APM HAZ-1. Hazardous material containment.** Hazardous materials shall not be drained onto the ground or into streams or drainage areas.
- **APM WR-3. Road construction.** Roads would be built as near as possible to right angles to the streams and washes or as required by project permits. Culverts would be installed where necessary. All construction and maintenance activities shall be conducted in a manner that would minimize disturbance to vegetation, drainage channels, and intermittent or perennial stream banks.
- **APM BIO-7 and APM WR-2. Surface restoration at decommissioning.** In construction areas where ground disturbance is significant or where recontouring is required, surface restoration would occur as required as part of decommissioning. Restoration methods generally include returning areas to natural contour, reseeding, and installing erosion control measures.

Construction. Under the no action (no permit) alternative, the project would be constructed without placing fill into waters of the U.S., thereby avoiding the need for a Department of the Army permit. Under the no action (no permit) alternative, grading for free-span bridge footings would be located approximately 100 feet from the top of bank of Panoche and Las Aguilas creeks. The no action (no permit) alternative would avoid grading within jurisdictional areas on the eastern portion of the project site by using bottomless culverts to accommodate installation of the perimeter road.

The no action (no permit) alternative would have no direct impacts on federally protected waters of the U.S., including Panoche Creek, Las Aguilas Creek, and other intermittent and ephemeral waters of the U.S. on the proposed project site. However, waters of the U.S. could be indirectly impacted under the no action (no permit) alternative. Indirect impacts occur when an action has a secondary effect on a water feature, and can include but are not limited to changes in hydrology that would affect the normal function of a water resource, increase in suspended sediments and sediment deposition, discharge of pollutants, other reductions in water quality, or introduction or spread of noxious weeds or nonnative, invasive plants. Indirect effects would be unlikely to result in a quantifiable loss of acreage of waters of the U.S. or a complete loss of current functions.

As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, the applicant will adhere to a strict set of BMPs, including the SWPPP and other measures, to ensure that indirect effects to waters of the U.S. are minimized or avoided. Potential for indirect effects will also be minimized by ensuring that construction activities remain within the designated work areas and outside of buffers

established around avoided waters of the U.S. Temporarily disturbed areas within work areas will be revegetated, reducing potential for erosion and sedimentation. Additionally, the applicant has prepared a draft Wetland Mitigation and Monitoring Plan to compensate for unavoidable impacts. A draft Weed Control Plan has been prepared to ensure that establishment and spread of weeds in aquatic resources is minimized.

The applicant-proposed measures and mitigation measures would protect avoided waters of the U.S. and compensating for unavoidable impacts to waters of the U.S. Because these measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the indirect effects of the no action (no permit) alternative on waters of the U.S. would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

The no action (no permit) alternative would have no direct or indirect effects on wetlands because the proposed project site does not contain wetlands as identified by USACE.

In summary, the regulatory requirements described in **Section 3.6.1**, applicant-proposed measures, and mitigation measures described above would minimize the potential for impacting waters of the U.S. during construction. After incorporation of the measures above, potential effects from construction would be less than significant.

Operational and Maintenance Activities. The nature and type of effects on jurisdictional waters of the U.S. from operational and maintenance activities under the no action (no permit) alternative would be similar to those described for construction activities under the no action (no permit) alternative. Applicant-proposed measures and mitigation measures would prevent potential indirect effects on jurisdictional waters of the U.S. resulting from periodic maintenance or repairs to free-span bridges or bottomless culverts. Because these measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the indirect effects of the no action (no permit) alternative on waters of the U.S. would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Vegetation and Sensitive Habitats

The following San Benito County-required and applicant proposed measures related to impacts to vegetation and sensitive habitats were included as conditions of approval in the conditional use permit for the proposed project and are considered part of the no action (no permit) alternative in this EIS. The full text of these measures is included in **Appendix C**, **Table C-1** and **Table C-2**. The impacts of the no action (no permit) alternative on vegetation and sensitive habitats with incorporation of these measures are discussed below.

- **APM BIO-3.** In construction areas where recontouring is not required, vegetation would be left in place wherever possible and

original contour would be maintained to avoid excessive root damage and allow for regrowth.

- **APM BIO-12. Preserve undisturbed onsite lands.** Of the total project site area, the applicant will limit the total permanent disturbance area to 2,506 acres (1,794 acres of which will be permanently disturbed). Prior to the issuance of building or grading permits, the applicant will submit for the County's review and approval a site plan, building plan, or grading plan that delineates and calculates the total disturbance area for facilities proposed for that area of construction and will include a note on those plans that describes how these areas will be demarcated on the ground through the placement of appropriate staking, signage, or equally effective technique to ensure that construction is confined to the disturbance area. The applicant will implement on the ground demarcation of the disturbance area in accordance with the approved plan(s).
- **APM BIO-21. List of Best Management Practices.** Refer to updated Supplemental EIR (San Benito County 2015) for a list of Best Management Practices. All employees and contractors will be made aware of the BMPs, and those BMPs that are pertinent to employee work conduct will be implemented. Applicable BMPs include APM BIO-30 (All spills of hazardous materials must be cleaned up immediately in accordance with the Spill Prevention Plan), APM BIO-34 (Use of rodenticides and herbicides in project areas is prohibited with the exception of those applied near buildings/critical facilities. Only agency approved compounds will be applied (if necessary) by licensed applicators in accordance with label directions and other restrictions mandated by US Environmental Protection Agency, County Agricultural Commissioner, regional label prescriptions on use, California Department of Food and Agriculture, and other State and Federal legislation.), APM BIO-38 (Project vehicles shall be confined to existing access routes or to specifically delineated areas. Otherwise, off-road vehicle travel is not permitted), and APM BIO-39 (Upon completion of any project component, all areas that are significantly disturbed and not necessary for future operations shall be stabilized to resist erosion, and re-vegetated and re-contoured if necessary, to promote restoration of the area to pre-disturbance conditions).
- **Mitigation Measure BR-G.2. Implement Best Management Practices (BMPs).** BMPs shall be implemented as standard operating procedures during all ground disturbance and construction-related activities to avoid or minimize project impacts on biological resources. These BMPs shall include but are not limited to the following:

- Prior to ground disturbance of any kind the project work areas shall be clearly delineated by stakes, flags, or other clearly identifiable system.
- Vehicles and equipment shall be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.
- Speed limit signs, imposing a daytime speed limit of 15 miles per hour, will be installed throughout the project site prior to initiation of site disturbance and/or construction. To minimize disturbance of areas outside of the construction zone, all project-related vehicle traffic shall be restricted to defined access routes that will be staked and/or flagged, construction areas, and other designated areas. Off-road traffic outside of designated project areas will be prohibited.
- No vehicles or equipment shall be refueled within 100 feet of an ephemeral drainage or wetland unless a bermed and lined refueling area is constructed. Spill kits shall be maintained on site in sufficient quantity to accommodate at least three complete vehicle tank failures of 50 gallons each. Any vehicles driven and/or operated within or adjacent to drainages or wetlands shall be checked and maintained daily to prevent leaks of materials.
- Development on the main project site will maintain existing hydrologic patterns with respect to runoff supporting seasonal wetlands, vernal pools and ephemeral drainages.
- Minimize vegetation removal within active construction areas. This will include flagging of sensitive vegetative communities or plants.

- **APM AQ-3.** Implement best management practices: water graded/ excavated areas and active unpaved roadways, unpaved staging areas, and unpaved parking areas at least three times daily or apply chemical soil stabilizers per manufacturer recommendations; apply chemical soil stabilizers or water on inactive construction areas; stabilize all disturbed soil areas not subject to revegetation by using approved chemical soil binders, jute netting, or gravel for temporary roads; place gravel on all perimeter roadways and driveways as soon as possible after grading for said roadways; cover all trucks hauling dirt, sand, or soil or maintain at least two feet of freeboard; and install gravel track systems where vehicles enter and exit unpaved roads onto streets and inspect equipment tires to ensure free of soil prior to carry-out to paved roadways.
- **Mitigation Measure AQ-1.1. Reduce fugitive dust.** Implement additional measures to significantly reduce fugitive dust emissions and require measures to be shown on grading and building plans.

Such measures include limiting grading to 50 acres per day, and grading and excavation to 2.2 acres per day; watering graded/excavated areas and active unpaved roadways, unpaved staging areas, and unpaved parking areas at least three times daily or apply non-toxic chemical soil stabilization materials per manufacturer's recommendations; prohibiting all grading activities during periods of high wind (sustained over 15 mph); and minimizing dust leaving the site through wheel washers, street sweepers, gravelling roadways and driveways, and maintaining two feet of freeboard on haul trucks.

- **Mitigation Measure BR-G.3. Develop and implement a Habitat Restoration and Revegetation Plan.** The Applicant shall restore disturbed areas to pre-construction conditions or better. Prior to the issuance of a building permit and removal of any soil or vegetation, the Applicant shall retain a County-approved, qualified biologist, knowledgeable in the area of annual grassland habitat restoration, to prepare a Habitat Restoration and Revegetation Plan (HRRP). The purpose of the HRRP will be to explicitly identify the process by which all disturbed areas shall be restored to at least pre-construction conditions. The plan will address restoration and revegetation related to disturbance from construction. It will also address restoration and revegetation required after decommissioning of the project.
- **Mitigation Measure BR-1.1. Prepare and Implement a Weed Control Plan.** A comprehensive Weed Control Plan (WCP) will be developed for the project. The Weed Control Plan will serve to prevent conversion of natural habitats to those dominated by invasive species. The WCP shall be submitted to the County of San Benito for review and approval and shall be updated and utilized for weed eradication and monitoring post-construction. The WCP shall include, but not be limited to, the following: a pre-construction weed survey to document existing conditions, a description of weed control measures, methods to monitor and treat weed infestations, and weed best practices.
- **Mitigation Measure BR-1.2. Development and implement a Grazing Plan for the project site.** Managed livestock grazing has been proposed for the project site. Prior to the issuance of a construction permit the Applicant shall retain a County-approved qualified restoration ecologist or biologist to prepare a Grazing Plan to be administered during the construction and operation of the project. The Grazing Plan shall be submitted to the County of San Benito for review and approval. The Grazing Plan shall include, but not be limited to, the following: timing and duration of grazing; discussion of the ecological impacts of replacing cattle grazing with sheep grazing; detailed measures to ensure the persistence and

prevent the extirpation of annual grassland species, including listed and rare plant species; the requirement that interior fencing for grazing management be constructed of three strand wire and posts and shall include detailed maps of fencing locations; an analysis of the potential for sheep grazing to contribute to the spread of invasive weed seed, and development of a detailed monitoring component to examine the effects of sheep grazing on wildlife on the project site and the effects of changes in vegetation related to shading from solar panels on grazing.

- **Mitigation Measure BR-G.5.** For impacts to on-site vegetative communities, the Applicant shall create conservation easement(s), purchase credits from an approved mitigation bank, or transfer land in fee to a CDFW approved conservation holder with a deed restriction or other appropriate agreement for the management of the land pursuant to the approved HMMP. The Applicant shall preserve land at mitigation ratio of 1:1 (one acre preserved for each acre permanently impacted) and shall contain the same type and quality of vegetative communities as those that are impacted by the project. This mitigation may occur on lands used simultaneously as mitigation for other impacts.
- **Mitigation Measure BR-8.2. Avoid disturbance to ephemeral pools occupied by vernal pool fairy shrimp to the maximum extent practicable, and mitigate for any unavoidable impacts.** the Applicant shall avoid filling or disturbing such pools to the maximum extent practicable. This includes avoiding any ground disturbance within 100 feet of the edges of such pools. To the extent that the fill or disturbance of ephemeral pools occupied by vernal pool fairy shrimp cannot be avoided, each acre, or fraction thereof, of occupied vernal pool habitat which is filled or disturbed shall be compensated by the preservation and management of 2 acres of occupied vernal pool fairy shrimp habitat (2:1 preservation ratio) and the creation, management, and preservation of 1 acre of vernal pool habitat (1:1 creation ratio) at a location approved and pursuant to authorization received from the USFWS. The Applicant may also satisfy this mitigation requirement through the purchase of credits at a USFWS-approved mitigation bank.
- **Mitigation Measure BR-8.3. Avoid seasonal depressions and known waterbodies.** A 100-foot buffer shall be placed around these seasonal depressions and known waterbodies to prevent equipment from entering these areas. This buffer shall be shown on all applicable construction plans (with a highly visible method easily identifiable by construction workers in the field). On-site delineation of this buffer shall be in place prior to the commencement of construction activities. The method used for

delineating the buffer shall be kept in good working order for the duration of the construction period, and removed prior to final County inspection.

- **APM BIO-7 and APM WR-2.** In construction areas where ground disturbance is significant or where recontouring is required, surface restoration would occur as required as part of decommissioning. Restoration methods generally include returning areas to natural contour, reseeding, and installing erosion control measures.

Construction. Construction of the no action (no permit) alternative would result in permanent and temporary disturbance to vegetation within the project footprint. These impacts include permanent or temporary disturbance of 1,796 acres of introduced annual grasslands, and temporary disturbance of 0.2 acre of waters of the State (including vernal pools, ephemeral pools, and vernal pool crustacean habitat).

Direct impacts would include permanent or temporary direct removal of vegetation. As described above, the no action (no permit) alternative would result in the permanent or temporary disturbance of 1,796 acres of introduced annual grasslands. As part of the CEQA EIR certification and approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, direct impacts on vegetation would be minimized. As described in APM BIO-3 and APM BIO-12, construction areas would be clearly delineated, and surface disturbance outside of construction areas would not occur. In construction areas where recontouring is not required, vegetation would be left in place wherever possible, and the original contour would be maintained. Areas of temporary disturbance would be restored to preconstruction conditions or better, in accordance with the Habitat Restoration and Revegetation Plan to be included as part of the no action (no permit) alternative (see BR-G.3). Disturbed areas would be recontoured, where appropriate, and planted with an approved seed mix. All seed mixtures would be certified weed-free, and weeds would be controlled by implementing the draft weed control plan as described in Mitigation Measure BR-1.1.

In accordance with Mitigation Measure BR-G.5, and to offset impacts from direct impacts on vegetation as part of the no action (no permit) alternative, approximately 24,176 acres of vegetation communities comprising the Valley Floor, Valadeao Ranch, and Silver Creek Ranch Conservation Lands would be preserved in perpetuity. Habitat enhancement actions would be implemented on these lands. While short-term direct and indirect impacts on native and nonnative vegetation could occur from habitat enhancement actions on conservation lands, native vegetation communities would benefit in the long term due to the actions. Because these measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, direct effects of the

no action (no permit) alternative on vegetation would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

The no action (no permit) alternative could alter habitats or vegetation communities through indirect impacts. Indirect impacts could include establishment or spread of weeds, soil disturbance, topsoil loss, and erosion, dust generation, and shading from PV panels. As part of the CEQA EIR certification and approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, potential indirect impacts on vegetation would be avoided or minimized.

Soil disturbance under the no action (no permit) alternative during construction could indirectly facilitate the establishment or spread of nonnative, invasive, or noxious weeds. Humans and vehicles accessing the site could inadvertently carry weed seeds on their clothing, shoes, and tires and on the undercarriage of vehicles. Invasive weeds could outcompete native species for water, nutrients, light, and space. This could change the vegetation structure and ecological function of vegetation communities on the project site. As part of the CEQA EIR certification and project approval process, the applicant committed to implementing Mitigation Measures BR-G.3 and BR-1.1, a Habitat Restoration and Revegetation Plan and Weed Control Plan, respectively. The plans will include measures to reduce the likelihood for the spread or invasion of weeds on the project site and restore habitats. Because these measures would be implemented as part of the no action (no permit) alternative, this impact would be less than significant.

Soil disturbance could also cause the loss of soil nutrients and topsoil through erosion. This could make on-site revegetation less successful and increase the likelihood of weed invasion. Furthermore, soil compaction caused by vehicles and workers on the project site could reduce water infiltration and make revegetation efforts unsuccessful. As part of the CEQA EIR certification and project approval process, the applicant committed to implementing APM BIO-21 and Mitigation Measure BR-G.2, which would require the applicant's contractors to implement a number of BMPs, including preparation of a SWPPP, to ensure that soil erosion was avoided or minimized. Because these measures will be implemented as part of the no action (no permit) alternative, this impact would be less than significant.

Site grading and construction traffic on unpaved roads could cause dust to be mobilized in the air and be deposited on vegetation surrounding the project site and along area roadways. Dust settling on vegetation could affect plant photosynthesis and respiration. Impairment of these functions could lower plant vigor and growth rate and increase a plant's susceptibility to disease. As part of the CEQA EIR certification and project approval process, the applicant

committed to implementing APM AQ-3 and Mitigation Measure AQ-1.1, which would require the applicant's contractors to implement a number of measures to minimize the amount of dust created on the proposed project site and minimize the amount of dust that would be carried off the project site by vehicles or during windy conditions. Because these measures would be implemented as part of the no action (no permit) alternative, this impact would be less than significant.

The PV arrays may alter the light and hydrological regimes where they are installed, resulting in long-term indirect impacts on vegetation underneath. Shading and the associated decrease in soil temperature and increase in available soil moisture on the project site may alter the vegetation composition growing in these areas. Altered vegetation composition may lead to altered habitat value and use for special status or general wildlife, discussed separately below. As described in **Chapter 2**, PV panels would be a maximum of 10-feet high at the point of highest tilt, panels would be mounted on steel support structures up to 15 feet long, and rows would be spaced 10 to 35 feet apart. Because of the design of the solar panels, it is expected that while there may be some alteration of underlying vegetation composition, sufficient sunlight would still be available for the majority of the site, and therefore this impact would be less than significant.

The no action (no permit) alternative would impact waters of the State, including vernal pools and ephemeral pools considered to be waters of the State. Construction would result in direct temporary disturbance of 0.2 acre of waters of the State (vernal pool crustacean habitat).

Direct impacts would include temporary direct removal of vegetation within vernal pools or ephemeral pools considered to be waters of the State. As part of the CEQA EIR certification and approval process, applicant committed to implementing measures that would minimize impacts to waters of the State, and mitigate for unavoidable impacts to waters of the State. Mitigation Measure BR-8.2 would require a 100-foot grading buffer to the maximum extent practicable around waters of the State that provide habitat for vernal pool crustaceans. Mitigation Measure BR-8.3 would similarly require a 100-foot buffer around vernal pools, ephemeral pools, and other known waterbodies to the maximum extent practicable. Unavoidable impacts to waters of the State that are occupied by vernal pool crustaceans will require consultation with USFWS and compensatory mitigation at a 2:1 ratio per Mitigation Measure BR-8.2. Unavoidable impacts to waters of the State that are not occupied by vernal pool crustaceans will be permitted under a CDFW Lake and Streambed Alteration Agreement as described in Mitigation Measure BR-G.2, Best Management Practices.

Indirect impacts could include reduction, concentration, and redirection of surface runoff from installation of hardscape, solar arrays, and other features in

the project footprint. Measures to reduce the likelihood of indirect impacts on wetland vegetation in waters of the State under the no action (no permit) alternative are generally the same as those discussed under waters of the U.S. above. Because these measures have been incorporated into the no action (no permit) alternative, direct and indirect impacts on waters of the State would be reduced to a less than significant level. No additional mitigation measures were identified to further reduce impacts.

Several ephemeral pools contain confirmed listed vernal pool fairy shrimp, and these features would be protected by construction buffers and other compensatory mitigation as described above (see Mitigation Measures BR-8.2 and BR-8.3). Impacts on special status species are discussed under the *Special Status Species* subheading.

In summary, the regulatory requirements described in **Section 3.6.1** and the incorporation of the applicant-proposed measures and mitigation measures described above would minimize the potential for impacting vegetation, and vernal and ephemeral pools that are considered waters of the State, during construction. Because the measures described above have been incorporated into the no action (no permit) alternative, potential impacts from construction would be less than significant.

Operational and Maintenance Activities. Effects on vegetation resulting from operational and maintenance activities under the no action (no permit) alternative could include both direct and indirect effects.

Temporary, localized, direct removal of vegetation may result during maintenance or replacement of individual PV panels or other project components. As part of the CEQA EIR certification and approval process, applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, direct impacts om vegetation would be minimized. As described in APM BIO-3 and APM BIO-12, work areas would be clearly delineated, and surface disturbance outside of these areas would not occur. Areas of temporary disturbance would be restored to preconstruction conditions or better, in accordance with the Habitat Restoration and Revegetation Plan to be included as part of the no action (no permit) alternative (see BR-G.3). Disturbed areas would be planted with an approved seed mix. All seed mixtures would be certified weed-free, and weeds would be controlled by implementing the draft weed control plan as described in Mitigation Measure BR-1.1. Because these measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the effects of temporary vegetation removal for operational and maintenance activities under the no action (no permit) alternative would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Temporary, direct effects on vegetation would also occur from proposed sheep grazing within the PV panel array. Short-term, intensive sheep grazing would be conducted to keep vegetation at a desired height as part of operational and maintenance activities. Grazing would be conducted according to the Grazing Plan described in BR-1.2, which would specify measures to avoid overgrazing and potential for weed spread. Grazing would only be conducted as conditions allow, including when available forage is available. Because this measure has been incorporated into the no action (no permit) alternative evaluated in this EIS, the direct effects of grazing on vegetation as part of operational and maintenance activities under the no action (no permit) alternative would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Indirect effects on vegetation resulting from operational and maintenance activities under the no action (no permit) alternative could include deposition of fugitive dust on vegetation, establishment and spread of weeds, erosion, and topsoil loss. These effects would be similar to those described for construction activities under the no action (no permit) alternative. Applicant-proposed measures and mitigation measures described under construction activities for the no action (no permit) alternative would also apply to operational and maintenance activities under the no action (no permit) alternative. Under these measures, Habitat Restoration and Revegetation Plan and Weed Control Plans would include measures to reduce the likelihood for the spread or invasion of weeds on the project site and restore habitats. The applicant would also implement a number of BMPs, including preparation of a SWPPP, to ensure that soil erosion would be avoided or minimized. Additional measures would also minimize fugitive dust. Because these measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the indirect effects of operational and maintenance activities under the no action (no permit) alternative on vegetation would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Operational and maintenance activities under the no action (no permit) alternative could impact waters of the State, including vernal pools and ephemeral pools considered to be waters of the State. Direct impacts could include temporary direct removal of vegetation within waters of the State during maintenance activities or replacement of individual PV panels. Indirect impacts could include deposition of fugitive dust on vegetation in waters of the State, and establishment and spread of weeds, erosion, and sedimentation within vernal or ephemeral pools. These effects are described under construction activities for the no action (no permit) alternative. As part of the CEQA EIR certification and approval process, the applicant committed to implementing measures that would minimize impacts to waters of the State, including during operational and maintenance activities. These measures are described under construction activities for this alternative and generally include measures to prevent erosion and sedimentation, reduce fugitive dust, and avoid ephemeral

pools containing habitat for vernal pool crustaceans. Because these measures have been incorporated into the no action (no permit) alternative, direct and indirect impacts on waters of the State from operational and maintenance activities would be less than significant. No additional mitigation measures were identified to further reduce impacts.

Wildlife

The following San Benito County-required measures and applicant proposed measures related to wildlife were included as conditions of approval in the conditional use permit for the proposed project and are considered part of the no action (no permit) alternative in this EIS. The full text of these measures is included in **Appendix C**, **Table C-1** and **Table C-2**:

- **APM AES-3. Operation Lighting.** During operation of the project, motion-sensor lighting will be used at the main entrance, substation, and switching station. The lighting will consist of energy-efficient lamps that will only be lit when human activity is detected. Motion sensors will have sensitivities set to avoid activating the lights when animal activity is occurring.
- **APM AQ-3.** The Applicant shall reduce fugitive dust emissions during construction through implementation of the following best management practices: water graded/ excavated areas and active unpaved roadways, unpaved staging areas, and unpaved parking areas at least three times daily or apply chemical soil stabilizers per manufacturer recommendations; apply chemical soil stabilizers or water on inactive construction areas; stabilize all disturbed soil areas not subject to revegetation by using approved chemical soil binders, jute netting, or gravel for temporary roads; place gravel on all perimeter roadways and driveways as soon as possible after grading for said roadways; cover all trucks hauling dirt, sand, or soil or maintain at least two feet of freeboard; and install gravel track systems where vehicles enter and exit unpaved roads onto streets and inspect equipment tires to ensure free of soil prior to carry-out to paved roadways.
- **APM BIO-2**. The areal limits of construction activities would normally be predetermined, with activity restricted to and confined within those limits.
- **APM BIO-3.** In construction areas where recontouring is not required, vegetation would be left in place wherever possible and original contour would be maintained to avoid excessive root damage and allow for regrowth.
- **APM BIO-4.** Prior to construction, all supervisory construction personnel would be instructed on the protection and importance of ecological resources.

- **APM BIO-6.** Project boundary fencing will be constructed using chain link approximately 6 feet in height. The bottom of the chain link fencing will be elevated off the surface of the ground approximately 5-6 inches to allow for wildlife movement across the project site.
- **APM BIO-7 and APM WR-2.** In construction areas where ground disturbance is significant or where recontouring is required, surface restoration would occur as required as part of decommissioning. Restoration methods generally include returning areas to natural contour, reseeding, and installing erosion control measures.
- **APM BIO-12. Preserve undisturbed onsite lands.** Of the total project site area, the applicant will limit the total permanent disturbance area to 2,506 acres (1,794 acres of which would be permanently disturbed). Prior to the issuance of building or grading permits, the applicant will submit for the County's review and approval a site plan, building plan, or grading plan that delineates and calculates the total disturbance area for facilities proposed for that area of construction and will include a note on those plans that describes how these areas will be demarcated on the ground through the placement of appropriate staking, signage, or equally effective technique to ensure that construction is confined to the disturbance area. The applicant will implement on the ground demarcation of the disturbance area in accordance with the approved plan(s).
- **APM BIO-21. List of Best Management Practices.** Refer to updated Supplemental EIR (San Benito County 2015) for a list of Best Management Practices. All employees and contractors will be made aware of the BMPs, and those BMPs that are pertinent to employee work conduct will be implemented. Applicable BMPs include:
  - **APM BIO-24.** A biological monitor(s) shall be present while ground-disturbing activities are occurring
  - **APM BIO-25.** Biological monitors are empowered to order cessation of activities if take avoidance and/or mitigation measures are violated and will notify the Applicant's environmental representative
  - **APM BIO-29.** To prevent inadvertent entrapment of protected species, all open holes, steep-walled holes, or trenches more than 2 feet deep shall be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps
  - **APM BIO-31.** Pets are prohibited at the PVSF

- **APM BIO-33.** All food-related trash, such as wrappers, cans, bottles, bags, and food scraps shall be disposed of daily in containers with secure covers and regularly removed from PVSF
- **APM BIO-34.** Use of rodenticides and herbicides in project areas is prohibited with the exception of those applied near buildings/critical facilities
- **APM BIO-35.** All project-related vehicles shall observe a speed limit of 15 mph or less on all except as posted on State and County highway/roads
- **APM BIO-37.** Appropriate measures shall be undertaken to prevent unauthorized vehicle entry to off-road survey routes in sensitive habitat areas
- **APM BIO-38.** Project vehicles shall be confined to existing access routes or to specifically delineated areas
- **APM BIO-39.** Upon completion of any project component, all areas that are significantly disturbed and not necessary for future operations shall be stabilized to resist erosion, and re-vegetated and re-contoured if necessary, to promote restoration of the area to pre-disturbance conditions

- **APM N-1.** To comply with the County's noise standards, the Applicant shall prohibit the use of fuel operated generators running at 100 percent load within 350 feet of the property boundary between 7:00 p.m. and 7:00 a.m. Battery- operated generators, generators that tie into a temporary or permanent electrical power source, or fuel-operated generators dampened to a noise level measured at less than 40 dBA Ldn at the property line shall be permitted within 350 feet of the property boundary. No fuel-operated generators, dampened or otherwise, shall be permitted within 200 feet of the property boundary. The Applicant shall also prohibit pile driving and grading of the site during these hours.
- **APM HAZ-1.** Hazardous materials shall not be drained onto the ground or into streams or drainage areas.
- **APM HAZ-4.** The applicant shall ensure that any animals grazing on the site during construction activity pursuant to a lease or other agreement shall be properly vaccinated in accordance with local custom and practice for San Benito County and Panoche Valley.
- **Mitigation Measure AE-1.1. Reduce night lighting impacts.** The Applicant shall design and install all temporary construction and decommissioning lighting and permanent exterior lighting that does not cause excessive glare, that does not illuminate the nighttime sky, that is hooded or shielded to direct lighting downward, and that is

operated on a motion-sensor when not needed on a continuous basis.

- **Mitigation Measure AQ-1.1. Reduce fugitive dust.** Implement additional measures to significantly reduce fugitive dust emissions and require measures to be shown on grading and building plans. Such measures include limiting grading to 50 acres per day, and grading and excavation to 2.2 acres per day; watering graded/excavated areas and active unpaved roadways, unpaved staging areas, and unpaved parking areas at least three times daily or apply non-toxic chemical soil stabilization materials per manufacturer's recommendations; prohibiting all grading activities during periods of high wind (sustained over 15 mph); and minimizing dust leaving the site through wheel washers, street sweepers, gravelling roadways and driveways, and maintaining two feet of freeboard on haul trucks.
- **Mitigation Measure BR-G.1. Implement a Worker Environmental Education Program.** Prior to any project activities on the site (i.e., surveying, mobilization, fencing, grading, or construction), a Worker Environmental Education Program (WEEP) shall be implemented by a qualified biologist or qualified biologists. The WEEP shall include, at a minimum, the following items: a discussion of the Federal and State Endangered Species Acts, Bald and Golden Eagle Protection Act, and the Migratory Bird Treaty Act; the consequences of non-compliance with these acts; identification and values of plant and wildlife species and significant natural plant community habitats; a contact person and phone number in the event of the discovery of dead or injured wildlife; and a review of mitigation requirements, among other items.
- **Mitigation Measure BR-G.2. Implement Best Management Practices (BMPs).** BMPs shall be implemented as standard operating procedures during all ground disturbance and construction-related activities to avoid or minimize project impacts on biological resources. BMP applicable to wildlife include but are not limited to the following:
  - Prior to ground disturbance of any kind the project work areas shall be clearly delineated by stakes, flags, or other clearly identifiable system.
  - Vehicles and equipment shall be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.
  - Speed limit signs, imposing a daytime speed limit of 15 miles per hour, will be installed throughout the project site prior to initiation of site disturbance and/or construction. To minimize disturbance of areas outside of the construction zone, all

project-related vehicle traffic shall be restricted to defined access routes that will be staked and/or flagged, construction areas, and other designated areas. Off-road traffic outside of designated project areas will be prohibited.

- No vehicles or equipment shall be refueled within 100 feet of an ephemeral drainage or wetland unless a bermed and lined refueling area is constructed. Spill kits shall be maintained on site in sufficient quantity to accommodate at least three complete vehicle tank failures of 50 gallons each. Any vehicles driven and/or operated within or adjacent to drainages or wetlands shall be checked and maintained daily to prevent leaks of materials.
- All general trash, food-related trash items (e.g., wrappers, cans, bottles, food scraps, cigarettes), microtrash (i.e., broken glass, paper and plastic waste, small pieces of metal), and other human-generated debris will be stored in animal proof containers and/or removed from the site each day. No deliberate feeding of wildlife will be allowed.
- All pipes and culverts with a diameter of greater than one inch shall be capped or taped closed. Prior to capping or taping the pipe/culvert shall be inspected for the presence of wildlife. In the event a pipe is inadvertently left open, the pipe will be inspected prior to moving. If encountered the wildlife shall be allowed to escape unimpeded.
- To prevent harassment or mortality of listed, special-status species and common wildlife, or destruction of their habitats, no domesticated animals of any kind shall be permitted in any project area with the exception of grazing animals such as cattle, goats, or sheep that are being used for vegetation management on the site, trained working animals used specifically for livestock management or species surveys (e.g., horses, livestock working dogs, and scent detection dogs). Livestock and scent detection dogs shall be immunized against rabies, parvovirus, and distemper.
- During the site disturbance and/or construction phase, ground disturbing activities (including, but not limited to grading, pile driving, trenching) before dawn and after dusk, are prohibited.
- Minimize vegetation removal within active construction areas. This will include flagging of sensitive vegetative communities or plants.
- All excavation, steep-walled holes or trenches in excess of 2 feet in depth shall be covered at the close of each working day

by plywood or similar materials, or provided with one or more escape ramps constructed of earth dirt fill or wooden planks

- New light sources will be minimized, and lighting will be designed (e.g., using downcast lights) to limit the lighted area to the minimum necessary.

- **Mitigation Measure BR-G.3. Develop and implement a Habitat Restoration and Revegetation Plan.** The Applicant shall restore disturbed areas to pre-construction conditions or better. Prior to the issuance of a building permit and removal of any soil or vegetation, the Applicant shall retain a County-approved, qualified biologist, knowledgeable in the area of annual grassland habitat restoration, to prepare a Habitat Restoration and Revegetation Plan (HRRP). The purpose of the HRRP will be to explicitly identify the process by which all disturbed areas shall be restored to at least pre-construction conditions. The plan will address restoration and revegetation related to disturbance from construction. It will also address restoration and revegetation required after decommissioning of the project.

- **Mitigation Measures BR-G.4. Implement biological monitoring of construction activities.** Prior to the commencement of ground disturbance or site mobilization activities, the Applicant shall retain County-approved, qualified biologist(s) with demonstrated expertise with listed and/or special-status plants, terrestrial mammals and reptiles to monitor all construction activities on a daily basis.

- **Mitigation Measure BR-1.1. Prepare and Implement a Weed Control Plan.** A comprehensive Weed Control Plan (WCP) will be developed for the project. The Weed Control Plan will serve to prevent conversion of natural habitats to those dominated by invasive species. The WCP shall be submitted to the County of San Benito for review and approval and shall be updated and utilized for weed eradication and monitoring post-construction. The WCP shall include, but not be limited to, the following: a pre-construction weed survey to document existing conditions, a description of weed control measures, methods to monitor and treat weed infestations, and weed best practices.

- **Mitigation Measure BR-1.2. Development and implement a Grazing Plan for the project site.** Managed livestock grazing has been proposed for the project site. Prior to the issuance of a construction permit the Applicant shall retain a County-approved qualified restoration ecologist or biologist to prepare a Grazing Plan to be administered during the construction and operation of the project. The Grazing Plan shall be submitted to the County of San Benito for review and approval. The Grazing Plan shall include, but

not be limited to, the following: timing and duration of grazing; discussion of the ecological impacts of replacing cattle grazing with sheep grazing; detailed measures to ensure the persistence and prevent the extirpation of annual grassland species, including listed and rare plant species; the requirement that interior fencing for grazing management be constructed of three strand wire and posts and shall include detailed maps of fencing locations; an analysis of the potential for sheep grazing to contribute to the spread of invasive weed seed, and development of a detailed monitoring component to examine the effects of sheep grazing on wildlife on the project site and the effects of changes in vegetation related to shading from solar panels on grazing.

- **Mitigation Measure BR-6.1 Conduct pre-construction surveys for nesting and breeding birds and implementation of avoidance measures.** Prior to any on-site site disturbance (i.e., mobilization, staging, grading or construction) during the breeding season (February 1 through August 15) for any birds, including raptors, that could occur on the site, the Applicant shall retain a County-approved qualified biologist to conduct pre-construction surveys for nesting birds. If breeding birds with active nests are found prior to or during construction, a biological monitor shall establish a 300-foot buffer around the nest for ground-based construction activities and no activities will be allowed within the buffer(s) until the young have fledged from the nest or the nest fails. Buffers for raptors will be larger.
- **Mitigation Measure BR-8.3. Avoid seasonal depressions and known waterbodies.** A 100-foot buffer shall be placed around these seasonal depressions and known waterbodies to prevent equipment from entering these areas. This buffer shall be shown on all applicable construction plans (with a highly visible method easily identifiable by construction workers in the field). On-site delineation of this buffer shall be in place prior to the commencement of construction activities. The method used for delineating the buffer shall be kept in good working order for the duration of the construction period, and removed prior to final County inspection.
- **Mitigation Measure BR-14.1. Implement Avian Power Line Interaction Committee guidelines (APLIC).** The Applicant will be required to construct all transmission facilities, towers, poles and lines in accordance with and comply with all policies set forth in the *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006* (APLIC) and *Reducing Avian Collisions with Power Lines: State of the Art in 2012* (APLIC, 2012), to minimize avian electrocutions as a result of the construction of the project.

- **Mitigation Measure BR-14.2. Prepare and Implement an Avian Conservation Strategy and Eagle Conservation Plan.** Prior to the issuance of a construction permit, the Avian Conservation Strategy and Eagle Conservation Plans (which have been prepared by the Applicant in draft format) shall be reviewed and approved by the County. The final plans will be developed in consultation with California Department of Fish and Wildlife (CDFW) and U.S. Fish and Wildlife Service (USFWS). The details of the final plans are subject to the approval and conditions required by the wildlife agencies. The plan will require monitoring of (1) the death and injury of birds from collisions with facility features such feeder/distribution lines, solar panels, and (2) impacts to aquatic insects from polarized light from solar panels that may affect insectivorous (insect-eating) birds.
- **Mitigation Measure BR-16.2. Minimize impacts of foundation support installations.** The Applicant shall evaluate and implement feasible foundation installation systems to minimize noise and vibration that would affect ground-dwelling wildlife.
- **Mitigation Measure BR-22.1. Fence temporary pond to exclude wildlife.** The perimeter of the pond shall be surrounded by a barrier fence (or combination of fencing) designed to keep wildlife species out. The temporary chain link fence shall be tall enough (6 feet) to keep out large mammals and additional fine material exclusionary fencing shall be buried at least 2 feet, to keep out amphibians, reptiles, and small and medium sized mammals. A designated biologist shall regularly survey the ponds at least once per month.
- **Mitigation Measure BR-23.1. Create conservation easement on all project areas retired from the development footprint.** Prior to the start of construction, the Applicant shall record a permanent biological conservation easement on the entire footprint of the approved project that requires preservation in perpetuity of project areas retired from the development footprint at the time they are retired. The locations of acceptable conservation easement(s) shall be developed with approval of CDFW and USFWS. The primary purpose of the conservation easement(s) shall be conservation of impacted species and vegetative communities, but the conservation easement(s) shall also allow livestock grazing when and where it is compatible with or deemed beneficial for the habitat needs of impacted species.
- **Mitigation Measure NS-1.2. Implement noise-reducing features and practices for construction noise.** Prior to work commencing, the Applicant shall employ and clearly specify in its contractors' specifications the following noise-suppression

techniques to minimize the impact of temporary noise associated with construction and decommissioning activities: Trucks and other engine-powered equipment shall be equipped with noise reduction features, such as intake and exhaust mufflers and engine shrouds, which are no less effective than those originally installed by the manufacturer. Engine shrouds shall be closed during equipment operations. Trucks and other engine-powered equipment shall be operated in accordance with posted speed limits (see Air Quality Mitigation Measure AQ-1.1) and limited engine idling requirements (see Air Quality APM AQ-2). Truck engine exhaust ("jake") brake use shall be limited to emergencies. Back-up beepers for all construction equipment and vehicles shall be adjusted to the lowest noise levels possible, provided that OSHA and Cal OSHA's safety requirements are not violated. These settings shall be retained for the life of the project. Vehicle horns shall be used only when absolutely necessary, as specified in the contractors' specifications. Radios and other "personal equipment" shall be kept at low volume.

Construction. Construction, heavy equipment, and vehicle use on the project site could cause direct impacts, including mortality or injury to a variety of wildlife species, especially small animals that have subsurface burrows or ground- or shrub-nesting birds.

Construction under the no action (no permit) alternative could result in short-term direct, and short- and long-term indirect impacts on wildlife species, populations, and habitats. Short-term direct impacts are discussed below. No long-term direct impacts are anticipated under the no action (no permit) alternative.

Construction at the project site may result in direct, short-term impacts due to wildlife mortality. Mortality would be primarily from collision with construction-related traffic and equipment during the construction period. Strikes could occur during grading, equipment movement, or from passenger vehicle traffic. Construction-related mortality or injury would occur primarily in early morning and early evening hours when wildlife species are most active and susceptible to vehicle strikes. Construction-related mortality could also occur from wildlife becoming trapped in holes, trenches, or pipes and subsequently freezing, starving, or being killed by construction activities. As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Construction personnel would receive environmental awareness training, which would include discussion of minimizing wildlife-vehicle strikes. Construction-related traffic and equipment would remain within pre-designated work areas, and would not enter wildlife habitat where strikes would be more likely to occur. Best management practices would establish speed limits for construction traffic to reduce chances for vehicle strikes. These measures

would also establish construction hours based on sunrise and sunset, which would prohibit activities during pre-dawn and post-sunset hours when wildlife would be most active, further reducing the potential for wildlife mortality from vehicle strikes. Finally, holes and trenches left overnight would be equipped with a wildlife escape ramp, and pipes or other small openings would be taped or otherwise sealed from wildlife entry. Because these measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, and because impacts would be short-term and limited to the construction period, impacts would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Short-term, direct effects from visual and noise disturbance could also result from construction activities, human presence, vehicles in the project site, and night lighting. Direct effects could occur both within and adjacent to the project footprint depending on activity intensity, and noise and lighting levels. Nesting birds, bats, and reptiles are particularly sensitive to human presence and noise. Visual and noise disturbances could cause wildlife to alter their foraging, migration, wintering, and breeding behaviors and to avoid suitable habitat in or near the project site. In the most extreme cases, disturbances could cause animals to abandon nests, burrows, roosts, or territories. Displacement of individuals could increase competition for resources in adjacent habitats. Any change in wildlife behavior associated with visual or noise disturbance could make animals more susceptible to disease, predation, or unsuccessful reproductive or foraging efforts, leading to lowered survival of adult wildlife or their dependent young. As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Construction personnel would receive environmental awareness training, which would include discussion of methods to minimize wildlife disturbance. Pre-construction surveys for breeding birds and raptors within and adjacent to work areas would ensure that active nests would be avoided by an appropriate buffer until young fledged. Impacts from night lighting would be minimized by ensuring construction lighting would be downlighted, would not cause excessive glare, and would not illuminate the night sky. Noise and vibration associated with placing PV panel foundations would be reduced, in turn reducing the potential for disturbance of ground-dwelling wildlife. Additional noise-reducing measures applying to generators, trucks, and traffic would be in effect. Construction-related traffic and equipment would remain within pre-designated work areas, and would not enter wildlife habitat where potential harassment or disruption of wildlife behavior would be increased. Finally, best management practices would specify appropriate lighting for wildlife and prohibit domestic pets on site. These measures would also establish construction hours based on sunrise and sunset, which would prohibit activities during pre-dawn and post-sunset hours when wildlife would be most active and potential for behavior disruption and habitat avoidance would be highest. These measures would offset the potential for direct, short-term effects from construction-related wildlife disruption.

Because these measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, and because impacts would be short-term and limited to the construction period, impacts would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

In addition, potential short-term direct impacts on migratory birds and other wildlife species could result from the construction of temporary water ponds. The temporary ponds would be removed at the end of construction. Wildlife species in the area attracted to the ponds to drink could become trapped and be exposed to increased risk of mortality from drowning. As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Mitigation Measures BR-22.1 requires that temporary ponds be fenced to exclude wildlife, including migratory birds. A biological monitor would survey the ponds to ensure effectiveness of the wildlife fences. This measure would offset the potential for direct, short-term effects. Because this measure has been incorporated into the no action (no permit) alternative evaluated in this EIS, and because impacts would be short-term and limited to the construction period, impacts would be less than significant. No additional mitigation measures were identified to further reduce this impact.

A number of short- and long-term indirect effects could occur to wildlife species resulting from construction of the project. Indirect effects are described in the following paragraphs.

Short-term indirect effects on wildlife species could result from temporary loss of wildlife habitat. Temporarily disturbed areas including staging areas would result in the short-term loss of habitat for wildlife species, including small mammals, amphibians, reptiles, and ground-nesting birds. As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, construction would disturb the minimum amount of habitat necessary; limits would be clearly marked and activity would be confined to the limits. In construction areas where grading is not required, vegetation would be left in place wherever possible. Where temporary disturbances occur, surface restoration would be required by native seeding and erosion control measures. The Habitat Restoration and Revegetation Plan and Weed Control Plan will ensure that all temporarily disturbed areas are restored to at least pre-construction conditions. These measures would offset the potential for short-term, indirect effects of habitat loss. Because these measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, impacts would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Long-term indirect effects from habitat loss would occur from construction of permanent project features including access roads, maintenance buildings, and the substation. The project site represents a relatively small portion of regional habitat and regional populations of common wildlife species. However, many populations of common wildlife species in the Panoche Valley are relatively geographically isolated from other populations due to terrain and limited habitat connectivity and dispersal opportunities. As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, approximately 24,176 acres of wildlife habitat comprising the Valley Floor, Valadeao Ranch, and Silver Creek Ranch Conservation Lands would be preserved in perpetuity. In particular, preservation of the Valley Floor Conservation Lands would ensure that high quality habitat, including wildlife movement corridors, within the Panoche Valley floor are preserved. Habitat enhancement actions would be implemented on these lands. While short-term impacts on some wildlife species could occur from habitat enhancement actions (e.g., weed control), wildlife would benefit in the long term due to the actions, and as such impacts would be less than significant. These measures would offset the potential for long-term, indirect effects of habitat loss due to permanent project features. Because these measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, impacts would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Bird mortality or injury could occur due to collision with or electrocution from collector lines that would transport electricity to the substation. Bird collisions may occur when a collector or transmission line transects a daily flight path used by a concentration of birds. Birds may also strike project structures, resulting in mortality or injury. Avian mortality has been observed at photovoltaic solar facilities from impact injuries (Kagan et al. 2014). Migratory bird species, including waterfowl and shorebirds, could be attracted to the temporary ponds described above, increasing the risk of collision with, and electrocution from, energized project components.

Interactions with transmission lines, towers, and structures and the risks of collision vary greatly by location. Collision rates generally increase in low light conditions, during inclement weather and strong winds, and when birds are startled by a disturbance. Collisions are more likely near wetlands, valleys that are bisected by power lines, and within narrow passes where power lines run perpendicular to flight paths.

Passerines (e.g., songbirds) and waterfowl (e.g., ducks) are known to collide with wires (APLIC 2006), particularly during nocturnal migrations or poor weather conditions (Avery et al. 1978). However, passerines and waterfowl have a lower potential for collisions than larger birds, such as raptors; this is because some behavioral factors contribute to a lower collision mortality rate for these birds.

Passerines and waterfowl tend to fly under power lines, while larger species generally fly over lines and risk colliding with higher static lines. Also, many smaller birds tend to reduce their flight activity during poor weather conditions (Avery et al. 1978).

Electrocution occurs when a perching bird simultaneously contacts two energized phase conductors or an energized conductor and grounded hardware. It happens most frequently on distribution lines between 1 and 60 kV (Avian Power Line Interaction Committee [APLIC] 2006); collector lines proposed under the no action (no permit) alternative would carry 34.5 kV of electricity. California condors, bald eagles, golden eagles, red-tailed hawks, and other large aerial perching birds are susceptible to electrocution on power lines. This is because of their size, distribution, and proclivity to perch on tall structures that offer views of potential prey. The largest birds with a reasonable likelihood of coming in contact with the high voltage transmission lines in the vicinity of the project site are golden eagle and bald eagle (APLIC 2006). Electric distribution lines currently occur in and near the proposed project site, primarily along Panoche Road and Little Panoche Road, and extending to nearby residences. The existing 230 kV Moss Landing-Panoche transmission line crosses the proposed project site from the north-west to the south-east. Therefore, the potential for electrocution from overhead electric distribution, while it may increase under the no action (no permit) alternative, already exists on and near the proposed project site. In addition, while the proposed project site contains suitable foraging habitat for many raptors, there is limited nesting habitat.

The substation may pose electrocution hazards for some birds because the wires, bus work, and support structures can provide potential roosting, perching, and nesting sites. High-voltage components of the substation would provide sufficient conductor clearance to minimize bird electrocutions. While the no action (no permit) alternative would increase the number of overhead collector lines in the area, and therefore may increase the risk, impacts related to bird mortality or injury due to electrocution would be minimized through the implementation of mitigation measures included as part of the no action (no permit) alternative, including implementation guidelines by the Avian Power Line Interaction Committee (see Mitigation Measure BR-14.1), and the preparation and implementation of an avian conservation strategy and eagle conservation plan (see Mitigation Measure BR-14.2), drafts of which are complete. With the implementation of these mitigation measures, impacts related to bird mortality or injury due to electrocution would be less than significant.

Lighting installed under the no action (no permit) alternative may have additional indirect effects on wildlife. Lighting may attract bats and other insect-eating species, making wildlife more visible to predators and potentially leading to mortality and disruption of normal activities. Night lighting would be used at the O&M building, the substation, and the switching station as needed. As part of the CEQA EIR certification and project approval process, the applicant

committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, night lighting under the no action (no permit) alternative would be designed to minimize impacts on wildlife. Night lighting would be used only where necessary, and would consist of motion-sensor lights with a sensitivity setting to only detect human activity. Normal wildlife activity would not trigger lighting. Additionally, night lighting will be designed to avoid excessive glare, to avoid lighting the night sky, and to be hooded or shielded to direct light downward. Because night lighting would be used at only a few structures on the project site, and because lighting would be designed and installed in accordance with the mitigation measures included as part of the no action (no permit) alternative, these impacts would be less than significant.

Solar panels would produce polarized light pollution that could confuse insects, reptiles, and birds, altering foraging or other wildlife behavior over the long term. The primary natural source of polarized light in the environment is water. For a variety of wildlife species, polarized light pollution can affect their ability to detect natural polarized light patterns in the sky, which can affect their navigation ability, foraging behavior, dispersal, and reproduction (Horvath et al. 2009). However, due to the amount of lands surrounding the solar array that would not produce polarized light, these impacts would be less than significant.

Project features such as the solar arrays, roads, substation, and fencing could also displace populations and affect the long-term movement of wildlife through the area. The proposed project would reduce the amount of open land available to some wildlife species for long-range movements into and out of the Panoche Valley. Under no action, the project could affect approximately 2,506 acres of mostly flat bottomlands through installation of fencing. Flat bottomlands are the preferred movement area for several wildlife species, including mule deer and San Joaquin kit fox. As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, preservation of the Valley Floor Conservation Lands would ensure that high quality habitat, including wildlife movement corridors, within the Panoche Valley floor are preserved. Additionally, the bottom 5 to 6 inches of project boundary fencing will be elevated off the surface of the ground to allow for movement of most wildlife in the area, though larger mammals such as mule deer would be restricted from portions of the project site. Movement opportunities through the site would be preserved in ephemeral and intermittent washes in the Valley Floor conservation lands, which would not be fenced. However, wildlife movement for larger mammals outside of these corridors would be reduced from preconstruction conditions. Additional movement corridors in the Valadeao and Silver Creek Ranch conservation lands, adjacent to the project site, would be preserved in perpetuity. Because these measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, impacts would be less than significant.

Habitat loss, fragmentation, and degradation (e.g., weed invasion and changes to the hydrologic regime) potentially associated with development under the no action (no permit) alternative could displace wildlife from the site over the long term, preventing or altering foraging, breeding, wintering, and sheltering behaviors. Loss of habitat connectivity could separate wildlife into smaller populations, making them more vulnerable to predation, drought, disease, and decline. Habitat fragmentation due to road construction and other project features would create more edge habitat and reduce the amount of undisturbed habitat for wildlife species. Weed spread from human disturbance on the project site would reduce the available forage for wildlife and increase the loss of habitat. All of these potential impacts could negatively affect the viability of local wildlife populations. As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, long-term impacts on wildlife population viability would be offset. Comprehensive plans to restore and improve habitat conditions in temporarily disturbed areas, and to conserve avoided areas, would be implemented. Habitat plans would include weed control, managed grazing for vegetation control, seeding and erosion control, and strict monitoring and reporting requirements to ensure that habitat improvement measures are effective. Habitat improvement measures would also apply to the approximately 24,176 acres of habitat preserved in perpetuity on the Valley Floor, Silver Creek, and Valadeao Ranch conservation lands. These preserved lands would help improve habitat connectivity for local wildlife populations, and protect these lands from fragmentation in the future. Wildlife-specific mitigation measures and BMPs described in the sections above would reduce long-term indirect impacts from permanent project features (e.g., fences, structures, PV panels) as previously described. Because these measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, impacts would be less than significant.

Construction of project features could alter hydrologic and solar regimes in the project footprint, resulting in changes to available food sources for various species of wildlife, including both plant forage and insect or small wildlife prey. Impermeable surfaces created by concrete slabs, roads, and buildings would intercept and concentrate precipitation in certain areas, and intercept and reduce available sunlight for vegetation. As previously discussed, only minor effects on vegetation composition from PV panels are expected due to the height and spacing of panels above the ground. Nevertheless, other permanent structures under the no action (no permit) alternative could alter vegetation composition, potentially increasing or decreasing available foraging habitat and/or food sources for various species of wildlife. As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Measures to reduce the long-term impacts on vegetation and habitat providing forage and prey for wildlife species would be included. Under

the comprehensive habitat management, weed control, and grazing plans, detrimental changes to habitat would be minimized or prevented, and monitoring and reporting requirements would serve to improve habitat conditions in the long term. Preservation of the conservation lands would provide a long-term source of forage and prey base. Additionally, permanent features in the project site will occupy a small area relative to the abundance of annual grassland habitat surrounding the project site. Because these measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, impacts would be less than significant.

In summary, the regulatory requirements described in **Section 3.6.1** and the incorporation of the applicant-proposed measures and mitigation measures described above would minimize the potential for impacting wildlife. Because the measures described above have been incorporated into the no action (no permit) alternative, potential impacts from construction would be less than significant.

Operational and Maintenance Activities. The nature and type of effects on wildlife from operational and maintenance activities under the no action (no permit) alternative could include short-term direct, and short- and long-term indirect impacts on wildlife species, populations, and habitats, including direct injury or mortality, visual and noise disturbance, temporary loss of habitat, and effects from lighting. Potential direct and indirect effects are described below.

Maintenance or replacement of the PV panels or other project components, including fencing, bridges, culverts, or access roads, may result in direct, short-term impacts due to wildlife mortality, and visual and noise disturbance. These effects would be similar to those described under construction of the no action (no permit) alternative but would be more limited as effects from maintenance activities would be localized and short term. As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above; these measures would also apply to operational and maintenance activities. These measures would avoid or minimize potential direct effects on wildlife by limiting working hours when wildlife is most active, setting speed limits, and clearly delineating work areas. Pre-construction breeding bird surveys, and requirements to fill holes and trenches or provide escape ramps and cap pipes, would further limit potential wildlife mortality. Because these measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, and because impacts would be short term and localized, impacts would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Short-term indirect effects on wildlife species could result from temporary loss of habitat associated with temporary work areas for maintenance or replacement of the PV panels or other project components. This effect would

be similar to that described under construction of the no action (no permit) alternative but would be more limited, as effects from maintenance activities would be localized and short term. As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above; these measures would also apply to operational and maintenance activities. These measures would avoid or minimize potential short-term indirect effects on wildlife, as areas of temporary disturbance would be restored to preconstruction conditions or better, in accordance with the Habitat Restoration and Revegetation Plan (see Mitigation Measure BR-G.3). Disturbed areas would be planted with an approved seed mix. All seed mixtures would be certified weed-free, and weeds would be controlled by implementing the weed control plan as described in Mitigation Measure BR-1.1. Because these measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, and because impacts would be short term and localized, impacts would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Indirect effects from permanent lighting on wildlife are discussed under construction of the no action (no permit) alternative, above.

Special Status Species

As stated, special status species data have been collected during both periods of above average rainfall (2009-2011) and below average rainfall (2012-2014), and represents an accurate description of the baseline biological conditions within the project site (San Benito County 2015). An attempt to isolate drought-induced effects on local populations of special status species within the Panoche Valley would require speculation; therefore, an analysis of drought-induced effects is not included within this document. Furthermore, a key focus of the conservation strategy for the project is maintaining intact habitat supporting known populations of special status species, allowing the species to adapt to future climate conditions and/or providing future options for conservation in light of the uncertainty associated with climate change predictions.

Construction under the no action (no permit) alternative could affect special status species as described below.

Effects on special status plant species

Three CNPS-ranked special status plant species, recurved larkspur, California groundsel, and serpentine leptosiphon, have been observed on the project site, including within portions of the project footprint and Valley Floor Conservation Lands. No federal or state-listed plant species have been observed on the project site, so no impacts would occur to these species.

The following San Benito County-required measures were included as conditions of approval in the conditional use permit for the proposed project to

reduce impacts on special status plant species and are considered part of the no action (no permit) alternative in this EIS. The full text of these measures is included in **Appendix C, Table C-1** and **Table C-2**. The impacts of the no action (no permit) alternative on special status plant species with incorporation of these measures is discussed below.

- **APM BIO-1.** All construction vehicle movement outside the project area would normally be restricted to pre-designated access, contractor acquired access, or public roads.
- **APM BIO-2.** The areal limits of construction activities would normally be predetermined, with activity restricted to and confined within those limits. No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate survey or construction activity limits.
- **APM BIO-3.** In construction areas where recontouring is not required, vegetation would be left in place wherever possible and original contour would be maintained to avoid excessive root damage and allow for regrowth.
- **APM BIO-4.** Prior to construction, all supervisory construction personnel would be instructed on the protection of cultural and ecological resources. To assist in this effort, the construction contract would address:
  - Federal and state laws regarding antiquities and plants and wildlife, including collection and removal.
  - The importance of these resources and the purpose and necessity of protecting them.
- **APM BIO-5.** Mitigation measures that will be developed during the consultation period under Section 7 of the Endangered Species Act will be adhered to as specified in the Biological Opinion of the US Fish and Wildlife Service.
- **APM BIO-7.** In construction areas where ground disturbance is significant or where recontouring is required, surface restoration would occur as required by the landowner or land management agency as part of decommissioning. The method of restoration would normally consist of returning disturbed areas back to their natural contour, reseeding, installing cross drains for erosion control, placing water bars in the road, and filling ditches.
- **APM BIO-12. Preserve undisturbed onsite lands.** Of the total project site area, the applicant will limit the total permanent disturbance area to 2,506 acres (1,794 acres of which will be permanently disturbed). Prior to the issuance of building or grading permits, the applicant will submit for the County's review and approval a site plan, building plan, or grading plan that delineates and

calculates the total disturbance area for facilities proposed for that area of construction and will include a note on those plans that describes how these areas will be demarcated on the ground through the placement of appropriate staking, signage, or equally effective technique to ensure that construction is confined to the disturbance area. The applicant will implement on the ground demarcation of the disturbance area in accordance with the approved plan(s).

- **APM BIO-20. Employee Education Program.** The Employee Education Program familiarizes Applicant employees and contractors with BMPs and other measures associated with protected species potentially on the project footprint.
- **APM BIO-21. List of Best Management Practices.** Refer to updated Supplemental EIR for a list of Best Management Practices. All employees and contractors will be made aware of the BMPs, and those BMPs that are pertinent to employee work conduct will be implemented. Applicable measures are listed below.
- **APM BIO-24.** b) A biological monitor(s) shall be present while ground-disturbing activities are occurring. In addition to conducting preconstruction surveys, the biological monitors shall aid crews in satisfying take avoidance criteria for BNLL and implementing project mitigation measures.
- **APM BIO-25.** c) Biological monitors are empowered to order cessation of activities if take avoidance and/or mitigation measures are violated and will notify the Applicant's environmental representative.
- **APM BIO-37.** p) Appropriate measures shall be undertaken to prevent unauthorized vehicle entry to off-road survey routes in sensitive habitat areas. Signing will be the preferred method to discourage use.
- **APM BIO-38.** q) Project vehicles shall be confined to existing access routes or to specifically delineated areas (i.e., areas that have been surveyed). Otherwise, off-road vehicle travel is not permitted.
- **APM BIO-39.** p) Upon completion of any project component, all areas that are significantly disturbed and not necessary for future operations shall be stabilized to resist erosion, and re-vegetated and re-contoured if necessary, to promote restoration of the area to pre-disturbance conditions.
- **Mitigation Measure BR-G.1. Implement a Worker Environmental Education Program.** The Worker Environmental Education Program familiarizes Applicant employees

and contractors with BMPs and other measures associated with protected species potentially on the project footprint.

- **Mitigation Measure BR-G.2. Implement Best Management Practices (BMPs).** BMPs shall be implemented as standard operating procedures during all ground disturbance and construction-related activities to avoid or minimize project impacts on biological resources.
- **Mitigation Measure BR-G.3. Develop and implement a Habitat Restoration and Revegetation Plan.** The Applicant shall restore disturbed areas to pre-construction conditions or better. Prior to the issuance of a building permit and removal of any soil or vegetation, the Applicant shall retain a County-approved, qualified biologist, knowledgeable in the area of annual grassland habitat restoration, to prepare a Habitat Restoration and Revegetation Plan (HRRP). The biologist would also be responsible for monitoring the initial implementation of the plan as the Applicant's attainment of the established success criteria.
- **Mitigation Measure BR-G.4. Implement biological monitoring of construction activities.** Prior to the commencement of ground disturbance or site mobilization activities, the Applicant shall retain County-approved, qualified biologist(s) with demonstrated expertise with listed and/or special-status plants, terrestrial mammals and reptiles to monitor all construction activities on a daily basis. The qualified biologist(s) shall be present at all times during ground-disturbing activities immediately adjacent to, or within, habitat that supports populations of the listed or special-status species identified in **Section 3.6** of this EIS.
- **Mitigation Measure BR-G.5.** Purchase credits from a CDFW-approved mitigation bank, create a permanent conservation easement(s), in favor of CDFW or a CDFW-approved conservation holder for the management of the land pursuant to the approved HMMP, or transfer land in fee to a CDFW approved conservation holder with a deed restriction for the management of the land pursuant to the approved HMMP.
- **Mitigation Measure BR-G.6. Develop and implement Wetland Mitigation and Monitoring Plan and Habitat Management Plan for mitigation lands.** To ensure the success of on-site preserved land and acquired mitigation lands, required for compensation of permanent impacts to vegetative communities, wetlands, and listed or Special-Status plants and wildlife, the Applicant shall retain a County-approved, qualified biologist to prepare a Wetland Mitigation and Monitoring Plan (WMMP) and a Habitat Management Plan (HMP). The WMMP will focus on impacts

and mitigation for jurisdictional waters and wetlands while the HMP will focus on the habitat and species management measures.

- **Mitigation Measure BR-1.1. Prepare and implement a Weed Control Plan.** Prior to the issuance of a building permit or any ground disturbance the Applicant shall retain a County-approved, qualified restoration ecologist or biologist to prepare a comprehensive adaptive Weed Control Plan (WCP) to be administered during the construction and operation of the project for the purpose of invasive weed abatement. The WCP shall be submitted to the County of San Benito for review and approval and shall be updated and utilized for weed eradication and monitoring post-construction.
- **Mitigation Measure BR-1.2. Develop and implement a Grazing Plan for the project site.** Managed livestock grazing has been proposed for the project site. Prior to the issuance of a construction permit the Applicant shall retain a County-approved qualified restoration ecologist or biologist to prepare a Grazing Plan to be administered during the construction and operation of the project. The Grazing Plan shall be submitted to the County of San Benito for review and approval.
- **Mitigation Measure BR-3.1. Conduct pre-construction surveys for State and Federally Threatened, Endangered, Proposed, Petitioned, and Candidate plants and implement avoidance measures.** Prior to initial ground disturbance and for undisturbed areas in subsequent construction years, the Applicant shall conduct pre-construction surveys for State and federally listed Threatened and Endangered, Proposed, Petitioned, and Candidate plants in all areas subject to ground-disturbing activity, including, but not limited to, solar panel footing preparation and construction areas, assembly yards, and areas subject to grading for new access roads. The surveys shall be conducted during the appropriate blooming period(s) (February 1 – May 31) by a qualified plant ecologist/biologist according to protocols established by the USFWS, CDFW, and California Native Plant Society (CNPS). All listed plant species found shall be marked and avoided. Any populations of special-status plants found during surveys will be fully described, mapped, and a CNPS Field Survey Form or written equivalent shall be prepared.
- **Mitigation Measure AQ-1.1. Reduce fugitive dust.** This measure provides guidance on how to minimize nuisance impacts and to significantly reduce fugitive dust emissions. It specifies measures to be shown on grading and building plans.

Construction

Effects On Special Status Plant Populations

Potential direct and indirect short-term and indirect long-term effects on special status plant species populations would result from construction activities. There are not anticipated to be any long-term direct effects on special status plant species.

The potential short-term direct effect on special status plant species would be the following:

- Individuals or populations of special status plant species could be removed due to construction.

Potential short-term indirect effects on special status plant species are the following:

- Dust during construction could cover individuals or populations, which could affect plant photosynthesis and respiration. Impairment of these functions could lower plant vigor and growth rate and increase a plant's susceptibility to disease.
- Species could be injured or killed or habitat could be contaminated by spilling or leaking industrial chemicals, fuels, and lubricants used for construction.

Potential long-term indirect effects on special status plant species are the following:

- Project implementation may remove or modify seed banks of special status plants through clearing and grading, thereby decreasing subsequent generations of plants.
- Special status plants that are not completely removed during construction and remain in the footprint of the solar arrays may be impacted by shading, by changes caused by the solar panels to the distribution of rainfall and runoff, by the addition of water during semiannual washing of the solar panels, by changes in the grazing regime, and by an invasion of nonnative plants.
- Soil disturbance during construction could indirectly facilitate the invasion or spread of nonnative, invasive, or noxious weeds. Further, humans and vehicles accessing the site could inadvertently carry weed seeds on their clothing, shoes, and tires and on the undercarriage of vehicles. While nonnative species are currently widespread on the project site, an increase in weedy plant cover would constitute an adverse effect on special status plant species. Invasive weeds could outcompete special status plant species for resources, such as water, nutrients, light, and space.

- 24,176 acres of potential special status plant habitat on the Valley Floor, Valadeao Ranch, and Silver Creek Ranch Conservation Lands would be preserved in perpetuity. Habitat enhancement actions would be implemented on these lands (see **Section 2.5.7**).

As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, the applicant will restrict the movement of construction vehicles; limit the extent of construction activities; preserve on-site and off-site mitigation lands; educate to prevent inadvertent human-caused errors; monitor the site; and reduce the likelihood for spills and exposure to hazardous substances. In addition, the applicant will conduct pre-construction surveys for special status plants. These measures would reduce the likelihood for adverse effects on special status plant species populations by identifying populations for avoidance and reducing the likelihood for damage or removal caused by construction activities, such as via crushing or surface-disturbing activities. In addition, conservation lands would preserve special status plant populations in these areas. Monitoring would proactively identify and resolve issues. Because these measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the effects on special status plant species populations from construction would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Effects On Special Status Plant Habitats

Potential direct and indirect short-term and long-term effects on the quality and quantity of special status plant species habitats would result from construction activities. There are not anticipated to be any short-term indirect effects on special status plant species habitat.

The potential short-term direct effect on special status plant species habitats would be the following:

- There could be temporary impacts on 712 acres of habitat due to construction, grading, staging areas, temporary access roads, and trenching.

The potential long-term direct effect on special status plant species habitat would be the following:

- Up to 1,796 acres of habitat could be lost due to the development of the O&M building, electrical inverter pads, substation, switching station, free-span bridges, and on-site roads.

The potential long-term indirect effect on special status plant species habitat would be the following:

- 24,176 acres of potential special status plant habitat on the Valley Floor, Valadeao Ranch, and Silver Creek Ranch Conservation Lands would be preserved in perpetuity. Habitat enhancement actions would be implemented on these lands (see **Section 2.5.7**).

As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, the applicant will limit the extent of construction activities and vegetation removal; restore habitats; preserve on-site and off-site mitigation lands; and monitor the site. A number of plans have been prepared to improve the success of these activities, including a habitat restoration and revegetation plan, habitat management plan for mitigation lands, weed control plan, and grazing plan. These measures would reduce the likelihood for impacts on the quality or quantity of special status plant species habitat by reducing unnecessary habitat removal; providing protected lands that could support other special status plant populations; restoring disturbed areas; improving management of on-site and mitigation lands through careful planning and documentation (e.g., via the grazing plan and habitat management plan); and monitoring to proactively identify and resolve issues. Because the above measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the effects on special status plant species habitat from construction would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Operational and Maintenance Activities

Effects On Special Status Plant Populations

Potential direct and indirect long-term effects on special status plant species would result from operational and maintenance activities. A direct impact would be that individuals could be removed due to trampling, vehicle traffic, or soil disturbance during maintenance.

Potential long-term indirect effects on special status plant species are the following:

- Dust mobilization during maintenance activities could cover individuals or populations, which could affect plant photosynthesis and respiration. Impairment of these functions could lower plant vigor and growth rate and increase a plant's susceptibility to disease.
- The use of herbicides or pets brought onto the proposed project site could kill or injure species.
- Spilling or leaking industrial chemicals, fuels, and lubricants used during operational and maintenance activities could injure or kill species or contaminate their habitat.

As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, the applicant will restrict the movement of vehicles; educate to prevent inadvertent human-caused errors; monitor the site; prohibit pesticides, herbicides, firearms, and pets on-site; and reduce the likelihood for spills and exposure to hazardous substances. These measures would reduce the likelihood for adverse effects on special status plant species populations by identifying populations for avoidance and reducing the likelihood for damage or removal caused by construction activities, such as via crushing or surface-disturbing activities. Monitoring would proactively identify and resolve issues. Because the above measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the effects on special status plant species populations from operational and maintenance activities would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Effects On Special Status Plant Habitats

Operational and maintenance activities would cause negligible impacts on special status plant habitat.

Effects on San Joaquin kit fox

The following San Benito County-required measures were included as conditions of approval in the conditional use permit for the proposed project to reduce impacts on San Joaquin kit fox and are considered part of the no action (no permit) alternative in this EIS. The full text of these measures is included in **Appendix C, Table C-1** and **Table C-2**. The impacts of the no action (no permit) alternative on San Joaquin kit fox with incorporation of these measures is discussed below.

- **APM BIO-1.** All construction vehicle movement outside the project area would normally be restricted to pre-designated access, contractor acquired access, or public roads.
- **APM BIO-2.** The areal limits of construction activities would normally be predetermined, with activity restricted to and confined within those limits. No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate survey or construction activity limits.
- **APM BIO-3.** In construction areas where recontouring is not required, vegetation would be left in place wherever possible and original contour would be maintained to avoid excessive root damage and allow for regrowth.
- **APM BIO-4.** Prior to construction, all supervisory construction personnel would be instructed on the protection of cultural and

ecological resources. To assist in this effort, the construction contract would address:

- Federal and state laws regarding antiquities and plants and wildlife, including collection and removal.
- The importance of these resources and the purpose and necessity of protecting them.

- **APM BIO-5.** Mitigation measures that will be developed during the consultation period under Section 7 of the Endangered Species Act will be adhered to as specified in the Biological Opinion of the US Fish and Wildlife Service.
- **APM BIO-6.** Project boundary fencing will be constructed using chain link approximately 6 feet in height. The bottom of the chain link fencing will be elevated off the surface of the ground approximately 5-6 inches to allow for wildlife movement across the project site.
- **APM BIO-7.** In construction areas where ground disturbance is significant or where recontouring is required, surface restoration would occur as required by the landowner or land management agency as part of decommissioning. The method of restoration would normally consist of returning disturbed areas back to their natural contour, reseeding, installing cross drains for erosion control, placing water bars in the road, and filling ditches.
- **APM BIO-12. Preserve undisturbed onsite lands.** Of the total project site area, the applicant will limit the total permanent disturbance area to 2,506 acres (1,794 acres of which will be permanently disturbed). Prior to the issuance of building or grading permits, the applicant will submit for the County's review and approval a site plan, building plan, or grading plan that delineates and calculates the total disturbance area for facilities proposed for that area of construction and will include a note on those plans that describes how these areas will be demarcated on the ground through the placement of appropriate staking, signage, or equally effective technique to ensure that construction is confined to the disturbance area. The applicant will implement on the ground demarcation of the disturbance area in accordance with the approved plan(s).
- **APM BIO-17. On-site Conservation Measures for San Joaquin Kit Fox**
  - Project is also integrating a series of avoidance and minimization measures by APM and MM to allow the applicant to construct and operate in a manner that will minimize to the extent practicable impacts to individuals (e.g., preconstruction surveys,

translocation efforts, education program of workers, site restrictions on access and operations, etc.).

- Restoration measures (soil stockpiling and revegetation efforts) will restore temporarily disturbed areas so they provide suitable areas for the species
- On-going monitoring based on the occupancy sampling will be used to determine changes in use of the site.
- This monitoring will inform an adaptive management approach to site management such as modifications of the grazing regime

- **APM BIO-18.** Duplicate measure, same as APM BIO-17.
- **APM BIO-19. Off-site Conservation Measures for San Joaquin Kit Fox**
  - Mitigate 3:1 for loss of habitat, with an additional 1:1 if after 5 years of monitoring the temporarily restored areas are found to no longer support the species.
  - Based on the Haight et al. (2002) spatial model, there are 1,010 acres of high suitability and 9,026 acres are of moderate suitability on the portions of Mitigation Lands. Therefore, the mitigation lands provide 10,036 acres of suitable habitat for the kit fox. The 10,036 acres that provide suitable habitat for kit fox on the Mitigation Lands results in a minimum of a 4.1:1 replacement ratio. In addition, a SJKF corridor has been created through the center of the Project Footprint to allow for movement of the species.
  - Monitoring of the site will permit an adaptive management program such as modifications of the grazing regime.
  - Off-site lands will be managed by a third-party selected in consultation with CDFW and USFWS.
- **APM BIO-20. Employee Education Program.** The Employee Education Program familiarizes Applicant employees and contractors with BMPs and other measures associated with protected species potentially on the project footprint.
- **APM BIO-21. List of Best Management Practices.** Refer to updated Supplemental EIR for a list of Best Management Practices. All employees and contractors will be made aware of the BMPs, and those BMPs that are pertinent to employee work conduct will be implemented. Applicable measures are listed below.
- **APM BIO-25.** c) Biological monitors are empowered to order cessation of activities if take avoidance and/or mitigation measures are violated and will notify the Applicant's environmental representative.

- **APM BIO-30.** g) All spills of hazardous materials shall be cleaned up immediately in accordance with the Spill Prevention Plan.
- **APM BIO-31.** j) Pets are prohibited at the PVSF.
- **APM BIO-32.** k) Firearms are prohibited at the PVSF.
- **APM BIO-33.** l) All food-related trash, such as wrappers, cans, bottles, bags, and food scraps shall be disposed of daily in containers with secure covers and regularly removed from PVSF.
- **APM BIO-34.** m) Use of rodenticides and herbicides in project areas is prohibited with the exception of those applied near buildings/critical facilities. Only agency approved compounds will be applied (if necessary) by licensed applicators in accordance with label directions and other restrictions mandated by US Environmental Protection Agency, County Agricultural Commissioner, regional label prescriptions on use, California Department of Food and Agriculture, and other State and Federal legislation.
- **APM BIO-35.** n) All project-related vehicles shall observe a speed limit of 15 mph or less on all except as posted on State and County highway/roads.
- **APM BIO-37.** p) Appropriate measures shall be undertaken to prevent unauthorized vehicle entry to off-road survey routes in sensitive habitat areas. Signing will be the preferred method to discourage use.
- **APM BIO-38.** q) Project vehicles shall be confined to existing access routes or to specifically delineated areas (i.e., areas that have been surveyed). Otherwise, off-road vehicle travel is not permitted.
- **APM BIO-39.** p) Upon completion of any project component, all areas that are significantly disturbed and not necessary for future operations shall be stabilized to resist erosion, and re-vegetated and re-contoured if necessary, to promote restoration of the area to pre-disturbance conditions.

Construction

Potential short- and long-term direct effects and short- and long-term indirect effects on San Joaquin kit fox populations would result from construction as described below. Traffic increases would occur during the construction phase; however, since kit fox are nocturnal, remaining in or very close to their dens during the day, an increase in traffic during daylight hours would not likely increase kit fox mortality (Panoche Valley Solar 2014).

Effects On San Joaquin Kit Fox Populations

Potential short-term direct effects on kit fox are the following:

- Injury or mortality to San Joaquin kit fox during construction due to destruction of burrows or collision with vehicles or heavy equipment (a vehicle strike analysis indicated that up to two San Joaquin kit fox could be expected to be killed via collisions with project-related vehicles on public roads in the vicinity of the project footprint [Panoche Valley Solar 2014])
- Disruption of movement caused by open trenches, which could create impassable barriers (individuals that inadvertently fall into deep steep-walled trenches would be vulnerable to predation, starvation, and entombment)

Potential long-term direct effect on kit fox is the following:

- Over the long term, barriers to San Joaquin kit fox movement resulting from the free-span bridges would be a direct effect to individuals

Potential short-term indirect effects on kit fox are the following:

- Displacement from the project site during construction due to noise and visual disturbance, as well as human presence; displacement from occupied or suitable burrows could make individuals more vulnerable to predation
- Injury or mortality due to use of pesticides, herbicides, and firearms or as a result of pets brought onto the project site
- Illness, mortality, or habitat contamination caused by spilling or leaking industrial chemicals, fuels, and lubricants used for construction
- Injury or mortality due to artificial increases in predator populations such as red fox, coyote, or domestic dogs that are attracted to the project site by improperly disposed-of trash

Potential long-term indirect effects on kit fox are the following:

- Reduced prey availability on-site due to habitat loss and disturbance
- Preservation of 15,314 acres of suitable habitat on the Valley Floor, Valadeao Ranch, and Silver Creek Ranch Conservation Lands in perpetuity (habitat enhancement actions would be implemented on these lands [see **Section 2.5.7**]). The conservation lands provide a linkage between the Panoche population and the greater Ciervo-Panoche population and would protect 15.1 percent of the unprotected portion of the core population area, as noted in the recovery plan.

- Movement through the site to the north via incorporation of a 1,604-foot corridor along Las Aguilas Creek in the Valley Floor Conservation Lands.
- Disruption of scent marking, territorial behavior, and movements caused by installation of structures in a current open environment
- Potential increase in the kit fox population if foxes were to adjust to solar arrays and take up residence within the array fences, if vegetative cover in the solar arrays were sufficient to support and increase rodent prey, and if array fencing were to provide a refuge to kit foxes from predation. Kit foxes have successfully used other modified habitats, such as active oil fields, orchards, and vineyards (USFWS 1998), and have been found to tolerate and acclimate quickly to disturbance (Bjurlin 2004). As such, it is possible that the kit fox population would not decrease as a result of the no action (no permit) alternative.

As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, the applicant will restrict the movement of construction vehicles; limit the extent of construction activities; construct fences to improve wildlife movement; preserve on-site and off-site mitigation lands; educate to prevent inadvertent human-caused errors; monitor the site; prohibit pesticides, herbicides, firearms and pets on-site; remove trash; and reduce the likelihood for spills and exposure to hazardous substances. These measures would reduce the likelihood for take of individual San Joaquin kit fox and for impacts on the larger Ciervo-Panoche population by reducing the likelihood for injury or mortality caused by construction activities, such as via vehicle strikes, predation, or poisoning. In addition, conservation lands could provide areas that could be used as refugia if populations were to avoid the site. Monitoring would proactively identify and resolve issues. Because the above measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the effects on the Ciervo-Panoche San Joaquin kit fox core population from construction would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Effects On San Joaquin Kit Fox Habitat

The no action (no permit) alternative would have short- and long-term direct effects and long-term indirect effects on the quality or quantity of habitat available for San Joaquin kit fox. There are not anticipated to be any short-term indirect effects on San Joaquin kit fox habitat.

Potential short-term direct effects on kit fox habitat are the following:

- Temporary impacts on 712 acres of potentially suitable San Joaquin kit fox habitat due to construction, grading, staging areas, roads, and trenching

- Destruction of burrows and dens caused by ground disturbance from limited grading, ground surface smoothing, driving support rods, assembling arrays, and trenching

Potential long-term direct effects on San Joaquin kit fox habitat would be the following:

- Permanent loss of up to 1,796 acres of potentially suitable San Joaquin kit fox habitat due to the development of the O&M building, electrical inverter pads, substation, switching station, free-span bridges, and on-site roads (at least nine San Joaquin kit fox are expected to be directly impacted, mainly from the loss of suitable burrows [Panoche Valley Solar 2014])

Potential long-term indirect effects on San Joaquin kit fox habitat are the following:

- Reduced habitat functionality and disruption of movement on undisturbed lands that would be completely or partially surrounded by solar arrays and associated infrastructure and other development
- Reduced availability of mammal burrows for refuge due to construction of solar arrays and associated facilities
- Preservation of 15,314 acres of suitable habitat on the Valley Floor, Valadeao Ranch, and Silver Creek Ranch Conservation Lands in perpetuity (habitat enhancement actions would be implemented on these lands [see **Section 2.5.7**]).

As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, the applicant will limit the extent of construction activities and vegetation removal; restore habitats; preserve on-site and off-site mitigation lands; and monitor the site. These measures would reduce the likelihood for impacts on the quality or quantity of San Joaquin kit fox habitat by reducing unnecessary habitat removal; providing protected lands that could be used as refugia; and monitoring to proactively identify and resolve issues. Because the above measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the effects on San Joaquin kit fox habitat from construction would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Operational and Maintenance Activities

Effects On San Joaquin Kit Fox Populations

Vehicle strikes are expected to be rare during operational and maintenance activities due to the low level of maintenance needed at the facility, and because

operational and maintenance activities (other than nighttime security patrols) would occur during the daytime when the species is less active. Other potential long-term effects on San Joaquin kit fox include illness, mortality, or habitat contamination caused by spilling or leaking of industrial chemicals, fuels, and lubricants used for operational and maintenance activities.

As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, the applicant will restrict the movement of vehicles; educate to prevent inadvertent human-caused errors; monitor the site; prohibit pesticides, herbicides, firearms, and pets on-site; and reduce the likelihood for spills and exposure to hazardous substances. These measures would reduce the likelihood for impacts on San Joaquin kit fox populations by reducing the likelihood of vehicle strikes; reducing the likelihood of spills; and through monitoring would proactively identify and resolve issues. Because the above measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the effects on San Joaquin kit fox populations from operational and maintenance activities would be less than significant.

Effects On San Joaquin Kit Fox Habitat

Operational and maintenance activities would cause negligible impacts on San Joaquin kit fox habitat.

Effects on giant kangaroo rats

The following San Benito County-required measures were included as conditions of approval in the conditional use permit for the proposed project to reduce impacts on giant kangaroo rat and are considered part of the no action (no permit) alternative in this EIS. The full text of these measures is included in **Appendix C, Table C-1** and **Table C-2**. The impacts of the no action (no permit) alternative on giant kangaroo rat with incorporation of these measures is discussed below.

- **APM BIO-1.** All construction vehicle movement outside the project area would normally be restricted to pre-designated access, contractor acquired access, or public roads.
- **APM BIO-2.** The areal limits of construction activities would normally be predetermined, with activity restricted to and confined within those limits. No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate survey or construction activity limits.
- **APM BIO-3.** In construction areas where recontouring is not required, vegetation would be left in place wherever possible and original contour would be maintained to avoid excessive root damage and allow for regrowth.

- **APM BIO-4.** Prior to construction, all supervisory construction personnel would be instructed on the protection of cultural and ecological resources. To assist in this effort, the construction contract would address:
  - Federal and state laws regarding antiquities and plants and wildlife, including collection and removal.
  - The importance of these resources and the purpose and necessity of protecting them.
- **APM BIO-5.** Mitigation measures that will be developed during the consultation period under Section 7 of the Endangered Species Act will be adhered to as specified in the Biological Opinion of the US Fish and Wildlife Service.
- **APM BIO-6.** Project boundary fencing will be constructed using chain link approximately 6 feet in height. The bottom of the chain link fencing will be elevated off the surface of the ground approximately 5-6 inches to allow for wildlife movement across the project site.
- **APM BIO-7.** In construction areas where ground disturbance is significant or where recontouring is required, surface restoration would occur as required by the landowner or land management agency as part of decommissioning. The method of restoration would normally consist of returning disturbed areas back to their natural contour, reseeding, installing cross drains for erosion control, placing water bars in the road, and filling ditches.
- **APM BIO-12. Preserve undisturbed onsite lands.** Of the total project site area, the applicant will limit the total permanent disturbance area to 2,506 acres (1,794 acres of which will be permanently disturbed). Prior to the issuance of building or grading permits, the applicant will submit for the County's review and approval a site plan, building plan, or grading plan that delineates and calculates the total disturbance area for facilities proposed for that area of construction and will include a note on those plans that describes how these areas will be demarcated on the ground through the placement of appropriate staking, signage, or equally effective technique to ensure that construction is confined to the disturbance area. The applicant will implement on the ground demarcation of the disturbance area in accordance with the approved plan(s).
- **APM BIO-15. On-site Conservation Measures for Giant Kangaroo Rat**
  - Project is also integrating a series of avoidance and minimization measures by APM and MM to allow the applicant to construct

and operate in a manner that will minimize to the extent practicable impacts to individuals (e.g., preconstruction surveys, translocation efforts, education program of workers, site restrictions on access and operations, etc.).

  - Project will utilize the Giant Kangaroo Rat Relocation Plan to relocate Giant Kangaroo Rat present on the site prior to the start of construction.
  - Restoration measures (soil stockpiling and revegetation efforts) will restore temporarily disturbed areas so they provide suitable areas for the species.
  - Occupancy sampling was used to determine changes in layout of the site.
  - This monitoring informed an adaptive management approach to site management.

- **APM BIO-16. Off-site Conservation Measures for Giant Kangaroo Rat**
  - Mitigate at a 3:1 ratio
  - Mitigate an additional 1:1 if after 5 years of monitoring the temporarily restored areas are found to no longer support the species.
  - Mitigation Lands, including Valley Floor Conservation Lands, Silver Creek Ranch Conservation Lands, and Valadeao Ranch Conservation Lands provide greater than the 3:1 ratio required assuming the project maintains residual value in the temporarily disturbed areas that are restored on the Project Site.
  - Monitoring of the site will permit an adaptive management program such as modifications of the grazing regime.
  - Off-site lands will be managed by a third-party selected in consultation with CDFW and USFWS.
- **APM BIO-20. Employee Education Program.** The Employee Education Program familiarizes Applicant employees and contractors with BMPs and other measures associated with protected species potentially on the project footprint.
- **APM BIO-21. List of Best Management Practices.** Refer to updated Supplemental EIR for a list of Best Management Practices. All employees and contractors will be made aware of the BMPs, and those BMPs that are pertinent to employee work conduct will be implemented. Applicable measures are listed below.
- **APM BIO-25.** c) Biological monitors are empowered to order cessation of activities if take avoidance and/or mitigation measures

are violated and will notify the Applicant's environmental representative.

- **APM BIO-30.** g) All spills of hazardous materials shall be cleaned up immediately in accordance with the Spill Prevention Plan.
- **APM BIO-31.** j) Pets are prohibited at the PVSF.
- **APM BIO-32.** k) Firearms are prohibited at the PVSF.
- **APM BIO-33.** l) All food-related trash, such as wrappers, cans, bottles, bags, and food scraps shall be disposed of daily in containers with secure covers and regularly removed from PVSF.
- **APM BIO-34.** m) Use of rodenticides and herbicides in project areas is prohibited with the exception of those applied near buildings/critical facilities. Only agency approved compounds will be applied (if necessary) by licensed applicators in accordance with label directions and other restrictions mandated by US Environmental Protection Agency, County Agricultural Commissioner, regional label prescriptions on use, California Department of Food and Agriculture, and other State and Federal legislation.
- **APM BIO-35.** n) All project-related vehicles shall observe a speed limit of 15 mph or less on all except as posted on State and County highway/roads.
- **APM BIO-37.** p) Appropriate measures shall be undertaken to prevent unauthorized vehicle entry to off-road survey routes in sensitive habitat areas. Signing will be the preferred method to discourage use.
- **APM BIO-38.** q) Project vehicles shall be confined to existing access routes or to specifically delineated areas (i.e., areas that have been surveyed). Otherwise, off-road vehicle travel is not permitted.
- **APM BIO-39.** p) Upon completion of any project component, all areas that are significantly disturbed and not necessary for future operations shall be stabilized to resist erosion, and re-vegetated and re-contoured if necessary, to promote restoration of the area to pre-disturbance conditions.
- **Mitigation Measure BR-G.1. Implement a Worker Environmental Education Program.** The Worker Environmental Education Program familiarizes Applicant employees and contractors with BMPs and other measures associated with protected species potentially on the project footprint.
- **Mitigation Measure BR-G.2. Implement Best Management Practices (BMPs).** BMPs shall be implemented as standard operating procedures during all ground disturbance and

construction-related activities to avoid or minimize project impacts on biological resources.

- **Mitigation Measure BR-G.3. Develop and implement a Habitat Restoration and Revegetation Plan.** The Applicant shall restore disturbed areas to pre-construction conditions or better. Prior to the issuance of a building permit and removal of any soil or vegetation, the Applicant shall retain a County-approved, qualified biologist, knowledgeable in the area of annual grassland habitat restoration, to prepare a Habitat Restoration and Revegetation Plan (HRRP). The biologist would also be responsible for monitoring the initial implementation of the plan as the Applicant's attainment of the established success criteria.
- **Mitigation Measure BR-G.4. Implement biological monitoring of construction activities.** Prior to the commencement of ground disturbance or site mobilization activities, the Applicant shall retain County-approved, qualified biologist(s) with demonstrated expertise with listed and/or special-status plants, terrestrial mammals and reptiles to monitor all construction activities on a daily basis. The qualified biologist(s) shall be present at all times during ground-disturbing activities immediately adjacent to, or within, habitat that supports populations of the listed or special-status species identified in **Section 3.6** of this EIS.
- **Mitigation Measure BR-G.5.** Purchase credits from a CDFW-approved mitigation bank, create a permanent conservation easement(s), in favor of CDFW or a CDFW-approved conservation holder for the management of the land pursuant to the approved HMMP, or transfer land in fee to a CDFW approved conservation holder with a deed restriction for the management of the land pursuant to the approved HMMP.
- **Mitigation Measure BR-G.6. Develop and implement Wetland Mitigation and Monitoring Plan and Habitat Management Plan for mitigation lands.** To ensure the success of on-site preserved land and acquired mitigation lands, required for compensation of permanent impacts to vegetative communities, wetlands, and listed or Special-Status plants and wildlife, the Applicant shall retain a County-approved, qualified biologist to prepare a Wetland Mitigation and Monitoring Plan (WMMP) and a Habitat Management Plan (HMP). The WMMP will focus on impacts and mitigation for jurisdictional waters and wetlands while the HMP will focus on the habitat and species management measures.
- **Mitigation Measure BR-1.1. Prepare and implement a Weed Control Plan.** Prior to the issuance of a building permit or any ground disturbance the Applicant shall retain a County-

approved, qualified restoration ecologist or biologist to prepare a comprehensive adaptive Weed Control Plan (WCP) to be administered during the construction and operation of the project for the purpose of invasive weed abatement. The WCP shall be submitted to the County of San Benito for review and approval and shall be updated and utilized for weed eradication and monitoring post-construction.

- **Mitigation Measure BR-1.2. Develop and implement a Grazing Plan for the project site.** Managed livestock grazing has been proposed for the project site. Prior to the issuance of a construction permit the Applicant shall retain a County-approved qualified restoration ecologist or biologist to prepare a Grazing Plan to be administered during the construction and operation of the project. The Grazing Plan shall be submitted to the County of San Benito for review and approval.
- **Mitigation Measure BR-16.1. Conduct focused pre-construction giant kangaroo rat burrow/precinct surveys and avoid.** No more than 30 days prior to commencement of ground disturbing activities the Applicant shall retain a County-approved, qualified biologist to conduct pre-construction surveys for each phase of the project.
- **Mitigation Measure BR-16.2. Minimize impacts of foundation support installations.** The Applicant shall evaluate and implement feasible foundation installation systems to minimize noise and vibration that would affect ground-dwelling wildlife.
- **Mitigation Measure BR-16.3. Preserve, manage, and maintain giant kangaroo rat habitat corridors across the project footprint.** This measure provides guidance on measures to preserve, manage, and maintain the ongoing functionality of the proposed giant kangaroo rat corridors (habitat corridors) on the Valley Floor Conservation Lands.
- **Mitigation Measure AQ-1.1. Reduce fugitive dust.** This measure provides guidance on how to minimize nuisance impacts and to significantly reduce fugitive dust emissions. It specifies measures to be shown on grading and building plans.

Construction

Effects On Giant Kangaroo Rat Populations

The no action (no permit) alternative would have short-term direct effects and short- and long-term indirect effects on the local population of giant kangaroo rat.

Potential short-term direct effects on giant kangaroo rat are the following:

- Injury or mortality to individual giant kangaroo rats due to collision with or crushing by construction equipment, vehicles, or other construction activities
- Injury or mortality to individual giant kangaroo rats during trapping, burrow excavation, and relocation
- Temporary reduction in hearing caused by noise and ground vibrations from heavy equipment (this could negatively affect foraging success, as giant kangaroo rats are nocturnal and rely primarily on hearing to detect predators and other threats)Disruption of movement caused by open trenches, which could create impassable barriers (rats that inadvertently fall into deep steep-walled trenches would be vulnerable to predation, starvation, and entombment

Potential short-term indirect effects on giant kangaroo rat are the following:

- Injury or mortality due to use of pesticides, herbicides, and firearms or as a result of pets brought onto the proposed project site
- Illness, mortality, or habitat contamination caused by spilling or leaking industrial chemicals, fuels, and lubricants used for construction
- Injury or mortality due to artificial increases in predator populations, such as red fox, coyote, or domestic dogs that are attracted to the project site by improperly disposed of trash
- Habitat avoidance and displacement due to human activity and noise associated with construction

Potential long-term indirect effects on giant kangaroo rat are the following:

- Increased predation of giant kangaroo rats resulting from increased perching opportunities for predators provided by project facilities and infrastructure (e.g., free-span bridges, solar panels, perimeter fencing, and the electrical substation)
- Increased predation of giant kangaroo rats resulting from permanent facilities lighting, which may increase giant kangaroo rat visibility to predators
- Over the long term, the 25-foot high free-span bridges and bridge abutments, on-site fencing, or other artificial structures could provide perches for raptors which may prey upon giant kangaroo rat, causing injury or mortality to individuals.
- Preservation of over 16,000 acres of suitable habitat on the Valley Floor, Valadeao Ranch, and Silver Creek Ranch Conservation Lands in perpetuity (habitat enhancement actions would be implemented

on these lands [see **Section 2.5.7**]). This includes 3,508 acres of highly suitable habitat in the Panoche Valley. These conservation lands represent the preservation and enhancement of nearly 90 percent of the core population areas of the Panoche Valley giant kangaroo rat population, as defined by the USFWS Recovery Plan (USFWS 1998).

As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, the applicant will restrict the movement of construction vehicles; limit the extent of construction activities; maintain giant kangaroo rat corridors to improve wildlife movement; preserve on-site and mitigation lands; educate to prevent inadvertent human-caused errors; monitor the site; prohibit pesticides, herbicides, firearms and pets on-site; remove trash; and reduce the likelihood for spills and exposure to hazardous substances. In addition, the applicant will conduct pre-construction surveys and relocate giant kangaroo rats off-site according to a relocation plan. These measures would reduce the likelihood for take of individual giant kangaroo rat and for impacts on the Panoche population by reducing the likelihood for injury or mortality caused by construction activities, such as via vehicle strikes, predation, or poisoning. Habitat corridors would allow giant kangaroo rats to disperse throughout or away from the site. In addition, conservation lands could provide areas that could be used as refugia if populations were to avoid the site. Relocation of giant kangaroo rats would help to reduce the likelihood of impacts caused by on-site activities. Monitoring would proactively identify and resolve issues. Because the above measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the effects on giant kangaroo rat populations from construction would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Effects On Giant Kangaroo Rat Habitat

The no action (no permit) alternative would have short- and long-term direct effects and long-term direct effects on the quality or quantity of habitat available for giant kangaroo rat. There are not anticipated to be any short-term indirect effects on giant kangaroo rat habitat.

Potential short-term direct effects on giant kangaroo rat habitat are the following:

- Temporary impacts to 27 acres of high suitability, 205 acres of moderate suitability, and 203 acres of low suitability giant kangaroo rat habitat due to construction, grading, staging areas, temporary access roads, and trenching
- Disturbance or disruption of habitat, including burrows, precincts, vegetation, and pit-caches or haystacks from construction

equipment (e.g., graders, scrapers, bulldozers, trucks) or activities (e.g., steel post mounts driven into the ground and trenching)

Potential long-term direct effects on giant kangaroo rat habitat are the following:

- Permanent loss of up to 59 acres of high suitability, 1,230 acres of moderate suitability, and 545 acres of low suitability giant kangaroo rat habitat due to the development of the O&M building, electrical inverter pads, substation, switching station, free-span bridges, and on-site roads

Potential long-term indirect effects on giant kangaroo rat habitat are the following:

- Reduced habitat functionality on undisturbed lands that would be completely or partially surrounded by solar arrays and associated infrastructure and other development
- Reduced availability of mammal burrows for refuge due to construction of solar arrays and associated facilities

As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, the applicant will limit the extent of construction activities and vegetation removal; restore habitats; preserve on-site and mitigation lands; and monitor the site. A number of plans have been or will be prepared to improve the success of these activities, including a habitat restoration and revegetation plan, habitat management plan for mitigation lands, weed control plan, and grazing plan. These measures would reduce the likelihood for impacts on the quality or quantity of giant kangaroo rat habitat by reducing unnecessary habitat removal; providing protected lands that could be used as refugia; restoring disturbed areas; improving management of on-site and off-site mitigation lands through careful planning and documentation (e.g., via the grazing plan and habitat management plan); and through monitoring would proactively identify and resolve issues. Because these measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the effects on giant kangaroo rat habitat from construction would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Operational and Maintenance Activities

Effects On Giant Kangaroo Rat Populations

Potential direct and indirect long-term effects on giant kangaroo rat would result from operational and maintenance activities. Operational and maintenance activities could cause direct, long-term impacts due to injury or mortality from vehicle strikes. An indirect, long-term effect would be illness, mortality, or

habitat contamination caused by spillage or leakage of industrial chemicals, fuels, and lubricants used for operations and maintenance.

As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, the applicant will restrict the movement of vehicles; maintain giant kangaroo rat corridors to improve wildlife movement; educate to prevent inadvertent human-caused errors; monitor the site; prohibit pesticides, herbicides, firearms and pets on-site; remove trash; and reduce the likelihood for spills and exposure to hazardous substances. Monitoring would proactively identify and resolve issues. Because these measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the effects on giant kangaroo rat populations from operational and maintenance activities would be less than significant.

Effects On Giant Kangaroo Rat Habitat

Operational and maintenance activities would have negligible impacts on giant kangaroo rat habitats.

Effects on blunt-nosed leopard lizard

The following San Benito County-required measures were included as conditions of approval in the conditional use permit for the proposed project to reduce impacts on blunt-nosed leopard lizards and are considered part of the no action (no permit) alternative in this EIS. The full text of these measures is included in **Appendix C, Table C-1** and **Table C-2**. The impacts of the no action (no permit) alternative on blunt-nosed leopard lizards with incorporation of these measures is discussed below.

- **APM BIO-1.** All construction vehicle movement outside the project area would normally be restricted to pre-designated access, contractor acquired access, or public roads.
- **APM BIO-2.** The areal limits of construction activities would normally be predetermined, with activity restricted to and confined within those limits. No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate survey or construction activity limits.
- **APM BIO-3.** In construction areas where recontouring is not required, vegetation would be left in place wherever possible and original contour would be maintained to avoid excessive root damage and allow for regrowth.
- **APM BIO-4.** Prior to construction, all supervisory construction personnel would be instructed on the protection of cultural and ecological resources. To assist in this effort, the construction contract would address:

  - Federal and state laws regarding antiquities and plants and wildlife, including collection and removal.
  - The importance of these resources and the purpose and necessity of protecting them.

- **APM BIO-5.** Mitigation measures that will be developed during the consultation period under Section 7 of the Endangered Species Act will be adhered to as specified in the Biological Opinion of the US Fish and Wildlife Service.
- **APM BIO-6.** Project boundary fencing will be constructed using chain link approximately 6 feet in height. The bottom of the chain link fencing will be elevated off the surface of the ground approximately 5-6 inches to allow for wildlife movement across the project site.
- **APM BIO-7.** In construction areas where ground disturbance is significant or where recontouring is required, surface restoration would occur as required by the landowner or land management agency as part of decommissioning. The method of restoration would normally consist of returning disturbed areas back to their natural contour, reseeding, installing cross drains for erosion control, placing water bars in the road, and filling ditches.
- **APM BIO-9.** Protocol surveys were completed for the entire Project Footprint, and additional preconstruction surveys will be completed within 30 days of ground disturbance for each construction area. Monitors will be present during construction activities.
- **APM BIO-11.** The BNLL Protection Plan will be implemented at the site for construction activities.
- **APM BIO-12. Preserve undisturbed onsite lands.** Of the total project site area, the applicant will limit the total permanent disturbance area to 2,506 acres (1,794 acres of which will be permanently disturbed). Prior to the issuance of building or grading permits, the applicant will submit for the County's review and approval a site plan, building plan, or grading plan that delineates and calculates the total disturbance area for facilities proposed for that area of construction and will include a note on those plans that describes how these areas will be demarcated on the ground through the placement of appropriate staking, signage, or equally effective technique to ensure that construction is confined to the disturbance area. The applicant will implement on the ground demarcation of the disturbance area in accordance with the approved plan(s).

- **APM BIO-13. On-site Conservation Measures for Blunt-Nosed Leopard Lizard**
  - Project is avoiding impacts by staying out of the floodplain and by buffering any BNLL sighting with a 52.4-acre area.
  - Provide for connectivity of these avoided areas, through the Valley Floor Conservation Land.
  - Project is also integrating a series of other avoidance measures by APM and MM to allow the applicant to construct and operate in a manner that will not result in take of individuals.
  - Restoration measures (soil stockpiling and revegetation efforts) will restore temporarily disturbed areas so they provide suitable areas for the species
  - The site will implement the BNLL Protection Plan that was included in the Biological Assessment and reviewed by the US Fish and Wildlife Service
- **APM BIO-14. Off-site Conservation Measures for Blunt-Nosed Leopard Lizard**
  - BNLL have been detected on the Mitigation Lands (Valley Floor Conservation Land and Silver Creek Ranch Conservation Land). These Mitigation Lands are included in the Project's Conservation Management Plan.
- **APM BIO-20. Employee Education Program.** The Employee Education Program familiarizes Applicant employees and contractors with BMPs and other measures associated with protected species potentially on the project footprint.
- **APM BIO-21. List of Best Management Practices.** Refer to updated Supplemental EIR for a list of Best Management Practices. All employees and contractors will be made aware of the BMPs, and those BMPs that are pertinent to employee work conduct will be implemented. Applicable measures are listed below.
- **APM BIO-22.** a) Prior to initiation of construction of a project area (i.e., any activity that results in surface disturbance), a qualified biologist shall conduct a BNLL education program (e.g., tailgate briefing) for all project personnel. Topics to be discussed during the briefing shall include: occurrence and distribution of BNLL in adjacent areas, take avoidance measures being implemented during the project, reporting requirements if an incident occurs, and applicable definitions and prohibitions under the Fish and Wildlife Code for fully protected species, and relevant provisions of the federal and state Endangered Species Act.

- **APM BIO-24.** b) A biological monitor(s) shall be present while ground-disturbing activities are occurring. In addition to conducting preconstruction surveys, the biological monitors shall aid crews in satisfying take avoidance criteria for BNLL and implementing project mitigation measures.
- **APM BIO-25.** c) Biological monitors are empowered to order cessation of activities if take avoidance and/or mitigation measures are violated and will notify the Applicant's environmental representative.
- **APM BIO-27.** d) The Applicant shall appoint a representative who will be the contact source for any employee or contractor who inadvertently kills or injures a BNLL or who finds a dead, injured, or entrapped individual BNLL. The representative will be identified during the pre-performance educational briefing.
- **APM BIO-28.** e) Any contractor, employee(s), or other personnel who inadvertently kills or injures a BNLL shall immediately report the incident to their representative. The representative shall contact the Applicant's environmental representative and, if feasible, a qualified biologist. The Applicant will contact CDFW immediately in the case of a dead, injured, or entrapped BNLL. The qualified biologist will also document all circumstances of death, injury or entrapment of BNLL. The biologist will 1) take all reasonable steps to enable the individual animal to escape should it be entrapped, 2) contact CDFW or other appropriate authorities to identify an approved rehabilitation center and appropriate capture and transport techniques should the covered animal be injured, and 3) document circumstances of death in writing and if possible photographing dead animal in situ prior to moving.
- **APM BIO-29.** f) To prevent inadvertent entrapment of protected species, all open holes, steep-walled holes, or trenches more than 2 feet deep shall be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks (wooden planks should be no less than 10 inches in width and should reach to bottom of trench). Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals.
- **APM BIO-30.** g) All spills of hazardous materials shall be cleaned up immediately in accordance with the Spill Prevention Plan.
- **APM BIO-31.** j) Pets are prohibited at the PVSF.
- **APM BIO-32.** k) Firearms are prohibited at the PVSF.

- **APM BIO-33.** l) All food-related trash, such as wrappers, cans, bottles, bags, and food scraps shall be disposed of daily in containers with secure covers and regularly removed from PVSF.
- **APM BIO-34.** m) Use of rodenticides and herbicides in project areas is prohibited with the exception of those applied near buildings/critical facilities. Only agency approved compounds will be applied (if necessary) by licensed applicators in accordance with label directions and other restrictions mandated by US Environmental Protection Agency, County Agricultural Commissioner, regional label prescriptions on use, California Department of Food and Agriculture, and other State and Federal legislation.
- **APM BIO-35.** n) All project-related vehicles shall observe a speed limit of 15 mph or less on all except as posted on State and County highway/roads.
- **APM BIO-36.** m) Motorized vehicles are prohibited within occupied BNLL habitat. If not avoidable, that area will be considered temporarily disturbed and size will be limited in width to 25 feet (12.5 feet on either side of the centerline) and a biological monitor will be present. Due to the potential presence of BNLL on portions of Yturiarte Road, all vehicles and equipment would make a single trip down to the crossing location and a single trip back. During each trip a Biological Monitor or Designated Biologist will lead the vehicles and/or equipment by walking and surveying for BNLL (within the known buffered area only) to clear the roadway of BNLL.
- **APM BIO-37.** p) Appropriate measures shall be undertaken to prevent unauthorized vehicle entry to off-road survey routes in sensitive habitat areas. Signing will be the preferred method to discourage use.
- **APM BIO-38.** q) Project vehicles shall be confined to existing access routes or to specifically delineated areas (i.e., areas that have been surveyed). Otherwise, off-road vehicle travel is not permitted.
- **APM BIO-39.** p) Upon completion of any project component, all areas that are significantly disturbed and not necessary for future operations shall be stabilized to resist erosion, and re-vegetated and re-contoured if necessary, to promote restoration of the area to pre-disturbance conditions.
- **Mitigation Measure BR-G.1. Implement a Worker Environmental Education Program.** The Worker Environmental Education Program familiarizes Applicant employees and contractors with BMPs and other measures associated with protected species potentially on the project footprint.

- **Mitigation Measure BR-G.2. Implement Best Management Practices (BMPs).** BMPs shall be implemented as standard operating procedures during all ground disturbance and construction-related activities to avoid or minimize project impacts on biological resources.
- **Mitigation Measure BR-G.3. Develop and implement a Habitat Restoration and Revegetation Plan.** The Applicant shall restore disturbed areas to pre-construction conditions or better. Prior to the issuance of a building permit and removal of any soil or vegetation, the Applicant shall retain a County-approved, qualified biologist, knowledgeable in the area of annual grassland habitat restoration, to prepare a Habitat Restoration and Revegetation Plan (HRRP). The biologist would also be responsible for monitoring the initial implementation of the plan as the Applicant's attainment of the established success criteria.
- **Mitigation Measure BR-G.4. Implement biological monitoring of construction activities.** Prior to the commencement of ground disturbance or site mobilization activities, the Applicant shall retain County-approved, qualified biologist(s) with demonstrated expertise with listed and/or special-status plants, terrestrial mammals and reptiles to monitor all construction activities on a daily basis. The qualified biologist(s) shall be present at all times during ground-disturbing activities immediately adjacent to, or within, habitat that supports populations of the listed or special-status species identified in **Section 3.6** of this EIS.
- **Mitigation Measure BR-G.5.** Purchase credits from a CDFW-approved mitigation bank, create a permanent conservation easement(s), in favor of CDFW or a CDFW-approved conservation holder for the management of the land pursuant to the approved HMMP, or transfer land in fee to a CDFW approved conservation holder with a deed restriction for the management of the land pursuant to the approved HMMP.
- **Mitigation Measure BR-G.6. Develop and implement Wetland Mitigation and Monitoring Plan and Habitat Management Plan for mitigation lands.** To ensure the success of on-site preserved land and acquired mitigation lands, required for compensation of permanent impacts on vegetative communities, wetlands, and listed or Special-Status plants and wildlife, the Applicant shall retain a County-approved, qualified biologist to prepare a Wetland Mitigation and Monitoring Plan (WMMP) and a Habitat Management Plan (HMP). The WMMP will focus on impacts and mitigation for jurisdictional waters and wetlands while the HMP will focus on the habitat and species management measures.

- **Mitigation Measure BR-10.1.** Conduct pre-construction surveys for blunt-nosed leopard lizard and implement avoidance measures. The Applicant shall perform preconstruction surveys prior to all construction activities that will result in permanent or temporary ground disturbance within 30 days prior to of construction for the entire construction footprint of the project. A County-approved, qualified biologist shall record the geographic coordinates of each blunt-nosed leopard lizard individual detected on the construction footprint of the project site. Implementation of avoidance measures will be described in detail in an approved BNLL Avoidance Plan.
- **Mitigation Measure AQ-1.1. Reduce fugitive dust.** This measure provides guidance on how to minimize nuisance impacts and to significantly reduce fugitive dust emissions. It specifies measures to be shown on grading and building plans.

Construction

Effects On Blunt-nosed Leopard Lizard Populations

The no action (no permit) alternative would have short-term direct effects and short- and long-term indirect effects on the local population of blunt-nosed leopard lizard.

Potential short-term direct effects on blunt-nosed leopard lizard are the following:

- Injury or mortality to individual blunt-nosed leopard lizard due to collision with or crushing by construction equipment, on-site vehicles, or construction activities (the species may be more susceptible to vehicular strikes in cool weather, when they are less active because of low body temperature)
- Injury or mortality to individual blunt-nosed leopard lizards due to entrapment in trenches and pipes stored on the project site (individuals using pipes may be buried, and open trenches could create impassable barriers that would disrupt movement of individuals; individuals that inadvertently fall into open trenches would be vulnerable to predation, starvation, and entombment)
- Disruption of movement caused by open trenches, which could create impassable barriers (individuals that inadvertently fall into deep steep-walled trenches would be vulnerable to predation, starvation, and entombment

Potential short-term indirect effects on blunt-nosed leopard lizard are the following:

- Habitat avoidance and displacement due to human activity and noise associated with construction
- Injury or mortality due as a result of pets (dogs) brought onto the proposed project site in workers' personal vehicles
- Illness, mortality, or habitat contamination caused by spilling or leaking industrial chemicals, fuels, and lubricants used for construction
- Injury or mortality due to artificial increases in predator populations attracted to the project site by improperly disposed of trash

Potential long-term indirect effects on blunt-nosed leopard lizards are the following:

- Reduced insect prey availability due to the loss of grassland habitats
- Increased predation from increased perching opportunities for predators provided by project facilities and infrastructure (e.g., free-span bridges, solar panels, perimeter fencing, and electrical substation)
- Over the long term, the 25-foot high free-span bridges and bridge abutments, on-site fencing, or other artificial structures could provide perches for raptors which may prey upon blunt-nosed leopard lizards, causing injury or mortality to individuals.
- Preservation of 11,883 acres of suitable habitat on the Valley Floor, Valadeao Ranch, and Silver Creek Ranch Conservation Lands in perpetuity (habitat enhancement actions would be implemented on these lands; see **Section 2.5.7**)

As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, the applicant will restrict the movement of construction vehicles; limit the extent of construction activities; cover open holes and trenches; preserve on-site and mitigation lands; educate to prevent inadvertent human-caused errors; monitor the site; prohibit pesticides, herbicides, firearms and pets on-site; remove trash; and reduce the likelihood for spills and exposure to hazardous substances. In addition, the applicant will conduct pre-construction surveys, avoid construction activities near blunt-nosed leopard lizard sightings, and implement a blunt-nosed leopard lizard protection plan. These measures would reduce the likelihood for take of individual blunt-nosed leopard lizard and for impacts on the Panoche population by reducing the likelihood for injury or mortality caused by construction activities, such as via vehicle strikes, entrapment, predation, or poisoning. Preservation of the Valley Floor Conservation Lands would provide corridors to allow blunt-nosed leopard lizards to disperse throughout or away from the site. In addition, conservation lands could provide areas that could be used as refugia

if populations were to avoid the site. Monitoring would proactively identify and resolve issues. Because the above measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the effects on blunt-nosed leopard lizard population from construction would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Effects On Blunt-nosed Leopard Lizard Habitat

The no action (no permit) alternative would have short- and long-term direct effects and long-term indirect effects on the quality or quantity of habitat available for blunt-nosed leopard lizard. There are not anticipated to be any short-term indirect effects on blunt-nosed leopard lizard habitat.

Potential short-term direct effects on blunt-nosed leopard lizard habitat are the following:

- Temporary impacts on 22 acres of high suitability, 114 acres of moderate suitability, and 298 acres of low suitability blunt-nosed leopard lizard habitat due to construction, grading, staging, installing temporary access roads, and trenching
- Disturbance or disruption of habitat, including burrows, vegetation, and ephemeral water features, from construction equipment (e.g., graders, scrapers, bulldozers, trucks) or activities (e.g., steel post mounts driven into the ground)

Potential long-term direct effects on blunt-nosed leopard lizards are the following:

- Permanent loss of up to 77 acres of high suitability, 316 acres of moderate suitability, and 1,436 acres of low suitability blunt-nosed leopard lizard habitat due to the development of the O&M building, electrical inverter pads, substation, switching station, free-span bridges, and on-site roads

Potential long-term indirect effects on blunt-nosed leopard lizards are the following:

- Reduced habitat functionality on undisturbed lands that would be completely or partially surrounded by development
- Reduced availability of mammal burrows for refuge due to construction of solar arrays and associated facilities

As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, the applicant will limit the extent of construction activities and vegetation removal; restore habitats; preserve on-site and mitigation lands; and monitor the site. A number

of plans have been or will be prepared to improve the success of these activities, including a habitat restoration and revegetation plan, habitat management plan for mitigation lands, and blunt-nosed leopard lizard protection plan. These measures would reduce the likelihood for impacts on the quality or quantity of blunt-nosed leopard lizard habitat by reducing unnecessary habitat removal; providing protected lands that could be used as refugia; restoring disturbed areas; improving management of on-site and mitigation lands through careful planning and documentation (e.g., via the habitat management plan and blunt-nosed leopard lizard protection plan); and through monitoring would proactively identify and resolve issues. Because the above measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the effects on blunt-nosed leopard lizard habitat from construction would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Operational and Maintenance Activities

Effects On Blunt-nosed Leopard Lizard Populations

Potential direct and indirect long-term effects on blunt-nosed leopard lizard would result from operation and maintenance of the proposed project. A potential long-term direct effect would be injury or mortality from vehicle strikes during operational and maintenance activities (on-site roads would create artificially open habitat that may attract blunt-nosed leopard lizards during foraging, making vehicle strikes more likely). A potential long-term indirect effect would be illness, mortality, or habitat contamination caused by spilling or leaking industrial chemicals, fuels, and lubricants used for operations and maintenance.

As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the mitigation and applicant-proposed measures described above. Under these measures, the applicant will restrict the movement of vehicles; educate to prevent inadvertent human-caused errors; monitor the site; prohibit pesticides, herbicides, firearms and pets on-site; remove trash; and reduce the likelihood for spills and exposure to hazardous substances. In addition, the applicant will implement a blunt-nosed leopard lizard protection plan. These measures would reduce the likelihood for take of individual blunt-nosed leopard lizard and for impacts on the Panoche population by reducing the likelihood for injury or mortality caused by operation and maintenance activities, such as via vehicle strikes or poisoning. Monitoring would proactively identify and resolve issues. Because the above measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the effects on blunt-nosed leopard lizard population from operational and maintenance activities would be less than significant.

Effects On Blunt-nosed Leopard Lizard Habitat

Operational and maintenance activities would cause negligible impacts on blunt-nosed leopard lizard habitats.

Effects on California tiger salamander

The following San Benito County-required measures were included as conditions of approval in the conditional use permit for the proposed project to reduce impacts on blunt-nosed leopard lizards and are considered part of the no action (no permit) alternative in this EIS. The full text of these measures is included in **Appendix C, Table C-1** and **Table C-2**. The impacts of the no action (no permit) alternative on California tiger salamander with incorporation of these measures is discussed below.

- **APM BIO-1.** All construction vehicle movement outside the project area would normally be restricted to pre-designated access, contractor acquired access, or public roads.
- **APM BIO-2.** The areal limits of construction activities would normally be predetermined, with activity restricted to and confined within those limits. No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate survey or construction activity limits.
- **APM BIO-3.** In construction areas where recontouring is not required, vegetation would be left in place wherever possible and original contour would be maintained to avoid excessive root damage and allow for regrowth.
- **APM BIO-4.** Prior to construction, all supervisory construction personnel would be instructed on the protection of cultural and ecological resources. To assist in this effort, the construction contract would address:
  - Federal and state laws regarding antiquities and plants and wildlife, including collection and removal.
  - The importance of these resources and the purpose and necessity of protecting them.
- **APM BIO-5.** Mitigation measures that will be developed during the consultation period under Section 7 of the Endangered Species Act will be adhered to as specified in the Biological Opinion of the US Fish and Wildlife Service.
- **APM BIO-6.** Project boundary fencing will be constructed using chain link approximately 6 feet in height. The bottom of the chain link fencing will be elevated off the surface of the ground approximately 5-6 inches to allow for wildlife movement across the project site.

- **APM BIO-7.** In construction areas where ground disturbance is significant or where recontouring is required, surface restoration would occur as required by the landowner or land management agency as part of decommissioning. The method of restoration would normally consist of returning disturbed areas back to their natural contour, reseeding, installing cross drains for erosion control, placing water bars in the road, and filling ditches.
- **APM BIO-9.** Protocol surveys were completed for the entire Project Footprint, and additional preconstruction surveys will be completed within 30 days of ground disturbance for each construction area. Monitors will be present during construction activities.
- **APM BIO-12. Preserve undisturbed onsite lands.** Of the total project site area, the applicant will limit the total permanent disturbance area to 2,506 acres (1,794 acres of which will be permanently disturbed). Prior to the issuance of building or grading permits, the applicant will submit for the County's review and approval a site plan, building plan, or grading plan that delineates and calculates the total disturbance area for facilities proposed for that area of construction and will include a note on those plans that describes how these areas will be demarcated on the ground through the placement of appropriate staking, signage, or equally effective technique to ensure that construction is confined to the disturbance area. The applicant will implement on the ground demarcation of the disturbance area in accordance with the approved plan(s).
- **APM BIO-20. Employee Education Program.** The Employee Education Program familiarizes Applicant employees and contractors with BMPs and other measures associated with protected species potentially on the project footprint.
- **APM BIO-21. List of Best Management Practices.** Refer to updated Supplemental EIR for a list of Best Management Practices. All employees and contractors will be made aware of the BMPs, and those BMPs that are pertinent to employee work conduct will be implemented. Applicable measures are listed below.
- **APM BIO-24.** b) A biological monitor(s) shall be present while ground-disturbing activities are occurring. In addition to conducting preconstruction surveys, the biological monitors shall aid crews in satisfying take avoidance criteria for BNLL and implementing project mitigation measures.
- **APM BIO-25.** c) Biological monitors are empowered to order cessation of activities if take avoidance and/or mitigation measures

are violated and will notify the Applicant's environmental representative.

- **APM BIO-29.** f) To prevent inadvertent entrapment of protected species, all open holes, steep-walled holes, or trenches more than 2 feet deep shall be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks (wooden planks should be no less than 10 inches in width and should reach to bottom of trench). Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals.
- **APM BIO-30.** g) All spills of hazardous materials shall be cleaned up immediately in accordance with the Spill Prevention Plan.
- **APM BIO-31.** j) Pets are prohibited at the PVSF.
- **APM BIO-32.** k) Firearms are prohibited at the PVSF.
- **APM BIO-33.** l) All food-related trash, such as wrappers, cans, bottles, bags, and food scraps shall be disposed of daily in containers with secure covers and regularly removed from PVSF.
- **APM BIO-34.** m) Use of rodenticides and herbicides in project areas is prohibited with the exception of those applied near buildings/critical facilities. Only agency approved compounds will be applied (if necessary) by licensed applicators in accordance with label directions and other restrictions mandated by US Environmental Protection Agency, County Agricultural Commissioner, regional label prescriptions on use, California Department of Food and Agriculture, and other State and Federal legislation.
- **APM BIO-35.** n) All project-related vehicles shall observe a speed limit of 15 mph or less on all except as posted on State and County highway/roads.
- **APM BIO-37.** p) Appropriate measures shall be undertaken to prevent unauthorized vehicle entry to off-road survey routes in sensitive habitat areas. Signing will be the preferred method to discourage use.
- **APM BIO-38.** q) Project vehicles shall be confined to existing access routes or to specifically delineated areas (i.e., areas that have been surveyed). Otherwise, off-road vehicle travel is not permitted.
- **APM BIO-39.** p) Upon completion of any project component, all areas that are significantly disturbed and not necessary for future operations shall be stabilized to resist erosion, and re-vegetated and re-contoured if necessary, to promote restoration of the area to pre-disturbance conditions.

- **Mitigation Measure BR-G.1. Implement a Worker Environmental Education Program.** The Worker Environmental Education Program familiarizes Applicant employees and contractors with BMPs and other measures associated with protected species potentially on the project footprint.
- **Mitigation Measure BR-G.2. Implement Best Management Practices (BMPs).** BMPs shall be implemented as standard operating procedures during all ground disturbance and construction-related activities to avoid or minimize project impacts on biological resources.
- **Mitigation Measure BR-G.3. Develop and implement a Habitat Restoration and Revegetation Plan.** The Applicant shall restore disturbed areas to pre-construction conditions or better. Prior to the issuance of a building permit and removal of any soil or vegetation, the Applicant shall retain a County-approved, qualified biologist, knowledgeable in the area of annual grassland habitat restoration, to prepare a Habitat Restoration and Revegetation Plan (HRRP). The biologist would also be responsible for monitoring the initial implementation of the plan as the Applicant's attainment of the established success criteria.
- **Mitigation Measure BR-G.4. Implement biological monitoring of construction activities.** Prior to the commencement of ground disturbance or site mobilization activities, the Applicant shall retain County-approved, qualified biologist(s) with demonstrated expertise with listed and/or special-status plants, terrestrial mammals and reptiles to monitor all construction activities on a daily basis. The qualified biologist(s) shall be present at all times during ground-disturbing activities immediately adjacent to, or within, habitat that supports populations of the listed or special-status species identified in **Section 3.6** of this EIS.
- **Mitigation Measure BR-G.5.** Purchase credits from a CDFW-approved mitigation bank, create a permanent conservation easement(s), in favor of CDFW or a CDFW-approved conservation holder for the management of the land pursuant to the approved HMMP, or transfer land in fee to a CDFW approved conservation holder with a deed restriction for the management of the land pursuant to the approved HMMP.
- **Mitigation Measure BR-G.6. Develop and implement Wetland Mitigation and Monitoring Plan and Habitat Management Plan for mitigation lands.** To ensure the success of on-site preserved land and acquired mitigation lands, required for compensation of permanent impacts to vegetative communities, wetlands, and listed or Special-Status plants and wildlife, the

Applicant shall retain a County-approved, qualified biologist to prepare a Wetland Mitigation and Monitoring Plan (WMMP) and a Habitat Management Plan (HMP). The WMMP will focus on impacts and mitigation for jurisdictional waters and wetlands while the HMP will focus on the habitat and species management measures.

- **Mitigation Measure BR-9.1. Conduct pre-construction surveys for California tiger salamander and implement avoidance measures.** The Applicant shall perform pre-construction California tiger salamander surveys (see Interim Guidance on Site Assessment and Field Surveys for Determining Presence of a Negative Finding of the California Tiger Salamander (CDFW October 2003) for guidelines on survey techniques, limitations, and inference limits) prior to the construction of all project phases in areas within the project boundary fence line of suitable aestivation or breeding habitat within 1.2 miles of known or potential breeding ponds. Avoidance measures for California tiger salamander shall include those outlined in MM BR-G.2 (Implement Best Management Practices).
- **Mitigation Measure AQ-1.1. Reduce fugitive dust.** This measure provides guidance on how to minimize nuisance impacts and to significantly reduce fugitive dust emissions. It specifies measures to be shown on grading and building plans.

Construction

Effects On California Tiger Salamander Populations

The no action (no permit) alternative would have short-term direct effects and short- and long-term indirect effects on the local population of California tiger salamanders.

Potential short-term direct effects on California tiger salamanders are the following:

- Injury or mortality to individual California tiger salamanders due to collision with or crushing by construction equipment, on-site vehicles, or construction activities
- Injury or mortality to individual California tiger salamanders due to entrapment in trenches and pipes stored on the project site (individuals using pipes may be buried; individuals that inadvertently fall into open trenches would be vulnerable to predation, starvation, and entombment)
- Disruption of movement caused by open trenches, which could create impassable barriers (individuals that inadvertently fall into deep steep-walled trenches would be vulnerable to predation, starvation, and entombment

Potential short-term indirect effects on California tiger salamanders are the following:

- Habitat avoidance and displacement due to human activity and noise associated with construction
- Injury or mortality due as a result of pets (dogs) brought onto the proposed project site in workers' personal vehicles
- Illness, mortality, or habitat contamination caused by spilling or leaking industrial chemicals, fuels, and lubricants used for construction
- Injury or mortality due to artificial increases in predator populations attracted to the project site by improperly disposed of trash

Potential long-term indirect effects on California tiger salamanders are the following:

- Reduced insect prey availability due to the loss of grassland habitats
- Increased predation from increased perching opportunities for predators provided by project facilities and infrastructure (e.g., solar panels, perimeter fencing, and electrical substation)
- Over the long term, the 25-foot high free-span bridges and bridge abutments could provide perches for raptors which may prey upon California tiger salamanders, causing injury or mortality to individuals.
- Preservation of 24,176 acres of potentially suitable habitat on the Valley Floor, Valadeao Ranch, and Silver Creek Ranch Conservation Lands in perpetuity (habitat enhancement actions would be implemented on these lands; see **Section 2.5.7**)

As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, the applicant will restrict the movement of construction vehicles; limit the extent of construction activities; cover open holes and trenches; preserve on-site and mitigation lands; educate to prevent inadvertent human-caused errors; monitor the site; prohibit pesticides, herbicides, firearms and pets on-site; remove trash; and reduce the likelihood for spills and exposure to hazardous substances. In addition, the applicant will conduct pre-construction surveys and avoid construction activities near California tiger salamander sighting. These measures would reduce the likelihood for take of individual California tiger salamanders and for impacts on the local population by reducing the likelihood for injury or mortality caused by construction activities, such as via vehicle strikes, entrapment, predation, or poisoning. Preservation of the Valley Floor Conservation Lands would provide corridors to allow California tiger salamanders to disperse throughout or away

from the site. In addition, conservation lands could provide areas that could be used as refugia if populations were to avoid the site. Monitoring would proactively identify and resolve issues. Because the above measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the effects on the California tiger salamander population from construction would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Effects On California Tiger Salamander Habitat

The no action (no permit) alternative would have short- and long-term direct effects and long-term indirect effects on the quality or quantity of habitat available for California tiger salamander. There are not anticipated to be any short-term indirect effects on California tiger salamander habitat.

Potential short-term direct effects on California tiger salamander habitat are the following:

- Temporary impacts on 712 acres of potential California tiger salamander aestivation or migration habitat due to construction, grading, staging, installing temporary access roads, and trenching
- Disturbance or disruption of aestivation or migration habitat, including small mammal burrows and vegetation from construction equipment (e.g., graders, scrapers, bulldozers, trucks) or activities (e.g., steel post mounts driven into the ground)

Potential long-term direct effects on California tiger salamander are the following:

- Permanent loss of up to 1,796 acres potential California tiger salamander aestivation or migration habitat due to the development of the O&M building, electrical inverter pads, substation, switching station, free-span bridges, and on-site roads

Potential long-term indirect effects on California tiger salamander are the following:

- Reduced habitat functionality on undisturbed lands that would be completely or partially surrounded by development
- Reduced availability of burrows for refuge due to construction of solar arrays and associated facilities

As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, the applicant will limit the extent of construction activities and vegetation removal; restore habitats; preserve on-site and mitigation lands; and monitor the site. A number

of plans have been or will be prepared to improve the success of these activities, including a habitat restoration and revegetation plan, and habitat management plan for mitigation lands. These measures would reduce the likelihood for impacts on the quality or quantity of California tiger salamander habitat by reducing unnecessary habitat removal; providing protected lands that could be used as refugia; restoring disturbed areas; improving management of on-site and mitigation lands through careful planning and documentation (e.g., via the habitat management plan); and through monitoring would proactively identify and resolve issues. Because the above measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the effects on California tiger salamander habitat from construction would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Operational and Maintenance Activities

Effects On California Tiger Salamander Populations

Potential direct and indirect long-term effects on California tiger salamander would result from operation and maintenance of the proposed project. A potential long-term direct effect would be injury or mortality from vehicle strikes, while a potential long-term indirect effect would be Illness, mortality, or habitat contamination caused by spilling or leaking industrial chemicals, fuels, and lubricants used for operations and maintenance.

As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the mitigation and applicant-proposed measures described above. Under these measures, the applicant will restrict the movement of vehicles; educate to prevent inadvertent human-caused errors; monitor the site; prohibit pesticides, herbicides, firearms and pets on-site; remove trash; and reduce the likelihood for spills and exposure to hazardous substances. These measures would reduce the likelihood for take of California tiger salamander by reducing the likelihood for injury or mortality caused by operation and maintenance activities, such as vehicle strikes or poisoning. Monitoring would proactively identify and resolve issues. Because the above measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the effects on California tiger salamander populations from operational and maintenance activities would be less than significant.

Effects On California Tiger Salamander Habitat

Operational and maintenance activities would have negligible impacts on California tiger salamander habitats.

Effects on special status invertebrates

The following San Benito County-required measures were included as conditions of approval in the conditional use permit for the proposed project to reduce impacts on special status invertebrates and are considered part of the no

action (no permit) alternative in this EIS. The full text of these measures is included in **Appendix C, Table C-1** and **Table C-2**. The impacts of the no action (no permit) alternative on special status invertebrates with incorporation of these measures is discussed below.

- **APM BIO-1.** All construction vehicle movement outside the project area would normally be restricted to pre-designated access, contractor acquired access, or public roads.
- **APM BIO-2.** The areal limits of construction activities would normally be predetermined, with activity restricted to and confined within those limits. No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate survey or construction activity limits.
- **APM BIO-3.** In construction areas where recontouring is not required, vegetation would be left in place wherever possible and original contour would be maintained to avoid excessive root damage and allow for regrowth.
- **APM BIO-4.** Prior to construction, all supervisory construction personnel would be instructed on the protection of cultural and ecological resources. To assist in this effort, the construction contract would address:
  - Federal and state laws regarding antiquities and plants and wildlife, including collection and removal.
  - The importance of these resources and the purpose and necessity of protecting them.
- **APM BIO-5.** Mitigation measures that will be developed during the consultation period under Section 7 of the Endangered Species Act will be adhered to as specified in the Biological Opinion of the US Fish and Wildlife Service.
- **APM BIO-7.** In construction areas where ground disturbance is significant or where recontouring is required, surface restoration would occur as required by the landowner or land management agency as part of decommissioning. The method of restoration would normally consist of returning disturbed areas back to their natural contour, reseeding, installing cross drains for erosion control, placing water bars in the road, and filling ditches.
- **APM BIO-12. Preserve undisturbed onsite lands.** Of the total project site area, the applicant will limit the total permanent disturbance area to 2,506 acres (1,794 acres of which will be permanently disturbed). Prior to the issuance of building or grading permits, the applicant will submit for the County's review and approval a site plan, building plan, or grading plan that delineates and calculates the total disturbance area for facilities proposed for that

area of construction and will include a note on those plans that describes how these areas will be demarcated on the ground through the placement of appropriate staking, signage, or equally effective technique to ensure that construction is confined to the disturbance area. The applicant will implement on the ground demarcation of the disturbance area in accordance with the approved plan(s).

- **APM BIO-30.** g) All spills of hazardous materials shall be cleaned up immediately in accordance with the Spill Prevention Plan.
- **APM BIO-34.** m) Use of rodenticides and herbicides in project areas is prohibited with the exception of those applied near buildings/critical facilities. Only agency approved compounds will be applied (if necessary) by licensed applicators in accordance with label directions and other restrictions mandated by US Environmental Protection Agency, County Agricultural Commissioner, regional label prescriptions on use, California Department of Food and Agriculture, and other State and Federal legislation.
- **APM BIO-38.** q) Project vehicles shall be confined to existing access routes or to specifically delineated areas (i.e., areas that have been surveyed). Otherwise, off-road vehicle travel is not permitted.
- **Mitigation Measure BR-G.1. Implement a Worker Environmental Education Program.** The Worker Environmental Education Program familiarizes Applicant employees and contractors with BMPs and other measures associated with protected species potentially on the project footprint.
- **Mitigation Measure BR-G.2. Implement Best Management Practices (BMPs).** BMPs shall be implemented as standard operating procedures during all ground disturbance and construction-related activities to avoid or minimize project impacts on biological resources.
- **Mitigation Measure BR-G.3. Develop and implement a Habitat Restoration and Revegetation Plan.** The Applicant shall restore disturbed areas to pre-construction conditions or better. Prior to the issuance of a building permit and removal of any soil or vegetation, the Applicant shall retain a County-approved, qualified biologist, knowledgeable in the area of annual grassland habitat restoration, to prepare a Habitat Restoration and Revegetation Plan (HRRP). The biologist would also be responsible for monitoring the initial implementation of the plan as the Applicant's attainment of the established success criteria.
- **Mitigation Measure BR-G.4. Implement biological monitoring of construction activities.** Prior to the

commencement of ground disturbance or site mobilization activities, the Applicant shall retain County-approved, qualified biologist(s) with demonstrated expertise with listed and/or special-status plants, terrestrial mammals and reptiles to monitor all construction activities on a daily basis. The qualified biologist(s) shall be present at all times during ground-disturbing activities immediately adjacent to, or within, habitat that supports populations of the listed or special-status species identified in **Section 3.6** of this EIS.

- **Mitigation Measure BR-G.5.** Purchase credits from a CDFW-approved mitigation bank, create a permanent conservation easement(s), in favor of CDFW or a CDFW-approved conservation holder for the management of the land pursuant to the approved HMMP, or transfer land in fee to a CDFW approved conservation holder with a deed restriction for the management of the land pursuant to the approved HMMP.
- **Mitigation Measure BR-G.6. Develop and implement Wetland Mitigation and Monitoring Plan and Habitat Management Plan for mitigation lands.** To ensure the success of on-site preserved land and acquired mitigation lands, required for compensation of permanent impacts to vegetative communities, wetlands, and listed or Special-Status plants and wildlife, the Applicant shall retain a County-approved, qualified biologist to prepare a Wetland Mitigation and Monitoring Plan (WMMP) and a Habitat Management Plan (HMP). The WMMP will focus on impacts and mitigation for jurisdictional waters and wetlands while the HMP will focus on the habitat and species management measures.
- **Mitigation Measure BR-8.2. Avoid disturbance to ephemeral pools occupied by vernal pool fairy shrimp to the maximum extent practicable, and mitigate for any unavoidable impacts.** For ephemeral pools occupied by vernal pool fairy shrimp as determined by the protocol surveys described above, the Applicant shall avoid filling or disturbing such pools to the maximum extent practicable. This includes avoiding any ground disturbance within 100 feet of the edges of such pools.
- **Mitigation Measure BR-8.3. Avoid seasonal depressions and known waterbodies.** All known seasonal depressions and water bodies that have been verified to be occupied by listed fairy shrimp shall be shown on all applicable construction plans and submitted with the construction permit application. The Applicant shall avoid seasonal depressions known to support listed fairy shrimp.
- **Mitigation Measure AQ-1.1. Reduce fugitive dust.** This measure provides guidance on how to minimize nuisance impacts

and to significantly reduce fugitive dust emissions. It specifies measures to be shown on grading and building plans

Construction and Operational and Maintenance Activities

Effects on Special Status Invertebrate Populations

Vernal pool fairy shrimp were documented on the project site, with the potential for several other special status invertebrates, including conservancy fairy shrimp, longhorn fairy shrimp, and vernal pool tadpole shrimp, to occur. The ephemeral pools containing vernal pool fairy shrimp have been incorporated into the Valley Floor Conservation Lands, and the no action (no permit) alternative would avoid all impacts on ephemeral pools containing vernal pool fairy shrimp. Over the long term, an indirect effect includes the potential for reduced bird use of vernal pools. Since birds act as dispersal agents for vernal pool invertebrate cysts, this could reduce dispersal capabilities of vernal pool fairy shrimp, but is unlikely to substantially affect the population.

As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, the applicant will restrict the movement of construction and operations and maintenance vehicles; limit the extent of construction activities; preserve on-site and mitigation lands; educate to prevent inadvertent human-caused errors; monitor the site; and reduce the likelihood for spills and exposure to hazardous substances. In addition, the applicant will avoid occupied ephemeral pools and seasonal depressions. These measures would reduce the likelihood for impacts on the special status invertebrate populations by reducing the likelihood for injury or mortality caused by construction and operational and maintenance activities, such as via crushing or surface-disturbing activities. In addition, conservation lands would preserve special status invertebrate populations in these areas. Monitoring would proactively identify and resolve issues. Because the above measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the effects on special status invertebrate populations from construction and operational and maintenance activities would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Effects on Special Status Invertebrate Habitat

Construction of the no action (no permit) alternative would adversely impact the quality and quantity of suitable special status invertebrate habitat within the project footprint. In the short term, the no action (no permit) alternative would directly damage or destroy suitable vernal pool fairy shrimp habitat within the project footprint. Indirectly and over the short term, construction could also cause siltation of suitable habitat and increased potential for chemical or pollutant runoff into vernal pools from vehicles on the project site.

No long-term direct effects from construction or operational and maintenance activities on special status invertebrate habitat are expected. Over the long term, indirect effects include altered vernal pool vegetation from changes in grazing patterns and altered hydrology of vernal pools from an increase in runoff from impermeable surfaces.

As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, the applicant will limit the extent of construction activities and vegetation removal; restore habitats; preserve on-site and mitigation lands; preserve occupied habitats; and monitor the site. A number of plans have been or will be prepared to improve the success of these activities, including a habitat restoration and revegetation plan and habitat management plan for mitigation lands. These measures would reduce the likelihood for impacts on the special status invertebrate habitat by reducing unnecessary habitat removal; avoiding removal of occupied habitats; providing protected lands that could support other special status invertebrate populations; restoring disturbed areas; improving management of on-site and mitigation lands through careful planning and documentation (e.g., via the habitat management plan); and through monitoring would proactively identify and resolve issues. Because the above measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the effects on special status invertebrate habitat from construction and operational and maintenance activities would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Effects on special status reptiles and amphibians

The following San Benito County-required measures were included as conditions of approval in the conditional use permit for the proposed project to reduce impacts on special status reptiles and amphibians and are considered part of the no action (no permit) alternative in this EIS. The full text of these measures is included in **Appendix C, Table C-1** and **Table C-2**. The impacts of the no action (no permit) alternative on special status reptiles and amphibians with incorporation of these measures is discussed below.

- **APM BIO-1.** All construction vehicle movement outside the project area would normally be restricted to pre-designated access, contractor acquired access, or public roads.
- **APM BIO-2.** The areal limits of construction activities would normally be predetermined, with activity restricted to and confined within those limits. No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate survey or construction activity limits.
- **APM BIO-3.** In construction areas where recontouring is not required, vegetation would be left in place wherever possible and

original contour would be maintained to avoid excessive root damage and allow for regrowth.

- **APM BIO-4.** Prior to construction, all supervisory construction personnel would be instructed on the protection of cultural and ecological resources. To assist in this effort, the construction contract would address:
  - Federal and state laws regarding antiquities and plants and wildlife, including collection and removal.
  - The importance of these resources and the purpose and necessity of protecting them.
- **APM BIO-6.** Project boundary fencing will be constructed using chain link approximately 6 feet in height. The bottom of the chain link fencing will be elevated off the surface of the ground approximately 5-6 inches to allow for wildlife movement across the project site.
- **APM BIO-7.** In construction areas where ground disturbance is significant or where recontouring is required, surface restoration would occur as required by the landowner or land management agency as part of decommissioning. The method of restoration would normally consist of returning disturbed areas back to their natural contour, reseeding, installing cross drains for erosion control, placing water bars in the road, and filling ditches.
- **APM BIO-12. Preserve undisturbed onsite lands.** Of the total project site area, the applicant will limit the total permanent disturbance area to 2,506 acres (1,794 acres of which will be permanently disturbed). Prior to the issuance of building or grading permits, the applicant will submit for the County's review and approval a site plan, building plan, or grading plan that delineates and calculates the total disturbance area for facilities proposed for that area of construction and will include a note on those plans that describes how these areas will be demarcated on the ground through the placement of appropriate staking, signage, or equally effective technique to ensure that construction is confined to the disturbance area. The applicant will implement on the ground demarcation of the disturbance area in accordance with the approved plan(s).
- **APM BIO-29.** f) To prevent inadvertent entrapment of protected species, all open holes, steep-walled holes, or trenches more than 2 feet deep shall be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks (wooden planks should be no less than 10 inches in width and should reach to

bottom of trench). Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals.

- **APM BIO-30.** g) All spills of hazardous materials shall be cleaned up immediately in accordance with the Spill Prevention Plan.
- **APM BIO-34.** m) Use of rodenticides and herbicides in project areas is prohibited with the exception of those applied near buildings/critical facilities. Only agency approved compounds will be applied (if necessary) by licensed applicators in accordance with label directions and other restrictions mandated by US Environmental Protection Agency, County Agricultural Commissioner, regional label prescriptions on use, California Department of Food and Agriculture, and other State and Federal legislation.
- **APM BIO-35.** n) All project-related vehicles shall observe a speed limit of 15 mph or less on all except as posted on State and County highway/roads.
- **APM BIO-37.** p) Appropriate measures shall be undertaken to prevent unauthorized vehicle entry to off-road survey routes in sensitive habitat areas. Signing will be the preferred method to discourage use.
- **APM BIO-38.** q) Project vehicles shall be confined to existing access routes or to specifically delineated areas (i.e., areas that have been surveyed). Otherwise, off-road vehicle travel is not permitted.
- **APM BIO-39.** p) Upon completion of any project component, all areas that are significantly disturbed and not necessary for future operations shall be stabilized to resist erosion, and re-vegetated and re-contoured if necessary, to promote restoration of the area to pre-disturbance conditions.
- **Mitigation Measure BR-G.1. Implement a Worker Environmental Education Program.** The Worker Environmental Education Program familiarizes Applicant employees and contractors with BMPs and other measures associated with protected species potentially on the project footprint.
- **Mitigation Measure BR-G.2. Implement Best Management Practices (BMPs).** BMPs shall be implemented as standard operating procedures during all ground disturbance and construction-related activities to avoid or minimize project impacts on biological resources.
- **Mitigation Measure BR-G.3. Develop and implement a Habitat Restoration and Revegetation Plan.** The Applicant shall restore disturbed areas to pre-construction conditions or better. Prior to the issuance of a building permit and removal of any

soil or vegetation, the Applicant shall retain a County-approved, qualified biologist, knowledgeable in the area of annual grassland habitat restoration, to prepare a Habitat Restoration and Revegetation Plan (HRRP). The biologist would also be responsible for monitoring the initial implementation of the plan as the Applicant's attainment of the established success criteria.

- **Mitigation Measure BR-G.4. Implement biological monitoring of construction activities.** Prior to the commencement of ground disturbance or site mobilization activities, the Applicant shall retain County-approved, qualified biologist(s) with demonstrated expertise with listed and/or special-status plants, terrestrial mammals and reptiles to monitor all construction activities on a daily basis. The qualified biologist(s) shall be present at all times during ground-disturbing activities immediately adjacent to, or within, habitat that supports populations of the listed or special-status species identified in **Section 3.6** of this EIS.
- **Mitigation Measure BR-G.5.** Purchase credits from a CDFW-approved mitigation bank, create a permanent conservation easement(s), in favor of CDFW or a CDFW-approved conservation holder for the management of the land pursuant to the approved HMMP, or transfer land in fee to a CDFW approved conservation holder with a deed restriction for the management of the land pursuant to the approved HMMP.
- **Mitigation Measure BR-G.6. Develop and implement Wetland Mitigation and Monitoring Plan and Habitat Management Plan for mitigation lands.** To ensure the success of on-site preserved land and acquired mitigation lands, required for compensation of permanent impacts to vegetative communities, wetlands, and listed or Special-Status plants and wildlife, the Applicant shall retain a County-approved, qualified biologist to prepare a Wetland Mitigation and Monitoring Plan (WMMP) and a Habitat Management Plan (HMP). The WMMP will focus on impacts and mitigation for jurisdictional waters and wetlands while the HMP will focus on the habitat and species management measures.
- **Mitigation Measure BR-1.1. Prepare and implement a Weed Control Plan.** Prior to the issuance of a building permit or any ground disturbance the Applicant shall retain a County-approved, qualified restoration ecologist or biologist to prepare a comprehensive adaptive Weed Control Plan (WCP) to be administered during the construction and operation of the project for the purpose of invasive weed abatement. The WCP shall be submitted to the County of San Benito for review and approval and

shall be updated and utilized for weed eradication and monitoring post-construction.

- **Mitigation Measure BR-1.2. Develop and implement a Grazing Plan for the project site.** Managed livestock grazing has been proposed for the project site. Prior to the issuance of a construction permit the Applicant shall retain a County-approved qualified restoration ecologist or biologist to prepare a Grazing Plan to be administered during the construction and operation of the project. The Grazing Plan shall be submitted to the County of San Benito for review and approval.
- **Mitigation Measure BR-7a.1. Impacts to all potential breeding habitat for western spadefoot toad shall be avoided to the extent feasible.** If work within this habitat cannot be avoided, work shall be conducted outside the breeding season of adult western spadefoot toads and the subsequent developmental period of larvae. Therefore, when possible, no work within this habitat will be conducted between January 31 and April 1 or until the habitat is completely dry.
- **Mitigation Measure BR-7a.2. Conduct pre-construction surveys for San Joaquin coachwhip and coast horned lizard and implement avoidance measures.** The Applicant shall retain a County-approved, qualified biologist to conduct pre-construction surveys immediately prior to (i.e., the morning of the commencement of) ground disturbance. If San Joaquin coachwhips or coast horned lizards are found within the area of disturbance and can be captured, the biologist will relocate the animals to a pre-approved location outside the project area.
- **Mitigation Measure BR-9.1. Conduct pre-construction surveys for California tiger salamander and implement avoidance measures.** The Applicant shall perform pre-construction California tiger salamander surveys (see Interim Guidance on Site Assessment and Field Surveys for Determining Presence of a Negative Finding of the California Tiger Salamander (CDFW October 2003) for guidelines on survey techniques, limitations, and inference limits) prior to the construction of all project phases in areas within the project boundary fence line of suitable aestivation or breeding habitat within 1.2 miles of known or potential breeding ponds. Avoidance measures for California tiger salamander shall include those outlined in MM BR-G.2 (Implement Best Management Practices).
- **Mitigation Measure AQ-1.1. Reduce fugitive dust.** This measure provides guidance on how to minimize nuisance impacts and to significantly reduce fugitive dust emissions. It specifies measures to be shown on grading and building plans.

Construction

Effects On Special Status Reptile and Amphibian Populations

Construction of the no action (no permit) alternative has the potential to affect special status reptile and amphibian populations. The nature and type of direct and indirect effects would be similar to those described above for the blunt-nosed leopard lizard.

As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, the applicant will restrict the movement of construction vehicles; limit the extent of construction activities; cover open holes and trenches; preserve on-site and mitigation lands; educate to prevent inadvertent human-caused errors; monitor the site; prohibit pesticides, herbicides, firearms and pets on-site; remove trash; and reduce the likelihood for spills and exposure to hazardous substances. In addition, the applicant will conduct pre-construction surveys for San Joaquin coachwhip and California tiger salamander and avoid construction activities near occupied habitats. These measures would reduce the likelihood impacts on special status reptile and amphibian populations by reducing the likelihood for injury or mortality caused by construction activities, such as via vehicle strikes, entrapment, predation, or poisoning. Preservation of the Valley Floor Conservation Lands would provide corridors to allow special status reptiles and amphibians to disperse throughout or away from the site. In addition, conservation lands could provide areas that could be used as refugia if populations were to avoid the site. Monitoring would proactively identify and resolve issues. Because the above measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the effects on special status reptile and amphibian population from construction would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Effects On Special Status Reptile and Amphibian Habitat

Construction of the no action (no permit) alternative has the potential to affect the quality and quantity of special status reptile and amphibian habitats, similar to those described for blunt-nosed leopard lizard. However, the magnitude of the impacts is expected to be less than described for the blunt-nosed leopard lizard, as the Panoche Valley has not been identified as a key area for recovery for the other special status reptile and special status amphibian species that could potentially be found on-site.

The no action (no permit) alternative would have short- and long-term direct effects and long-term indirect effects on special status reptile and amphibian habitats. There are not anticipated to be any short-term indirect effects on special status reptile and amphibian habitats.

Potential short-term direct effects on special status reptile and amphibian habitats are the following:

- Temporary impacts on 712 acres of suitable habitat due to construction, grading, staging, installing temporary access roads, and trenching
- Disturbance or disruption of habitat, including burrows, vegetation, and ephemeral water features, from construction equipment (e.g., graders, scrapers, bulldozers, trucks) or activities (e.g., steel post mounts driven into the ground)

Potential long-term direct effects on special status reptile and amphibian habitats are the following:

- Permanent loss of up to 1,796 acres suitable habitat due to the development of the O&M building, electrical inverter pads, substation, switching station, free-span bridges, and on-site roads

Potential long-term indirect effects on special status reptile and amphibian habitats are the following:

- Reduced habitat functionality on undisturbed lands that would be completely or partially surrounded by development
- Reduced availability of mammal burrows for refuge due to construction of solar arrays and associated facilities

As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, the applicant will limit the extent of construction activities and vegetation removal; restore habitats; preserve on-site and mitigation lands; and monitor the site. A number of plans have been or will be prepared to improve the success of these activities, including a habitat restoration and revegetation plan and habitat management plan for mitigation lands. These measures would reduce the likelihood for impacts on the quality or quantity of special status reptile and amphibian habitat by reducing unnecessary habitat removal; providing protected lands that could be used as refugia; restoring disturbed areas; improving management of on-site and mitigation lands through careful planning and documentation (e.g., via the habitat management plan); and through monitoring would proactively identify and resolve issues. Because the above measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the effects on special status reptile and amphibian habitat from construction would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Operational and Maintenance Activities

Effects On Special Status Reptile and Amphibian Populations

A potential long-term direct effect on special status reptiles and amphibians would be injury or mortality from vehicle strikes during operational and maintenance activities. A potential long-term indirect effect on special status reptiles and amphibians would be illness, mortality, or habitat contamination caused by spilling or leaking industrial chemicals, fuels, and lubricants used for operations and maintenance.

As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the mitigation and applicant-proposed measures described above. Under these measures, the applicant will restrict the movement of vehicles; educate to prevent inadvertent human-caused errors; monitor the site; prohibit pesticides, herbicides, firearms and pets on-site; remove trash; and reduce the likelihood for spills and exposure to hazardous substances. These measures would reduce the likelihood for impacts on special status reptiles and amphibians by reducing the likelihood of vehicle strikes and poisoning; and through monitoring, management would proactively identify and resolve issues. Because the above measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the effects on special status reptile and amphibian populations from operational and maintenance activities would be less than significant.

Effects On Special Status Reptile and Amphibian Habitat

Operational and maintenance activities would have negligible impacts on special status reptile and amphibian habitats.

Effects on special status bird species

The following San Benito County-required measures were included as conditions of approval in the conditional use permit for the proposed project to reduce impacts on special status bird species, including California condor, and are considered part of the no action (no permit) alternative in this EIS. The full text of these measures is included in **Appendix C, Table C-1** and **Table C-2**. The impacts of the no action (no permit) alternative on special status bird species with incorporation of these measures is discussed below.

- **APM BIO-1.** All construction vehicle movement outside the project area would normally be restricted to pre-designated access, contractor acquired access, or public roads.
- **APM BIO-2.** The areal limits of construction activities would normally be predetermined, with activity restricted to and confined within those limits. No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate survey or construction activity limits.

- **APM BIO-3.** In construction areas where recontouring is not required, vegetation would be left in place wherever possible and original contour would be maintained to avoid excessive root damage and allow for regrowth.
- **APM BIO-4.** Prior to construction, all supervisory construction personnel would be instructed on the protection of cultural and ecological resources. To assist in this effort, the construction contract would address:
  - Federal and state laws regarding antiquities and plants and wildlife, including collection and removal.
  - The importance of these resources and the purpose and necessity of protecting them.
- **APM BIO-5.** Mitigation measures that will be developed during the consultation period under Section 7 of the Endangered Species Act will be adhered to as specified in the Biological Opinion of the US Fish and Wildlife Service.
- **APM BIO-7.** In construction areas where ground disturbance is significant or where recontouring is required, surface restoration would occur as required by the landowner or land management agency as part of decommissioning. The method of restoration would normally consist of returning disturbed areas back to their natural contour, reseeding, installing cross drains for erosion control, placing water bars in the road, and filling ditches.
- **APM BIO-9.** Protocol surveys were completed for the entire Project Footprint, and additional preconstruction surveys will be completed within 30 days of ground disturbance for each construction area. Monitors will be present during construction activities.
- **APM BIO-12. Preserve undisturbed onsite lands.** Of the total project site area, the applicant will limit the total permanent disturbance area to 2,506 acres (1,794 acres of which will be permanently disturbed). Prior to the issuance of building or grading permits, the applicant will submit for the County's review and approval a site plan, building plan, or grading plan that delineates and calculates the total disturbance area for facilities proposed for that area of construction and will include a note on those plans that describes how these areas will be demarcated on the ground through the placement of appropriate staking, signage, or equally effective technique to ensure that construction is confined to the disturbance area. The applicant will implement on the ground demarcation of the disturbance area in accordance with the approved plan(s).

- **APM BIO-20. Employee Education Program.** The Employee Education Program familiarizes Applicant employees and contractors with BMPs and other measures associated with protected species potentially on the project footprint.
- **APM BIO-21. List of Best Management Practices.** Refer to updated Supplemental EIR for a list of Best Management Practices. All employees and contractors will be made aware of the BMPs, and those BMPs that are pertinent to employee work conduct will be implemented. Applicable measures are listed below.
- **APM BIO-25.** c) Biological monitors are empowered to order cessation of activities if take avoidance and/or mitigation measures are violated and will notify the Applicant's environmental representative.
- **APM BIO-30.** g) All spills of hazardous materials shall be cleaned up immediately in accordance with the Spill Prevention Plan.
- **APM BIO-31.** j) Pets are prohibited at the PVSF.
- **APM BIO-32.** k) Firearms are prohibited at the PVSF.
- **APM BIO-33.** l) All food-related trash, such as wrappers, cans, bottles, bags, and food scraps shall be disposed of daily in containers with secure covers and regularly removed from PVSF.
- **APM BIO-34.** m) Use of rodenticides and herbicides in project areas is prohibited with the exception of those applied near buildings/critical facilities. Only agency approved compounds will be applied (if necessary) by licensed applicators in accordance with label directions and other restrictions mandated by US Environmental Protection Agency, County Agricultural Commissioner, regional label prescriptions on use, California Department of Food and Agriculture, and other State and Federal legislation.
- **APM BIO-35.** n) All project-related vehicles shall observe a speed limit of 15 mph or less on all except as posted on State and County highway/roads.
- **APM BIO-37.** p) Appropriate measures shall be undertaken to prevent unauthorized vehicle entry to off-road survey routes in sensitive habitat areas. Signing will be the preferred method to discourage use.
- **APM BIO-38.** q) Project vehicles shall be confined to existing access routes or to specifically delineated areas (i.e., areas that have been surveyed). Otherwise, off-road vehicle travel is not permitted.
- **Mitigation Measure BR-G.1. Implement a Worker Environmental Education Program.** The Worker

Environmental Education Program familiarizes Applicant employees and contractors with BMPs and other measures associated with protected species potentially on the project footprint.

- **Mitigation Measure BR-G.2. Implement Best Management Practices (BMPs).** BMPs shall be implemented as standard operating procedures during all ground disturbance and construction-related activities to avoid or minimize project impacts on biological resources.
- **Mitigation Measure BR-G.3. Develop and implement a Habitat Restoration and Revegetation Plan.** The Applicant shall restore disturbed areas to pre-construction conditions or better. Prior to the issuance of a building permit and removal of any soil or vegetation, the Applicant shall retain a County-approved, qualified biologist, knowledgeable in the area of annual grassland habitat restoration, to prepare a Habitat Restoration and Revegetation Plan (HRRP). The biologist would also be responsible for monitoring the initial implementation of the plan as the Applicant's attainment of the established success criteria.
- **Mitigation Measure BR-G.4. Implement biological monitoring of construction activities.** Prior to the commencement of ground disturbance or site mobilization activities, the Applicant shall retain County-approved, qualified biologist(s) with demonstrated expertise with listed and/or special-status plants, terrestrial mammals and reptiles to monitor all construction activities on a daily basis. The qualified biologist(s) shall be present at all times during ground-disturbing activities immediately adjacent to, or within, habitat that supports populations of the listed or special-status species identified in **Section 3.6** of this EIS.
- **Mitigation Measure BR-G.5.** Purchase credits from a CDFW-approved mitigation bank, create a permanent conservation easement(s), in favor of CDFW or a CDFW-approved conservation holder for the management of the land pursuant to the approved HMMP, or transfer land in fee to a CDFW approved conservation holder with a deed restriction for the management of the land pursuant to the approved HMMP.
- **Mitigation Measure BR-G.6. Develop and implement Wetland Mitigation and Monitoring Plan and Habitat Management Plan for mitigation lands.** To ensure the success of on-site preserved land and acquired mitigation lands, required for compensation of permanent impacts to vegetative communities, wetlands, and listed or Special-Status plants and wildlife, the Applicant shall retain a County-approved, qualified biologist to prepare a Wetland Mitigation and Monitoring Plan (WMMP) and a

Habitat Management Plan (HMP). The WMMP will focus on impacts and mitigation for jurisdictional waters and wetlands while the HMP will focus on the habitat and species management measures.

- **Mitigation Measure BR-12.2. Avoid and report California condors.** Should a condor land within the project area all work shall be stopped within 500 feet of the condor until the bird has left the area on its own. If the bird fails to leave the area because of injury or other factors the Applicant shall contact the USFWS /CDFW and County for direction. All California condor sightings in the project area shall be reported directly to the USFWS/CDFW and County within 24 hours.
- **Mitigation Measure BR-13.1. Focused pre-construction burrowing owl surveys and implementation of avoidance measures.** No more than 30 days and no less than 14 days prior to the commencement of initial ground disturbing activities, the Applicant shall implement focused pre-construction reconnaissance level surveys for burrowing owls. Surveys shall be conducted prior to the initiation of ground disturbance and be conducted by County-approved, qualified biologist(s) with experience surveying for burrowing owls. Surveys for burrowing owls shall be conducted in conformance with the *Staff Report on Burrowing Owl Mitigation* (CDFG, 2012) protocols.
- **Mitigation Measure BR-14.1. Implement Avian Power Line Interaction Committee guidelines (APLIC).** The Applicant will be required to construct all transmission facilities, towers, poles and lines in accordance with and comply with all policies set forth in the *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006* (APLIC) and *Reducing Avian Collisions with Power Lines: State of the Art in 2012* (APLIC, 2012), to minimize avian electrocutions as a result of the construction of the project. Details of design components shall be indicated on all construction plans and measures to comply with APLIC policies and guidelines shall be detailed in a separate attachment, all of which will be submitted with the construction permit application. The Applicant shall be required to monitor for new versions of the APLIC guidelines and update designs or implement new measures as needed during project construction provided these actions do not require the purchase of previously ordered transmission line structures.
- **Mitigation Measure BR-14.2. Prepare and Implement an Avian Conservation Strategy and Eagle Conservation Plan.** Prior to the issuance of a construction permit, the Avian Conservation Strategy and Eagle Conservation Plans (which have been prepared by the Applicant in draft format) shall be reviewed and approved by the County. The final plans will be developed in

consultation with California Department of Fish and Wildlife (CDFW) and U.S. Fish and Wildlife Service (USFWS). These plans have been prepared in general accordance with the USFWS Land-based Wind Energy Guidelines (USFWS 2012), Eagle Conservation Plan Guidance Module 1 – Land-based Wind Energy Version 2 Guidance (USFWS 2013) and with information provided in the Avian Protection Plan guidelines outlined by APLIC (2005).

- **Mitigation Measure AQ-1.1. Reduce fugitive dust.** This measure provides guidance on how to minimize nuisance impacts and to significantly reduce fugitive dust emissions. It specifies measures to be shown on grading and building plans.

Construction

Effects On Special Status Bird Populations

Construction of the no action (no permit) alternative would have short- and long-term direct effects and short- and long-term indirect effects on special status bird populations.

Potential short-term direct effects on special status bird species are the following:

- Nest abandonment or displacement from the project site due to noise, visual impact, or human presence
- Injury or mortality of individuals during construction due to collision with machinery or structures, use of firearms, or as a result of pets (dogs) brought onto the proposed project site by workers

Potential long-term direct effect on special status bird species include the following:

- Injury or mortality to birds from collision with panels

Potential short-term indirect effects on special status bird species are the following:

- Illness, mortality, or habitat contamination caused by spilling or leaking industrial chemicals, fuels, and lubricants used for construction
- Injury or mortality due to artificial increases in predator populations, such as red fox, coyote, or domestic dogs that are attracted to the project site by improperly disposed of trash
- Injury or mortality due to ingestion of microtrash (i.e., broken glass, paper, and plastic waste, and small pieces of metal) and the ingestion of ethylene glycol antifreeze during construction

Potential long-term indirect effects on special status bird species are the following:

- Loss of prey base due to conversion of annual grassland habitat and associated decrease in insect and small mammal populations
- Increased foraging opportunities for special status raptors due to increase in available perching structures (e.g., fences, utility towers, and buildings)
- Increased potential for avian electrocution due to construction of transmission facilities, towers, poles, and lines
- Preservation of 24,176 acres of potential foraging, wintering, or nesting habitat on the Valley Floor, Valadeao Ranch, and Silver Creek Ranch Conservation Lands in perpetuity; habitat enhancement actions would be implemented on these lands (see **Section 2.5.7**)

As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, the applicant will restrict the movement of construction vehicles; limit the extent of construction activities; implement APLIC guidelines; preserve on-site and mitigation lands; educate to prevent inadvertent human-caused errors; monitor the site; prohibit pesticides, herbicides, firearms and pets on-site; remove trash; and reduce the likelihood for spills and exposure to hazardous substances. In addition, the applicant will avoid and report California condors, conduct pre-construction surveys and avoid burrowing owls, and implement an avian conservation strategy and eagle conservation plan. These measures would reduce the likelihood for impacts on special status bird populations by reducing the likelihood for injury or mortality caused by construction activities and facilities, such as via vehicle strikes, predation, poisoning, or electrocution. In addition, conservation lands could provide areas that could be used as refugia if populations were to avoid the site. Pre-construction surveys, avoidance measures, and planning documents (e.g., avian conservation strategy and eagle conservation plan) would help to reduce the likelihood of impacts caused by on-site activities. Monitoring would proactively identify and resolve issues. Because the above measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the effects on special status bird populations from construction would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Effects On Special Status Bird Habitat

Construction of the no action (no permit) alternative would have short- and long-term direct effects and long-term indirect effects on the quality and quantity of special status bird habitats. There are not anticipated to be any short-term indirect effects on special status bird habitats.

Potential short-term direct effects on special status bird habitats are the following:

- Temporary loss of up to 712 acres of suitable grassland nesting, wintering, or foraging habitat for certain special status bird species due to the development of the temporary staging areas, laydown yards, and access roads
- Direct loss of nests or burrows used for nesting, due to vegetation trimming, limited grading, ground surface smoothing, driving support rods, assembling arrays, and trenching

Potential long-term direct effects on special status bird habitats are the following:

- Permanent loss of up to 1,796 acres of suitable grassland nesting, wintering, or foraging habitat for certain special status bird species due to the development of the O&M building, electrical inverter pads, substation, switching station, free-span bridges, and on-site roads
- Increased perching and hunting opportunities provided by the 25-foot high free-span bridges and bridge abutments

Potential long-term indirect effects on special status bird habitats are the following:

- Reduced habitat functionality (i.e., foraging, wintering or nesting) on undisturbed lands that would be completely or partially surrounded by solar arrays and associated infrastructure and other development
- Preservation of 24,176 acres of potential foraging, wintering, or nesting habitat on the Valley Floor, Valadeao Ranch, and Silver Creek Ranch Conservation Lands in perpetuity; habitat enhancement actions would be implemented on these lands (see **Section 2.5.7**)

As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, the applicant will limit the extent of construction activities and vegetation removal; restore habitats; preserve on-site and mitigation lands; and monitor the site. A number of plans have been or will be prepared to improve the success of these activities, including a habitat restoration and revegetation plan, habitat management plan for mitigation lands, avian conservation strategy, and eagle conservation plan. These measures would reduce the likelihood for impacts on the quality or quantity of special status bird habitats by reducing unnecessary habitat removal; providing protected lands that could be used as refugia;

restoring disturbed areas; improving management of on-site and mitigation lands through careful planning and documentation (e.g., via the grazing plan and habitat management plan); and through monitoring would proactively identify and resolve issues. Because the above measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the effects on special status bird habitats from construction would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Operational and Maintenance Activities

Effects On Special Status Bird Populations

Potential direct and indirect long-term effects on special status bird species would result from operational and maintenance activities. A potential long-term direct effect on special status bird species would be increased potential for avian electrocution or collision with power lines. A potential long-term indirect effect on special status bird species would be injury or mortality due to ingestion of micro-trash that collects during project operation.

As part of the CEQA EIR certification and project approval process, the applicant committed to implementing applicant-proposed measures and mitigation measures described above. Under these measures, the applicant will implement APLIC guidelines to prevent harm to birds from power lines; educate to prevent inadvertent human-caused errors; monitor the site; prohibit pesticides, herbicides, firearms and pets on-site; remove trash; and reduce the likelihood for spills and exposure to hazardous substances. In addition, the applicant will implement an avian conservation strategy and eagle conservation plan. These measures would reduce the likelihood for impacts on special status bird populations by reducing the likelihood for injury or mortality such as vehicle strikes, predation, poisoning, or electrocution. Monitoring would proactively identify and resolve issues. Because the above measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the effects on special status bird populations from operational and maintenance activities would be less than significant.

Effects On Special Status Bird Habitat

Operational and maintenance activities would have negligible impacts on special status bird habitats.

Effects on special status bats

The following San Benito County-required measures were included as conditions of approval in the conditional use permit for the proposed project to reduce impacts on special status bat species and are considered part of the no action (no permit) alternative in this EIS. The full text of these measures is included in **Appendix C, Table C-1** and **Table C-2**. The impacts of the no action (no permit) alternative on special status bat species with incorporation of these measures is discussed below.

- **APM AES-3. Operation Lighting**: During operation of the project, motion-sensor lighting will be used at the main entrance, substation, and switching station. The lighting will consist of energy-efficient lamps that will only be lit when human activity is detected. Motion sensors will have sensitivities set to avoid activating the lights when animal activity is occurring. This will be done to prevent startling animals and creating false alarms for security personnel. In addition to lighting, security cameras will be installed onsite. Constant lighting, at a low-level, may be required at the O&M building for security and safety. This will be a single lamp source near the entrance of the O&M building, which will be activated by a timer. All lighting will have a power switch to conserve energy when the lighting is not required.
- **APM BIO-1.** All construction vehicle movement outside the project area would normally be restricted to pre-designated access, contractor acquired access, or public roads.
- **APM BIO-2.** The areal limits of construction activities would normally be predetermined, with activity restricted to and confined within those limits. No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate survey or construction activity limits.
- **APM BIO-3.** In construction areas where recontouring is not required, vegetation would be left in place wherever possible and original contour would be maintained to avoid excessive root damage and allow for regrowth.
- **APM BIO-4.** Prior to construction, all supervisory construction personnel would be instructed on the protection of cultural and ecological resources. To assist in this effort, the construction contract would address:
  - Federal and state laws regarding antiquities and plants and wildlife, including collection and removal.
  - The importance of these resources and the purpose and necessity of protecting them.
- **APM BIO-5.** Mitigation measures that will be developed during the consultation period under Section 7 of the Endangered Species Act will be adhered to as specified in the Biological Opinion of the US Fish and Wildlife Service.
- **APM BIO-7.** In construction areas where ground disturbance is significant or where recontouring is required, surface restoration would occur as required by the landowner or land management agency as part of decommissioning. The method of restoration would normally consist of returning disturbed areas back to their

natural contour, reseeding, installing cross drains for erosion control, placing water bars in the road, and filling ditches.

- **APM BIO-9.** Protocol surveys were completed for the entire Project Footprint, and additional preconstruction surveys will be completed within 30 days of ground disturbance for each construction area. Monitors will be present during construction activities.
- **APM BIO-12. Preserve undisturbed onsite lands.** Of the total project site area, the applicant will limit the total permanent disturbance area to 2,506 acres (1,794 acres of which will be permanently disturbed). Prior to the issuance of building or grading permits, the applicant will submit for the County's review and approval a site plan, building plan, or grading plan that delineates and calculates the total disturbance area for facilities proposed for that area of construction and will include a note on those plans that describes how these areas will be demarcated on the ground through the placement of appropriate staking, signage, or equally effective technique to ensure that construction is confined to the disturbance area. The applicant will implement on the ground demarcation of the disturbance area in accordance with the approved plan(s).
- **APM BIO-20. Employee Education Program.** The Employee Education Program familiarizes Applicant employees and contractors with BMPs and other measures associated with protected species potentially on the project footprint.
- **APM BIO-21. List of Best Management Practices.** Refer to updated Supplemental EIR for a list of Best Management Practices. All employees and contractors will be made aware of the BMPs, and those BMPs that are pertinent to employee work conduct will be implemented. Applicable measures are listed below.
- **APM BIO-25.** c) Biological monitors are empowered to order cessation of activities if take avoidance and/or mitigation measures are violated and will notify the Applicant's environmental representative.
- **APM BIO-30.** g) All spills of hazardous materials shall be cleaned up immediately in accordance with the Spill Prevention Plan.
- **APM BIO-31.** j) Pets are prohibited at the PVSF.
- **APM BIO-32.** k) Firearms are prohibited at the PVSF.
- **APM BIO-33.** l) All food-related trash, such as wrappers, cans, bottles, bags, and food scraps shall be disposed of daily in containers with secure covers and regularly removed from PVSF.

- **APM BIO-34.** m) Use of rodenticides and herbicides in project areas is prohibited with the exception of those applied near buildings/critical facilities. Only agency approved compounds will be applied (if necessary) by licensed applicators in accordance with label directions and other restrictions mandated by US Environmental Protection Agency, County Agricultural Commissioner, regional label prescriptions on use, California Department of Food and Agriculture, and other State and Federal legislation.
- **APM BIO-35.** n) All project-related vehicles shall observe a speed limit of 15 mph or less on all except as posted on State and County highway/roads.
- **APM BIO-37.** p) Appropriate measures shall be undertaken to prevent unauthorized vehicle entry to off-road survey routes in sensitive habitat areas. Signing will be the preferred method to discourage use.
- **APM BIO-38.** q) Project vehicles shall be confined to existing access routes or to specifically delineated areas (i.e., areas that have been surveyed). Otherwise, off-road vehicle travel is not permitted.
- **Mitigation Measure BR-G.1. Implement a Worker Environmental Education Program.** The Worker Environmental Education Program familiarizes Applicant employees and contractors with BMPs and other measures associated with protected species potentially on the project footprint.
- **Mitigation Measure BR-G.2. Implement Best Management Practices (BMPs).** BMPs shall be implemented as standard operating procedures during all ground disturbance and construction-related activities to avoid or minimize project impacts on biological resources.
- **Mitigation Measure BR-G.3. Develop and implement a Habitat Restoration and Revegetation Plan.** The Applicant shall restore disturbed areas to pre-construction conditions or better. Prior to the issuance of a building permit and removal of any soil or vegetation, the Applicant shall retain a County-approved, qualified biologist, knowledgeable in the area of annual grassland habitat restoration, to prepare a Habitat Restoration and Revegetation Plan (HRRP). The biologist would also be responsible for monitoring the initial implementation of the plan as the Applicant's attainment of the established success criteria.
- **Mitigation Measure BR-G.4. Implement biological monitoring of construction activities.** Prior to the commencement of ground disturbance or site mobilization activities, the Applicant shall retain County-approved, qualified

biologist(s) with demonstrated expertise with listed and/or special-status plants, terrestrial mammals and reptiles to monitor all construction activities on a daily basis. The qualified biologist(s) shall be present at all times during ground-disturbing activities immediately adjacent to, or within, habitat that supports populations of the listed or special-status species identified in **Section 3.6** of this EIS.

- **Mitigation Measure BR-G.5.** Purchase credits from a CDFW-approved mitigation bank, create a permanent conservation easement(s), in favor of CDFW or a CDFW-approved conservation holder for the management of the land pursuant to the approved HMMP, or transfer land in fee to a CDFW approved conservation holder with a deed restriction for the management of the land pursuant to the approved HMMP.
- **Mitigation Measure BR-G.6. Develop and implement Wetland Mitigation and Monitoring Plan and Habitat Management Plan for mitigation lands.** To ensure the success of on-site preserved land and acquired mitigation lands, required for compensation of permanent impacts to vegetative communities, wetlands, and listed or Special-Status plants and wildlife, the Applicant shall retain a County-approved, qualified biologist to prepare a Wetland Mitigation and Monitoring Plan (WMMP) and a Habitat Management Plan (HMP). The WMMP will focus on impacts and mitigation for jurisdictional waters and wetlands while the HMP will focus on the habitat and species management measures.
- **Mitigation Measure BR-15.1. Survey pre-construction maternity colony or hibernaculum for sensitive bats**. The Applicant shall retain a County-qualified biologist, holding a CDFW collection permit and a Memorandum of Understanding with CDFW allowing the biologist to handle bats, to conduct pre-construction surveys for sensitive bats. Surveys shall be conducted at least 30 days prior to construction and preferably during the maternity season (1 March to 31 August) within 500 feet of project activities (where project personnel can secure right of entry and there is potential habitat for bat roosts) in order to document potential use of the site by special-status bat species and document the location of active and potential non-active maternity roost sites.
- **Mitigation Measure BR-15.2. Provide substitute roosting habitat.** If a maternity roost will be impacted by the Project, and no alternative maternity roosts are in use near the site, substitute roosting habitat for the maternity colony shall be provided on, or in close proximity to, the Project site no less than one year prior to the eviction of the colony. Alternative roost sites will be constructed in accordance with the specific bats requirements in

coordination with the County. By making the roosting habitat available a year prior to eviction (MM BR-15.3), the colony will have a better chance of finding and using the roost. Alternative roost sites must be of comparable size and proximal in location to the impacted colony. The CDFW shall also be notified of any hibernacula or active nurseries within the construction zone. If construction of alternative roost sites is required, the biologist shall provide a written report, documenting the required coordination with CDFW as well as the location of roost sites. This report shall be provided to the County.

- **Mitigation Measure BR-15.3. Exclude bats prior to eviction from roosts.** If non-breeding bats are found in structures, towers or trees scheduled to be removed, the individuals shall be safely evicted, under the direction of a qualified biologist, by opening the roosting area to allow airflow through the cavity or other means determined appropriate by the bat biologist (e.g., installation of one-way doors). In situations requiring one-way doors, a minimum of one week shall pass after doors are installed and temperatures should be sufficiently warm for bats to exit the roost because bats do not typically leave their roost daily during winter months in southern coastal California. This action should allow all bats to leave during the course of one week. Roosts that need to be removed in situations where the use of one-way doors is not necessary in the judgment of the qualified biologist shall first be disturbed by various means at the direction of the bat biologist at dusk to allow bats to escape during the darker hours, and the roost tree shall be removed or the grading shall occur the next day (i.e., there shall be no less or more than one night between initial disturbance and the grading or tree removal).
- **Mitigation Measure AQ-1.1. Reduce fugitive dust.** This measure provides guidance on how to minimize nuisance impacts and to significantly reduce fugitive dust emissions. It specifies measures to be shown on grading and building plans.

Construction

Effects On Special Status Bat Populations

Though the project site provides only sub-optimal roosting habitat, several species of special status bats likely forage on the project site. Construction of the no action (no permit) alternative would have short- and long-term direct effects and short- and long-term indirect effects on special status bat populations.

Potential short-term direct effects on special status bat species are the following:

- If roosting occurs in abandoned structures or trees adjacent to portions of the project site to be developed, disturbance of roosting individuals due to construction noise
- Injury or mortality to individuals during construction due to collision with machinery or structures

Potential long-term direct effects on special status bat species are the following:

- Bats foraging over the project area may collide with solar arrays and supporting structures, support cables, and medium-voltage transmission lines, resulting in injury or mortality.
- Bats that forage near the ground, such as the pallid bat, could be subject to crushing or disturbance by vehicles driving at dusk, dawn, or night.

The potential short-term indirect effect on special status bat species would be the following:

- Illness, mortality, or habitat contamination caused by spillage or leakage of industrial chemicals, fuels, and lubricants used for construction

Potential long-term indirect effects on special status bat species would be caused by the following:

- Loss or reduction of prey base due to conversion of annual grassland habitat and associated decrease in insect populations
- Light pollution from the solar facility may negatively affect bat foraging ability.
- Some bat species may use the solar array structures as daytime roost sites. However, during the warmer months, the array structures may heat up to temperatures intolerable to bats and become a potential mortality factor.
- When foraging over solar array panels, the uniform flat surfaces may influence the echolocation abilities of bats, potentially decreasing the suitability of the project site as a foraging area, or cause disorientation, especially for those species that forage close to the ground.
- Preservation of 24,176 acres of potential foraging or roosting habitat on the Valley Floor, Valadeao Ranch, and Silver Creek Ranch Conservation Lands in perpetuity; habitat enhancement actions would be implemented on these lands (see **Section 2.5.7**)

As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, the applicant will limit movement of construction vehicles; limit the extent of construction activities; install motion-sensor lighting that avoids activation from animal activity; preserve on-site and mitigation lands; educate to prevent inadvertent human-caused errors; monitor the site; prohibit pesticides, herbicides, firearms and pets on-site; remove trash; and reduce the likelihood for spills and exposure to hazardous substances. In addition, the applicant will conduct pre-construction surveys, provide substitute roosting habitat, and exclude bats from roosts prior to construction. These measures would reduce the likelihood for impacts on special status bat populations by reducing the likelihood for injury or mortality caused by construction activities, such as via vehicle strikes, entrapment, predation, or poisoning and reducing features that would attract bats to the site (e.g., lighting). In addition, conservation lands could provide areas that could be used as refugia if populations were to avoid the site. Monitoring would proactively identify and resolve issues. Pre-construction surveys and avoidance measures would reduce the likelihood for impacts caused by construction activities by ensuring bats are no longer in their roosts. Because the above measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the effects on special status bat population from construction would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Effects On Special Status Bat Habitat

Construction of the no action (no permit) alternative would have short- and long-term direct effects and long-term indirect effects on the quality and quantity of special status bat habitat. There are not anticipated to be any short-term indirect effects on special status bat habitats.

The potential short-term direct effect on special status bat habitats would be the following:

- Temporary loss of up to 712 acres of foraging habitat due to the development of the temporary staging areas, laydown yards, and access roads

The potential long-term direct effect on special status bat habitats would be the following:

- Permanent loss of up to 1,796 acres of foraging habitat due to the development of the O&M building, electrical inverter pads, substation, switching station, and on-site roads

Potential long-term indirect effects on special status bat habitats are the following:

- Loss of potential sub-optimal roosting habitat in abandoned structures or trees in portions of the project site to be developed
- Reduced habitat functionality (i.e., foraging) on undisturbed lands that would be completely or partially surrounded by solar arrays and associated infrastructure and other development
- Construction of bridges may provide marginal day roost habitat for some species of bats
- Preservation of 24,176 acres of potential foraging or roosting habitat on the Valley Floor, Valadeao Ranch, and Silver Creek Ranch Conservation Lands in perpetuity; habitat enhancement actions would be implemented on these lands (see **Section 2.5.7**)

As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, the applicant will limit the extent of construction activities and vegetation removal; restore habitats and provide substitute roosting habitat; preserve on-site and mitigation lands; and monitor the site. These measures would reduce the likelihood for impacts on the quality or quantity of special status bat habitats by reducing unnecessary habitat removal; providing protected lands and new roosts that could be used as refugia; restoring disturbed areas; and through monitoring would proactively identify and resolve issues. Because the above measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the effects on special status bat habitats from construction would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Operational and Maintenance Activities

Effects On Special Status Bat Populations

Potential direct and indirect long-term effects on special status bat species would result from operational and maintenance activities.

Potential direct long-term effects would include the following:

- Bats foraging over the project area may collide with solar arrays and supporting structures, support cables, and medium-voltage transmission lines, resulting in injury or mortality.
- Some bat species may use the solar array structures as daytime roost sites. However, during the warmer months, the array structures may heat up to temperatures intolerable to bats and become a potential cause of death.
- Bats that forage near the ground, such as the pallid bat, could be subject to crushing or disturbance by vehicles driving at dusk, dawn,

or night, such as during nighttime security patrols. The construction and use of access roads could also disturb bats.

- Bats that use bridges for day roosts could be disturbed or displaced by bridge maintenance or replacement.

Potential long-term indirect effects would include the following:

- Light pollution from the solar facility may negatively affect bat foraging ability.
- When foraging over solar array panels, the uniform flat surfaces may influence the echolocation abilities of bats, potentially decreasing the suitability of the project site as a foraging area, or cause disorientation, especially for those species that forage close to the ground.

As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the mitigation and applicant-proposed measures described above. Under these measures, the applicant will limit on-site traffic; install motion-sensor lighting that avoids activation from animal activity; educate workers to prevent inadvertent human-caused errors; monitor the site; prohibit pesticides, herbicides, firearms and pets on-site; remove trash; and reduce the likelihood for spills and exposure to hazardous substances. These measures would reduce the likelihood for impacts on special status bat populations by reducing the likelihood for injury or mortality caused by vehicle strikes, entrapment, predation, or poisoning and reducing features that would attract bats to the site (e.g., lighting). In addition, conservation lands could provide areas that could be used as refugia if populations were to avoid the site. Monitoring would proactively identify and resolve issues. Pre-construction surveys and avoidance measures would reduce the likelihood for impacts caused by construction activities by ensuring bats are no longer in their roosts. Because the above APMs have been incorporated into the proposed project, the effects on special status bat populations from operational and maintenance activities would be less than significant.

Effects On Special Status Bat Habitat

Operational and maintenance activities would cause negligible impacts on special status bat habitats.

Effects on special status small mammals

The following San Benito County-required measures were included as conditions of approval in the conditional use permit for the proposed project to reduce impacts on special status mammal species and are considered part of the no action (no permit) alternative in this EIS. The full text of these measures is included in **Appendix C, Table C-1** and **Table C-2**. The impacts of the no

action (no permit) alternative on special status mammal species with incorporation of these measures is discussed below.

- **APM AES-3. Operation Lighting**: During operation of the project, motion-sensor lighting will be used at the main entrance, substation, and switching station. The lighting will consist of energy-efficient lamps that will only be lit when human activity is detected. Motion sensors will have sensitivities set to avoid activating the lights when animal activity is occurring. This will be done to prevent startling animals and creating false alarms for security personnel. In addition to lighting, security cameras will be installed onsite. Constant lighting, at a low-level, may be required at the O&M building for security and safety. This will be a single lamp source near the entrance of the O&M building, which will be activated by a timer. All lighting will have a power switch to conserve energy when the lighting is not required.
- **APM BIO-1.** All construction vehicle movement outside the project area would normally be restricted to pre-designated access, contractor acquired access, or public roads.
- **APM BIO-2.** The areal limits of construction activities would normally be predetermined, with activity restricted to and confined within those limits. No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate survey or construction activity limits.
- **APM BIO-3.** In construction areas where recontouring is not required, vegetation would be left in place wherever possible and original contour would be maintained to avoid excessive root damage and allow for regrowth.
- **APM BIO-4.** Prior to construction, all supervisory construction personnel would be instructed on the protection of cultural and ecological resources. To assist in this effort, the construction contract would address:
  - Federal and state laws regarding antiquities and plants and wildlife, including collection and removal.
  - The importance of these resources and the purpose and necessity of protecting them.
- **APM BIO-5.** Mitigation measures that will be developed during the consultation period under Section 7 of the Endangered Species Act will be adhered to as specified in the Biological Opinion of the US Fish and Wildlife Service.
- **APM BIO-6.** Project boundary fencing will be constructed using chain link approximately 6 feet in height. The bottom of the chain link fencing will be elevated off the surface of the ground

approximately 5-6 inches to allow for wildlife movement across the project site.

- **APM BIO-7.** In construction areas where ground disturbance is significant or where recontouring is required, surface restoration would occur as required by the landowner or land management agency as part of decommissioning. The method of restoration would normally consist of returning disturbed areas back to their natural contour, reseeding, installing cross drains for erosion control, placing water bars in the road, and filling ditches.
- **APM BIO-9.** Protocol surveys were completed for the entire Project Footprint, and additional preconstruction surveys will be completed within 30 days of ground disturbance for each construction area. Monitors will be present during construction activities.
- **APM BIO-12. Preserve undisturbed onsite lands.** Of the total project site area, the applicant will limit the total permanent disturbance area to 2,506 acres (1,794 acres of which will be permanently disturbed). Prior to the issuance of building or grading permits, the applicant will submit for the County's review and approval a site plan, building plan, or grading plan that delineates and calculates the total disturbance area for facilities proposed for that area of construction and will include a note on those plans that describes how these areas will be demarcated on the ground through the placement of appropriate staking, signage, or equally effective technique to ensure that construction is confined to the disturbance area. The applicant will implement on the ground demarcation of the disturbance area in accordance with the approved plan(s).
- **APM BIO-20. Employee Education Program.** The Employee Education Program familiarizes Applicant employees and contractors with BMPs and other measures associated with protected species potentially on the project footprint.
- **APM BIO-21. List of Best Management Practices.** Refer to updated Supplemental EIR for a list of Best Management Practices. All employees and contractors will be made aware of the BMPs, and those BMPs that are pertinent to employee work conduct will be implemented. Applicable measures are listed below.
- **APM BIO-25.** c) Biological monitors are empowered to order cessation of activities if take avoidance and/or mitigation measures are violated and will notify the Applicant's environmental representative.
- **APM BIO-29.** f) To prevent inadvertent entrapment of protected species, all open holes, steep-walled holes, or trenches more than 2

feet deep shall be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks (wooden planks should be no less than 10 inches in width and should reach to bottom of trench). Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals.

- **APM BIO-30.** g) All spills of hazardous materials shall be cleaned up immediately in accordance with the Spill Prevention Plan.
- **APM BIO-31.** j) Pets are prohibited at the PVSF.
- **APM BIO-32.** k) Firearms are prohibited at the PVSF.
- **APM BIO-33.** l) All food-related trash, such as wrappers, cans, bottles, bags, and food scraps shall be disposed of daily in containers with secure covers and regularly removed from PVSF.
- **APM BIO-34.** m) Use of rodenticides and herbicides in project areas is prohibited with the exception of those applied near buildings/critical facilities. Only agency approved compounds will be applied (if necessary) by licensed applicators in accordance with label directions and other restrictions mandated by US Environmental Protection Agency, County Agricultural Commissioner, regional label prescriptions on use, California Department of Food and Agriculture, and other State and Federal legislation.
- **APM BIO-35.** n) All project-related vehicles shall observe a speed limit of 15 mph or less on all except as posted on State and County highway/roads.
- **APM BIO-37.** p) Appropriate measures shall be undertaken to prevent unauthorized vehicle entry to off-road survey routes in sensitive habitat areas. Signing will be the preferred method to discourage use.
- **APM BIO-38.** q) Project vehicles shall be confined to existing access routes or to specifically delineated areas (i.e., areas that have been surveyed). Otherwise, off-road vehicle travel is not permitted.
- **APM BIO-39.** p) Upon completion of any project component, all areas that are significantly disturbed and not necessary for future operations shall be stabilized to resist erosion, and re-vegetated and re-contoured if necessary, to promote restoration of the area to pre-disturbance conditions.
- **Mitigation Measure BR-G.1. Implement a Worker Environmental Education Program.** The Worker Environmental Education Program familiarizes Applicant employees and contractors with BMPs and other measures associated with protected species potentially on the project footprint.

- **Mitigation Measure BR-G.2. Implement Best Management Practices (BMPs).** BMPs shall be implemented as standard operating procedures during all ground disturbance and construction-related activities to avoid or minimize project impacts on biological resources.
- **Mitigation Measure BR-G.3. Develop and implement a Habitat Restoration and Revegetation Plan.** The Applicant shall restore disturbed areas to pre-construction conditions or better. Prior to the issuance of a building permit and removal of any soil or vegetation, the Applicant shall retain a County-approved, qualified biologist, knowledgeable in the area of annual grassland habitat restoration, to prepare a Habitat Restoration and Revegetation Plan (HRRP). The biologist would also be responsible for monitoring the initial implementation of the plan as the Applicant's attainment of the established success criteria.
- **Mitigation Measure BR-G.4. Implement biological monitoring of construction activities.** Prior to the commencement of ground disturbance or site mobilization activities, the Applicant shall retain County-approved, qualified biologist(s) with demonstrated expertise with listed and/or special-status plants, terrestrial mammals and reptiles to monitor all construction activities on a daily basis. The qualified biologist(s) shall be present at all times during ground-disturbing activities immediately adjacent to, or within, habitat that supports populations of the listed or special-status species identified in **Section 3.6** of this EIS.
- **Mitigation Measure BR-G.5.** Purchase credits from a CDFW-approved mitigation bank, create a permanent conservation easement(s), in favor of CDFW or a CDFW-approved conservation holder for the management of the land pursuant to the approved HMMP, or transfer land in fee to a CDFW approved conservation holder with a deed restriction for the management of the land pursuant to the approved HMMP.
- **Mitigation Measure BR-G.6. Develop and implement Wetland Mitigation and Monitoring Plan and Habitat Management Plan for mitigation lands.** To ensure the success of on-site preserved land and acquired mitigation lands, required for compensation of permanent impacts to vegetative communities, wetlands, and listed or Special-Status plants and wildlife, the Applicant shall retain a County-approved, qualified biologist to prepare a Wetland Mitigation and Monitoring Plan (WMMP) and a Habitat Management Plan (HMP). The WMMP will focus on impacts and mitigation for jurisdictional waters and wetlands while the HMP will focus on the habitat and species management measures.

- **Mitigation Measure BR-1.1. Prepare and implement a Weed Control Plan.** Prior to the issuance of a building permit or any ground disturbance the Applicant shall retain a County-approved, qualified restoration ecologist or biologist to prepare a comprehensive adaptive Weed Control Plan (WCP) to be administered during the construction and operation of the project for the purpose of invasive weed abatement. The WCP shall be submitted to the County of San Benito for review and approval and shall be updated and utilized for weed eradication and monitoring post-construction.
- **Mitigation Measure BR-1.2. Develop and implement a Grazing Plan for the project site.** Managed livestock grazing has been proposed for the project site. Prior to the issuance of a construction permit the Applicant shall retain a County-approved qualified restoration ecologist or biologist to prepare a Grazing Plan to be administered during the construction and operation of the project. The Grazing Plan shall be submitted to the County of San Benito for review and approval.
- **Mitigation Measure BR-7c.1. Conduct pre-construction surveys for short-nosed kangaroo rat, San Joaquin pocket mouse, and Tulare grasshopper mouse and implementation of avoidance measures.** No more than 30 days prior to commencement of ground disturbing activities the Applicant shall retain a County-approved, qualified biologist to conduct pre-construction surveys for each phase of the project. If occupied habitat for Short-nosed kangaroo rat, San Joaquin pocket mouse, and/or Tulare grasshopper mouse is found it shall be flagged. Impacts to occupied habitat shall be avoided to the extent feasible. If individuals are found within an area proposed for disturbance and can be captured, the biologist will relocate them to a pre-approved area outside the project area. The candidate locations for species relocation will be identified prior to construction and based on the size and type of habitat present, the potential for negative interactions with resident species, and species range. A final report identifying the number of animals moved, any mortality identified during the relocation event, and the general health of the species shall be completed and submitted to the County on a monthly basis.
- **Mitigation Measure BR-16.2. Minimize impacts of foundation support installations.** The Applicant shall evaluate and implement feasible foundation installation systems to minimize noise and vibration that would affect ground-dwelling wildlife.
- **Mitigation Measure BR-17.1. Conduct pre-construction San Joaquin antelope squirrel surveys and implement avoidance measures.** No more than 30 days prior to the commencement of

ground disturbance activities the Applicant shall retain a County-approved, qualified biologist to conduct pre-construction surveys for each phase of the project. If present, active San Joaquin antelope squirrel burrows shall be flagged and ground-disturbing activities shall be avoided within a minimum of 50 feet surrounding each active burrow.

- **Mitigation Measure BR-18.1. Conduct focused pre-construction surveys for American badger surveys and implementation of avoidance measures.** No more than 30 days prior to the commencement of construction activities, the Applicant shall retain a County-qualified biologist to conduct pre-construction surveys for American badger within suitable habitat on the project site. If present, occupied badger dens shall be flagged and ground-disturbing activities avoided within 50 feet of the occupied den. Maternity dens shall be avoided during puprearing season (15 February through 1 July) and a minimum 200-foot buffer established.
- **Mitigation Measure BR-22.1. Fence temporary pond to exclude wildlife.** The perimeter of the pond shall be surrounded by a barrier fence (or combination of fencing) designed to keep wildlife species out. The temporary chain link fence shall be tall enough (6 feet) to keep out large mammals, and additional fine material exclusionary fencing shall be buried at least 2 feet, to keep out amphibians, reptiles, and small and medium sized mammals. This mitigation measure will be effective because the barrier methods employed will reduce wildlife exposure.
- **Mitigation Measure AQ-1.1. Reduce fugitive dust.** This measure provides guidance on how to minimize nuisance impacts and to significantly reduce fugitive dust emissions. It specifies measures to be shown on grading and building plans.

Construction

Effects On Special Status Small Mammal Populations

Construction of the no action (no permit) alternative would have short-term direct effects and short- and long-term indirect effects on special status mammal populations, including San Joaquin antelope squirrel and American badger.

Potential short-term direct effects on special status mammal species are the following:

- Injury or mortality to individuals due to collision or crushing by construction equipment, on-site vehicles, or construction activities

- Injury or mortality due to entrapment in pipes or other materials that would be stored on the proposed project site during construction staging
- Temporary reduction in hearing ability caused by noise and ground vibrations from the use of heavy equipment (this could negatively affect foraging success, as nocturnal mammals, such as American badger, may rely primarily on hearing to detect threats)
- Vibrations from heavy equipment and other solar array installation activities may cause burrow complexes to collapse, entombing small mammals (noise and vibrations could also cause animals to leave their burrows, where they may be more susceptible to predation or other project-related injury or mortality, or they may abandon young)
- Disruption of movement caused by open trenches, which could create impassable barriers (individuals that inadvertently fall into deep steep-walled trenches would be vulnerable to predation, starvation, and entombment)

Potential short-term indirect effects on special status mammal species would be the following:

- Habitat avoidance and displacement due to human activity and noise associated with construction
- Injury or mortality due to use of firearms or as a result of pets (dogs) brought onto the proposed project site by workers.
- Illness, mortality, or habitat contamination caused by spillage or leakage of industrial chemicals, fuels, and lubricants used for construction
- Injury or mortality due to artificial increases in predator populations, such as red fox, coyote, or domestic dogs that are attracted to the project site by the improper disposal of trash

Potential long-term indirect effects on special status mammal species would be caused by the following:

- Predation pressure could increase from increased perching opportunities for predators provided by project facilities and infrastructure (e.g., solar panels, perimeter fencing, and electrical substation).
- Permanent motion-activated lighting at the O&M building, substation, and power blocks could increase nighttime predation of nocturnal mammals in illuminated areas as a result of increased visibility to mammalian and avian predators.

- Over the long term, the 25-foot high free-span bridges and bridge abutments could provide perches for raptors which may prey upon special status small mammals, causing injury or mortality to individuals.
- Preservation of 24,176 acres of potential special status small mammal habitat on the Valley Floor, Valadeao Ranch, and Silver Creek Ranch Conservation Lands in perpetuity, where habitat enhancement actions would be implemented (see **Section 2.5.7**)

As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, the applicant will: restrict the movement of construction vehicles; limit the extent of construction activities; cover trenches and fence the temporary pond; construct fencing to maintain wildlife movement; install motion-sensor lighting that avoids activation from animal activity; preserve on-site and mitigation lands; educate to prevent inadvertent human-caused errors; monitor the site; prohibit pesticides, herbicides, firearms and pets on-site; remove trash; and reduce the likelihood for spills and exposure to hazardous substances. In addition, the applicant will conduct pre-construction surveys and avoid occurrences of short-nosed kangaroo rat, San Joaquin pocket mouse, Tulare grasshopper mouse, San Joaquin antelope squirrel, and American badger. These measures would reduce the likelihood for impacts on special status mammal populations by reducing the likelihood for injury or mortality caused by construction activities, such as via vehicle strikes, entrapment, drowning, predation, or poisoning and reducing features that would attract special status small mammals to the site (e.g., lighting). Habitat corridors would allow special status small mammals to disperse throughout or away from the site. In addition, conservation lands could provide areas that could be used as refugia if populations were to avoid the site. Pre-construction surveys and avoidance of occurrences would help to reduce the likelihood of impacts caused by on-site activities. Monitoring would proactively identify and resolve issues. Because the above measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the effects on special status mammal populations from construction would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Effects On Special Status Small Mammal Habitat

Construction of the no action (no permit) alternative would have short- and long-term direct effects and long-term indirect effects on the quality and quantity of special status mammal habitat. There are not anticipated to be any short-term indirect effects on special status mammal habitats.

Potential short-term direct effects on special status mammal habitats would be the following:

- Temporary impacts on 712 acres of suitable habitat due to construction, grading, staging areas, roads, and trenching
- Disturbance or disruption of habitat, including burrows, dens, and vegetation, from construction equipment (e.g., graders, scrapers, bulldozers, and trucks) or activities (e.g., steel post mounts driven into the ground and trenching)

The potential long-term direct effect on special status mammal habitats would be the following:

- Permanent loss of up to 1,796 acres of suitable habitat due to the development of the O&M building, electrical inverter pads, substation, switching station, free-span bridges, and on-site roads

Potential long-term indirect effects on special status mammal habitats are the following:

- Reduced habitat functionality on undisturbed lands that would be completely or partially surrounded by solar arrays and associated infrastructure and other development
- Altered soil conditions beneath the solar panels (e.g., temperature and moisture) and reduction in the amount of light reaching the ground, resulting in potential shifts in plant species composition and potential loss of forage; altered grazing practices changing vegetation and available forage
- Reduced availability of mammal burrows for refuge due to construction of solar arrays and associated facilities
- Preservation of 24,176 acres of potential special status small mammal habitat on the Valley Floor, Valadeao Ranch, and Silver Creek Ranch Conservation Lands in perpetuity, where habitat enhancement actions would be implemented (see **Section 2.5.7**)

As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, the applicant will limit the extent of construction activities and vegetation removal; restore habitats; preserve on-site and mitigation lands; and monitor the site. A number of plans have been or will be prepared to improve the success of these activities, including a habitat restoration and revegetation plan, habitat management plan for mitigation lands, weed control plan, and grazing plan. These measures would reduce the likelihood for impacts on the quality or quantity of special status mammal habitats by reducing unnecessary habitat removal; providing protected lands that could be used as refugia; restoring disturbed areas; improving management of on-site and mitigation lands through careful planning and documentation (e.g., via the grazing plan and habitat

management plan); and through monitoring would proactively identify and resolve issues. Because the above measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the effects on special status mammal habitats from construction would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Operational and Maintenance Activities

Effects On Special Status Small Mammal Populations

A potential long-term direct effect on special status small mammal species would be that project operational and maintenance activities could crush burrows and vegetation that may provide forage or cover for these species. Vehicle traffic associated with nighttime security patrols would have greater potential of crushing these primarily nocturnal mammals. A potential long-term indirect effect would be that permanent motion-activated lighting at the O&M building, substation, and power blocks could increase nighttime predation of nocturnal mammals in illuminated areas as a result of increased visibility to mammalian and avian predators.

As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, the applicant will restrict the movement of vehicles; maintain fencing to limit wildlife movement; maintain motion-sensor lighting that avoids activation from animal activity; educate workers to prevent inadvertent human-caused errors; monitor the site; prohibit pesticides, herbicides, firearms and pets on-site; remove trash; and reduce the likelihood for spills and exposure to hazardous substances. The site habitat restoration and revegetation and habitat management plans would provide for restoring disturbed areas; and monitoring would proactively identify and resolve issues. Because the above measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the effects on special status mammal populations from operational and maintenance activities would be less than significant.

Effects On Special Status Small Mammal Habitat

Operational and maintenance activities would have negligible impacts on special status mammal habitats.

PG&E Telecommunication Upgrades

Waters of the U.S. and other aquatic resources

PG&E-proposed avoidance and minimization measures related to impacts to waters of the U.S. and other aquatic resources were included as conditions of approval in the conditional use permit for the proposed project and are considered part of the no action (no permit) alternative in this EIS. The full text of these measures is included in **Appendix C**, **Table C-3**. The impacts of the

no action (no permit) alternative on waters of the U.S. and other aquatic resources with incorporation of these measures are discussed below.

- **AMM BR-PGE-1. Worker Environmental Training.** Personnel will receive ongoing environmental education. Training will include review of environmental laws and guidelines that must be followed by all personnel to reduce or avoid effects on covered species during work activities.
- **AMM BR-PGE-2. Park vehicles and equipment in disturbed areas.** Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.
- **AMM BR-PGE-4. Minimize disturbance from vehicle access.** The development of new access and ROW roads will be minimized, and clearing vegetation and blading for temporary vehicle access will be avoided to the extent practicable.
- **AMM BR-PGE-9. Restoration and erosion control.** Upon completion of any Project component, all areas that are significantly disturbed and not necessary for future operations, shall be stabilized to resist erosion, and re-vegetated and re-contoured if necessary, to promote restoration of the area to pre-disturbance conditions.
- **AMM BR-PGE-18. Wetland and Other Waters Avoidance and Minimization.** Impacts to wetlands and other waters shall be avoided to the extent feasible. The Project shall be designed, constructed and operated to avoid and minimize impacts to wetlands and other waters to the extent feasible. General Project staging and laydown activities shall not occur within wetlands during construction. To avoid unnecessary egress into waterways and wetlands, all wetlands and waters in the Project impact area shall be clearly marked with highly visible flagging, rope, or similar materials in the field. Additionally, the following measures are proposed to further minimize project impacts on wetland and other waters during construction activities:
  - Grading and construction activities should be done during dry conditions. However, if grading and construction must be conducted during wet conditions, then the site specific best management practices (BMPs) for erosion will be implemented.
  - All work within waters that have only low or intermittent flow shall be performed when the channel is dry or at its lowest flow.
  - Activities near wetland and waters that have the potential to degrade water quality will be conducted during the dry season. If work activities are necessary during the rainy season, they shall be conducted during dry spells between rain events.

  - All drainage patterns and grades will be returned to preconstruction conditions.
  - Unanticipated temporary impacts to wetlands and other waters shall be mitigated through onsite restoration or compensatory mitigation provided at a ratio acceptable to the agency(ies) with jurisdiction over that wetland or water feature.
- **AMM HAZ-1. Proper storage and disposal of waste and hazardous materials.** Hazardous materials shall not be drained onto the ground or into streams or drainage areas.

Construction

Primary Telecommunication Upgrades. There would be no direct permanent or temporary disturbance to potential waters of the U.S. and other aquatic resources resulting from construction of PG&E primary telecommunication upgrades. Potential waters of the U.S. are located within the buffer zones of several work sites as described in **Section 3.6.2**, and construction of PG&E primary telecommunication upgrades could result in indirect impacts at these locations.

There would be no direct permanent or temporary disturbance to potential waters of the U.S. and other aquatic resources resulting from construction of PG&E primary telecommunication upgrades. The nature and type of potential indirect impacts would be the same as those described for waters of the U.S. for the project site. PG&E-proposed avoidance and minimization measures were included as conditions of approval in the conditional use permit for the proposed project and are considered part of the no action (no permit) alternative in this EIS. AMM BR-PGE-1 requires PG&E workers to complete environmental training which would increase awareness and sensitivity to potential waters of the U.S. AMM BR-PGE-2 and AMM BR-PGE-4 would reduce soil disturbance and associated potential erosion resulting from construction vehicle traffic and equipment. AMM BR-PGE-9 would prevent erosion and sedimentation by ensuring that temporarily disturbed areas are stabilized and revegetated as necessary. AMM BR-PGE-18 outlines several restrictions and practices specifically for reducing impacts to wetlands, waters, and other aquatic resources. These practices include working during the dry season or during times of low or no flow, guidelines for restoring temporarily disturbed areas, and guidelines for providing compensatory mitigation if necessary. Finally, AMM HAZ-1 would prevent spills of hazardous materials that may indirectly impact potential waters of the U.S. (see **Table C-3** of **Appendix C**, for the complete text of these measures). Because these measures have been incorporated into the no action (no permit) alternative, indirect impacts on potential waters of the U.S. from construction would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

These measures would also apply to construction of the PG&E secondary telecommunication upgrades, described below.

Secondary Telecommunication Upgrades. No potential wetlands or waters of the U.S. are located within the PG&E secondary telecommunication upgrades sites at Call Mountain, Panoche Mountain, and the Helm Substation. Therefore no direct impacts to wetlands or waters of the U.S. will occur from construction of the no action (no permit) alternative.

Indirect impacts to wetlands or waters of the U.S. could occur if off-site transport of sediment-laden water was to reach downstream aquatic resources. The nature and type of potential indirect impacts would be the same as those described for waters of the U.S. for the project site. PG&E-proposed avoidance and minimization measures were included as conditions of approval in the conditional use permit for the proposed project and are considered part of the no action (no permit) alternative in this EIS. These measures, described above under *Primary Telecommunication Upgrades*, would apply to construction of the PG&E secondary telecommunication upgrades. Because these measures have been incorporated into the no action (no permit) alternative, potential indirect impacts on off-site wetlands or waters of the U.S. from construction would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Operational and Maintenance Activities

Operational and maintenance activities on the PG&E primary or secondary telecommunications facilities could result in short-term indirect impacts to waters of the U.S. Indirect impacts to wetlands or waters of the U.S. could occur if transport of sediment-laden water were to reach off-site aquatic resources. This effect would be similar to that described under construction of the no action (no permit) alternative, but would be more limited, as effects from maintenance activities would be localized and short-term. PG&E-proposed avoidance and minimization measures were included as conditions of approval in the conditional use permit for the proposed project and are considered part of the no action (no permit) alternative in this EIS; these measures would also apply to operational and maintenance activities. These measures would avoid or minimize potential short-term indirect effects on waters of the U.S. by avoiding work within aquatic resources, conducting work adjacent to aquatic resources in the dry season, minimizing surface disturbance, and restoring temporarily disturbed areas. Because these measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, and because impacts would be short-term and localized, impacts from operational and maintenance activities would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Vegetation

PG&E-proposed avoidance and minimization measures related to impacts on vegetation were included as conditions of approval in the conditional use permit for the proposed project and are considered part of the no action (no permit) alternative in this EIS. The full text of these measures is included in **Appendix C**, **Table C-3**. The impacts of the no action (no permit) alternative on vegetation with incorporation of these measures are discussed below.

- **AMM AQ-1. Minimize fugitive dust.** Consistent with the applicable Air Quality Management District's CEQA Guidelines, PG&E will minimize dust emissions during construction by watering active construction areas at least twice daily, covering trucks hauling soil, sand, and other loose materials, stabilizing soils on unpaved roads, and sweeping paved access roads.
- **AMM BR-PGE-1. Worker Environmental Training.** Personnel will receive ongoing environmental education. Training will include review of environmental laws and guidelines that must be followed by all personnel to reduce or avoid effects on covered species during work activities.
- **AMM BR-PGE-2. Park vehicles and equipment in disturbed areas.** Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.
- **AMM BR-PGE-4. Minimize disturbance from vehicle access.** The development of new access and ROW roads will be minimized, and clearing vegetation and blading for temporary vehicle access will be avoided to the extent practicable.
- **AMM BR-PGE-7. Fire prevention.** During fire season in designated State Responsibility Areas (SRAs), all motorized equipment will have federal or state approved spark arrestors; a backpack pump filled with water and a shovel will be carried on all vehicles; and fire-resistant mats and/or windscreens will be used when welding.
- **AAM BR-PGE-8. Fire prevention during "red flag" conditions.** In addition, during fire "red flag" conditions as determined by California Department of Forestry (CDF), welding will be curtailed, each fuel truck will carry a large fire extinguisher with a minimum rating of 40 B:C, and all equipment parking and storage areas will be cleared of all flammable materials.
- **AMM BR-PGE-9. Restoration and erosion control.** Upon completion of any Project component, all areas that are significantly disturbed and not necessary for future operations, shall be stabilized to resist erosion, and re-vegetated and re-contoured if necessary, to promote restoration of the area to pre-disturbance conditions.

- **AMM HAZ-1. Proper storage and disposal of waste and hazardous materials.** Hazardous materials shall not be drained onto the ground or into streams or drainage areas.

Construction

Primary Telecommunication Upgrades. There would be no direct permanent disturbance resulting from construction of PG&E primary telecommunication upgrades.

Direct temporary disturbance would result from pull/splice sites, helicopter landing zones, temporary guard structures, and temporary work sites associated with the wood pole replacement sites. Preparation of the temporary pull/splice sites, helicopter landing zones, and work areas for the wood pole replacement sites would require some minor ground disturbance, including vegetation trimming, recontouring, and lightly compacting the ground. No grading or vegetation removal is anticipated associated with installing the guard structures. Guard structure poles would be removed following OPGW installation, and the holes would be backfilled.

Table 2-16 in **Chapter 2** summarizes the area of disturbance associated with PG&E primary telecommunication upgrades. Approximately 5.73 acres would be temporarily affected. The nature and type of temporary direct and potential indirect effects on vegetation resulting from these upgrades would be similar to those resulting from construction of the proposed project site.

AMM AQ-1 would reduce the amount of fugitive dust deposition on vegetation in and adjacent to the work areas, reducing this indirect impact. AMM BR-PGE-1 requires PG&E workers to complete environmental training which would increase awareness and sensitivity of potential impacts on vegetation. AMM BR-PGE-2 and AMM BR-PGE-4 would reduce the direct effects of vehicles crushing vegetation, and would also reduce indirect effects of associated soil disturbance, erosion, topsoil loss, nutrient loss, and weed spread. AMM BR-PGE-7 and AMM BR-PGE-8 would reduce potential direct and indirect effects of fire on vegetation in the work areas, including changes in vegetation composition and weed establishment and spread. AMM BR-PGE-9 would prevent erosion and sedimentation by ensuring that temporarily disturbed areas are stabilized and revegetated as necessary. Finally, Measure AMM HAZ-1 would prevent spills of hazardous materials that may directly or indirectly impact vegetation in the work areas (see **Table C-3** of **Appendix C**, for the complete text of these measures). These measures would offset potential impacts from upgrades under the no action (no permit) alternative. Because these measures have been incorporated into the no action (no permit) alternative, indirect impacts on vegetation from construction would be less than significant. No additional mitigation measures were identified to further reduce impacts.

These measures would also apply to construction of the PG&E secondary telecommunication upgrades, described below.

Secondary Telecommunication Upgrades. Temporary and permanent disturbance from construction of the PG&E secondary telecommunication upgrades at Call Mountain, Panoche Mountain, and the Helm Substation would occur; however, disturbance would be entirely on previously disturbed lands, and no impacts on vegetation would occur. Direct and indirect effects on vegetation from installing a new microwave tower on the project site would be as described for construction of the proposed project. The new tower would be next to the proposed substation and switching station, within the perimeter fence of the project. Inclusion of PG&E proposed avoidance and minimization measures as described above would reduce potential impacts to a less than significant level.

The new tower proposed at the Helm Substation would be constructed within the substation fence line, on ground that has been previously disturbed and does not support vegetation. At the Call Mountain and Panoche Mountain towers, temporary work areas would be established to facilitate collocating equipment on the existing towers, also on ground that has been previously disturbed and does not support vegetation. Therefore, direct and indirect effects on vegetation are not expected from construction.

Operational and Maintenance Activities

Operational and maintenance activities on the PG&E primary telecommunications facilities could have the potential to result in short-term, localized, direct and indirect impacts on vegetation. Short-term, localized, direct impacts on vegetation could result from ground disturbance or vegetation clearing within a temporary work area. Indirect impacts on vegetation could occur from deposition of dust on adjacent vegetation, and from weed seed dispersal, and weed establishment and spread during temporary maintenance work or resulting from day-to-day vehicle or worker presence. These effects would be similar to those described under construction of the no action (no permit) alternative, but would be more limited, as effects from maintenance activities would be localized and short-term. PG&E-proposed avoidance and minimization measures were included as conditions of approval in the conditional use permit for the proposed project and are considered part of the no action (no permit) alternative in this EIS; these measures would also apply to operational and maintenance activities. These measures would avoid or minimize potential short-term effects on vegetation by minimizing surface disturbance, restoring temporarily disturbed areas, parking vehicles in disturbed areas, minimizing fugitive dust, limiting new access road construction, and incorporating fire prevention measures. Because these measures have been incorporated into the no action (no permit) alternative, potential direct and indirect impacts on vegetation from operational and maintenance activities

would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Effects on vegetation from operational and maintenance activities at the PG&E secondary telecommunications upgrade locations are not expected. This is because work areas surrounding the towers would be within the fenced perimeter of the project site, which would be kept free of vegetation.

Wildlife

PG&E-proposed wildlife avoidance and minimization measures were included as conditions of approval in the conditional use permit for the proposed project and are considered part of the no action (no permit) alternative in this EIS. The full text of these measures is included in **Appendix C**, **Table C-3**. The impacts of the no action (no permit) alternative on wildlife with incorporation of these measures are discussed below.

- **AMM BR-PGE-1. Worker Environmental Training.** Personnel will receive ongoing environmental education. Training will include review of environmental laws and guidelines that must be followed by all personnel to reduce or avoid effects on covered species during work activities.
- **AMM BR-PGE-2. Park vehicles and equipment in disturbed areas.** Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.
- **AMM BR-PGE-3. Work during daylight hours.** Work will occur only during daylight hours, unless required to occur at night due to line clearances for worker safety.
- **AMM BR-PGE-4. Minimize disturbance from vehicle access.** The development of new access and ROW roads will be minimized, and clearing vegetation and blading for temporary vehicle access will be avoided to the extent practicable.
- **AMM BR-PGE-5. Speed limit.** Vehicles will not exceed a speed limit of 15 mph in the ROWs or on unpaved roads within sensitive land-cover types.
- **AAM BR-PGE-6.** Trash dumping, firearms, open fires, hunting, and pets will be prohibited at the work activity sites.
- **AMM BR-PGE-9. Restoration and erosion control.** Upon completion of any Project component, all areas that are significantly disturbed and not necessary for future operations, shall be stabilized to resist erosion, and re-vegetated and re-contoured if necessary, to promote restoration of the area to pre-disturbance conditions.

- **AMM HAZ-1. Proper storage and disposal of waste and hazardous materials.** Hazardous materials shall not be drained onto the ground or into streams or drainage areas.

Additionally, PG&E proposes to use minimization and mitigation measures detailed in its San Joaquin Valley Operation & Maintenance Habitat Conservation Plan (Jones & Stokes 2006). Measures to avoid and minimize impacts on sensitive species and their habitat are summarized below:

- Crews would be educated about sensitive species in the area and a qualified biologist would perform surveys of work areas before the start of work.
- Work would occur during the daytime, minimizing potential impacts on giant kangaroo rat and other nocturnal species.
- Vehicles and equipment would remain on existing roads and would maintain low speeds in areas where sensitive species are known to occur. Crews would check under vehicles and equipment parked for more than fifteen minutes before pulling out.

Construction

Primary and Secondary PG&E Telecommunication Upgrades. In conjunction with the proposed project, transmission line upgrades would be constructed along the existing PG&E Moss Landing-Panoche transmission line, between the project site and the Panoche substation 17 miles east. In addition, new microwave towers would be constructed, and new equipment would be installed on existing tower sites.

The nature and type of potential impacts on wildlife would be similar to those described for the project site, above. Construction of PG&E upgrades under the no action (no permit) alternative could result in short-term direct, and short- and long-term indirect impacts on wildlife species, populations, and habitats. Short-term direct impacts are discussed below. No long-term direct impacts are anticipated under the no action (no permit) alternative.

Direct, short-term effects from the development of the PG&E upgrades would result from vehicle and equipment movement, materials placement, and helicopter and equipment noise. Direct mortality could result from collision with construction equipment or traffic, or from entrapment in holes, trenches, or construction materials. In general, small mammals, amphibians and reptiles, bird eggs, and nestlings would be particularly vulnerable to these types of effects. PG&E-proposed avoidance and minimization measures were included as conditions of approval in the conditional use permit for the proposed project and are considered part of the no action (no permit) alternative in this EIS. Construction personnel would receive environmental awareness training, which would include discussion of minimizing wildlife-vehicle strikes. Construction-

related traffic and equipment would remain within pre-designated work areas, and would not enter wildlife habitat where strikes would be more likely to occur. Speed limits for construction traffic would be established to reduce chances for vehicle strikes. These measures would also establish construction hours based on sunrise and sunset, which would prohibit activities during pre-dawn and post-sunset hours when wildlife would be most active, further reducing the potential for wildlife mortality from vehicle strikes. Because these measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, and because impacts would be short-term and limited to the construction period, impacts would be less than significant.

Short-term, direct effects from visual and noise disturbance could also result from construction activities, human presence, and helicopters or vehicles. Visual and noise disturbances could cause wildlife to alter their foraging, migration, wintering, and breeding behaviors and to avoid suitable habitat in or near the work areas. In the most extreme cases, disturbances could cause animals to abandon nests, burrows, roosts, or territories. Displacement of individuals could increase competition for resources in adjacent habitats. Any change in wildlife behavior associated with visual or noise disturbance could make animals more susceptible to disease, predation, or unsuccessful reproductive or foraging efforts, leading to lowered survival of adult wildlife or their dependent young. PG&E-proposed avoidance and minimization measures were included as conditions of approval in the conditional use permit for the proposed project and are considered part of the no action (no permit) alternative in this EIS. Construction personnel would receive environmental awareness training, which would include discussion of methods to minimize wildlife disturbance. Pre-construction surveys for breeding birds and other sensitive species would be conducted to avoid direct impacts on these species. Construction-related traffic and equipment would remain within pre-designated work areas, and would not enter wildlife habitat where potential harassment or disruption of wildlife behavior would be increased. Construction hours based on sunrise and sunset would be established, which would prohibit activities during pre-dawn and post-sunset hours when wildlife would be most active and potential for behavior disruption and habitat avoidance would be highest. These measures would offset the potential for direct, short-term effects from construction-related wildlife disruption. Because these measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, and because impacts would be short-term and limited to the construction period, impacts would be less than significant.

A number of short- and long-term indirect effects could occur to wildlife species resulting from construction of the PG&E upgrades under the no action (no permit) alternative. Indirect effects are described in the following paragraphs.

The PG&E Moss Landing-Panoche transmission line corridor represents a small proportion of regional habitat and regional populations of the more common wildlife species that would be impacted by construction. Activities would temporarily alter the condition of only 2.6 acres within the existing PG&E right-of-way (0.78 acre within suitable upland habitat for terrestrial wildlife species). PG&E-proposed minimization and avoidance measures contain direction to revegetate temporarily disturbed areas. Additionally, loss of habitat would be temporary, lasting during the construction period. Because impacts would be temporary, and minimized in accordance with PG&E-proposed avoidance and minimization measures, indirect impacts from temporary habitat loss would be less than significant.

The risks to birds from electrocution or collision with overhead wires is similar to that described for construction of the project site. However, the PG&E primary upgrades under the no action (no permit) alternative include upgrades to existing transmission line, and do not include construction of new transmission line. Therefore, the upgrades conducted under the no action (no permit) alternative would not increase this risk. Furthermore, most raptor electrocutions are caused by lines that are energized at voltage levels between 1 kV and 69 kV, and "the likelihood of electrocutions occurring at voltages greater than 69 kV is extremely low" (APLIC 2006). This suggests that the high-voltage PG&E lines would present a low electrocution threat to large birds. The PG&E upgrades would require installing optical ground wire on existing towers with minimal or no modification to the existing towers.

Secondary communication upgraded under the no action (no permit) alternative involve construction of two new microwave towers each approximately 100 feet in height. Interactions with transmission lines, towers, and structures and the risks of collision vary greatly by location. Collision rates generally increase in low light conditions, during inclement weather and strong winds, and when birds are startled by a disturbance. Collisions are more likely near wetlands, valleys that are bisected by power lines, and within narrow passes where power lines run perpendicular to flight paths.

PG&E-proposed avoidance and minimization measures were included as conditions of approval in the conditional use permit for the proposed project and are considered part of the no action (no permit) alternative in this EIS. Under the measures, all work associated with the PG&E upgrades would be in compliance with APLIC guidelines, which would reduce impacts on birds by reducing or minimizing collision and electrical risk. PG&E would also comply with the Federal Communications Commission approval process and Federal Aviation Administration (FAA) filings and approval, including installations of FAA-lights on the microwave towers, as required. PG&E would implement its avian protection plan to track and minimize impacts on birds and would adhere to APLIC guidelines to minimize impacts on birds or bats. It is difficult to predict the magnitude of collision-caused bird mortality as a result of the new

microwave tower construction. Nevertheless, based on the distribution of the species in the project area and observations made during reconnaissance surveys, collision mortality may occur to some degree and result in net increase of collisions compared to baseline conditions. However, because work associated with the upgrades will adhere to APLIC guidelines and PG&E's avian protection plan, it is unlikely that construction of the microwave towers would substantially reduce population numbers of migratory bird or raptor species in the work area, or cause these populations to drop below self-sustaining levels. Therefore, impacts associated with construction of PG&E's primary and secondary upgrades will be less than significant.

Operational and Maintenance Activities

The nature and type of effects on wildlife from operational and maintenance activities under the no action (no permit) alternative could include short-term direct and indirect impacts on wildlife species, populations, and habitats including direct injury or mortality, visual and noise disturbance, and temporary loss of habitat.

Maintenance or replacement of PG&E telecommunication upgrades components may result in direct, short-term impacts due to wildlife injury or mortality from vehicle strikes, and visual and noise disturbance. These effects would be similar to those described under construction of the no action (no permit) alternative, but would be more limited, as effects from maintenance activities would be localized and short-term. PG&E-proposed avoidance and minimization measures were included as conditions of approval in the conditional use permit for the proposed project and are considered part of the no action (no permit) alternative in this EIS; these measures would also apply to operational and maintenance activities. These measures would avoid or minimize potential direct effects on wildlife by providing workers with environmental training, limiting work hours when wildlife are typically most active, limiting surface disturbance, and setting speed limits. Because these measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, and because impacts would be short-term and localized, impacts would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Short-term indirect effects to wildlife species could result from temporary loss of habitat associated with temporary work areas for maintenance activities. This effect would be similar to that described under construction of the no action (no permit) alternative, but would be more limited, as effects from maintenance activities would be localized and short-term. PG&E-proposed avoidance and minimization measures were included as conditions of approval in the conditional use permit for the proposed project and are considered part of the no action (no permit) alternative in this EIS; these measures would also apply to operational and maintenance activities. These measures would avoid or minimize potential short-term indirect effects on wildlife by limiting surface

disturbance and restoring temporarily disturbed areas by revegetating them and installing erosion control measures. Because these measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, and because impacts would be short-term and localized, impacts from operational and maintenance activities would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Special Status Species

Effects on special status plant species

PG&E-proposed avoidance and minimization measures were included as conditions of approval in the conditional use permit for the proposed project and are considered part of the no action (no permit) alternative in this EIS. These measures include:

- **AMM BR-PGE-1. Worker Environmental Training.** Personnel will receive ongoing environmental education. Training will include review of environmental laws and guidelines that must be followed by all personnel to reduce or avoid effects on covered species during work activities.
- **AMM BR-PGE-2. Park vehicles and equipment in disturbed areas.** Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.
- **AMM BR-PGE-4. Minimize disturbance from vehicle access.** The development of new access and ROW roads will be minimized, and clearing vegetation and blading for temporary vehicle access will be avoided to the extent practicable.
- **AMM BR-PGE-7. Fire prevention.** During fire season in designated State Responsibility Areas (SRAs), all motorized equipment will have federal or state approved spark arrestors; a backpack pump filled with water and a shovel will be carried on all vehicles; and fire-resistant mats and/or windscreens will be used when welding.
- **AMM BR-PGE-8. Fire prevention during "red flag" conditions.** In addition, during fire "red flag" conditions as determined by California Department of Forestry (CDF), welding will be curtailed, each fuel truck will carry a large fire extinguisher with a minimum rating of 40 B:C, and all equipment parking and storage areas will be cleared of all flammable materials.
- **AMM BR-PGE-9. Restoration and erosion control.** Upon completion of any Project component, all areas that are significantly disturbed and not necessary for future operations, shall be stabilized

to resist erosion, and re- vegetated and re-contoured if necessary, to promote restoration of the area to pre-disturbance conditions.

- **AMM BR-PGE-15. Exclusion zones for special-status plants.** If a covered plant species is present following special-status plant surveys, a qualified biologist will stake and flag exclusion zones of 100 feet around plant occupied habitat (both the standing individuals and the seed bank individuals) of the covered species prior to performing the activities. If an exclusion zone cannot extend the specified distance from the habitat, the biologist will stake and flag a restricted activity zone of the maximum practicable distance from the exclusion zone around the habitat. This exclusion zone distance is a guideline that may be modified by a qualified biologist, based on site-specific conditions (including habituation by the species to background disturbance levels).

Construction. No special status plant species have been observed to date in the proposed work areas for the PG&E primary and secondary upgrades; however, work areas within the Moss Landing-Panoche 230 kV transmission line right-of-way have the potential to support several special status species, including federally and state listed species. Construction of the primary telecommunication upgrades could cause adverse effects on special status plant populations. All impacts from the PG&E upgrades would be short term and localized, mainly due to the potential for damage or destruction of individual special status plants from construction activities.

The avoidance and minimization measures described above would reduce the likelihood for impacts on local special status plant populations by reducing the likelihood for damage or removal caused by construction activities, such as via crushing or surface disturbing activities. Worker education would help to reduce the likelihood of inadvertent human-caused errors. Further, establishment of special status plant exclusion zones would reduce the potential for impacts caused by construction activities, such as ground disturbance. Because the above avoidance and minimization measures have been incorporated into the proposed project evaluated in this EIS, the effects on special status plant populations from construction would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Construction of the primary telecommunication upgrades could cause adverse effects on the quantity and quality of special status plant habitats. All impacts from the PG&E upgrades would be short term and localized, mainly due to soil disturbance (see **Section 3.6** for a detailed discussion of potential impacts on vegetation resulting from the PG&E upgrades).

The avoidance and minimization measures described above would reduce the likelihood for impacts on special status plant habitats by reducing the extent of

habitat disturbance and restoring habitats on-site. Further, fire prevention measures would help to retain existing habitats in the event of a fire. Because the above avoidance and minimization measures have been incorporated into the proposed project evaluated in this EIS, the effects on special status plant habitats from construction would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Operational and Maintenance Activities. Operational and maintenance activities could impact special status plants through crushing from vehicle traffic or fire ignition. The avoidance and minimization measures described above would reduce the likelihood for crushing, surface-disturbing activities, or fire ignition by reducing traffic. Worker education would help to reduce the likelihood of inadvertent human-caused errors. The avoidance and minimization measures described above would reduce the likelihood for impacts on special status plant habitats by reducing the extent of habitat disturbance and restoring habitats on-site. Fire prevention measures would help to retain existing habitats in the event of a fire. Because the above avoidance and minimization measures have been incorporated into the proposed project evaluated in this EIS, the effects on special status plant populations and habitats from operational and maintenance activities would be less than significant.

Effects on San Joaquin kit fox

PG&E-proposed avoidance and minimization measures were included as conditions of approval in the conditional use permit for the proposed project and are considered part of the no action (no permit) alternative in this EIS. These measures include:

- **AMM BR-PGE-1. Worker Environmental Training.** Personnel will receive ongoing environmental education. Training will include review of environmental laws and guidelines that must be followed by all personnel to reduce or avoid effects on covered species during work activities.
- **AMM BR-PGE-2. Park vehicles and equipment in disturbed areas.** Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.
- **AMM BR-PGE-3. Work during daylight hours.** Work will occur only during daylight hours, unless required to occur at night due to line clearances for worker safety.
- **AMM BR-PGE-4. Minimize disturbance from vehicle access.** The development of new access and ROW roads will be minimized, and clearing vegetation and blading for temporary vehicle access will be avoided to the extent practicable.

- **AMM BR-PGE-5. Speed limit.** Vehicles will not exceed a speed limit of 15 mph in the ROWs or on unpaved roads within sensitive land-cover types.
- **AMM BR-PGE-6.** Trash dumping, firearms, open fires, hunting, and pets will be prohibited at the work activity sites.
- **AMM BR-PGE-7. Fire prevention.** During fire season in designated State Responsibility Areas (SRAs), all motorized equipment will have federal or state approved spark arrestors; a backpack pump filled with water and a shovel will be carried on all vehicles; and fire-resistant mats and/or windscreens will be used when welding.
- **AMM BR-PGE-8. Fire prevention during "red flag" conditions.** In addition, during fire "red flag" conditions as determined by California Department of Forestry (CDF), welding will be curtailed, each fuel truck will carry a large fire extinguisher with a minimum rating of 40 B:C, and all equipment parking and storage areas will be cleared of all flammable materials.
- **AMM BR-PGE-9. Restoration and erosion control.** Upon completion of any Project component, all areas that are significantly disturbed and not necessary for future operations, shall be stabilized to resist erosion, and re- vegetated and re-contoured if necessary, to promote restoration of the area to pre-disturbance conditions.
- **AMM BR-PGE-12. Avoid San Joaquin kit fox and American badger dens if possible.** If San Joaquin kit fox or American badger dens are present, their disturbance and destruction will be avoided where possible. However, if dens are located within the proposed work area and cannot be avoided during construction, qualified biologists will determine if the dens are occupied. If unoccupied, the qualified biologist will remove these dens by hand excavating them in accordance with USFWS procedures for kit fox (USFWS 1999), which can also be applied to badger dens. Exclusion zones for kit fox will be implemented following USFWS procedures (USFWS 1999) or the latest USFWS procedures. The radius of these zones will follow current standards or will be determined on a case-by-case basis in coordination with USFWS and CDFW. If badger dens are present, occupied badger dens shall be flagged and ground-disturbing activities avoided within 50 feet of the occupied den. Maternity dens shall be avoided during pup-rearing season (15 February through 1 July) and a minimum 200-foot buffer established.
- **AMM BR-PGE-14. Report dead or injured listed species.** Personnel will be required to report any accidental death or injury of a listed species or the finding of any dead or injured listed species to a qualified Biologist. Notification of CDFW and/or USFWS of any

accidental death or injury of a listed species shall be done in accordance with standard reporting procedures.

Construction. Several of the proposed work areas for the PG&E primary telecommunication upgrades are near documented occurrences of the San Joaquin kit fox and within suitable habitat for the species. Construction of the primary telecommunication upgrades could cause adverse effects on San Joaquin kit fox populations. All impacts from the PG&E upgrades would be short term and localized, mainly due to construction noise and the potential for injury or mortality of San Joaquin kit fox from construction equipment, on-site vehicles, and soil compaction, which could collapse occupied burrows.

The avoidance and minimization measures described above would reduce the likelihood for take of individual San Joaquin kit fox and for impacts on the local population by reducing the likelihood for injury or mortality caused by construction activities, such as via vehicle strikes or predation. Worker education would help to reduce the likelihood of inadvertent human-caused errors. Further, avoidance of San Joaquin kit fox dens would reduce the potential for impacts caused by construction activities, such as ground disturbance and noise. Because the above avoidance and minimization measures have been incorporated into the proposed project evaluated in this EIS, the effects on San Joaquin kit fox populations from construction would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Construction of the primary telecommunication upgrades could cause adverse effects on the quantity and quality San Joaquin kit fox habitat. All impacts on habitat from the PG&E upgrades would be short term and localized, mainly due to habitat disturbance.

The avoidance and minimization measures described above would reduce the likelihood for impacts on San Joaquin kit fox habitat by reducing the extent of habitat disturbance and restoring habitats. In addition, fire prevention measures would help to retain existing habitats in the event of a fire. Because the above avoidance and minimization measures have been incorporated into the proposed project evaluated in this EIS, the effects on San Joaquin kit fox habitat from construction would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Operational and Maintenance Activities. Operational and maintenance activities could impact San Joaquin kit fox through mortality or injury from vehicle traffic, soil compaction, or from fire ignition. The avoidance and minimization measures described above would reduce the likelihood for impacts on San Joaquin kit fox by reducing traffic. Worker education would help to reduce the likelihood of inadvertent human-caused errors. Fire prevention measures would help to limit damage to habitat in the event of a fire. Further, avoidance of San Joaquin kit fox dens would reduce the potential for impacts caused by vehicles, such as ground

disturbance and noise. Because the above avoidance and minimization measures have been incorporated into the proposed project evaluated in this EIS, the effects on San Joaquin kit fox populations and habitats from operational and maintenance activities would be less than significant.

Effects on giant kangaroo rat

PG&E-proposed avoidance and minimization measures were included as conditions of approval in the conditional use permit for the proposed project and are considered part of the no action (no permit) alternative in this EIS. These measures include:

- **AMM BR-PGE-1. Worker Environmental Training.** Personnel will receive ongoing environmental education. Training will include review of environmental laws and guidelines that must be followed by all personnel to reduce or avoid effects on covered species during work activities.
- **AMM BR-PGE-2. Park vehicles and equipment in disturbed areas.** Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.
- **AMM BR-PGE-3. Work during daylight hours.** Work will occur only during daylight hours, unless required to occur at night due to line clearances for worker safety.
- **AMM BR-PGE-4. Minimize disturbance from vehicle access.** The development of new access and ROW roads will be minimized, and clearing vegetation and blading for temporary vehicle access will be avoided to the extent practicable.
- **AMM BR-PGE-5. Speed limit.** Vehicles will not exceed a speed limit of 15 mph in the ROWs or on unpaved roads within sensitive land-cover types.
- **AMM BR-PGE-6.** Trash dumping, firearms, open fires, hunting, and pets will be prohibited at the work activity sites.
- **AMM BR-PGE-7. Fire prevention.** During fire season in designated State Responsibility Areas (SRAs), all motorized equipment will have federal or state approved spark arrestors; a backpack pump filled with water and a shovel will be carried on all vehicles; and fire-resistant mats and/or windscreens will be used when welding.
- **AMM BR-PGE-8. Fire prevention during "red flag" conditions.** In addition, during fire "red flag" conditions as determined by California Department of Forestry (CDF), welding will be curtailed, each fuel truck will carry a large fire extinguisher

with a minimum rating of 40 B:C, and all equipment parking and storage areas will be cleared of all flammable materials.

- **AMM BR-PGE-9. Restoration and erosion control.** Upon completion of any Project component, all areas that are significantly disturbed and not necessary for future operations, shall be stabilized to resist erosion, and re- vegetated and re-contoured if necessary, to promote restoration of the area to pre-disturbance conditions.
- **AMM BR-PGE-11. Avoid giant kangaroo rat and San Joaquin antelope squirrel.** Personnel shall avoid occupied or potentially occupied burrows identified by a qualified biologist within two core-areas for San Joaquin antelope squirrel and giant kangaroo rat identified by CDFW. If occupied or potentially occupied burrows in the core areas cannot be avoided, a qualified biologist shall stake and flag an appropriate work-exclusion zone and remain on-sight as a biological monitor, or the biologist shall stake and flag an appropriate work exclusion zone around active burrows prior to covered activities at the job site. If work must proceed in the exclusion zone, crews will pursue techniques to minimize direct mortality including using approved biologists to trap and hold the species in captivity, and excavating and closing burrows. The approved biologist will hold an ESA Section 10(a)(1)(A) permit for the species. The approved biologist will release the mammals as soon as possible when the work is complete. If active (occupied or potentially occupied) burrows for San Joaquin antelope squirrel or giant or Tipton kangaroo rat are present outside the two core areas identified by CDFW, a qualified biologist will stake and flag an appropriate exclusion zone and remain on-site as a biological monitor, or the biologist shall stake and flag an appropriate work exclusion zone around the burrows prior to work activities on the job site.
- **AMM BR-PGE-14. Report dead or injured listed species.** Personnel will be required to report any accidental death or injury of a listed species or the finding of any dead or injured listed species to a qualified Biologist. Notification of CDFW and/or USFWS of any accidental death or injury of a listed species shall be done in accordance with standard reporting procedures.

Construction. Impacts on giant kangaroo rat populations and habitat would be similar to those described for the San Joaquin kit fox.

The avoidance and minimization measures described above would reduce the likelihood for take of individual giant kangaroo rat and for impacts on the local population and habitats by reducing the likelihood for injury or mortality caused by construction activities, such as via vehicle strikes or predation. Measures would reduce the extent of habitat disturbance and would restore habitats on-

site. Worker education would help to reduce the likelihood of inadvertent human-caused errors. Further, avoidance of occupied giant kangaroo rat burrows would reduce the potential for impacts caused by construction activities, such as ground disturbance and noise. Fire prevention measures would help to retain existing habitats in the event of a fire. Because the above avoidance and minimization measures have been incorporated into the proposed project evaluated in this EIS, the effects on giant kangaroo rat populations and habitats from construction would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Operational and Maintenance Activities. Impacts on giant kangaroo rat from operational and maintenance activities would be similar to impacts described for the San Joaquin kit fox.

The avoidance and minimization measures described above would reduce the likelihood for take of giant kangaroo rat by reducing the likelihood for injury or mortality caused by vehicle strikes or predation. Worker education would help to reduce the likelihood of inadvertent human-caused errors. Avoidance of occupied burrows would reduce the potential for impacts from ground disturbance and noise. Fire prevention measures would help to retain existing habitats in the event of a fire. Because the above avoidance and minimization measures have been incorporated into the proposed project evaluated in this EIS, the effects on giant kangaroo rat populations and habitats from operational and maintenance activities would be less than significant.

Effects on blunt-nosed leopard lizard

PG&E-proposed avoidance and minimization measures were included as conditions of approval in the conditional use permit for the proposed project and are considered part of the no action (no permit) alternative in this EIS. These measures include:

- **AMM BR-PGE-1. Worker Environmental Training.** Personnel will receive ongoing environmental education. Training will include review of environmental laws and guidelines that must be followed by all personnel to reduce or avoid effects on covered species during work activities.
- **AMM BR-PGE-2. Park vehicles and equipment in disturbed areas.** Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.
- **AMM BR-PGE-3. Work during daylight hours.** Work will occur only during daylight hours, unless required to occur at night due to line clearances for worker safety.
- **AMM BR-PGE-4. Minimize disturbance from vehicle access.** The development of new access and ROW roads will be minimized,

and clearing vegetation and blading for temporary vehicle access will be avoided to the extent practicable.

- **AMM BR-PGE-5. Speed limit.** Vehicles will not exceed a speed limit of 15 mph in the ROWs or on unpaved roads within sensitive land-cover types.
- **AMM BR-PGE-6.** Trash dumping, firearms, open fires, hunting, and pets will be prohibited at the work activity sites.
- **AMM BR-PGE-7. Fire prevention.** During fire season in designated State Responsibility Areas (SRAs), all motorized equipment will have federal or state approved spark arrestors; a backpack pump filled with water and a shovel will be carried on all vehicles; and fire-resistant mats and/or windscreens will be used when welding.
- **AMM BR-PGE-8. Fire prevention during "red flag" conditions.** In addition, during fire "red flag" conditions as determined by California Department of Forestry (CDF), welding will be curtailed, each fuel truck will carry a large fire extinguisher with a minimum rating of 40 B:C, and all equipment parking and storage areas will be cleared of all flammable materials.
- **AMM BR-PGE-9. Restoration and erosion control.** Upon completion of any Project component, all areas that are significantly disturbed and not necessary for future operations, shall be stabilized to resist erosion, and re- vegetated and re-contoured if necessary, to promote restoration of the area to pre-disturbance conditions.
- **AMM BR-PGE-10. Special-status amphibians and reptiles.** If suitable habitat for listed amphibians and reptiles is present, and protocol-level surveys have not been conducted, a qualified biologist will conduct preconstruction surveys prior to activities involving excavation. If necessary, barrier fencing will be constructed around the worksite to prevent reentry by the covered amphibians and reptiles. A qualified biologist will stake and flag an appropriate exclusion zone around the potentially occupied habitat. No monofilament plastic will be used for erosion control in the vicinity of listed amphibians and reptiles. Barrier fencing will be removed upon completion of work. Crews will also inspect trenches left open for more than 24 hours for trapped amphibians and reptiles. A qualified biologist will be contacted before trapped amphibians or reptiles (excluding blunt nosed leopard lizard and limestone salamander-which will not be handled) are moved to nearby suitable habitat.
- **AMM BR-PGE-13. Exclusion zones for blunt-nosed leopard lizard.** If activities take place within the range of the species and outside the road shoulder, a qualified biologist will identify if

burrows are present and if work can avoid burrows. If work cannot avoid the burrows, a qualified biologist will evaluate the site for occupancy and stake and flag an appropriate exclusion zone around the burrows prior to activities at the job site.

- **AMM BR-PGE-14. Report dead or injured listed species.** Personnel will be required to report any accidental death or injury of a listed species or the finding of any dead or injured listed species to a qualified Biologist. Notification of CDFW and/or USFWS of any accidental death or injury of a listed species shall be done in accordance with standard reporting procedures.

Construction. Impacts on blunt-nosed leopard lizard populations and habitat would be similar to those described for the San Joaquin kit fox.

The avoidance and minimization measures described above would reduce the likelihood for take of individual blunt-nosed leopard lizards and for impacts on the local population and habitats by reducing the likelihood for injury or mortality caused by construction activities, such as via vehicle strikes or predation. Measures would reduce the extent of habitat disturbance and would restore habitats on-site. Worker education would help to reduce the likelihood of inadvertent human-caused errors. Further, establishment of blunt-nosed leopard lizard exclusion zones would reduce the potential for impacts caused by construction activities, such as ground disturbance and noise. Fire prevention measures would help to retain existing habitats in the event of a fire. Because the above avoidance and minimization measures have been incorporated into the proposed project evaluated in this EIS, the effects on blunt-nosed leopard lizard populations and habitats would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Operational and Maintenance Activities. Impacts on blunt-nosed leopard lizard from operational and maintenance activities would be similar to those described for the San Joaquin kit fox.

The avoidance and minimization measures described above would reduce the likelihood for take of blunt-nosed leopard lizards by reducing the likelihood for injury or mortality from vehicle strikes or predation. Worker education would help to reduce the likelihood of inadvertent human-caused errors. Fire prevention measures would help to retain existing habitats in the event of a fire. Because the above avoidance and minimization measures have been incorporated into the proposed project evaluated in this EIS, the effects on blunt-nosed leopard lizard populations and habitats from operational and maintenance activities would be less than significant.

Effects on California tiger salamander

PG&E-proposed avoidance and minimization measures were included as conditions of approval in the conditional use permit for the proposed project and are considered part of the no action (no permit) alternative in this EIS. These measures include:

- **AMM BR-PGE-1. Worker Environmental Training.** Personnel will receive ongoing environmental education. Training will include review of environmental laws and guidelines that must be followed by all personnel to reduce or avoid effects on covered species during work activities.
- **AMM BR-PGE-2. Park vehicles and equipment in disturbed areas.** Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.
- **AMM BR-PGE-3. Work during daylight hours.** Work will occur only during daylight hours, unless required to occur at night due to line clearances for worker safety.
- **AMM BR-PGE-4. Minimize disturbance from vehicle access.** The development of new access and ROW roads will be minimized, and clearing vegetation and blading for temporary vehicle access will be avoided to the extent practicable.
- **AMM BR-PGE-5. Speed limit.** Vehicles will not exceed a speed limit of 15 mph in the ROWs or on unpaved roads within sensitive land-cover types.
- **AMM BR-PGE-6.** Trash dumping, firearms, open fires, hunting, and pets will be prohibited at the work activity sites.
- **AMM BR-PGE-7. Fire prevention.** During fire season in designated State Responsibility Areas (SRAs), all motorized equipment will have federal or state approved spark arrestors; a backpack pump filled with water and a shovel will be carried on all vehicles; and fire-resistant mats and/or windscreens will be used when welding.
- **AMM BR-PGE-8. Fire prevention during "red flag" conditions.** In addition, during fire "red flag" conditions as determined by California Department of Forestry (CDF), welding will be curtailed, each fuel truck will carry a large fire extinguisher with a minimum rating of 40 B:C, and all equipment parking and storage areas will be cleared of all flammable materials.
- **AMM BR-PGE-9. Restoration and erosion control.** Upon completion of any Project component, all areas that are significantly disturbed and not necessary for future operations, shall be stabilized

to resist erosion, and re- vegetated and re-contoured if necessary, to promote restoration of the area to pre-disturbance conditions.

- **AMM BR-PGE-10. Special-status amphibians and reptiles.** If suitable habitat for listed amphibians and reptiles is present, and protocol-level surveys have not been conducted, a qualified biologist will conduct preconstruction surveys prior to activities involving excavation. If necessary, barrier fencing will be constructed around the worksite to prevent reentry by the covered amphibians and reptiles. A qualified biologist will stake and flag an appropriate exclusion zone around the potentially occupied habitat. No monofilament plastic will be used for erosion control in the vicinity of listed amphibians and reptiles. Barrier fencing will be removed upon completion of work. Crews will also inspect trenches left open for more than 24 hours for trapped amphibians and reptiles. A qualified biologist will be contacted before trapped amphibians or reptiles (excluding blunt nosed leopard lizard and limestone salamander-which will not be handled) are moved to nearby suitable habitat.
- **AMM BR-PGE-14. Report dead or injured listed species.** Personnel will be required to report any accidental death or injury of a listed species or the finding of any dead or injured listed species to a qualified Biologist. Notification of CDFW and/or USFWS of any accidental death or injury of a listed species shall be done in accordance with standard reporting procedures.

Construction. Impacts on California tiger salamander populations and habitat would be similar to those described for the San Joaquin kit fox.

The avoidance and minimization measures described above would reduce the likelihood for take of individual California tiger salamanders and for impacts on the local population and habitats by reducing the likelihood for injury or mortality caused by construction activities, such as via vehicle strikes or predation. Measures would reduce the extent of habitat disturbance and would restore habitats on-site. Worker education would help to reduce the likelihood of inadvertent human-caused errors. Further, pre-construction surveys and avoidance areas would reduce the potential for impacts caused by construction activities, such as ground disturbance and noise. Fire prevention measures would help to retain existing habitats in the event of a fire. Because the above avoidance and minimization measures have been incorporated into the proposed project evaluated in this EIS, the effects on California tiger salamander populations and habitats from construction would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Operational and Maintenance Activities. Impacts on California tiger salamander from operational and maintenance activities would be similar to those described for the San Joaquin kit fox.

The avoidance and minimization measures described above would reduce the likelihood for take of California tiger salamander by reducing the likelihood for injury or mortality caused by vehicle strikes or predation. Worker education would help to reduce the likelihood of inadvertent human-caused errors. Fire prevention measures would help to retain existing habitats in the event of a fire. Because the above avoidance and minimization measures have been incorporated into the proposed project evaluated in this EIS, the effects on California tiger salamander populations and habitats from operational and maintenance activities would be less than significant.

Effects on special status invertebrates

Impacts on special status invertebrates are not expected from the proposed PG&E upgrades, as no suitable habitat exists within or adjacent to proposed work areas.

Effects on special status reptiles and amphibians

PG&E-proposed avoidance and minimization measures were included as conditions of approval in the conditional use permit for the proposed project and are considered part of the no action (no permit) alternative in this EIS. These measures include:

- **AMM BR-PGE-1. Worker Environmental Training.** Personnel will receive ongoing environmental education. Training will include review of environmental laws and guidelines that must be followed by all personnel to reduce or avoid effects on covered species during work activities.
- **AMM BR-PGE-2. Park vehicles and equipment in disturbed areas.** Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.
- **AMM BR-PGE-3. Work during daylight hours.** Work will occur only during daylight hours, unless required to occur at night due to line clearances for worker safety.
- **AMM BR-PGE-4. Minimize disturbance from vehicle access.** The development of new access and ROW roads will be minimized, and clearing vegetation and blading for temporary vehicle access will be avoided to the extent practicable.
- **AMM BR-PGE-5. Speed limit.** Vehicles will not exceed a speed limit of 15 mph in the ROWs or on unpaved roads within sensitive land-cover types.

- **AMM BR-PGE-6.** Trash dumping, firearms, open fires, hunting, and pets will be prohibited at the work activity sites.
- **AMM BR-PGE-7. Fire prevention.** During fire season in designated State Responsibility Areas (SRAs), all motorized equipment will have federal or state approved spark arrestors; a backpack pump filled with water and a shovel will be carried on all vehicles; and fire-resistant mats and/or windscreens will be used when welding.
- **AMM BR-PGE-8. Fire prevention during "red flag" conditions.** In addition, during fire "red flag" conditions as determined by California Department of Forestry (CDF), welding will be curtailed, each fuel truck will carry a large fire extinguisher with a minimum rating of 40 B:C, and all equipment parking and storage areas will be cleared of all flammable materials.
- **AMM BR-PGE-9. Restoration and erosion control.** Upon completion of any Project component, all areas that are significantly disturbed and not necessary for future operations, shall be stabilized to resist erosion, and re- vegetated and re-contoured if necessary, to promote restoration of the area to pre-disturbance conditions.
- **AMM BR-PGE-10. Special-status amphibians and reptiles.** If suitable habitat for listed amphibians and reptiles is present, and protocol-level surveys have not been conducted, a qualified biologist will conduct preconstruction surveys prior to activities involving excavation. If necessary, barrier fencing will be constructed around the worksite to prevent reentry by the covered amphibians and reptiles. A qualified biologist will stake and flag an appropriate exclusion zone around the potentially occupied habitat. No monofilament plastic will be used for erosion control in the vicinity of listed amphibians and reptiles. Barrier fencing will be removed upon completion of work. Crews will also inspect trenches left open for more than 24 hours for trapped amphibians and reptiles. A qualified biologist will be contacted before trapped amphibians or reptiles (excluding blunt nosed leopard lizard and limestone salamander-which will not be handled) are moved to nearby suitable habitat.

Construction. Potential habitat exists for California tiger salamander, western spadefoot toad, silvery legless lizard, San Joaquin coachwhip, and coast horned lizard within the PG&E primary telecommunication upgrade project sites, particularly in the western portion. Impacts on special status reptile and amphibian populations and habitat would be similar to those described for the San Joaquin kit fox.

The avoidance and minimization measures described above would reduce the likelihood for impacts on local special status reptile and amphibian populations and habitats by reducing the likelihood for injury or mortality caused by construction activities, such as via vehicle strikes or predation. Measures would reduce the extent of habitat disturbance and would restore habitats on-site. Worker education would help to reduce the likelihood of inadvertent human-caused errors. Further, avoidance of special status reptiles and amphibians would reduce the potential for impacts caused by construction activities, such as ground disturbance and noise. Fire prevention measures would help to retain existing habitats in the event of a fire. Because the above avoidance and minimization measures have been incorporated into the proposed project evaluated in this EIS, the effects on special status reptile and amphibian populations and habitats from construction would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Operational and Maintenance Activities. Impacts on special status reptile and amphibian populations and habitat from operational and maintenance activities would be similar to those described for the San Joaquin kit fox.

The avoidance and minimization measures described above would reduce the likelihood for impacts on special status reptiles and amphibians by reducing the likelihood for injury or mortality caused by vehicle strikes or predation. Worker education would help to reduce the likelihood of inadvertent human-caused errors. Fire prevention measures would help to retain existing habitats in the event of a fire. Because the above avoidance and minimization measures have been incorporated into the proposed project evaluated in this EIS, the effects on special status reptile and amphibian populations and habitats from operational and maintenance activities would be less than significant.

Effects on special status bird species

PG&E-proposed avoidance and minimization measures were included as conditions of approval in the conditional use permit for the proposed project and are considered part of the no action (no permit) alternative in this EIS. These measures include:

- **AMM BR-PGE-1. Worker Environmental Training.** Personnel will receive ongoing environmental education. Training will include review of environmental laws and guidelines that must be followed by all personnel to reduce or avoid effects on covered species during work activities.
- **AMM BR-PGE-2. Park vehicles and equipment in disturbed areas.** Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.

- **AMM BR-PGE-3. Work during daylight hours.** Work will occur only during daylight hours, unless required to occur at night due to line clearances for worker safety.
- **AMM BR-PGE-4. Minimize disturbance from vehicle access.** The development of new access and ROW roads will be minimized, and clearing vegetation and blading for temporary vehicle access will be avoided to the extent practicable.
- **AMM BR-PGE-5. Speed limit.** Vehicles will not exceed a speed limit of 15 mph in the ROWs or on unpaved roads within sensitive land-cover types.
- **AMM BR-PGE-6.** Trash dumping, firearms, open fires, hunting, and pets will be prohibited at the work activity sites.
- **AMM BR-PGE-7. Fire prevention.** During fire season in designated State Responsibility Areas (SRAs), all motorized equipment will have federal or state approved spark arrestors; a backpack pump filled with water and a shovel will be carried on all vehicles; and fire-resistant mats and/or windscreens will be used when welding.
- **AMM BR-PGE-8. Fire prevention during "red flag" conditions.** In addition, during fire "red flag" conditions as determined by California Department of Forestry (CDF), welding will be curtailed, each fuel truck will carry a large fire extinguisher with a minimum rating of 40 B:C, and all equipment parking and storage areas will be cleared of all flammable materials.
- **AMM BR-PGE-16. Conduct preconstruction surveys for active Swainson's hawk nests and implement avoidance measures if necessary.** If construction activities are anticipated to occur during the nesting season for Swainson's hawks (generally March through July), PG&E will retain a qualified wildlife biologist to conduct preconstruction surveys within 0.50 miles of construction activities that occur within or near suitable breeding habitat for nesting Swainson's hawks. The biologist will also consult with CDFW and species experts to determine if there are any known active Swainson's hawk nests or traditional territories within 0.50 miles of the work areas. If no active Swainson's hawk nests are detected, a report documenting survey methods and findings will be submitted to CDFW, and no further mitigation is required.

  If an active Swainson's hawk nest occurs within 0.50 miles of a planned work area, a 0.50-mile restricted activity buffer will be established around the nest. Biologists will monitor the nest and coordinate with local CDFW representatives to designate nest-specific areas of avoidance and restricted activities based upon the location of the nest relative to project activities and the type and

duration of construction activities planned during the nesting season.

- **AMM BR-PGE-17. Conduct preconstruction surveys and avoidance of active western burrowing owl burrows.** PG&E will retain a qualified biologist to conduct preconstruction surveys for active burrows no more than 30 and no less than 14 days prior to the start of construction in accordance with the *Staff Report on Burrowing Owl Mitigation* (CDFG, 2012). The measure includes direction for relocation of burrowing owls, if necessary.

Construction. Several special status bird species have been observed to date in or adjacent to the proposed work areas for the PG&E primary telecommunication upgrades; however, work areas within the Moss Landing-Panoche 230 kV transmission line right-of-way could support several additional special status bird species, including federal and state listed species. Construction of the primary telecommunication upgrades could cause adverse effects on special status bird populations. All impacts from the PG&E upgrades would be short term and localized, mainly due to construction noise and the potential for injury or mortality of special status birds from construction equipment and on-site vehicles. Additional short-term impacts may occur if nesting or foraging birds are disrupted or displaced from the work areas by helicopter noise.

The avoidance and minimization measures described above would reduce the likelihood for impacts on special status bird populations by reducing the likelihood for injury or mortality caused by construction activities, such as via vehicle strikes or predation. Worker education would help to reduce the likelihood of inadvertent human-caused errors. Further, preconstruction surveys and avoidance of Swainson's hawk nests and burrowing owl burrows would reduce the potential for impacts on these species caused by construction activities, such as ground disturbance and noise. Because the above avoidance and minimization measures have been incorporated into the proposed project evaluated in this EIS, the effects on special status bird populations from construction would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Construction of the primary telecommunication upgrades could cause adverse effects on the quantity and quality of special status bird habitats. All impacts from the PG&E upgrades would be short term and localized, mainly due to habitat disturbance.

The avoidance and minimization measures described above would reduce the likelihood for impacts on special status bird habitats by reducing the extent of habitat disturbance and restoring habitats on-site. Further, fire prevention measures would help to retain existing habitats in the event of a fire. Because the above avoidance and minimization measures have been incorporated into

the proposed project evaluated in this EIS, the effects on special status bird habitats from construction would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Operational and Maintenance Activities. Potential direct and indirect long-term effects on special status bird species would result from operational and maintenance activities. Potential effects on special status bird species include potential for avian electrocution or collision with power lines, and injury or mortality due to ingestion of trash.

Under the applicant-proposed measures and mitigation measures above, the applicant will: implement APLIC guidelines to prevent harm to birds from power lines; educate to prevent inadvertent human-caused errors; monitor the site; remove trash; and reduce operational traffic. These measures would reduce the likelihood for impacts on special status bird populations by reducing the likelihood for injury or mortality from vehicle strikes, predation, or electrocution. Monitoring would proactively identify and resolve issues. Because the above measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the effects on special status bird populations from operational and maintenance activities would be less than significant.

Operational and maintenance activities would have negligible effects on special status bird habitats.

Effects on special status bat species

PG&E-proposed avoidance and minimization measures were included as conditions of approval in the conditional use permit for the proposed project and are considered part of the no action (no permit) alternative in this EIS. These measures include:

- **AMM BR-PGE-1. Worker Environmental Training.** Personnel will receive ongoing environmental education. Training will include review of environmental laws and guidelines that must be followed by all personnel to reduce or avoid effects on covered species during work activities.
- **AMM BR-PGE-2. Park vehicles and equipment in disturbed areas.** Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.
- **AMM BR-PGE-3. Work during daylight hours.** Work will occur only during daylight hours, unless required to occur at night due to line clearances for worker safety.
- **AMM BR-PGE-4. Minimize disturbance from vehicle access.** The development of new access and ROW roads will be minimized,

and clearing vegetation and blading for temporary vehicle access will be avoided to the extent practicable.

- **AMM BR-PGE-5. Speed limit.** Vehicles will not exceed a speed limit of 15 mph in the ROWs or on unpaved roads within sensitive land-cover types.
- **AMM BR-PGE-6.** Trash dumping, firearms, open fires, hunting, and pets will be prohibited at the work activity sites.
- **AMM BR-PGE-7. Fire prevention.** During fire season in designated State Responsibility Areas (SRAs), all motorized equipment will have federal or state approved spark arrestors; a backpack pump filled with water and a shovel will be carried on all vehicles; and fire-resistant mats and/or windscreens will be used when welding.
- **AMM BR-PGE-8. Fire prevention during "red flag" conditions.** In addition, during fire "red flag" conditions as determined by California Department of Forestry (CDF), welding will be curtailed, each fuel truck will carry a large fire extinguisher with a minimum rating of 40 B:C, and all equipment parking and storage areas will be cleared of all flammable materials.

Construction. Impacts on special status bat populations and habitat would be similar to those described for special status birds. Additional short-term impacts may occur if bats use transmission poles or radio towers for day roosts and may be disturbed by adjacent construction activities (e.g., OPGW installation and collocation of equipment on existing radio towers).

The avoidance and minimization measures described above would reduce the likelihood for impacts on special status bat populations and habitats by reducing the likelihood for injury or mortality caused by construction activities, such as via vehicle strikes or predation. Worker education would help to reduce the likelihood of inadvertent human-caused errors. Fire prevention measures would help to retain existing habitats in the event of a fire. Because the above avoidance and minimization measures have been incorporated into the proposed project evaluated in this EIS, the effects on special status bat populations and habitats from construction would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Operational and Maintenance Activities. Impacts on special status bat populations and habitats from operational and maintenance activities would be similar to those described for special status birds. Additional short-term impacts may occur if bats use transmission poles or radio towers for day roosts and may be disturbed by heat or noise.

The avoidance and minimization measures described above would reduce the likelihood for impacts on special status bats by reducing the likelihood for injury

or mortality from vehicle strikes or predation. APLIC guidelines would minimize risk of collision or electrocution. Worker education would help to reduce the likelihood of inadvertent human-caused errors. Fire prevention measures would help to retain existing habitats in the event of a fire. Because the above avoidance and minimization measures have been incorporated into the proposed project evaluated in this EIS, the effects on special status bat populations and habitats from operational and maintenance activities would be less than significant.

Effects on special status small mammals

PG&E-proposed avoidance and minimization measures were included as conditions of approval in the conditional use permit for the proposed project and are considered part of the no action (no permit) alternative in this EIS. These measures include:

- **AMM BR-PGE-1. Worker Environmental Training.** Personnel will receive ongoing environmental education. Training will include review of environmental laws and guidelines that must be followed by all personnel to reduce or avoid effects on covered species during work activities.
- **AMM BR-PGE-2. Park vehicles and equipment in disturbed areas.** Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.
- **AMM BR-PGE-3. Work during daylight hours.** Work will occur only during daylight hours, unless required to occur at night due to line clearances for worker safety.
- **AMM BR-PGE-4. Minimize disturbance from vehicle access.** The development of new access and ROW roads will be minimized, and clearing vegetation and blading for temporary vehicle access will be avoided to the extent practicable.
- **AMM BR-PGE-5. Speed limit.** Vehicles will not exceed a speed limit of 15 mph in the ROWs or on unpaved roads within sensitive land-cover types.
- **AMM BR-PGE-6.** Trash dumping, firearms, open fires, hunting, and pets will be prohibited at the work activity sites.
- **AMM BR-PGE-7. Fire prevention.** During fire season in designated State Responsibility Areas (SRAs), all motorized equipment will have federal or state approved spark arrestors; a backpack pump filled with water and a shovel will be carried on all vehicles; and fire-resistant mats and/or windscreens will be used when welding.

- **AMM BR-PGE-8. Fire prevention during "red flag" conditions.** In addition, during fire "red flag" conditions as determined by California Department of Forestry (CDF), welding will be curtailed, each fuel truck will carry a large fire extinguisher with a minimum rating of 40 B:C, and all equipment parking and storage areas will be cleared of all flammable materials.
- **AMM BR-PGE-9. Restoration and erosion control.** Upon completion of any Project component, all areas that are significantly disturbed and not necessary for future operations, shall be stabilized to resist erosion, and re- vegetated and re-contoured if necessary, to promote restoration of the area to pre-disturbance conditions.
- **AMM BR-PGE-11. Avoid giant kangaroo rat and San Joaquin antelope squirrel.** Personnel shall avoid occupied or potentially occupied burrows identified by a qualified biologist within two core-areas for San Joaquin antelope squirrel and giant kangaroo rat identified by CDFW. If occupied or potentially occupied burrows in the core areas cannot be avoided, a qualified biologist shall stake and flag an appropriate work-exclusion zone and remain on-sight as a biological monitor, or the biologist shall stake and flag an appropriate work exclusion zone around active burrows prior to covered activities at the job site. If work must proceed in the exclusion zone, crews will pursue techniques to minimize direct mortality including using approved biologists to trap and hold the species in captivity, and excavating and closing burrows. The approved biologist will hold an ESA Section 10(a)(1)(A) permit for the species. The approved biologist will release the mammals as soon as possible when the work is complete. If active (occupied or potentially occupied) burrows for San Joaquin antelope squirrel or giant or Tipton kangaroo rat are present outside the two core areas identified by CDFW, a qualified biologist will stake and flag an appropriate exclusion zone and remain on-site as a biological monitor, or the biologist shall stake and flag an appropriate work exclusion zone around the burrows prior to work activities on the job site.
- **AMM BR-PGE-14. Report dead or injured listed species.** Personnel will be required to report any accidental death or injury of a listed species or the finding of any dead or injured listed species to a qualified Biologist. Notification of CDFW and/or USFWS of any accidental death or injury of a listed species shall be done in accordance with standard reporting procedures.

Construction. Impacts on special status small mammal populations and habitat would be similar to those described for the San Joaquin kit fox.

The avoidance and minimization measures described above would reduce the likelihood for impacts on special status small mammal populations and habitats by reducing the likelihood for injury or mortality caused by construction activities, such as via vehicle strikes or predation. Measures would reduce the extent of habitat disturbance and would restore habitats on-site. Worker education would help to reduce the likelihood of inadvertent human-caused errors. Further, avoidance of occupied San Joaquin antelope squirrel burrows would reduce the potential for impacts caused by construction activities, such as ground disturbance and noise. Fire prevention measures would help to retain existing habitats in the event of a fire. Because the above avoidance and minimization measures have been incorporated into the proposed project evaluated in this EIS, the effects on special status small mammal populations and habitats from construction would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Operational and Maintenance Activities. Impacts on special status small mammal populations and habitats from operational and maintenance activities would be similar to those described for the San Joaquin kit fox.

The avoidance and minimization measures described above would reduce the likelihood for impacts on special status small mammals by reducing the likelihood for injury or mortality from vehicle strikes or predation. Worker education would help to reduce the likelihood of inadvertent human-caused errors. Fire prevention measures would help to retain existing habitats in the event of a fire. Because the above avoidance and minimization measures have been incorporated into the proposed project evaluated in this EIS, the effects on special status small mammal populations and habitats from operational and maintenance activities would be less than significant.

Alternative A (Applicant's Proposed Project)

Impacts on biological resources from construction and operation of Alternative A are similar to those described above for the no action (no permit) alternative, with the exceptions detailed below.

Waters of the U.S. and other aquatic resources

Under Alternative A, the proposed project would place fill into 0.122 acre of waters of the U.S. Approximately 0.002 acre of impact would occur at Las Aguilas and Panoche Creeks, for the construction of two single-span road crossings as part of the perimeter road around the project facility. Approximately 0.12 acre would be affected within three unnamed drainages on the eastern side of the project site; this would be associated with installing the perimeter fence and perimeter road and grading/trenching to install the solar arrays.

The applicant-proposed measures and San Benito County-required mitigation measures identified as part of the no action (no permit) alternative are also

included as part of this alternative. These measures are summarized under the no action (no permit) alternative.

Additional measures that the applicant has proposed to avoid, minimize, or compensate for impacts on waters of the U.S. under Alternative A are described below.

The applicant would avoid impacts on waters of the U.S. as follows:

- Eliminate jurisdictional ephemeral stream channel crossings to the maximum extent practicable
- Eliminate electrical collection system jurisdictional ephemeral stream channel crossings (redesign crossings to be aerial crossings) to the maximum extent practicable
- Avoid placement of project structures (i.e., solar arrays, substation, operations and maintenance building, fencing, and the majority of the interior road network) Within jurisdictional ephemeral stream channels to the maximum extent practicable

The applicant would minimize impacts on waters of the U.S. as follows:

- Minimize the number of permanent jurisdictional ephemeral stream crossings to the maximum extent practicable
- Minimize roadway width to the extent practicable in consideration of load requirements, vehicle type, and width and safety requirements
- Minimize ground disturbance during construction in areas adjacent to jurisdictional ephemeral stream channels
- Cover well-used roads on the project footprint with gravel to minimize sediment transport
- Minimize trash production and protect wildlife from waste materials
- Maintain grassland groundcover following solar facility completion

The applicant would provide additional compensation for the unavoidable impacts on 0.122 acre of waters of the U.S. on the project footprint by protecting, enhancing, and/or restoring Panoche Creek and Silver Creek on the Silver Creek Ranch Conservation Lands.

- Enhance 0.40 acre of intermittent and ephemeral streams on the Valadeao Ranch and Silver Creek Ranch off-site conservation lands by removing seven debris areas and stabilizing stream banks

- Enhance 11.16 acres of Panoche Creek on the Silver Creek Ranch off-site conservation lands by partially excluding livestock to restore native vegetation and riparian areas
- Create three breeding ponds, totaling 0.50 acre, for California tiger salamander

The applicant has applied for a Department of the Army Section 404 permit from USACE to compensate for permanent loss of waters of the U.S under the proposed project. The revised draft Wetland Mitigation and Monitoring Plan prepared by the applicant outlines how proposed compensatory mitigation satisfies USACE's permit requirements, including achieving no net loss of waters of the U.S. Because these measures have been incorporated into Alternative A evaluated in this EIS, the direct effects of Alternative A on waters of the U.S. would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Waters of the U.S. could also be indirectly impacted under Alternative A. The nature and type of indirect impacts would be the same as described under the no action (no permit) alternative. Similar to the no action (no permit) alternative, indirect effects would be unlikely to result in a quantifiable loss of acreage of waters of the U.S. or a complete loss of current functions.

As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing the applicant-proposed measures and mitigation measures as summarized under the no action (no permit) alternative. Under these measures, the applicant will adhere to a strict set of BMPs, including the SWPPP and other measures, to ensure that indirect effects to waters of the U.S. are minimized or avoided. Potential for indirect effects will also be minimized by ensuring that construction activities remain within the designated work areas and outside of buffers established around avoided waters of the U.S. Temporarily disturbed areas within work areas will be revegetated, reducing potential for erosion and sedimentation. Additionally, the applicant has prepared a draft Wetland Mitigation and Monitoring Plan to compensate for unavoidable impacts. The draft Weed Control Plan will ensure that establishment and spread of weeds in aquatic resources is minimized.

Applicant-proposed and mitigation measures would offset indirect impacts to waters of the U.S. associated with Alternative A by protecting avoided waters of the U.S. and compensating for unavoidable impacts to waters of the U.S. Because these measures have been incorporated into Alternative A evaluated in this EIS, the indirect effects of Alternative A on waters of the U.S. from construction and operational and maintenance activities would be less than significant. No additional mitigation measures were identified to further reduce impacts.

Because there are no wetlands as identified by USACE on the project site, Alternative A would have no direct or indirect impacts on jurisdictional wetlands.

Vegetation and Sensitive Habitats

Impacts on vegetation and sensitive habitats under Alternative A would be similar to those described under the no action (no permit) alternative. As under the no action (no permit) alternative, San Benito County-required and applicant-proposed measures related to impacts on vegetation and sensitive habitats were included as conditions of approval in the conditional use permit for the proposed project and are considered part of Alternative A in this EIS. These measures as they relate to vegetation and sensitive habitats are summarized under the no action (no permit) alternative. As described for the no action (no permit) alternative, direct and indirect impacts from construction and operational and maintenance activities would be less than significant. No additional mitigation measures were identified to further reduce impacts.

Wildlife

Under Alternative A, impacts on wildlife would be similar to those described under the no action (no permit) alternative above. Installation of single-span bridges under Alternative A would generally result in less habitat disturbance than installation of the free-span bridges under the no action (no permit) alternative. However, construction-related disturbance could impact those species that use Panoche Creek and Las Aguilas Creek as habitat or for dispersal as described below.

Effects on small mammals, reptiles and amphibians, and ground-nesting birds from construction of Alternative A are similar to those described for the no action (no permit) alternative. However, construction of Alternative A would reduce the likelihood for impacts since construction of the single-span bridges would remove less potential habitat compared to the free-span bridges. Additionally, the single-span bridges would not provide potential predator perches as the free-span bridges would. The applicant-proposed measures and San Benito County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. Since direct and indirect impacts would be less than those described for the no action (no permit) alternative, impacts would be similarly less than significant. No additional mitigation measures were identified to further reduce impacts.

Effects on large mammals from construction of Alternative A would also be similar to the no action (no permit) alternative. However, construction of Alternative A could result in additional indirect effects on species that use Panoche and Las Aguilas Creeks as movement or dispersal corridors, including kit fox and mule deer. Single-span bridge footings would be located within the banks of Panoche and Las Aguilas Creeks, which could affect the movement of wildlife under the bridges. Though movement opportunities through the site

would be preserved in the washes and in the Valley Floor Conservation Lands, the presence of the single-span bridges may prevent some species from using designated movement corridors. However, it is unlikely that presence of the bridge footings would prevent movement or disrupt behavior for substantial portions of wildlife populations, or result in the loss of self-sustaining wildlife populations. Therefore, impacts would be less than significant. No additional mitigation measures were identified to further reduce impacts.

Operational and maintenance activities would have the same impacts on wildlife as described for the no action (no permit) alternative.

Special Status Species

Under Alternative A, impacts on special status species would be similar to those described under the no action (no permit) alternative, above.

Effects on special status plant species. Impacts from construction of Alternative A are similar to those described for the no action (no permit) alternative. However, construction of Alternative A would reduce the likelihood for impacts on special status plant species since construction of the single-span bridges would remove less potential habitat compared to the free-span bridges. The applicant-proposed measures and San Benito County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. Since direct and indirect impacts would be less than those described for the no action (no permit) alternative, impacts from construction would be similarly less than significant. Impacts from operations and maintenance under Alternative A would be the same as under the no action (no permit) alternative. No additional mitigation measures were identified to further reduce impacts.

Effects on San Joaquin kit fox. Impacts from construction of Alternative A are similar to those described for the no action (no permit) alternative. However, construction of Alternative A would reduce the likelihood for impacts on San Joaquin kit fox since construction of the single-span bridges would remove less habitat and impose fewer obstructions to San Joaquin kit fox movement within the project site compared to the free-span bridges. The applicant-proposed measures and San Benito County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. Since direct and indirect impacts would be less than those described for the no action (no permit) alternative, impacts from construction would be similarly less than significant. Impacts from operations and maintenance under Alternative A would be the same as under the no action (no permit) alternative. No additional mitigation measures were identified to further reduce impacts.

Effects on giant kangaroo rat. Impacts from construction of Alternative A are similar to those described for the no action (no permit) alternative. However, construction of Alternative A would reduce the likelihood for impacts on giant kangaroo rat since construction of the single-span bridges would remove less

habitat and would not provide potential predator perches compared to the free-span bridges. The applicant-proposed measures and San Benito County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. Since direct and indirect impacts would be less than those described for the no action (no permit) alternative, impacts from construction would be similarly less than significant. Impacts from operations and maintenance under Alternative A would be the same as under the no action (no permit) alternative. No additional mitigation measures were identified to further reduce impacts.

Effects on blunt-nosed leopard lizard. Impacts from construction of Alternative A are similar to those described for the no action (no permit) alternative. However, construction of Alternative A would reduce the likelihood for impacts on blunt-nosed leopard lizard since construction of the single-span bridges would remove less habitat and would not provide potential predator perches compared to the free-span bridges. The applicant-proposed measures and San Benito County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. Since direct and indirect impacts would be less than those described for the no action (no permit) alternative, impacts from construction would be similarly less than significant. Impacts from operations and maintenance under Alternative A would be the same as under the no action (no permit) alternative. No additional mitigation measures were identified to further reduce impacts.

Effects on California tiger salamander. Impacts from construction of Alternative A are similar to those described for the no action (no permit) alternative. However, construction of Alternative A would reduce the likelihood for impacts on California tiger salamander since construction of the single-span bridges would remove less habitat and would not provide potential predator perches compared to the free-span bridges. The applicant-proposed measures and San Benito County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. Since direct and indirect impacts would be less than those described for the no action (no permit) alternative, impacts from construction would be similarly less than significant. Impacts from operations and maintenance under Alternative A would be the same as under the no action (no permit) alternative. No additional mitigation measures were identified to further reduce impacts.

Effects on special status invertebrates. Impacts from construction and operations and maintenance of Alternative A are the same as those described for the no action (no permit) alternative.

Effects on special status reptiles and amphibians. Impacts from construction of Alternative A are similar to those described for the no action (no permit) alternative. However, construction of Alternative A would reduce the likelihood for impacts on special status reptiles and amphibians since construction of the

single-span bridges would remove less habitat and would not provide potential predator perches compared to the free-span bridges. The applicant-proposed measures and San Benito County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. Since direct and indirect impacts would be less than those described for the no action (no permit) alternative, impacts from construction would be similarly less than significant. Impacts from operations and maintenance under Alternative A would be the same as under the no action (no permit) alternative. No additional mitigation measures were identified to further reduce impacts.

Effects on special status bird species. Impacts from construction and operations and maintenance of Alternative A are the same as those described for the no action (no permit) alternative.

Effects on special status bats. Impacts from construction and operations and maintenance of Alternative A are the same as those described for the no action (no permit) alternative.

Effects on special status small mammals. Impacts from construction of Alternative A are similar to those described for the no action (no permit) alternative. However, construction of Alternative A would reduce the likelihood for impacts on special status small mammals since construction of the single-span bridges would remove less habitat and would not provide potential predator perches compared to the free-span bridges. The applicant-proposed measures and San Benito County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. Since direct and indirect impacts would be less than those described for the no action (no permit) alternative, impacts from construction would be similarly less than significant. Impacts from operations and maintenance under Alternative A would be the same as under the no action (no permit) alternative. No additional mitigation measures were identified to further reduce impacts.

PG&E Telecommunication Upgrades

Less than significant direct and indirect impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as described for the no action (no permit) alternative for construction and operations and maintenance.

Alternative B (On-Site Alternative)

Impacts on biological resources from construction and operation and maintenance of Alternative B are similar to those described above for the no action (no permit) alternative, with the exceptions detailed below.

Waters of the U.S. and other aquatic resources

Alternative B would use multi-span bridge crossings over Panoche and Las Aguilas Creeks instead of single-span bridge crossings (see **Section 2.6** for a detailed description of the multi-span bridges). Because bridge footings would

be placed in the ephemeral stream channels, there would be additional direct impacts to waters of the U.S. at these two locations. This would be due to excavation for the concrete foundation, riprap placement around the footings, and associated work areas. Multi-span bridges would also need concrete abutments near the top of the bank; and the bridge width would be wider overall than a single-span bridge.

Under Alternative B, the proposed project would place fill into 0.124 acre of waters of the U.S. Approximately 0.004 acre of impact would occur at Las Aguilas and Panoche Creeks, for the construction of two single-span road crossings as part of the perimeter road around the project facility. Approximately 0.12 acre would be affected within three unnamed drainages on the eastern side of the project site; this would be associated with installing the perimeter fence and perimeter road and grading/trenching to install the solar arrays.

The applicant-proposed measures and San Benito County-required mitigation measures identified as a part of the no action (no permit) alternative are also included as part of this alternative. Additional measures that the applicant has proposed to avoid, minimize, or compensate for impacts on waters of the U.S. described under Alternative A would also be implemented under Alternative B.

For the reasons described under Alternative A, direct and indirect impacts would be less than significant. No additional mitigation measures were identified to further reduce impacts.

Vegetation and Sensitive Habitats

Impacts of Alternative B are similar to those described for Alternative A. Construction of the multi-span bridges would cause additional short-term disturbance to the streambed and stream bank and additional short- and long-term upland habitat impacts, as more fill would be needed to accommodate the bridge specifications. These additional impacts are not anticipated to cause substantially higher impacts on vegetation or sensitive habitats, as the long-term removal would affect a relatively small area. The applicant-proposed measures and San Benito County-required mitigation measures identified as a part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. No additional mitigation measures were identified to further reduce impacts.

Wildlife

Under Alternative B, impacts from construction are similar to those described for Alternative A. Construction of the bridge footings within the channel would result in additional bridge infrastructure within streambed and stream bank habitat and potential additional barriers to movement relative Alternative A.

Effects on small mammals, reptiles and amphibians, and ground-nesting birds from construction of Alternative B would be the same as Alternative A. The applicant-proposed measures and San Benito County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. No additional mitigation measures were identified to further reduce impacts

Effects on large mammals from construction of Alternative B would also be similar to Alternative A. Construction of the multi-span bridge crossings would add an additional barrier to movement corridors within the stream channels, but is unlikely to completely impede kit fox or mule deer movement throughout the site as described for Alternative A. The applicant-proposed measures and San Benito County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. No additional mitigation measures were identified to further reduce impacts.

Special Status Species

Effects on special status plant species. Impacts of Alternative B are similar to those described for Alternative A. Construction of the multi-span bridges would cause additional short-term disturbance to the streambed and stream bank and additional short- and long-term upland habitat impacts, as more fill would be needed to accommodate the bridge specifications. These additional impacts are not anticipated to cause substantially higher impacts on populations or habitats, as the long-term removal would affect a relatively small area. The applicant-proposed measures and San Benito County-required mitigation measures identified as a part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts from construction would be less than significant. Impacts from operations and maintenance under Alternative B would be the same as under the no action (no permit) alternative. No additional mitigation measures were identified to further reduce impacts.

Effects on San Joaquin kit fox. Impacts from construction are similar to those described for Alternative A. Construction of the multi-span bridge crossings would add an additional barrier to movement corridors within the stream channels, but is unlikely to completely impede San Joaquin kit fox movement throughout the site. The applicant-proposed measures and San Benito County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts from construction would be less than significant. Impacts from operations and maintenance under

Alternative B would be the same as under the no action (no permit) alternative. No additional mitigation measures were identified to further reduce impacts.

Effects on giant kangaroo rat. Impacts from construction and operations and maintenance are the same as those described for Alternative A.

Effects on blunt-nosed leopard lizard. Impacts from construction of Alternative B are similar to those described for Alternative A. However, construction of the multi-span bridges in Alternative B would increase likelihood for impacts on blunt-nosed leopard lizard. This is because additional habitat for the species would be impacted due to the additional fill and larger footprint of the multi-span bridges relative to the single span bridges. These additional impacts are not anticipated to cause substantially higher impacts on populations or habitats, as the long-term removal would affect a relatively small area. The applicant-proposed measures and San Benito County-required mitigation measures identified as a part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts from construction would be less than significant. Impacts from operations and maintenance under Alternative B would be the same as under the no action (no permit) alternative. No additional mitigation measures were identified to further reduce impacts.

Effects on California tiger salamander. Impacts from construction of Alternative B are similar to those described for Alternative A. However, construction of the multi-span bridges in Alternative B would increase likelihood for impacts on California tiger salamander. This is because additional habitat for the species would be impacted due to the additional fill and larger footprint of the multi-span bridges relative to the single span bridges. These additional impacts are not anticipated to cause substantially higher impacts on populations or habitats, as the long-term removal would affect a relatively small area. The applicant-proposed measures and San Benito County-required mitigation measures identified as a part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts from construction would be less than significant. Impacts from operations and maintenance under Alternative B would be the same as under the no action (no permit) alternative. No additional mitigation measures were identified to further reduce impacts.

Effects on special status invertebrates. Impacts from Alternative B are the same as those described for Alternative A.

Effects on special status reptiles and amphibians. Impacts from Alternative B are similar to those described for Alternative A. Construction of the multi-span bridges would cause additional short-term disturbance to the streambed and stream bank and additional short- and long-term upland habitat impacts, as more fill would be needed to accommodate the bridge specifications. Such disturbances could injure or kill special status reptiles and amphibians from the

use of heavy equipment and could destroy or damage potential habitat, such as burrows. These additional impacts are not anticipated to cause substantially higher impacts on populations or habitats, as the long-term removal would affect a relatively small area. The applicant-proposed measures and San Benito County-required mitigation measures identified as a part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts from construction would be less than significant. Impacts from operations and maintenance under Alternative B would be the same as under the no action (no permit) alternative. No additional mitigation measures were identified to further reduce impacts.

Effects on special status bird species. Impacts from Alternative B are the same as those described for Alternative A.

Effects on special status bat species. Impacts from Alternative B are the same as those described for Alternative A.

Effects on special status small mammals. Impacts from Alternative B are similar to those described for Alternative A. Construction of the multi-span bridges would cause additional short-term disturbance to the streambed and stream bank and additional short- and long-term upland habitat impacts, as more fill would be needed to accommodate the bridge specifications. Such disturbances could injure or kill special status small mammals from the use of heavy equipment and could destroy or damage potential habitat, such as burrows. These additional impacts are not anticipated to cause substantially higher impacts on populations or habitats, as the long-term removal would affect a relatively small area. The applicant-proposed measures and San Benito County-required mitigation measures identified as a part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts from construction would be less than significant. Impacts from operations and maintenance under Alternative B would be the same as under the no action (no permit) alternative. No additional mitigation measures were identified to further reduce impacts.

PG&E Telecommunication Upgrades

Less than significant direct and indirect impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative for construction and operations and maintenance.

Alternative C (Off-site Alternative, Westlands CREZ)

Construction

Waters of the U.S. and other aquatic resources

A jurisdictional delineation has not been performed for the lands within the Westlands CREZ, nor has a specific project location been selected. However, given the number of drainages and canals in the eastern half of the CREZ, Alternative C would have the potential to impact jurisdictional waters of the U.S. In order to keep a project within two miles of an existing transmission line and outside of the existing 100-year floodplain, disturbance and fill to waters of the U.S. from construction could potentially occur (Energy Renewal Partners, LLC 2014c).

Because a wetland delineation has not been conducted or verified for this site, it is not possible to determine the exact acreage of waters of the U.S. that would be impacted under Alternative C. However, the National Wetland Inventory estimates that approximately 351 acres of potential waters of the U.S., comprised of freshwater ponds, may exist on the Westlands CREZ site within the 2-mile radius from the existing transmission line and outside of the 100-year floodplain. Depending on the site configuration, construction of a solar facility on this site may result in the direct loss of similar or greater waters of the U.S. than the proposed project, and may result in the loss of wetlands, a special aquatic site, if present. In addition, construction of a solar facility on this site may result in indirect impacts to waters of the U.S.; indirect impacts would be similar to those described under the no action (no permit) alternative.

Per the Section 404(b)(1) Guidelines, alternatives to development of this site would be required and development of this site would be avoided and minimized to the maximum extent practicable. In addition, any unavoidable impacts would need to be mitigated. In order to ensure that impacts from this alternative are less than significant, the following or similar mitigation measures would be required:

- Ensure no net loss of waters of the U.S., including wetlands, and associated functions. Prepare a wetland mitigation and management plan to satisfy the requirement of achieving no net loss of waters of the U.S. The plan must be approved by applicable agencies.
- To compensate for permanent loss of wetlands, the applicant shall obtain all applicable permits from the USACE, USFWS, Regional Board, and California Department of Fish and Wildlife, as applicable.
- If regulatory permitting results in less than a 1:1 compensation ratio for loss of wetlands, those uncompensated wetlands must be mitigated through other means. Acceptable methods include payment into a wetland mitigation bank or protection of off-site

wetlands through the establishment of a permanent conservation easement.

- A weed control plan should be developed to guide invasive weed abatement activities (see BR-1.1 in **Table C-2**).
- A Construction Stormwater Pollution Prevention Plan (SWPPP) should be prepared for the proposed project and should include procedures for quick and safe cleanup of accidental spills (see WR-6.1 in **Table C-2**).
- Fugitive dust control should be implemented (see APM AQ-3 in **Table C-1** and AQ-1.1 in **Table C-2**).
- An employee education program should be implemented to familiarize employees and contractors with BMPs and other protective measures (see APM BIO-20 in **Table C-1** and BR-G.1 in **Table C-2**).
- All construction and maintenance activities should be conducted in a manner that would avoid or minimize disturbance to riparian vegetation, drainage channels, and wetlands. If avoidance is not possible, consultation with the CDFW and USACE would need to occur.

The USACE would have jurisdiction over all mitigations related to Department of the Army permit requirements but would not have jurisdiction over all of the measures described above to prevent indirect impacts. However, the measures above are standard mitigations that would likely be implemented either through the conditional use permit or other permit required to construct a solar project. With the incorporation of the above measures, it is expected that impacts to waters of the U.S. from construction of a solar facility on the Westlands CREZ would be less than significant.

Vegetation and Sensitive Habitats

Specific mitigation measures have not been developed for this alternative. In order to ensure that impacts from this alternative are less than significant, recommended measures to lessen impacts on vegetation are outlined below. The impacts of Alternative C on agricultural resources with incorporation of these measures is discussed below

- A restoration or revegetation plan should be developed to guide restoration of temporarily disturbed areas. Disturbed areas should be recontoured where appropriate and planted with an approved native, weed-free seed mix. Where recontouring is not required, vegetation should be left in place when possible (see APM BIO-3, BIO-12, BIO-39 in **Table C-1** and BR-G.3 in **Table C-2** for suitable representative language).

- A weed control plan should be developed to guide invasive weed abatement activities (see BR-1.1 in **Table C-2**).
- Fugitive dust control should be implemented (see APM AQ-3 in **Table C-1** and AQ-1.1 in **Table C-2**).
- Vehicles should be limited to predesignated access routes, and construction should be limited to predesignated areas (see APM BIO-1, BIO-2, BIO-37, and BIO-38 in **Table C-1**).
- An employee education program should be implemented to familiarize employees and contractors with BMPs and other protective measures (see APM BIO-20 in **Table C-1** and BR-G.1 in **Table C-2**).
- A biological monitor should be present while ground-disturbing activities are occurring; the biological monitor should be empowered to order cessation of activities if necessary (see APM BIO-24, BIO-25 in **Table C-1** and BR-G.4 in **Table C-2**).
- All construction and maintenance activities should be conducted in a manner that would avoid or minimize disturbance to riparian vegetation, drainage channels, and wetlands. If avoidance is not possible, consultation with the CDFW and USACE would need to occur.
- Project BMPs should be implemented as standard operating procedures during all ground disturbance and construction-related activities to avoid or minimize impacts on biological resources (see BR-G.2 in **Table C-2**).

Lands in the Westlands CREZ may be especially susceptible to invasion or spread of nonnative invasive or noxious weeds, due to the general lack of native vegetation and prevalence of disturbed soils. Additionally, semi-disturbed areas, such as field edges, dirt access roads, and irrigation canal berms, likely harbor existing nonnative invasive or noxious weeds and associated seed banks. Therefore, any soil disturbance in these areas may facilitate spread of these invasive plant species. If the solar project were sited on agricultural lands in the Westlands CREZ, it is likely that most of the project footprint would not need to be graded as part of the construction process. This would reduce surface disturbance and the likelihood for weed invasion or spread. Development and implementation of a weed control plan and construction BMPs would prevent or minimize weed establishment and spread, offsetting potential effects on vegetation. Incorporation of these measures would reduce effects to a less than significant level.

Though most of the land in the Westlands CREZ is active or retired agricultural land, certain landscape features are present that support native vegetation, wildlife, and potentially special status species (impacts on wildlife and special status species are discussed under separate subheaders within this section).

Irrigation canals, ditches, and at least one large tail water pond support wetland and riparian vegetation. It is likely that the solar project could largely avoid directly impacting these resources; however, features such as bridges or other crossings over irrigation canals or ditches could have direct impacts on vegetation, including sensitive habitats, from bridge footings or culvert placement. Indirect effects could occur if excessive silt from runoff in the project footprint were to enter and adversely affect these resources. Development and implementation of measures and BMPs to minimize effects on vegetation, including sensitive habitats, may include limiting construction traffic to existing roads and designated work areas, measures to minimize fugitive dust, development of a SWPPP to prevent erosion and siltation, and worker sensitivity training. Sensitive habitats including riparian areas, would be avoided to the extent practicable, and unavoidable impacts would require consultation with the CDFW or other agencies and development of compensatory mitigation measures. These measures would offset effects from construction on sensitive habitats. Incorporation of these measures would reduce effects to a less than significant level.

The USACE does not have the authority to implement any of the above mitigation measures with the exception of those directly related to a permitting action, water quality certification, or biological opinion. However, the measures above are standard mitigations that would likely be implemented either through the conditional use permit or other permit required to construct a solar project. These measures could be refined by Kings and Fresno Counties, CDFW, and USFWS. Because of the disturbed nature of the Westlands CREZ site and the identified mitigation measures, which have a high likelihood of implementation, impacts on vegetation would be less than significant.

Wildlife

Although the Westlands CREZ does not contain a high degree of species diversity and richness, wildlife present in the area could still experience impacts from development of a solar facility. This could be particularly true if development were to occur on parcels with native- or semi-natural vegetation and undisturbed soils.

Specific mitigation measures have not been developed for this alternative. In order to ensure that impacts from this alternative are less than significant, recommended measures to lessen impacts on wildlife include the following:

- A restoration or revegetation plan should be developed to guide restoration of wildlife habitat in temporarily disturbed areas. Disturbed areas should be recontoured where appropriate and planted with an approved native, weed-free seed mix. Where recontouring is not required, vegetation should be left in place when possible to reduce impacts on wildlife habitat (see APM BIO-

3, BIO-12, BIO-39 in **Table C-1** and BR-G.3 in **Table C-2** for suitable representative language).

- A weed control plan should be developed to guide invasive weed abatement activities (see BR-1.1 in **Table C-2**).
- Vegetation-clearing or ground-disturbing activities should be conducted outside of the breeding bird season, if possible. If this is not possible, pre-construction surveys for breeding birds protected under the MBTA should be conducted prior to grading. Active nests or burrows should be avoided with an appropriate buffer as determined by CDFW.
- A pre-construction survey to document potential bat maternity or day roosts should be conducted, and roosts should be avoided during construction.
- Vehicles should be limited to predesignated access routes, and construction should be limited to predesignated areas (see APM BIO-1, BIO-2, BIO-37, and BIO-38 in **Table C-1**).
- To reduce wildlife mortality from vehicle strike, limit speed on all project access roads (see APM BIO-35 in **Table C-1**), and limit working hours to the daylight period when most wildlife are inactive.
- An employee education program should be implemented to familiarize employees and contractors with BMPs and other protective measures (see APM BIO-20 in **Table C-1** and BR-G.1 in **Table C-2**).
- A biological monitor should be present while ground-disturbing activities are occurring; the biological monitor should be empowered to order cessation of activities if necessary (see APM BIO-24, BIO-25 in **Table C-1** and BR-G.4 in **Table C-2**).
- Construction and operational lighting should be designed and installed to minimize potential impacts on wildlife (see APM AES-3 in **Table C-1** and AE-1.1 in **Table C-2**).
- Project fencing should be designed and installed to minimize restrictions on wildlife movement and dispersal within and across the project site (see APM BIO-6 in **Table C-1**).
- All trash, including microtrash, food waste, and food wrappers should be disposed of in secure containers at the end of each day to avoid attracting predators (See APM BIO-33 in **Table C-1**).
- Project BMPs should be implemented as standard operating procedures during all ground disturbance and construction-related activities to avoid or minimize impacts on biological resources (see BR-G.2 in **Table C-2**).

- Limit project noise sources, especially during dawn and dusk hours (see APM N-1 in **Table C-1**) and near high-quality wildlife habitat including wetlands, riparian woodlands, and native grasslands or scrub.
- Energized lines and other tall structures should be constructed in conformance with applicable APLIC guidelines to avoid avian electrocution or collision potential. Development of an avian and raptor protection plan would further reduce this risk.

The nature and type of effects on wildlife would be similar to those described under the no action (no permit) alternative. Construction equipment and vehicle use on the site could result in short-term, direct effects on wildlife species through mortality or injury to wildlife, especially small mammals or ground-nesting birds due to vehicle strikes, crushing, or entrapment. Mitigation measures that would limit vehicle speeds and hours of operation would reduce this effect. Pre-construction surveys for birds, bat roots, and mammal burrows, and establishment of appropriate buffers around active sites, would similarly reduce potential mortality from construction activities. Covering holes, pipes, or other openings, and providing ditches with escape ramps when they are left open overnight, would prevent entrapment or crushing of wildlife. Incorporation of such measures would reduce direct effects on wildlife species to a less than significant level.

Construction could also cause short-term visual and noise disturbance from construction activities and human presence. Visual and noise disturbances could cause birds, bats, or reptiles to alter their foraging, migrating, wintering, and breeding behaviors and to avoid suitable habitat in or near the project area. In the most extreme case, disturbances could cause animals to abandon their nests, roosts, or territories. In order to reduce this effect, mitigation measures should be implemented including worker sensitivity training, clearly marked construction limits, limits on noise emissions, limits on working hours and speed limits. Implementing such measures would reduce potential impacts from human disturbance to less than significant levels.

Bird mortality or injury, especially to raptors, could occur due to collision or electrocution with collector lines that would transport electricity to the substation. Development of an avian and raptor protection plan, including following APLIC guidelines to reduce bird electrocution, would reduce this potential impact to a less than significant level.

Lighting and noise from the project could affect wildlife behavior and could cause wildlife to avoid the project area. Lighting may attract bats and other insect-eating species, making wildlife more visible to predators and potentially leading to mortality and disruption of normal activities. To reduce this effect, all lighting should be designed and installed to minimize impacts on nocturnal wildlife species. Motion sensors should be set at a sensitivity that normal wildlife

behavior would not activate. Lights should not be directed upward into the sky, and should not cause excessive glare. Incorporation of such measures would reduce effects on wildlife species to a less than significant level.

Solar panels would produce polarized light pollution that could confuse insects, reptiles and bird, affecting their navigation ability, foraging behavior, dispersal, and reproduction (Horvath et al. 2009). However, these impacts would be less than significant based on the amount of similar habitat in the vicinity of the CREZ that lack solar arrays.

Project features would change the landscape by increasing shading and cover, which may affect wildlife behavior and predation. Development of the project would cause loss of habitat, but the habitat quality at this site is relatively poor, reducing the potential impact to a less than significant level. The Westlands CREZ is not likely to serve as a wildlife migration corridor due its level of disturbance and isolation by major highways.

The USACE does not have the authority to implement mitigation measures with the exception of those directly related to a permitting action, water quality certification, or biological opinion. However, the referenced mitigations are standard mitigations that would likely be implemented either through the conditional use permit or other permit required to construct a solar project. These mitigations could be refined by Kings and Fresno Counties, CDFW, and USFWS, which would likely be issued on regulatory approval. These conditions would further reduce impacts from construction. With implementation of these mitigation measures, impacts would be less than significant.

Special Status Species

<u>Effects on special status plant species</u>. No special status plant species have been observed to date in the Westlands CREZ; however, no field surveys have been completed. If special status plant species are present, construction could cause direct and indirect short-term and long-term effects on special status plant species. Construction activities would vary, depending on the location of the project but would likely be similar to those described for the no action (no permit) alternative and Alternatives A and B.

In general, impacts on special status plant species would likely be of a similar nature and type as those described for the no action (no permit) alternative and Alternatives A and B. This would particularly the case if the project were to be developed on nonagricultural parcels in the Westlands CREZ containing relatively undisturbed soils and native vegetation. As described above, most of the lands in the CREZ are disturbed. Impacts on special status plant species, if present, could be potentially significant.

Specific BMPs and measures have not been developed for this alternative. However, to reduce impacts to less than significant, the same San Benito

County-approved measures to reduce potential impacts on special status plant species are recommended as described for the no action (no permit) alternative:

- **APM BIO-1.** All construction vehicle movement outside the project area would normally be restricted to pre-designated access, contractor acquired access, or public roads.
- **APM BIO-2.** The areal limits of construction activities would normally be predetermined, with activity restricted to and confined within those limits. No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate survey or construction activity limits.
- **APM BIO-3.** In construction areas where recontouring is not required, vegetation would be left in place wherever possible and original contour would be maintained to avoid excessive root damage and allow for regrowth.
- **APM BIO-4.** Prior to construction, all supervisory construction personnel would be instructed on the protection of cultural and ecological resources. To assist in this effort, the construction contract would address:
  - Federal and state laws regarding antiquities and plants and wildlife, including collection and removal.
  - The importance of these resources and the purpose and necessity of protecting them.
- **APM BIO-5.** Mitigation measures that will be developed during the consultation period under Section 7 of the Endangered Species Act will be adhered to as specified in the Biological Opinion of the US Fish and Wildlife Service.
- **APM BIO-7.** In construction areas where ground disturbance is significant or where recontouring is required, surface restoration would occur as required by the landowner or land management agency as part of decommissioning. The method of restoration would normally consist of returning disturbed areas back to their natural contour, reseeding, installing cross drains for erosion control, placing water bars in the road, and filling ditches.
- **APM BIO-12. Preserve undisturbed onsite lands.** Of the total project site area, the applicant will limit the total permanent disturbance area to 2,506 acres (1,794 acres of which will be permanently disturbed). Prior to the issuance of building or grading permits, the applicant will submit for the County's review and approval a site plan, building plan, or grading plan that delineates and calculates the total disturbance area for facilities proposed for that area of construction and will include a note on those plans that

describes how these areas will be demarcated on the ground through the placement of appropriate staking, signage, or equally effective technique to ensure that construction is confined to the disturbance area. The applicant will implement on the ground demarcation of the disturbance area in accordance with the approved plan(s).

- **APM BIO-20. Employee Education Program.** The Employee Education Program familiarizes Applicant employees and contractors with BMPs and other measures associated with protected species potentially on the project footprint.
- **APM BIO-21. List of Best Management Practices.** Refer to updated Supplemental EIR for a list of Best Management Practices. All employees and contractors will be made aware of the BMPs, and those BMPs that are pertinent to employee work conduct will be implemented. Applicable measures are listed below.
- **APM BIO-22.** a) Prior to initiation of construction of a project area (i.e., any activity that results in surface disturbance), a qualified biologist shall conduct a BNLL education program (e.g., tailgate briefing) for all project personnel. Topics to be discussed during the briefing shall include: occurrence and distribution of BNLL in adjacent areas, take avoidance measures being implemented during the project, reporting requirements if an incident occurs, and applicable definitions and prohibitions under the Fish and Wildlife Code for fully protected species, and relevant provisions of the federal and state Endangered Species Act.
- **APM BIO-24.** b) A biological monitor(s) shall be present while ground-disturbing activities are occurring. In addition to conducting preconstruction surveys, the biological monitors shall aid crews in satisfying take avoidance criteria for BNLL and implementing project mitigation measures.
- **APM BIO-25.** c) Biological monitors are empowered to order cessation of activities if take avoidance and/or mitigation measures are violated and will notify the Applicant's environmental representative.
- **APM BIO-37.** p) Appropriate measures shall be undertaken to prevent unauthorized vehicle entry to off-road survey routes in sensitive habitat areas. Signing will be the preferred method to discourage use.
- **APM BIO-38.** q) Project vehicles shall be confined to existing access routes or to specifically delineated areas (i.e., areas that have been surveyed). Otherwise, off-road vehicle travel is not permitted.

- **APM BIO-39.** p) Upon completion of any project component, all areas that are significantly disturbed and not necessary for future operations shall be stabilized to resist erosion, and re-vegetated and re-contoured if necessary, to promote restoration of the area to pre-disturbance conditions.
- **Mitigation Measure BR-G.1. Implement a Worker Environmental Education Program.** The Worker Environmental Education Program familiarizes Applicant employees and contractors with BMPs and other measures associated with protected species potentially on the project footprint.
- **Mitigation Measure BR-G.2. Implement Best Management Practices (BMPs).** BMPs shall be implemented as standard operating procedures during all ground disturbance and construction-related activities to avoid or minimize project impacts on biological resources.
- **Mitigation Measure BR-G.3. Develop and implement a Habitat Restoration and Revegetation Plan.** The Applicant shall restore disturbed areas to pre-construction conditions or better. Prior to the issuance of a building permit and removal of any soil or vegetation, the Applicant shall retain a County-approved, qualified biologist, knowledgeable in the area of annual grassland habitat restoration, to prepare a Habitat Restoration and Revegetation Plan (HRRP). The biologist would also be responsible for monitoring the initial implementation of the plan as the Applicant's attainment of the established success criteria.
- **Mitigation Measure BR-G.4. Implement biological monitoring of construction activities.** Prior to the commencement of ground disturbance or site mobilization activities, the Applicant shall retain County-approved, qualified biologist(s) with demonstrated expertise with listed and/or special-status plants, terrestrial mammals and reptiles to monitor all construction activities on a daily basis. The qualified biologist(s) shall be present at all times during ground-disturbing activities immediately adjacent to, or within, habitat that supports populations of the listed or special-status species identified in **Section 3.6** of this EIS.
- **Mitigation Measure BR-G.5.** Purchase credits from a CDFW-approved mitigation bank, create a permanent conservation easement(s), in favor of CDFW or a CDFW-approved conservation holder for the management of the land pursuant to the approved HMMP, or transfer land in fee to a CDFW approved conservation holder with a deed restriction for the management of the land pursuant to the approved HMMP.

- **Mitigation Measure BR-G.6. Develop and implement Wetland Mitigation and Monitoring Plan and Habitat Management Plan for mitigation lands.** To ensure the success of on-site preserved land and acquired mitigation lands, required for compensation of permanent impacts on vegetative communities, wetlands, and listed or Special-Status plants and wildlife, the Applicant shall retain a County-approved, qualified biologist to prepare a Wetland Mitigation and Monitoring Plan (WMMP) and a Habitat Management Plan (HMP). The WMMP will focus on impacts and mitigation for jurisdictional waters and wetlands while the HMP will focus on the habitat and species management measures.
- **Mitigation Measure BR-1.1. Prepare and implement a Weed Control Plan.** Prior to the issuance of a building permit or any ground disturbance the Applicant shall retain a County-approved, qualified restoration ecologist or biologist to prepare a comprehensive adaptive Weed Control Plan (WCP) to be administered during the construction and operation of the project for the purpose of invasive weed abatement. The WCP shall be submitted to the County of San Benito for review and approval and shall be updated and utilized for weed eradication and monitoring post-construction.
- **Mitigation Measure BR-1.2. Develop and implement a Grazing Plan for the project site.** Managed livestock grazing has been proposed for the project site. Prior to the issuance of a construction permit the Applicant shall retain a County-approved qualified restoration ecologist or biologist to prepare a Grazing Plan to be administered during the construction and operation of the project. The Grazing Plan shall be submitted to the County of San Benito for review and approval.
- **Mitigation Measure BR-3.1. Conduct pre-construction surveys for State and Federally Threatened, Endangered, Proposed, Petitioned, and Candidate plants and implement avoidance measures.** Prior to initial ground disturbance and for undisturbed areas in subsequent construction years, the Applicant shall conduct pre-construction surveys for State and federally listed Threatened and Endangered, Proposed, Petitioned, and Candidate plants in all areas subject to ground-disturbing activity, including, but not limited to, solar panel footing preparation and construction areas, assembly yards, and areas subject to grading for new access roads. The surveys shall be conducted during the appropriate blooming period(s) (February 1 – May 31) by a qualified plant ecologist/biologist according to protocols established by the USFWS, CDFW, and California Native Plant Society (CNPS). All listed plant species found shall be marked and avoided. Any populations of special-status plants found during surveys will be fully

described, mapped, and a CNPS Field Survey Form or written equivalent shall be prepared.

- **Mitigation Measure AQ-1.1. Reduce fugitive dust.** This measure provides guidance on how to minimize nuisance impacts and to significantly reduce fugitive dust emissions. It specifies measures to be shown on grading and building plans.

The USACE does not have the authority to implement mitigation measures with the exception of those directly related to a permitting action, water quality certification, or biological opinion. However, the referenced measures are standard mitigations that would likely be implemented either through the conditional use permit or other permit required to construct a solar project. These measures could be refined by Kings and Fresno Counties, CDFW, and USFWS, who would issue the required conditions for regulatory approval. These conditions would further reduce impacts from construction. With the implementation of these measures, potential impacts from construction would be less than significant.

Effects on special status invertebrates. Given the intensive farming and prior site disturbance, it is unlikely that special status invertebrates occur in the Westlands CREZ. As a result, there would be no impact on special status invertebrates under this alternative.

Effects on special status reptiles and amphibians. While no special status reptiles and amphibians are documented within the Westlands CREZ, there is potential suitable habitat for several species, including blunt-nosed leopard lizard. If found, potential direct and indirect short-term and long-term effects on special status reptiles and amphibians would result from construction. Activities would vary, depending on the location of the project but would likely be similar to the no action (no permit) alternative and Alternatives A and B. Impacts on special status reptiles and amphibians, if present, could be potentially significant.

In general, impacts on special status reptiles and amphibians are likely of a similar nature and type as those described for the no action (no permit) alternative and Alternatives A and B. Specific BMPs and measures have not been developed for this alternative. However, to reduce impacts to less than significant, the same San Benito County-approved measures to reduce potential impacts on special status reptiles and amphibians are recommended as described for the no action (no permit) alternative:

- **APM BIO-1.** All construction vehicle movement outside the project area would normally be restricted to pre-designated access, contractor acquired access, or public roads.
- **APM BIO-2.** The areal limits of construction activities would normally be predetermined, with activity restricted to and confined within those limits. No paint or permanent discoloring agents would

be applied to rocks or vegetation to indicate survey or construction activity limits.

- **APM BIO-3.** In construction areas where recontouring is not required, vegetation would be left in place wherever possible and original contour would be maintained to avoid excessive root damage and allow for regrowth.
- **APM BIO-4.** Prior to construction, all supervisory construction personnel would be instructed on the protection of cultural and ecological resources. To assist in this effort, the construction contract would address:
  - Federal and state laws regarding antiquities and plants and wildlife, including collection and removal.
  - The importance of these resources and the purpose and necessity of protecting them.
- **APM BIO-6.** Project boundary fencing will be constructed using chain link approximately 6 feet in height. The bottom of the chain link fencing will be elevated off the surface of the ground approximately 5-6 inches to allow for wildlife movement across the project site.
- **APM BIO-7.** In construction areas where ground disturbance is significant or where recontouring is required, surface restoration would occur as required by the landowner or land management agency as part of decommissioning. The method of restoration would normally consist of returning disturbed areas back to their natural contour, reseeding, installing cross drains for erosion control, placing water bars in the road, and filling ditches.
- **APM BIO-12. Preserve undisturbed onsite lands.** Of the total project site area, the applicant will limit the total permanent disturbance area to 2,506 acres (1,794 acres of which will be permanently disturbed). Prior to the issuance of building or grading permits, the applicant will submit for the County's review and approval a site plan, building plan, or grading plan that delineates and calculates the total disturbance area for facilities proposed for that area of construction and will include a note on those plans that describes how these areas will be demarcated on the ground through the placement of appropriate staking, signage, or equally effective technique to ensure that construction is confined to the disturbance area. The applicant will implement on the ground demarcation of the disturbance area in accordance with the approved plan(s).
- **APM BIO-29.** f) To prevent inadvertent entrapment of protected species, all open holes, steep-walled holes, or trenches more than 2

feet deep shall be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks (wooden planks should be no less than 10 inches in width and should reach to bottom of trench). Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals.

- **APM BIO-30.** g) All spills of hazardous materials shall be cleaned up immediately in accordance with the Spill Prevention Plan.
- **APM BIO-34.** m) Use of rodenticides and herbicides in project areas is prohibited with the exception of those applied near buildings/critical facilities. Only agency approved compounds will be applied (if necessary) by licensed applicators in accordance with label directions and other restrictions mandated by US Environmental Protection Agency, County Agricultural Commissioner, regional label prescriptions on use, California Department of Food and Agriculture, and other State and Federal legislation.
- **APM BIO-35.** n) All project-related vehicles shall observe a speed limit of 15 mph or less on all except as posted on State and County highway/roads.
- **APM BIO-37.** p) Appropriate measures shall be undertaken to prevent unauthorized vehicle entry to off-road survey routes in sensitive habitat areas. Signing will be the preferred method to discourage use.
- **APM BIO-38.** q) Project vehicles shall be confined to existing access routes or to specifically delineated areas (i.e., areas that have been surveyed). Otherwise, off-road vehicle travel is not permitted.
- **APM BIO-39.** p) Upon completion of any project component, all areas that are significantly disturbed and not necessary for future operations shall be stabilized to resist erosion, and re-vegetated and re-contoured if necessary, to promote restoration of the area to pre-disturbance conditions.
- **Mitigation Measure BR-G.1. Implement a Worker Environmental Education Program.** The Worker Environmental Education Program familiarizes Applicant employees and contractors with BMPs and other measures associated with protected species potentially on the project footprint.
- **Mitigation Measure BR-G.2. Implement Best Management Practices (BMPs).** BMPs shall be implemented as standard operating procedures during all ground disturbance and construction-related activities to avoid or minimize project impacts on biological resources.

- **Mitigation Measure BR-G.3. Develop and implement a Habitat Restoration and Revegetation Plan.** The Applicant shall restore disturbed areas to pre-construction conditions or better. Prior to the issuance of a building permit and removal of any soil or vegetation, the Applicant shall retain a County-approved, qualified biologist, knowledgeable in the area of annual grassland habitat restoration, to prepare a Habitat Restoration and Revegetation Plan (HRRP). The biologist would also be responsible for monitoring the initial implementation of the plan as the Applicant's attainment of the established success criteria.
- **Mitigation Measure BR-G.4. Implement biological monitoring of construction activities.** Prior to the commencement of ground disturbance or site mobilization activities, the Applicant shall retain County-approved, qualified biologist(s) with demonstrated expertise with listed and/or special-status plants, terrestrial mammals and reptiles to monitor all construction activities on a daily basis. The qualified biologist(s) shall be present at all times during ground-disturbing activities immediately adjacent to, or within, habitat that supports populations of the listed or special-status species identified in **Section 3.6** of this EIS.
- **Mitigation Measure BR-G.5.** Purchase credits from a CDFW-approved mitigation bank, create a permanent conservation easement(s), in favor of CDFW or a CDFW-approved conservation holder for the management of the land pursuant to the approved HMMP, or transfer land in fee to a CDFW approved conservation holder with a deed restriction for the management of the land pursuant to the approved HMMP.
- **Mitigation Measure BR-G.6. Develop and implement Wetland Mitigation and Monitoring Plan and Habitat Management Plan for mitigation lands.** To ensure the success of on-site preserved land and acquired mitigation lands, required for compensation of permanent impacts on vegetative communities, wetlands, and listed or Special-Status plants and wildlife, the Applicant shall retain a County-approved, qualified biologist to prepare a Wetland Mitigation and Monitoring Plan (WMMP) and a Habitat Management Plan (HMP). The WMMP will focus on impacts and mitigation for jurisdictional waters and wetlands while the HMP will focus on the habitat and species management measures.
- **Mitigation Measure BR-I.1. Prepare and implement a Weed Control Plan.** Prior to the issuance of a building permit or any ground disturbance the Applicant shall retain a County-approved, qualified restoration ecologist or biologist to prepare a comprehensive adaptive Weed Control Plan (WCP) to be

administered during the construction and operation of the project for the purpose of invasive weed abatement. The WCP shall be submitted to the County of San Benito for review and approval and shall be updated and utilized for weed eradication and monitoring post-construction.

- **Mitigation Measure BR-1.2. Develop and implement a Grazing Plan for the project site.** Managed livestock grazing has been proposed for the project site. Prior to the issuance of a construction permit the Applicant shall retain a County-approved qualified restoration ecologist or biologist to prepare a Grazing Plan to be administered during the construction and operation of the project. The Grazing Plan shall be submitted to the County of San Benito for review and approval.
- **Mitigation Measure BR-7a.1. Impacts to all potential breeding habitat for western spadefoot toad shall be avoided to the extent feasible.** If work within this habitat cannot be avoided, work shall be conducted outside the breeding season of adult western spadefoot toads and the subsequent developmental period of larvae. Therefore, when possible, no work within this habitat will be conducted between January 31 and April 1 or until the habitat is completely dry.
- **Mitigation Measure BR-7a.2. Conduct pre-construction surveys for San Joaquin coachwhip and coast horned lizard and implement avoidance measures.** The Applicant shall retain a County-approved, qualified biologist to conduct pre-construction surveys immediately prior to (i.e., the morning of the commencement of) ground disturbance. If San Joaquin coachwhips or coast horned lizards are found within the area of disturbance and can be captured, the biologist will relocate the animals to a pre-approved location outside the project area.
- **Mitigation Measure BR-9.1. Conduct pre-construction surveys for California tiger salamander and implement avoidance measures.** The Applicant shall perform pre-construction California tiger salamander surveys (see Interim Guidance on Site Assessment and Field Surveys for Determining Presence of a Negative Finding of the California Tiger Salamander (CDFW October 2003) for guidelines on survey techniques, limitations, and inference limits) prior to the construction of all project phases in areas within the project boundary fence line of suitable aestivation or breeding habitat within 1.2 miles of known or potential breeding ponds. Avoidance measures for California tiger salamander shall include those outlined in MM BR-G.2 (Implement Best Management Practices).

- **Mitigation Measure AQ-1.1. Reduce fugitive dust.** This measure provides guidance on how to minimize nuisance impacts and to significantly reduce fugitive dust emissions. It specifies measures to be shown on grading and building plans.

The USACE does not have the authority to implement mitigation measures with the exception of those directly related to a permitting action, water quality certification, or biological opinion. However, the referenced measures are standard mitigations that would likely be implemented either through the conditional use permit or other permit required to construct a solar project. These measures could be refined by Kings and Fresno Counties, CDFW, and USFWS, who would issue the required conditions for regulatory approval. These conditions would further reduce impacts from construction. With the implementation of these measures, potential impacts from construction would be less than significant.

Effects on special status bird species. One special status bird species, burrowing owl, has been observed to date in the Westlands CREZ; however, comprehensive field surveys have not been completed. Potential direct and indirect short-term and long-term effects on special status bird species could result from construction. Activities would vary, depending on the location of the project but would likely be similar to those described for the no action (no permit) alternative and Alternatives A and B. Impacts on special status bird species could be potentially significant.

In general, impacts on special status bird species would likely be of a similar nature and type as those described for the no action (no permit) alternative and Alternatives A and B. This would particularly be the case if development of the project were to occur on nonagricultural parcels in the Westlands CREZ containing relatively undisturbed soils and native vegetation, as described below.

Though most of the land in the Westlands CREZ is active or retired agricultural land, certain landscape features support native vegetation, wildlife, and potentially special status species (impacts on vegetation and general wildlife are discussed under separate subheaders in this section). Irrigation canals, ditches, and at least one large tail water pond support limited wetlands and riparian habitat and provide nesting, wintering, and foraging habitat for several special status bird species. It is likely that a solar facility would be sited to largely avoid directly impacting these resources. However, features such as improved bridges or other crossings may have limited direct impacts for bridge footings, or culvert replacement, for example.

Additionally, several parcels in the Westlands CREZ contain nonagricultural lands that appear to contain native vegetation. These parcels may also support nesting, wintering, or foraging habitat for special status bird species. Construction of a solar project could result in temporary or permanent removal of this habitat, affecting those special status bird species through loss of

nesting, foraging, or wintering habitat. These impacts could be potentially significant.

Construction of the solar project in the Westlands CREZ could have direct and indirect, short-term and long-term effects on burrowing owls, which have been observed using burrows on irrigation canal berms in the Westlands CREZ. Impacts could result in a loss of nesting, wintering, and foraging habitat, could displace breeding pairs of owls, could result in loss of burrows through construction, or could decrease prey base due to reduction in small mammal populations. These impacts could be potentially significant.

Specific BMPs and measures have not been developed for this alternative. However, to reduce impacts to less than significant, the same San Benito County-approved measures to reduce potential impacts on special status bird species are recommended as described for the no action (no permit) alternative:

- **APM BIO-1.** All construction vehicle movement outside the project area would normally be restricted to pre-designated access, contractor acquired access, or public roads.
- **APM BIO-2.** The areal limits of construction activities would normally be predetermined, with activity restricted to and confined within those limits. No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate survey or construction activity limits.
- **APM BIO-3.** In construction areas where recontouring is not required, vegetation would be left in place wherever possible and original contour would be maintained to avoid excessive root damage and allow for regrowth.
- **APM BIO-4.** Prior to construction, all supervisory construction personnel would be instructed on the protection of cultural and ecological resources. To assist in this effort, the construction contract would address:
  - Federal and state laws regarding antiquities and plants and wildlife, including collection and removal.
  - The importance of these resources and the purpose and necessity of protecting them.
- **APM BIO-5.** Mitigation measures that will be developed during the consultation period under Section 7 of the Endangered Species Act will be adhered to as specified in the Biological Opinion of the US Fish and Wildlife Service.
- **APM BIO-7.** In construction areas where ground disturbance is significant or where recontouring is required, surface restoration

would occur as required by the landowner or land management agency as part of decommissioning. The method of restoration would normally consist of returning disturbed areas back to their natural contour, reseeding, installing cross drains for erosion control, placing water bars in the road, and filling ditches.

- **APM BIO-9.** Protocol surveys were completed for the entire Project Footprint, and additional preconstruction surveys will be completed within 30 days of ground disturbance for each construction area. Monitors will be present during construction activities.
- **APM BIO-12. Preserve undisturbed onsite lands.** Of the total project site area, the applicant will limit the total permanent disturbance area to 2,506 acres (1,794 acres of which will be permanently disturbed). Prior to the issuance of building or grading permits, the applicant will submit for the County's review and approval a site plan, building plan, or grading plan that delineates and calculates the total disturbance area for facilities proposed for that area of construction and will include a note on those plans that describes how these areas will be demarcated on the ground through the placement of appropriate staking, signage, or equally effective technique to ensure that construction is confined to the disturbance area. The applicant will implement on the ground demarcation of the disturbance area in accordance with the approved plan(s).
- **APM BIO-20. Employee Education Program.** The Employee Education Program familiarizes Applicant employees and contractors with BMPs and other measures associated with protected species potentially on the project footprint.
- **APM BIO-21. List of Best Management Practices.** Refer to updated Supplemental EIR for a list of Best Management Practices. All employees and contractors will be made aware of the BMPs, and those BMPs that are pertinent to employee work conduct will be implemented. Applicable measures are listed below.
- **APM BIO-22.** a) Prior to initiation of construction of a project area (i.e., any activity that results in surface disturbance), a qualified biologist shall conduct a BNLL education program (e.g., tailgate briefing) for all project personnel. Topics to be discussed during the briefing shall include: occurrence and distribution of BNLL in adjacent areas, take avoidance measures being implemented during the project, reporting requirements if an incident occurs, and applicable definitions and prohibitions under the Fish and Wildlife Code for fully protected species, and relevant provisions of the federal and state Endangered Species Act.

- **APM BIO-24.** b) A biological monitor(s) shall be present while ground-disturbing activities are occurring. In addition to conducting preconstruction surveys, the biological monitors shall aid crews in satisfying take avoidance criteria for BNLL and implementing project mitigation measures.
- **APM BIO-25.** c) Biological monitors are empowered to order cessation of activities if take avoidance and/or mitigation measures are violated and will notify the Applicant's environmental representative.
- **APM BIO-30.** g) All spills of hazardous materials shall be cleaned up immediately in accordance with the Spill Prevention Plan.
- **APM BIO-31.** j) Pets are prohibited at the PVSF.
- **APM BIO-32.** k) Firearms are prohibited at the PVSF.
- **APM BIO-33.** l) All food-related trash, such as wrappers, cans, bottles, bags, and food scraps shall be disposed of daily in containers with secure covers and regularly removed from PVSF.
- **APM BIO-34.** m) Use of rodenticides and herbicides in project areas is prohibited with the exception of those applied near buildings/critical facilities. Only agency approved compounds will be applied (if necessary) by licensed applicators in accordance with label directions and other restrictions mandated by US Environmental Protection Agency, County Agricultural Commissioner, regional label prescriptions on use, California Department of Food and Agriculture, and other State and Federal legislation.
- **APM BIO-35.** n) All project-related vehicles shall observe a speed limit of 15 mph or less on all except as posted on State and County highway/roads.
- **APM BIO-37.** p) Appropriate measures shall be undertaken to prevent unauthorized vehicle entry to off-road survey routes in sensitive habitat areas. Signing will be the preferred method to discourage use.
- **APM BIO-38.** q) Project vehicles shall be confined to existing access routes or to specifically delineated areas (i.e., areas that have been surveyed). Otherwise, off-road vehicle travel is not permitted.
- **Mitigation Measure BR-G.1. Implement a Worker Environmental Education Program.** The Worker Environmental Education Program familiarizes Applicant employees and contractors with BMPs and other measures associated with protected species potentially on the project footprint.

- **Mitigation Measure BR-G.2. Implement Best Management Practices (BMPs).** BMPs shall be implemented as standard operating procedures during all ground disturbance and construction-related activities to avoid or minimize project impacts on biological resources.
- **Mitigation Measure BR-G.3. Develop and implement a Habitat Restoration and Revegetation Plan.** The Applicant shall restore disturbed areas to pre-construction conditions or better. Prior to the issuance of a building permit and removal of any soil or vegetation, the Applicant shall retain a County-approved, qualified biologist, knowledgeable in the area of annual grassland habitat restoration, to prepare a Habitat Restoration and Revegetation Plan (HRRP). The biologist would also be responsible for monitoring the initial implementation of the plan as the Applicant's attainment of the established success criteria.
- **Mitigation Measure BR-G.4. Implement biological monitoring of construction activities.** Prior to the commencement of ground disturbance or site mobilization activities, the Applicant shall retain County-approved, qualified biologist(s) with demonstrated expertise with listed and/or special-status plants, terrestrial mammals and reptiles to monitor all construction activities on a daily basis. The qualified biologist(s) shall be present at all times during ground-disturbing activities immediately adjacent to, or within, habitat that supports populations of the listed or special-status species identified in **Section 3.6** of this EIS.
- **Mitigation Measure BR-G.5.** Purchase credits from a CDFW-approved mitigation bank, create a permanent conservation easement(s), in favor of CDFW or a CDFW-approved conservation holder for the management of the land pursuant to the approved HMMP, or transfer land in fee to a CDFW approved conservation holder with a deed restriction for the management of the land pursuant to the approved HMMP.
- **Mitigation Measure BR-G.6. Develop and implement Wetland Mitigation and Monitoring Plan and Habitat Management Plan for mitigation lands.** To ensure the success of on-site preserved land and acquired mitigation lands, required for compensation of permanent impacts on vegetative communities, wetlands, and listed or Special-Status plants and wildlife, the Applicant shall retain a County-approved, qualified biologist to prepare a Wetland Mitigation and Monitoring Plan (WMMP) and a Habitat Management Plan (HMP). The WMMP will focus on impacts and mitigation for jurisdictional waters and wetlands while the HMP will focus on the habitat and species management measures.

- **Mitigation Measure BR-12.2. Avoid and report California condors.** Should a condor land within the project area all work shall be stopped within 500 feet of the condor until the bird has left the area on its own. If the bird fails to leave the area because of injury or other factors the Applicant shall contact the USFWS /CDFW and County for direction. All California condor sightings in the project area shall be reported directly to the USFWS/CDFW and County within 24 hours.
- **Mitigation Measure BR-13.1. Focused pre-construction burrowing owl surveys and implementation of avoidance measures.** No more than 30 days and no less than 14 days prior to the commencement of initial ground disturbing activities, the Applicant shall implement focused pre-construction reconnaissance level surveys for burrowing owls. Surveys shall be conducted prior to the initiation of ground disturbance and be conducted by County-approved, qualified biologist(s) with experience surveying for burrowing owls. Surveys for burrowing owls shall be conducted in conformance with the *Staff Report on Burrowing Owl Mitigation* (CDFG, 2012) protocols.
- **Mitigation Measure BR-14.1. Implement Avian Power Line Interaction Committee guidelines (APLIC).** The Applicant will be required to construct all transmission facilities, towers, poles and lines in accordance with and comply with all policies set forth in the *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006* (APLIC) and *Reducing Avian Collisions with Power Lines: State of the Art in 2012* (APLIC, 2012), to minimize avian electrocutions as a result of the construction of the project. Details of design components shall be indicated on all construction plans and measures to comply with APLIC policies and guidelines shall be detailed in a separate attachment, all of which will be submitted with the construction permit application. The Applicant shall be required to monitor for new versions of the APLIC guidelines and update designs or implement new measures as needed during project construction provided these actions do not require the purchase of previously ordered transmission line structures.
- **Mitigation Measure BR-14.2. Prepare and Implement an Avian Conservation Strategy and Eagle Conservation Plan.** Prior to the issuance of a construction permit, the Avian Conservation Strategy and Eagle Conservation Plans (which have been prepared by the Applicant in draft format) shall be reviewed and approved by the County. The final plans will be developed in consultation with California Department of Fish and Wildlife (CDFW) and U.S. Fish and Wildlife Service (USFWS). These plans have been prepared in general accordance with the USFWS Land-based Wind Energy Guidelines (USFWS 2012), Eagle Conservation

Plan Guidance Module 1 – Land-based Wind Energy Version 2 Guidance (USFWS 2013) and with information provided in the Avian Protection Plan guidelines outlined by APLIC (2005).

- **Mitigation Measure AQ-1.1. Reduce fugitive dust.** This measure provides guidance on how to minimize nuisance impacts and to significantly reduce fugitive dust emissions. It specifies measures to be shown on grading and building plans.

The USACE does not have the authority to implement mitigation measures with the exception of those directly related to a permitting action, water quality certification, or biological opinion. However, the referenced measures are standard mitigations that would likely be implemented either through the conditional use permit or other permit required to construct a solar project. These measures could be refined by Kings and Fresno Counties, CDFW, and USFWS, who would issue the required conditions for regulatory approval. These conditions would further reduce impacts from construction. With the implementation of these measures, potential impacts from construction would be less than significant.

Effects on special status bat species. Potential direct and indirect short-term and long-term effects on special status bat species could result from construction. Activities would vary, depending on the location of the project in the Westlands CREZ but would likely be similar to those described for the no action (no permit) alternative and Alternatives A and B. In general, short-term and long-term impacts on special status bat species would likely be of a similar nature and type as those described for the no action (no permit) alternative and Alternatives A and B. If present, impacts on special status bat species could be potentially significant.

Though most of the land in the Westlands CREZ is active or retired agricultural land, certain landscape features support native vegetation; specifically, these are several nonagricultural parcels, irrigation canals, ditches, and at least one large tail water pond that supports limited wetlands and riparian habitat. Special status bat species may favor these areas for foraging, and these areas could also provide additional roosting opportunities. It is likely that the solar project would be sited to largely avoid directly impacting these resources.

Specific BMPs and measures have not been developed for this alternative. However, to reduce impacts to less than significant, the same San Benito County-approved measures to reduce potential impacts on special status bat species are recommended as described for the no action (no permit) alternative:

- **APM AES-3. Operation Lighting**: During operation of the project, motion-sensor lighting will be used at the main entrance, substation, and switching station. The lighting will consist of energy-

efficient lamps that will only be lit when human activity is detected. Motion sensors will have sensitivities set to avoid activating the lights when animal activity is occurring. This will be done to prevent startling animals and creating false alarms for security personnel. In addition to lighting, security cameras will be installed onsite. Constant lighting, at a low-level, may be required at the O&M building for security and safety. This will be a single lamp source near the entrance of the O&M building, which will be activated by a timer. All lighting will have a power switch to conserve energy when the lighting is not required.

- **APM BIO-1.** All construction vehicle movement outside the project area would normally be restricted to pre-designated access, contractor acquired access, or public roads.
- **APM BIO-2.** The areal limits of construction activities would normally be predetermined, with activity restricted to and confined within those limits. No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate survey or construction activity limits.
- **APM BIO-3.** In construction areas where recontouring is not required, vegetation would be left in place wherever possible and original contour would be maintained to avoid excessive root damage and allow for regrowth.
- **APM BIO-4.** Prior to construction, all supervisory construction personnel would be instructed on the protection of cultural and ecological resources. To assist in this effort, the construction contract would address:
  - Federal and state laws regarding antiquities and plants and wildlife, including collection and removal.
  - The importance of these resources and the purpose and necessity of protecting them.
- **APM BIO-5.** Mitigation measures that will be developed during the consultation period under Section 7 of the Endangered Species Act will be adhered to as specified in the Biological Opinion of the US Fish and Wildlife Service.
- **APM BIO-7.** In construction areas where ground disturbance is significant or where recontouring is required, surface restoration would occur as required by the landowner or land management agency as part of decommissioning. The method of restoration would normally consist of returning disturbed areas back to their natural contour, reseeding, installing cross drains for erosion control, placing water bars in the road, and filling ditches.

- **APM BIO-9.** Protocol surveys were completed for the entire Project Footprint, and additional preconstruction surveys will be completed within 30 days of ground disturbance for each construction area. Monitors will be present during construction activities.
- **APM BIO-12. Preserve undisturbed onsite lands.** Of the total project site area, the applicant will limit the total permanent disturbance area to 2,506 acres (1,794 acres of which will be permanently disturbed). Prior to the issuance of building or grading permits, the applicant will submit for the County's review and approval a site plan, building plan, or grading plan that delineates and calculates the total disturbance area for facilities proposed for that area of construction and will include a note on those plans that describes how these areas will be demarcated on the ground through the placement of appropriate staking, signage, or equally effective technique to ensure that construction is confined to the disturbance area. The applicant will implement on the ground demarcation of the disturbance area in accordance with the approved plan(s).
- **APM BIO-20. Employee Education Program.** The Employee Education Program familiarizes Applicant employees and contractors with BMPs and other measures associated with protected species potentially on the project footprint.
- **APM BIO-21. List of Best Management Practices.** Refer to updated Supplemental EIR for a list of Best Management Practices. All employees and contractors will be made aware of the BMPs, and those BMPs that are pertinent to employee work conduct will be implemented. Applicable measures are listed below.
- **APM BIO-22.** a) Prior to initiation of construction of a project area (i.e., any activity that results in surface disturbance), a qualified biologist shall conduct a BNLL education program (e.g., tailgate briefing) for all project personnel. Topics to be discussed during the briefing shall include: occurrence and distribution of BNLL in adjacent areas, take avoidance measures being implemented during the project, reporting requirements if an incident occurs, and applicable definitions and prohibitions under the Fish and Wildlife Code for fully protected species, and relevant provisions of the federal and state Endangered Species Act.
- **APM BIO-24.** b) A biological monitor(s) shall be present while ground-disturbing activities are occurring. In addition to conducting preconstruction surveys, the biological monitors shall aid crews in satisfying take avoidance criteria for BNLL and implementing project mitigation measures.

- **APM BIO-25.** c) Biological monitors are empowered to order cessation of activities if take avoidance and/or mitigation measures are violated and will notify the Applicant's environmental representative.
- **APM BIO-30.** g) All spills of hazardous materials shall be cleaned up immediately in accordance with the Spill Prevention Plan.
- **APM BIO-31.** j) Pets are prohibited at the PVSF.
- **APM BIO-32.** k) Firearms are prohibited at the PVSF.
- **APM BIO-33.** l) All food-related trash, such as wrappers, cans, bottles, bags, and food scraps shall be disposed of daily in containers with secure covers and regularly removed from PVSF.
- **APM BIO-34.** m) Use of rodenticides and herbicides in project areas is prohibited with the exception of those applied near buildings/critical facilities. Only agency approved compounds will be applied (if necessary) by licensed applicators in accordance with label directions and other restrictions mandated by US Environmental Protection Agency, County Agricultural Commissioner, regional label prescriptions on use, California Department of Food and Agriculture, and other State and Federal legislation.
- **APM BIO-35.** n) All project-related vehicles shall observe a speed limit of 15 mph or less on all except as posted on State and County highway/roads.
- **APM BIO-37.** p) Appropriate measures shall be undertaken to prevent unauthorized vehicle entry to off-road survey routes in sensitive habitat areas. Signing will be the preferred method to discourage use.
- **APM BIO-38.** q) Project vehicles shall be confined to existing access routes or to specifically delineated areas (i.e., areas that have been surveyed). Otherwise, off-road vehicle travel is not permitted.
- **Mitigation Measure BR-G.1. Implement a Worker Environmental Education Program.** The Worker Environmental Education Program familiarizes Applicant employees and contractors with BMPs and other measures associated with protected species potentially on the project footprint.
- **Mitigation Measure BR-G.2. Implement Best Management Practices (BMPs).** BMPs shall be implemented as standard operating procedures during all ground disturbance and construction-related activities to avoid or minimize project impacts on biological resources.

- **Mitigation Measure BR-G.3. Develop and implement a Habitat Restoration and Revegetation Plan.** The Applicant shall restore disturbed areas to pre-construction conditions or better. Prior to the issuance of a building permit and removal of any soil or vegetation, the Applicant shall retain a County-approved, qualified biologist, knowledgeable in the area of annual grassland habitat restoration, to prepare a Habitat Restoration and Revegetation Plan (HRRP). The biologist would also be responsible for monitoring the initial implementation of the plan as the Applicant's attainment of the established success criteria.
- **Mitigation Measure BR-G.4. Implement biological monitoring of construction activities.** Prior to the commencement of ground disturbance or site mobilization activities, the Applicant shall retain County-approved, qualified biologist(s) with demonstrated expertise with listed and/or special-status plants, terrestrial mammals and reptiles to monitor all construction activities on a daily basis. The qualified biologist(s) shall be present at all times during ground-disturbing activities immediately adjacent to, or within, habitat that supports populations of the listed or special-status species identified in **Section 3.6** of this EIS.
- **Mitigation Measure BR-G.5.** Purchase credits from a CDFW-approved mitigation bank, create a permanent conservation easement(s), in favor of CDFW or a CDFW-approved conservation holder for the management of the land pursuant to the approved HMMP, or transfer land in fee to a CDFW approved conservation holder with a deed restriction for the management of the land pursuant to the approved HMMP.
- **Mitigation Measure BR-G.6. Develop and implement Wetland Mitigation and Monitoring Plan and Habitat Management Plan for mitigation lands.** To ensure the success of on-site preserved land and acquired mitigation lands, required for compensation of permanent impacts on vegetative communities, wetlands, and listed or Special-Status plants and wildlife, the Applicant shall retain a County-approved, qualified biologist to prepare a Wetland Mitigation and Monitoring Plan (WMMP) and a Habitat Management Plan (HMP). The WMMP will focus on impacts and mitigation for jurisdictional waters and wetlands while the HMP will focus on the habitat and species management measures.
- **Mitigation Measure BR-15.1. Survey pre-construction maternity colony or hibernaculum for sensitive bats**. The Applicant shall retain a County-qualified biologist, holding a CDFW collection permit and a Memorandum of Understanding with CDFW allowing the biologist to handle bats, to conduct pre-

construction surveys for sensitive bats. Surveys shall be conducted at least 30 days prior to construction and preferably during the maternity season (1 March to 31 August) within 500 feet of project activities (where project personnel can secure right of entry and there is potential habitat for bat roosts) in order to document potential use of the site by special-status bat species and document the location of active and potential non-active maternity roost sites.

- **Mitigation Measure BR-15.2. Provide substitute roosting habitat.** If a maternity roost will be impacted by the Project, and no alternative maternity roosts are in use near the site, substitute roosting habitat for the maternity colony shall be provided on, or in close proximity to, the Project site no less than one year prior to the eviction of the colony. Alternative roost sites will be constructed in accordance with the specific bats requirements in coordination with the County. By making the roosting habitat available a year prior to eviction (MM BR-15.3), the colony will have a better chance of finding and using the roost. Alternative roost sites must be of comparable size and proximal in location to the impacted colony. The CDFW shall also be notified of any hibernacula or active nurseries within the construction zone. If construction of alternative roost sites is required, the biologist shall provide a written report, documenting the required coordination with CDFW as well as the location of roost sites. This report shall be provided to the County.
- **Mitigation Measure BR-15.3. Exclude bats prior to eviction from roosts.** If non-breeding bats are found in structures, towers or trees scheduled to be removed, the individuals shall be safely evicted, under the direction of a qualified biologist, by opening the roosting area to allow airflow through the cavity or other means determined appropriate by the bat biologist (e.g., installation of one-way doors). In situations requiring one-way doors, a minimum of one week shall pass after doors are installed and temperatures should be sufficiently warm for bats to exit the roost because bats do not typically leave their roost daily during winter months in southern coastal California. This action should allow all bats to leave during the course of one week. Roosts that need to be removed in situations where the use of one-way doors is not necessary in the judgment of the qualified biologist shall first be disturbed by various means at the direction of the bat biologist at dusk to allow bats to escape during the darker hours, and the roost tree shall be removed or the grading shall occur the next day (i.e., there shall be no less or more than one night between initial disturbance and the grading or tree removal).
- **Mitigation Measure AQ-1.1. Reduce fugitive dust.** This measure provides guidance on how to minimize nuisance impacts

and to significantly reduce fugitive dust emissions. It specifies measures to be shown on grading and building plans.

The USACE does not have the authority to implement mitigation measures with the exception of those directly related to a permitting action, water quality certification, or biological opinion. However, the referenced measures are standard mitigations that would likely be implemented either through the conditional use permit or other permit required to construct a solar project. These measures could be refined by Kings and Fresno Counties, CDFW, and USFWS, who would issue the required conditions for regulatory approval. These conditions would further reduce impacts from construction. With the implementation of these measures, potential impacts from construction would be less than significant.

Effects on special status mammals. While no special status mammals have been documented in the Westlands CREZ, there is potential suitable habitat for the San Joaquin kit fox and other special status mammal species. Potential direct and indirect short-term and long-term effects on special status mammal species could result from construction. Activities would vary, depending on the location of the project but would likely be similar to those described for no action (no permit) alternative and Alternatives A and B for San Joaquin kit fox and special status small mammals. In general, short-term and long-term impacts on special status mammal species, including San Joaquin kit fox, would likely be of a similar nature and type as those described for no action (no permit) alternative and Alternatives A and B. If present, impacts on special status mammal species could be potentially significant.

Though most of the land in the Westlands CREZ is active or retired agricultural land, several parcels contain nonagricultural lands that appear to contain native vegetation. These parcels could support suitable upland habitat for a suite of small mammal species. Construction of a solar project could temporarily or permanently remove this habitat, affecting those special status mammal species through loss of burrows or through injury or mortality due to burrow destruction. These impacts could be potentially significant.

Some lands on the Westland CREZ are in agricultural production, which is a detrimental land use for many special status small mammal species. Conversion of croplands to a passive solar facility could increase the habitat quality for special status small mammals, resulting in a beneficial effect on these species.

Specific BMPs and measures have not been developed for this alternative. However, to reduce impacts to less than significant, the same San Benito County-approved measures to reduce potential impacts on special status small mammals are recommended as described for the no action (no permit) alternative:

- **APM AES-3. Operation Lighting**: During operation of the project, motion-sensor lighting will be used at the main entrance, substation, and switching station. The lighting will consist of energy-efficient lamps that will only be lit when human activity is detected. Motion sensors will have sensitivities set to avoid activating the lights when animal activity is occurring. This will be done to prevent startling animals and creating false alarms for security personnel. In addition to lighting, security cameras will be installed onsite. Constant lighting, at a low-level, may be required at the O&M building for security and safety. This will be a single lamp source near the entrance of the O&M building, which will be activated by a timer. All lighting will have a power switch to conserve energy when the lighting is not required.
- **APM BIO-1.** All construction vehicle movement outside the project area would normally be restricted to pre-designated access, contractor acquired access, or public roads.
- **APM BIO-2.** The areal limits of construction activities would normally be predetermined, with activity restricted to and confined within those limits. No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate survey or construction activity limits.
- **APM BIO-3.** In construction areas where recontouring is not required, vegetation would be left in place wherever possible and original contour would be maintained to avoid excessive root damage and allow for regrowth.
- **APM BIO-4.** Prior to construction, all supervisory construction personnel would be instructed on the protection of cultural and ecological resources. To assist in this effort, the construction contract would address:
  - Federal and state laws regarding antiquities and plants and wildlife, including collection and removal.
  - The importance of these resources and the purpose and necessity of protecting them.
- **APM BIO-5.** Mitigation measures that will be developed during the consultation period under Section 7 of the Endangered Species Act will be adhered to as specified in the Biological Opinion of the US Fish and Wildlife Service.
- **APM BIO-6.** Project boundary fencing will be constructed using chain link approximately 6 feet in height. The bottom of the chain link fencing will be elevated off the surface of the ground approximately 5-6 inches to allow for wildlife movement across the project site.

- **APM BIO-7.** In construction areas where ground disturbance is significant or where recontouring is required, surface restoration would occur as required by the landowner or land management agency as part of decommissioning. The method of restoration would normally consist of returning disturbed areas back to their natural contour, reseeding, installing cross drains for erosion control, placing water bars in the road, and filling ditches.
- **APM BIO-9.** Protocol surveys were completed for the entire Project Footprint, and additional preconstruction surveys will be completed within 30 days of ground disturbance for each construction area. Monitors will be present during construction activities.
- **APM BIO-12. Preserve undisturbed onsite lands.** Of the total project site area, the applicant will limit the total permanent disturbance area to 2,506 acres (1,794 acres of which will be permanently disturbed). Prior to the issuance of building or grading permits, the applicant will submit for the County's review and approval a site plan, building plan, or grading plan that delineates and calculates the total disturbance area for facilities proposed for that area of construction and will include a note on those plans that describes how these areas will be demarcated on the ground through the placement of appropriate staking, signage, or equally effective technique to ensure that construction is confined to the disturbance area. The applicant will implement on the ground demarcation of the disturbance area in accordance with the approved plan(s).
- **APM BIO-20. Employee Education Program.** The Employee Education Program familiarizes Applicant employees and contractors with BMPs and other measures associated with protected species potentially on the project footprint.
- **APM BIO-21. List of Best Management Practices.** Refer to updated Supplemental EIR for a list of Best Management Practices. All employees and contractors will be made aware of the BMPs, and those BMPs that are pertinent to employee work conduct will be implemented. Applicable measures are listed below.
- **APM BIO-22.** a) Prior to initiation of construction of a project area (i.e., any activity that results in surface disturbance), a qualified biologist shall conduct a BNLL education program (e.g., tailgate briefing) for all project personnel. Topics to be discussed during the briefing shall include: occurrence and distribution of BNLL in adjacent areas, take avoidance measures being implemented during the project, reporting requirements if an incident occurs, and applicable definitions and prohibitions under the Fish and Wildlife

Code for fully protected species, and relevant provisions of the federal and state Endangered Species Act.

- **APM BIO-24.** b) A biological monitor(s) shall be present while ground-disturbing activities are occurring. In addition to conducting preconstruction surveys, the biological monitors shall aid crews in satisfying take avoidance criteria for BNLL and implementing project mitigation measures.
- **APM BIO-25.** c) Biological monitors are empowered to order cessation of activities if take avoidance and/or mitigation measures are violated and will notify the Applicant's environmental representative.
- **APM BIO-29.** f) To prevent inadvertent entrapment of protected species, all open holes, steep-walled holes, or trenches more than 2 feet deep shall be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks (wooden planks should be no less than 10 inches in width and should reach to bottom of trench). Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals.
- **APM BIO-30.** g) All spills of hazardous materials shall be cleaned up immediately in accordance with the Spill Prevention Plan.
- **APM BIO-31.** j) Pets are prohibited at the PVSF.
- **APM BIO-32.** k) Firearms are prohibited at the PVSF.
- **APM BIO-33.** l) All food-related trash, such as wrappers, cans, bottles, bags, and food scraps shall be disposed of daily in containers with secure covers and regularly removed from PVSF.
- **APM BIO-34.** m) Use of rodenticides and herbicides in project areas is prohibited with the exception of those applied near buildings/critical facilities. Only agency approved compounds will be applied (if necessary) by licensed applicators in accordance with label directions and other restrictions mandated by US Environmental Protection Agency, County Agricultural Commissioner, regional label prescriptions on use, California Department of Food and Agriculture, and other State and Federal legislation.
- **APM BIO-35.** n) All project-related vehicles shall observe a speed limit of 15 mph or less on all except as posted on State and County highway/roads.
- **APM BIO-37.** p) Appropriate measures shall be undertaken to prevent unauthorized vehicle entry to off-road survey routes in sensitive habitat areas. Signing will be the preferred method to discourage use.

- **APM BIO-38.** q) Project vehicles shall be confined to existing access routes or to specifically delineated areas (i.e., areas that have been surveyed). Otherwise, off-road vehicle travel is not permitted.
- **APM BIO-39.** p) Upon completion of any project component, all areas that are significantly disturbed and not necessary for future operations shall be stabilized to resist erosion, and re-vegetated and re-contoured if necessary, to promote restoration of the area to pre-disturbance conditions.
- **Mitigation Measure BR-G.1. Implement a Worker Environmental Education Program.** The Worker Environmental Education Program familiarizes Applicant employees and contractors with BMPs and other measures associated with protected species potentially on the project footprint.
- **Mitigation Measure BR-G.2. Implement Best Management Practices (BMPs).** BMPs shall be implemented as standard operating procedures during all ground disturbance and construction-related activities to avoid or minimize project impacts on biological resources.
- **Mitigation Measure BR-G.3. Develop and implement a Habitat Restoration and Revegetation Plan.** The Applicant shall restore disturbed areas to pre-construction conditions or better. Prior to the issuance of a building permit and removal of any soil or vegetation, the Applicant shall retain a County-approved, qualified biologist, knowledgeable in the area of annual grassland habitat restoration, to prepare a Habitat Restoration and Revegetation Plan (HRRP). The biologist would also be responsible for monitoring the initial implementation of the plan as the Applicant's attainment of the established success criteria.
- **Mitigation Measure BR-G.4. Implement biological monitoring of construction activities.** Prior to the commencement of ground disturbance or site mobilization activities, the Applicant shall retain County-approved, qualified biologist(s) with demonstrated expertise with listed and/or special-status plants, terrestrial mammals and reptiles to monitor all construction activities on a daily basis. The qualified biologist(s) shall be present at all times during ground-disturbing activities immediately adjacent to, or within, habitat that supports populations of the listed or special-status species identified in **Section 3.6** of this EIS.
- **Mitigation Measure BR-G.5.** Purchase credits from a CDFW-approved mitigation bank, create a permanent conservation easement(s), in favor of CDFW or a CDFW-approved conservation holder for the management of the land pursuant to the approved

HMMP, or transfer land in fee to a CDFW approved conservation holder with a deed restriction for the management of the land pursuant to the approved HMMP.

- **Mitigation Measure BR-G.6. Develop and implement Wetland Mitigation and Monitoring Plan and Habitat Management Plan for mitigation lands.** To ensure the success of on-site preserved land and acquired mitigation lands, required for compensation of permanent impacts to vegetative communities, wetlands, and listed or Special-Status plants and wildlife, the Applicant shall retain a County-approved, qualified biologist to prepare a Wetland Mitigation and Monitoring Plan (WMMP) and a Habitat Management Plan (HMP). The WMMP will focus on impacts and mitigation for jurisdictional waters and wetlands while the HMP will focus on the habitat and species management measures.
- **Mitigation Measure BR-1.1. Prepare and implement a Weed Control Plan.** Prior to the issuance of a building permit or any ground disturbance the Applicant shall retain a County-approved, qualified restoration ecologist or biologist to prepare a comprehensive adaptive Weed Control Plan (WCP) to be administered during the construction and operation of the project for the purpose of invasive weed abatement. The WCP shall be submitted to the County of San Benito for review and approval and shall be updated and utilized for weed eradication and monitoring post-construction.
- **Mitigation Measure BR-1.2. Develop and implement a Grazing Plan for the project site.** Managed livestock grazing has been proposed for the project site. Prior to the issuance of a construction permit the Applicant shall retain a County-approved qualified restoration ecologist or biologist to prepare a Grazing Plan to be administered during the construction and operation of the project. The Grazing Plan shall be submitted to the County of San Benito for review and approval.
- **Mitigation Measure BR-7c.1. Conduct pre-construction surveys for short-nosed kangaroo rat, San Joaquin pocket mouse, and Tulare grasshopper mouse and implementation of avoidance measures.** No more than 30 days prior to commencement of ground disturbing activities the Applicant shall retain a County-approved, qualified biologist to conduct pre-construction surveys for each phase of the project. If occupied habitat for Short-nosed kangaroo rat, San Joaquin pocket mouse, and/or Tulare grasshopper mouse is found it shall be flagged. Impacts to occupied habitat shall be avoided to the extent feasible. If individuals are found within an area proposed for disturbance and can be captured, the biologist will relocate them to a pre-approved

area outside the project area. The candidate locations for species relocation will be identified prior to construction and based on the size and type of habitat present, the potential for negative interactions with resident species, and species range. A final report identifying the number of animals moved, any mortality identified during the relocation event, and the general health of the species shall be completed and submitted to the County on a monthly basis.

- **Mitigation Measure BR-16.2. Minimize impacts of foundation support installations.** The Applicant shall evaluate and implement feasible foundation installation systems to minimize noise and vibration that would affect ground-dwelling wildlife.
- **Mitigation Measure BR-17.1. Conduct pre-construction San Joaquin antelope squirrel surveys and implement avoidance measures.** No more than 30 days prior to the commencement of ground disturbance activities the Applicant shall retain a County-approved, qualified biologist to conduct pre-construction surveys for each phase of the project. If present, active San Joaquin antelope squirrel burrows shall be flagged and ground-disturbing activities shall be avoided within a minimum of 50 feet surrounding each active burrow.
- **Mitigation Measure BR-18.1. Conduct focused pre-construction surveys for American badger surveys and implementation of avoidance measures.** No more than 30 days prior to the commencement of construction activities, the Applicant shall retain a County-qualified biologist to conduct pre-construction surveys for American badger within suitable habitat on the project site. If present, occupied badger dens shall be flagged and ground-disturbing activities avoided within 50 feet of the occupied den. Maternity dens shall be avoided during puprearing season (15 February through 1 July) and a minimum 200-foot buffer established.
- **Mitigation Measure BR-22.1. Fence temporary pond to exclude wildlife.** The perimeter of the pond shall be surrounded by a barrier fence (or combination of fencing) designed to keep wildlife species out. The temporary chain link fence shall be tall enough (6 feet) to keep out large mammals, and additional fine material exclusionary fencing shall be buried at least 2 feet, to keep out amphibians, reptiles, and small and medium sized mammals. This mitigation measure will be effective because the barrier methods employed will reduce wildlife exposure.
- **Mitigation Measure AQ-1.1. Reduce fugitive dust.** This measure provides guidance on how to minimize nuisance impacts and to significantly reduce fugitive dust emissions. It specifies measures to be shown on grading and building plans.

The USACE does not have the authority to implement mitigation measures with the exception of those directly related to a permitting action, water quality certification, or biological opinion. However, the referenced measures are standard mitigations that would likely be implemented either through the conditional use permit or other permit required to construct a solar project. These measures could be refined by Kings and Fresno Counties, CDFW, and USFWS, who would issue the required conditions for regulatory approval. These conditions would further reduce impacts from construction. With the implementation of these measures, potential impacts from construction would be less than significant.

Operational and Maintenance Activities

Waters of the U.S. and other aquatic resources. Operational and maintenance activities may have the potential to directly or indirectly impact waters of the U.S., including wetlands if present. Direct impacts would be similar to those described under operational and maintenance activities for Alternative A. Indirect impacts would be similar to those described under operational and maintenance activities for the no action (no permit) alternative. Specific BMPs and measures have not been developed for this alternative. However, to reduce potential impacts from operation and maintenance activities under Alternative C to less than significant, the same measures recommended under construction for Alternative C are recommended. With incorporation of these measures, it is expected that potential impacts to waters of the U.S. from operation and maintenance activities of a solar facility on the Westlands CREZ would be less than significant.

Vegetation and sensitive habitats. Operational and maintenance activities may have the potential to directly and indirectly impact vegetation and sensitive habitats, if present. Impacts would be similar to those described under operation and maintenance activities for the no action (no permit) alternative. Specific BMPs and measures have not been developed for this alternative. However, to reduce potential impacts from operational and maintenance activities under Alternative C to less than significant, the same measures recommended under construction for Alternative C are recommended. With incorporation of these measures, it is expected that potential impacts on vegetation and sensitive habitats from operational and maintenance activities of a solar facility on the Westlands CREZ would be less than significant.

Wildlife. Operational and maintenance activities may have the potential to directly and indirectly impact wildlife, including individuals, populations, and habitats. The Westlands CREZ provides low-quality habitat for grassland species such as small mammals, grassland birds, reptiles, and invertebrates. It also provides foraging habitat for bats, raptors, and small mammals. Impacts would be similar to those described under operational and maintenance activities for the no action (no permit) alternative. Specific BMPs and measures have not been

developed for this alternative. However, to reduce potential impacts from operational and maintenance activities under Alternative C to less than significant, the same measures recommended under construction for Alternative C are recommended. With incorporation of these measures, it is expected that potential impacts on wildlife from operational and maintenance activities of a solar facility on the Westlands CREZ would be less than significant.

Special Status Species. Potential direct and indirect effects on special status species could result from operational and maintenance activities, including injury and mortality from vehicle strikes, soil compaction, collision with power lines, or fire ignition. Potential effects would likely be similar to those described for no action (no permit) alternative for special status species, including plants, invertebrates, reptiles and amphibians, birds, and small mammals. Though specific measures to reduce impacts have not been developed for this alternative, incorporation of the measures described under the construction phase for Alternative C for each special status species or group of species would reduce the likelihood of impacts from the operations and maintenance phase of the project to a less than significant level.

3.6.4 Cumulative Impacts

No Action (No Permit) Alternative, Alternative A, and Alternative B

The geographic for the cumulative impacts biological resources analysis for the no action (no permit) alternative and Alternatives A and B includes the Panoche Valley and the larger Ciervo-Panoche region, plus areas of western Fresno and Kings Counties, regions of western Kern County in the San Joaquin Valley, eastern San Luis Obispo County, and northern Santa Barbara County.

The cumulative effects analysis area is characterized by its relative isolation, limited amount of intensive agriculture, and lack of development that supports a wide array of wildlife, including special status species. In the foothills and valleys to the west of the San Joaquin Valley floor, including the Panoche Valley, the primary land use is livestock grazing. Also present is some infrastructure, including road and transmission line rights-of-way, oil and petroleum development, and utility-scale solar development.

The proposed project would result in the loss of 0.122 acre of waters of the U.S. as a result of Alternative A; loss of waters of the U.S. would be slightly greater under Alternative B. No loss of waters of the U.S. would occur under the no action (no permit) alternative. The proposed compensatory mitigation would ensure that there is no net loss of aquatic resources within the 8-digit HUC watershed of the proposed project site. Therefore, there would be no cumulative effects from the loss of waters of the U.S.

The cumulative effects analysis area supports numerous special status species, mainly resulting from its relative isolation, limited amount of intensive agriculture (i.e., row crops), and lack of development. The areas included in this

cumulative analysis contain suitable and occupied habitat for San Joaquin kit fox, giant kangaroo rat, and blunt-nosed leopard lizard. Each of these locations may also support core, critical, or unique populations essential to recovery and long-term survival of these species (USFWS 2010a, 2010b, 2010c, 1998 in San Benito County 2010c).

The Panoche Valley is a regionally important wildlife movement corridor due to the presence of drainages and a floodplain that facilitate wildlife movement. Big game species are not prevalent in the vicinity; however, the corridors support mule deer and cougars, as well as smaller predators, including the endangered San Joaquin kit fox (see the special status species discussion, below).

Natural (i.e., nonagricultural or urban) vegetation in the study area is predominantly nonnative annual grasslands, which are characterized by a suite of nonnative annual grasses and herbs as the dominant species. Native perennial grasses and annual herbs are generally present to a lesser extent. Additional natural vegetation communities found in the study area may include scrublands, alkali sinks, and wetlands, including vernal pools, seasonal wetlands, and freshwater marshes. Vegetation potentially within the study area is described in additional detail in the Recovery Plan for Upland Species of the San Joaquin Valley (USFWS 1998).

There is considerable potential for substantial additional loss of important habitats for wildlife, and large-scale solar development represents a significant potential source of habitat loss. Foreseeable future projects are eighteen utility-scale solar projects, at least seven of which (including the proposed project) are medium- to large-scale projects of between 500 and 3,700 acres (see **Table 3-1**).

Once widespread throughout the San Joaquin Valley and adjacent foothills and valleys, the remaining arid grasslands and scrublands support a unique ecological community. Key special status species are the San Joaquin kit fox, giant kangaroo rat, and blunt-nosed leopard lizard. Habitat features critical to these species are the very low-slope and low-relief landscapes and underground burrows for protection from low and high temperatures, extended dry periods, and predation (San Benito County 2010c).

Continued incremental loss of habitat to smaller-scale land conversion may be as substantial or more substantial in cumulative size because most land is privately held. A substantial portion of existing habitat for wildlife is vulnerable to increasing fragmentation. Conversion of ranchlands to agriculture (such as vineyards) or subdevelopment for housing construction would remove or fragment wildlife habitat in the region (USFWS 2010a) and eliminate special status species from most of their historic ranges on the San Joaquin Valley floor (USFWS 1998). The remaining habitats are highly fragmented, and many are marginal habitats in which these species may not persist during catastrophic events, such as drought or floods. Moreover, natural communities in the

cumulative effects analysis area have been altered permanently by the introduction of nonnative plants, which now dominate many of the remaining undeveloped areas (San Benito County 2010c).

In the portions of the study area that have not been converted to agricultural, industrial, or urban uses, particularly the foothills and valleys to the west of the San Joaquin Valley floor, the primary land use is livestock grazing. However, some infrastructure development, including road and transmission line rights-of-way, oil and petroleum development, and utility-scale solar development, are also present. Such areas as the Panoche Valley have been used for crop production, but this land use is limited in scope. Vegetation in these areas is low lying and sparse and primarily consists of annual nonnative grass species.

The giant kangaroo rat is central to this community and is considered a keystone species in the habitats where it occurs (USFWS 2010b; Goldingay et al. 1997). Their burrows can be locally abundant; they provide critical refuge for blunt-nosed leopard lizards, which use giant kangaroo rat burrows for cover, to avoid predation, and during periods of drought or harsh conditions (Montanucci 1965; Germano and Williams 2005). Each of these species is, in turn, preyed on by San Joaquin kit fox. This species occupies these same low-relief open grasslands and also rely on underground burrows for protection from extreme temperatures and predation. California jewelflower (*Caulanthus californicus*), a federally endangered plant, grows primarily on the burrow systems of the giant kangaroo rat (Cypher 1994).

Because these species are so reliant on open flat grasslands and shallow underground burrows for cover, they are particularly vulnerable to any type of large-scale ground disturbance or large-scale changes in vegetation. This is particularly true in the case of the conversion of grasslands to any type of agriculture or the succession of grasslands to habitats dominated by larger shrubs and trees. The scale at which such land use changes are relevant is directly proportional to the amount and condition of the remaining available habitat. Due to the extent of preceding alteration of habitats used by these species, relatively minor changes within remaining habitat, particularly when considered cumulatively, may have profound and lasting effects.

Historically, giant kangaroo rats may have occupied more than 1.5 million acres throughout its range (Williams 1992), yet currently they are found within less than 5 percent of the historic range (USFWS 2010b). For San Joaquin kit fox, habitat modeling suggests there may still be up to 900,000 acres of highly suitable habitat within the species' range (USFWS 2010a). Even so, it is clear that substantial portions of what is considered suitable habitat are no longer occupied, and the habitat is becoming increasingly fragmented (USFWS 2010a). Likewise, Germano and Williams (1992) and Jennings (1995) estimated that blunt-nosed leopard lizards were restricted to 15 percent of the historic range, and the amount of available and occupied habitat continues to decline.

Projects permitted by the USFWS between 1988 and 2007 have permanently altered over 118,000 acres of kit fox habitat (with an additional 20,000 acres affected by temporary disturbance). These projects have been for large-scale water storage and conveyance, urban development, agriculture, oil and gas development, and other developments (USFWS 2010a). Between 1987 and 2008, the USFWS authorized permanent alteration of more than 6,300 acres and temporary disturbance of nearly 3,000 acres of giant kangaroo rat habitat (USFWS 2010b). During essentially the same period (1987 to 2006), the USFWS permitted projects that resulted in impacts on over 21,000 acres of blunt-nosed lizard habitat (USFWS 2010c). This loss of habitat is substantial, yet it includes only the loss of habitat to large projects that required and received environmental review by federal and state resource agencies.

The Recovery Plan for Upland Species of the San Joaquin Valley (USFWS 1998) is intended to protect, at regional scales, many of the special status species that occur in the Panoche Valley and throughout the remaining range of the species covered by the plan. However, because land in the Panoche Valley is privately held, the primary implementing tool of the recovery plan in this area is the Endangered Species Act. No public land has been acquired in the Panoche Valley, and no land management tools specific to the Panoche Valley have been adopted by federal agencies to achieve the goals of the recovery plan.

There is considerable potential for substantial additional loss of important habitats for special status species; large-scale solar developments currently represent a significant potential source of habitat loss. Foreseeable future projects are 18 utility-scale solar projects, at least seven of which (including the proposed project) are medium- to large-scale projects between 500 and 3,700 acres in size. These would be sited within the known extant range of the giant kangaroo rat, blunt-nosed leopard lizard, and San Joaquin kit fox.

Continued incremental loss of habitat to smaller-scale land conversion is more difficult to quantify and yet may be as substantial or even more substantial. A significant portion of the remaining occupied habitat for these species is on private land and is highly vulnerable to incompatible land use. Although typically smaller in scale, collectively these incompatible land uses may result in significant and often undetermined cumulative effects. For example, over 60 percent of CNDDB records of kit fox list the landowner as "unknown," indicative of sightings on private lands or at best on fragments of public land interspersed among privately held land (USFWS 2010a). This suggests a significant portion of remaining occupied San Joaquin kit fox habitat is vulnerable to incompatible land use and increasing fragmentation.

Conversion of private land for agriculture is still considered to be the most significant threat to the blunt-nosed leopard lizard (USFWS 2010c). USFWS (2010b) no longer considers conversion to agriculture a threat to giant kangaroo rat habitat.

Cessation of grazing, significant changes in grazing regimes, or conversion of rangelands to vineyards in the Panoche Valley would have devastating effects on local populations of kit fox, giant kangaroo rat, and blunt-nosed leopard lizard. Other types of development continue to threaten the habitat for these species on private lands. In Panoche Valley alone there are several ranches for sale as recently as 2008, including nearly 5,000 acres advertised as suitable for housing (USFWS 2010a).

Substantial land conversion resulting from the sale and subdivision of large tracts of land and changing use of private lands continues to be a serious threat to the integrity of habitats for these species. Furthermore, the environmental impacts associated with many of these types of actions may never be fully reviewed under the existing regulatory framework (e.g., disking of grassland habitat, conversion of grazing lands to agriculture, and subdivision of ranches).

In summary, the recovery plan for San Joaquin kit fox, giant kangaroo rat, and blunt-nosed leopard lizard (USFWS 1998) emphasizes the need to protect habitat critical to ensuring the survival of these species. The plan identifies specific locations and tracts of land that are of the highest priority.

Mitigation measures to reduce impacts on wildlife, vegetation, and special status species are described in **Section 3.6.3** and would reduce potential cumulative impacts on these resources.

Facilitating species conservation in the Panoche Valley is the proposed project's conservation strategy, which would result in the permanent conservation of wildlife habitat corridors on the project site. Further, the strategy would acquire over 20,000 acres of off-site habitat, including the Valadeao Ranch Conservation Lands (10,772 acres) and the Silver Creek Ranch Conservation Lands (10,890 acres). This substantial conservation effort would be consistent with conservation efforts set forth in the Recovery Plan for Upland Species of the San Joaquin Valley (USFWS 1998). This conservation strategy, formalized in mitigation measure BR-G.5 (see **Table C-2** for full text), would reduce the proposed project's cumulative contribution to biological resources impacts. It would be combined with the avoidance and minimization strategies formalized in the remaining applicant-proposed measures and mitigation measures required for the proposed project (detailed in **Tables C-1** and **C-2**). For general wildlife and vegetation resources, impacts would be reduced to less than significant following mitigation.

The proposed project's conservation strategy would effectively remove some of the private ownership barriers that have prevented widespread species conservation in the Panoche Valley. This substantial conservation effort would be consistent with conservation efforts set forth in the recovery plan (USFWS 1998).

While the no action (no permit) alternative, Alternative A and Alternative B would provide for an incremental increase in cumulative effects to vegetation, wildlife and special status species, the proposed preservation of 24,176 acres of Valley Floor Conservation Lands, Valadeao Ranch, and Silver Creek Ranch would remove the potential for future habitat loss in the area. Because of the compensatory mitigation, the cumulative impacts of the no action (no permit) alternative, Alternative A, and Alternative B would be less than significant.

Alternative C

The cumulative effects analysis geographic scope for Alternative C includes the western portions of Fresno, Merced, Kings, Tulare, and Kern Counties in the San Joaquin Valley. It also includes the cumulative effects analysis area described for the no action (no permit) alternative and Alternatives A and B, above. The Westlands CREZ region is east of Interstate 5 in western Fresno and Kings Counties, in an area disturbed by intensive agricultural use.

The Westlands CREZ is within portions of Kings and Fresno Counties, within the southern San Joaquin Valley floor. Although most of the land in the Westlands CREZ was until recently under active row crop agriculture, there are limited lands there that appear to contain nonagricultural vegetation; some parcels appear to be at least partially undisturbed (HT Harvey & Associates 2010). The parcels may contain ecological communities resembling those found in the San Joaquin Valley before the widespread conversion of lands for agricultural, industrial, and urban uses. The parcels may provide habitat for wildlife species in the San Joaquin Valley. Due to the presence of major highways, the Westlands CREZ is not likely to serve as a wildlife corridor.

While blunt-nosed leopard lizard and San Joaquin kit fox are still extant within the Westlands CREZ region, giant kangaroo rat is no longer found within this area (USFWS 1998, 2010b), and no cumulative impacts on this species are expected. However, the Westlands CREZ region is in the current extant range of the federally endangered Fresno kangaroo rat (*Dipodomys nitratoides exilis*) and the Tipton kangaroo rat (*D. n. nitratoides*; USFWS 1998). These species provide similar benefits as giant kangaroo rat by providing habitat and a prey base for several additional special status species, including blunt-nosed leopard lizard and San Joaquin kit fox (USFWS 1998). Though these species have not been observed within the Westlands CREZ, no focused biological surveys have been conducted. If these species are observed, a large-scale solar development project would likely cause impacts, which, in combination with impacts of other past, present, and reasonably foreseeable future projects in the range of these species, may be cumulatively significant.

Foreseeable future projects are those described for the no action (no permit) alternative and Alternatives A and B, above. Additional foreseeable future projects in the known extant range of either Fresno or Tipton kangaroo rat are the following utility-scale solar projects:

- The 110 MW Quinto Solar PV Project in Merced County (EMC 2012)
- The 20 MW Blackwell Solar Park Project (County of Kern 2014)
- The 32.5 MW Lost Hills Solar Project (County of Kern 2010) in Kern County

Additional loss of habitat described under those alternatives would be due to the incremental loss of habitat to small-scale land conversion, conversion of private land for agriculture, and subdivision of ranches. These also apply to the reasonably foreseeable future conditions in the cumulative effects analysis area for Alternative C.

No wildlife or special status species have been documented in the Westlands CREZ, though focused surveys have not been conducted. If special status species are present in the portions of the Westlands CREZ where development of a utility-scale solar project would occur, the project would likely cause impacts. These, in combination with impacts of other past, present, and reasonably foreseeable future projects in the range of these species, may be cumulatively significant. Mitigation measures to reduce project impacts on wildlife, vegetation, and special status species described under Alternative C in **Section 3.6.3** would minimize potential cumulatively significant impacts on these resources as well to a less than significant level. Though USACE does not have the authority to implement mitigation measures with the exception of those directly related to a permitting action, water quality certification, or biological opinion, the referenced mitigations are standard mitigations that would likely be implemented either through a conditional use permit or other permit required to construct a solar project, including conditions from the Counties, CDFW, and USFWS, which would likely be issued on regulatory approval.

If special status species are not present in the portions of the Westlands CREZ where development under Alternative C would occur, then development of the project would not contribute to cumulative impacts on those resources.

3.7 Cultural Resources and Tribal Consultation

Cultural resources are prehistoric Native American and historic archaeological sites, historic buildings, structures, objects, districts, sacred sites, traditional cultural properties, and cultural landscapes. Native American sites may include villages, work sites, or trails, with such elements as stone flakes, shell fragments, bones, tools, pottery fragments, arrow points, darkened soil, or patterns in the soil. Historic remains are structures, objects, or antiquities associated with a distinct period of American history.

This section provides an overview of the laws, regulations, and policies that influence the management of cultural resources, cultural resource conditions on

the project site and in the surrounding area, and tribal consultations related to the proposed project.

3.7.1 Regulatory Environment

National Historic Preservation Act

The National Historic Preservation Act of 1966 (NHPA) addresses preservation of historic properties, including historical and archaeological districts, sites, buildings, structures, and objects that are eligible for listing on the National Register of Historic Places (NRHP). Section 106 of the NHPA (54 USC 306108) and its implementing regulations (Title 36 CFR, Part 800, as amended in 1999) require federal agencies to consider the effects of their undertakings, or those they fund or permit, on properties that may be eligible for listing or that are listed in the NRHP.

The regulations implementing Section 106 call for considerable consultation with the SHPO, Native American tribes, and interested members of the public throughout the process. The four principle steps are as follows:

1. Initiate the Section 106 process, including a plan for public involvement (36 CFR, Part 800.3)
2. Identify historic properties, consisting of those resources within an Area of Potential Effect (APE) that are eligible for inclusion in the NRHP (36 CFR, Part 800.4)
3. Assess the effects of the undertaking on historic properties in the APE (36 CFR, Part 800.5)
4. Resolve adverse effects (36 CFR, Part 800.6)

Adverse effects on historic properties often are resolved through preparation of a memorandum of agreement (MOA) or a programmatic agreement developed in consultation between the lead federal agency, the SHPO, Native American tribes, and interested members of the public. The Advisory Council on Historic Preservation (ACHP) is also invited to participate. For the no action (no permit) alternative, Alternative A, and Alternative B, an agreement document is not necessary because no historic properties would be adversely affected. However, cultural resources surveys have not been conducted for the Westlands CREZ area (Alternative C).

The goal of consultation is to identify historic properties potentially affected by the federal undertaking, to assess effects, and to seek ways to avoid, minimize, or mitigate any adverse effects on historic properties. Determining any property's NRHP eligibility follows a criteria-driven evaluation procedure specified at 36 CFR, Part 60.

The significance of a historic property is determined by it being at least 50 years old (unless it is "exceptionally significant"), its context (e.g., its place in history, architecture, archaeology, engineering, and culture), its integrity of location, design, setting, materials, workmanship, feeling and association, and its meeting one or more of the following four criteria:

A. Association with events that have made a significant contribution to the broad patterns of history

B. Association with the lives of persons significant in the past

C. Embodies the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possesses high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction

D. Has yielded, or may be likely to yield, information important in prehistory or history

In addition, a property may be eligible for listing on the NRHP because of its historical importance to a tribe, including traditional religious and cultural importance. A 1992 amendment to the NHPA (Public Law 102-575, 54 USC 300101 et seq.) explicitly directs that properties of traditional religious and cultural importance to an Indian tribe may be determined to be eligible for inclusion on the NRHP. The amendment further states that in carrying out its responsibilities under Section 106, a federal agency would consult with any Indian tribe that attaches religious and cultural significance to such properties.

The proposed project is an undertaking, as defined by 36 CFR § 800.3, and is subject to Section 106 and consideration under other federal requirements.

Executive Order 13175, Consultation and Coordination with Indian Tribal Governments

Executive Order (EO) 13175 was issued by President Bill Clinton on November 6, 2000. It requires federal departments and agencies to consult with Indian tribal governments when considering policies that would impact tribal communities. EO 13175 further reiterated the federal government's previously acknowledged commitment to tribal self-government and limited autonomy. The central provision of EO 13175 is the consultation requirement, as the majority of the order focuses on the imperative of incorporating tribal input into policy decisions.

State of California Code

Administrative Code, Title 14, Section 4307, requires that no person remove, injure, deface, or destroy any object of paleontological, archaeological, or historical interest or value.

Health and Safety Code, Section 7050.5, requires that construction or excavation be stopped near human remains until a coroner determines whether the remains are Native American. The code requires the coroner to contact the Native American Heritage Commission if the remains are Native American. Section 7052 establishes that disturbing Indian cemeteries is a felony.

Health and Safety Code, Section 7051, addresses the removal of human remains from internment and requires a place of storage while awaiting internment or cremation. Intent to sell or to dissect them with malice or wantonness is a public offense punishable by imprisonment in a state prison.

Penal Code, Title 14, Sections 622.5 and 623, establish that it is a misdemeanor offense for any person other than the owner to willfully damage or destroy archaeological or historical features on public or privately owned land.

Public Resources Code, Sections 5097.9 to 5097.991, establish regulations for the protection of Native American religious places, establish the Native American Heritage Commission, establish repatriation of Native American artifacts, and require notification of discovery of Native American human remains to the most likely descendant.

Public Resources Code 5024 and 5025 create the Office of Historic Protection and the State Historical Resources Commission and establish the California Register of Historical Resources (CRHR).

San Benito County General Plan

The San Benito County General Plan identifies protection of archaeological resources and historic structures in its Land Use (LU) and Open Space (OS) policies as follows:

- LU Policy 33—Specific development sites shall avoid, when possible, locating in an environmentally sensitive area (wetlands, erodible soils, important plant and animal communities, archaeological resources).
- OS Policy 50—It is the policy of the County to recognize to integrate architectural styles of new development with existing architecture and to protect existing historic structures.
- OS Policy 51—It is the policy of the County to recognize the value of Native American, archaeological, and paleontological resources.
- OS Policy 52—Mitigation for development proposals where Native American, archaeological, or paleontological resources exist shall be guided by the need to provide equitable resolution for rights of the free exercise of religion, the rights of individual property owners, and the rights of the state and counties to regulate land use.

- OS Policy 53—It is the policy of the County to prohibit unauthorized grading, collection, or degradation of Native American, archaeological, or paleontological resources.

Fresno County General Plan

The Draft Revised General Plan Policy Document (September 2014 version) contains goals, objectives, and policies to preserve historical and cultural resources in Fresno County. Several policies aim to minimize impacts on these resources through mitigation measures, including resource recovery and site surveys (Fresno County 2014a).

Kings County General Plan

The Kings County General Plan contains seven policies directed at identifying and protecting potential cultural resources. The policies mandate best practices and coordination with appropriate entities to protect these resources (Kings County 2010a).

3.7.2 Affected Environment

Power Engineers prepared a cultural overview of the project site, documented in the Cultural Resource Survey for the Panoche Valley Solar Farm Project, San Benito County, California, May 24, 2010 (Power Engineers 2010a). Selections from this overview are shown below. They describe the prehistoric and historical context of the project area and document cultural inventories and findings for the project site.

Geologic Formations

Panoche Valley is bounded on the north by the Aguilas Range, on the south by the foothills of the Griswold Mountains, on the east by ridges forming the Diablo Range, and on the west by the Gabilan Range. Prominent on the southwestern horizon are Buck and Myer Peaks. The topography of the valley floor is relatively level. The site elevation ranges from approximately 1,250 feet above mean sea level toward the southeast to approximately 1,400 feet above mean sea level to the west.

The valley is bordered by hills in all directions. Since its settlement in the late nineteenth century, the area has been used primarily for cattle grazing. Vegetation is low lying and sparse, consisting primarily of annual nonnative grass species used mainly for cattle grazing.

At least three studies in the Panoche and Little Panoche Creek drainages provide information on the nature and extent of landscape change during the last 10,000 years (Holocene; Meyer et al. 2010). Each of these studies demonstrates that extensive periods of alluvial deposition have occurred within the last 2,000 years in these drainages, suggesting a high likelihood for buried archaeological deposits in the project area. However, recent examination of cut banks along Panoche Creek by Far Western Anthropological Research Group, Inc. suggest that buried archaeological deposits, if present, would probably lie

more than four meters beneath the modern floodplain surface, at least in the central portion of the project site (Meyer and Rosenthal 2010).

Based on radiocarbon dates from buried land surfaces (i.e., buried soils), studies by Meyer et al. (2010) and others demonstrate that the modern floodplain along the lower stretch of Little Panoche Creek is less than 2,500 years old.

The great majority of the project area is covered in latest Holocene alluvium. While the exact timing of the local floodplains cannot be determined without further study, the weight of the regional evidence suggests that these landforms developed within the last 2,000 years. Any archaeological deposits at the project site dating older than this are not visible at the current ground surface. Furthermore, since human occupation in Central California is well documented for 8,000 years or more before deposition of the Little Panoche Creek floodplain, there is a high likelihood that buried archaeological deposits from this time span, if present on the project site, are well beneath the modern ground surface.

On May 13, 2010, a geoarchaeologist from Far Western Anthropological Research Group, Inc. (Meyer and Rosenthal 2010) examined soil exposures at the project site. Exposed cut banks along the incised channel of Panoche Creek reveal up to four meters of recent alluvium underlying the current floodplain surface. Floodplain deposition appears to have been relatively rapid and continuous during the late Holocene.

The limited view of floodplain stratigraphy afforded by cut banks along Panoche Creek suggests that if well-developed buried land surfaces are present in the central portion of the project site, they are likely more than four meters below the modern surface (Rosenthal 2010). However, there is a possibility that subsurface archaeological resources exist less than four meters below the ground surface.

A review of the cultural resources report and geoarchaeological studies indicates that several studies in Central California have suggested that 200 meters from a water course is an important threshold within which the probability of encountering a prehistoric site is highest (Allen et al. 1999, Meyer and Rosenthal 2010, Pilgram 1987:44-47, and Rosenthal and Meyer 2004 *in* Power Engineers 2010a, Appendix E, Geoarcheology [Rosenthal 2010]). Based on this, if there are buried prehistoric archaeological deposits in the Panoche Valley, they would most likely be less than 200 meters from modern streams and found in strata closer to the surface.

While initial studies suggest that there is limited potential for buried resources in the central portion of the project site within the horizons that would be impacted by project activities, the potential for subsurface archaeological resources to be located throughout the remainder of the proposed project site

still exists due to limited information on the pattern of occupation in the Panoche Valley and Native Americans use areas.

Human Occupation

The lower San Joaquin Valley remains one of the least known archaeological areas in California (Moratto 1984). This statement would apply just as well to the Panoche Valley. The prehistory of the San Joaquin Valley has been divided into four periods: Paleo-Indian (ca. 12,000-5,500 BP), Early Period (ca. 5,500-2,600 BP), Middle Period (ca. 2,600-1,000 BP), and Late Period (ca. 700-200 BP).

In terms of known archaeological sites, the Early Period is the least understood, although the Middle Period is only marginally better represented. Sites of the Late Period are more common in the archaeological record, and they yield more abundant artifacts than sites of the earlier periods. Because the Late Period ends approximately when the Europeans began arriving in California, the early historical record provides information on early historic California Native Americans. This information is useful for interpreting archaeological sites of the Late Period. The reconstruction of the cultures of this period is both more robust and better established than for the cultures of the Early and Middle Periods.

Paleo-Indian

Generally the earliest accepted evidence for human occupation of the North American continent, dating from around 12,000 years ago, is the occurrence of large, skillfully made fluted spear points that are sometimes found in association with the remains of large game animals. This occupation is known archaeologically as the Paleo-Indian Period. During this period, inhabitants exploited now-extinct giant mammals such as *Bison antiquus* and the woolly mammoth. The Paleo-Indian Period coincided with the end of the last major North American glaciation, known geologically as the Late Pleistocene, and with the beginning of the Holocene.

Examples of fluted points have been recovered from the shores of Tulare Lake, in association with the bones of extinct animals, such as horse, bison, giant sloth, and mammoth/mastodon. This indicates an occupation date for Tulare Lake before 11,000 BP (Chartkoff and Chartkoff 1984; Moratto 1984; Rondeau et al. 2007; Wallace 1978).

When the glaciers of the Pleistocene era retreated and the warmer and drier climate of the Holocene began, the once plentiful inland lakes began to dry up, and the larger mammals became extinct (Moratto 1984). As a result, California's late Paleo-Indian inhabitants adopted more generalized hunter-gatherer subsistence practices, rather than focusing on big game, and lived near water sources where food and plant resources were more readily available.

Archaeologists have identified a region-wide hunting tradition in central and southern California for the Early Holocene period, known as the Western

Pluvial Lakes Tradition. The Western Pluvial Lakes Tradition is represented at Tulare Lake, but according to Moratto, it is more than likely that most of the archaeological evidence of Central Valley habitation before ca. 6,000-7,000 BP lies deeply buried (Moratto 1984).

Early Period (ca. 5,500-2,600 BP)

Occupation during the Early Period is characterized mainly by isolated finds of stemmed points, stone crescents, and other distinctive artifacts found commonly along the ancient shoreline of Tulare Lake (Rosenthal et al. 2007). The common occurrence of large, reworked projectile points has led archaeologists to interpret these findings as the early inhabitants hunting such ungulates as deer or pronghorn. Milling implements are virtually absent from sites in the valley floors; however, they are more common along the foothills of the Sierra Nevada and Coast Range (Rosenthal et al. 2007). Exploitation of nut crops was likely an important resource.

Middle Period (2,600-1,000 BP)

For the most part, the fluctuating climate and environment stabilized after the beginning of the Middle Period. There is evidence of two major environmental adaptations during the Middle Period: one in the foothills and the other on the valley floor (Rosenthal et al. 2007). The valley occupation is characterized by a distinct adaptation pattern along river corridors, with organized subsistence practices and increased residential stability. Settlements are also characterized by unique burial types and a sophisticated material culture as seen in grave offerings (Rosenthal et al. 2007).

Sites occupied during this period in the lower San Joaquin Valley contain more groundstone milling artifacts, such as mortars and pestles, suggesting a more intensive subsistence practice and greater residential stability, with an increased use of plant food sources, such as acorn and pine nuts. Fishing was also becoming a more important subsistence strategy, with the presence of gorge hooks, composite bone hooks, and spears and large quantities of fish remains (Rosenthal et al. 2007). Faunal assemblages also indicate a reliance on elk, mule deer, pronghorn, rabbits, water fowl, and other birds, as well as rodents (Rosenthal et al. 2007).

Early types of twisted cordage and twined basketry also developed during the Middle Period. Some simple types of pottery and other fired clay objects have also been identified. Evidence of trade at Middle Period sites includes obsidian from the eastern side of the Sierra Nevada and snail shell beads from the coast (Rosenthal et al. 2007).

Late Period (ca. 700-300 BP)

Archaeological evidence shows that significant changes occurred from the Middle to the Late Period, with the onset of the Late Holocene environmental conditions. The climate became cooler and wetter, indicating a more stable environment (Rosenthal et al. 2007). These conditions encouraged increased

settlement of the area, with more complex sociopolitical groups represented in contrasting burial practices and artifact types, for example.

In the Late Period, there is evidence that populations expanded and villages increased in numbers in the southern and western parts of the San Joaquin Valley after about 500 BC (Moratto 1984). Village settlements became more substantial, with some including domestic and processing features (Rosenthal et al. 2007). Other important differences are groundstone artifacts used for increased acorn and pine nut processing, bow-and-arrow technology, and large, more substantial occupation sites representing permanent villages with large, semisubterranean communal structures (Hatoff et al. 2006).

Many specialized technologies were developed during the Late Period, including the manufacture of freshwater and marine shell ornaments, bone and steatite ornaments, new types of bone tools, and notched cobbles possibly associated with fishing. Obsidian procurement from the eastern side of the Sierra Nevada appeared to be a very important activity during the Late Period, with obsidian from many different quarries represented in the archaeological record (Rosenthal et al. 2007).

Local Chronological Sequence

The chronological sequence for the Lower San Joaquin Valley is as follows (Moratto 1984):

- The Positas Complex (ca. 5,200-4,500 BP)
- The Pacheco Complex (ca. 4,500-2,500 BP)
- The Gonzaga Complex (ca. 1,000-450 BP)
- The Panoche Complex (450-200 BP)

<u>Positas Complex (ca. 4,200-4,500 BP)</u>. The earliest period in the western San Joaquin Valley sequence is the Positas Complex (ca. 5,200-4,500 BP), which is typically characterized by small, shaped mortars, short cylindrical pestles, milling stones, and spire-lopped snail shell beads. The Early Period Positas Complex has not been as well accepted as the other phases in the sequence due to troublesome radiocarbon dates (Moratto 1984). Dates of 2,400 BP and 645 BP from the Positas component at the Grayson site, for example, are more consistent with the Middle and Late Periods.

<u>Pacheco Complex (ca. 4,500-1,000 BP)</u>. The Pacheco Complex includes two phases: Pacheco A and Pacheco B, with Pacheco B earlier than Pacheco A. Pacheco B (ca. 4,500-2,500 BP) is not well documented but typically includes leaf-shaped bifaces; large, stemmed and side-notched points; rectangular abalone ornaments; thick rectangular snail shell beads; and milling stones, mortars, and pestles (Moratto 1984). Pacheco A (2,500-1,000 BP) is commonly represented by burials associated with distinctive snail and clam shell bead types; mortars,

pestles, milling slabs, and hand stones; and a variety of projectile points. The earliest evidence of architecture appears in this complex in the form of small circular houses about 3 to 3.5 meters in diameter.

Gonzaga Complex (ca. 1,000-450 BP). The Gonzaga Complex is marked by extended and flexed burials; bowl mortars; shaped pestles; relatively rare square- and taper-stemmed projectile points; abalone ornaments, worked snail shell beads; a variety of bone artifacts; distinctive spool-shaped, polished stone ear ornaments; and cylindrical plugs. Milling equipment includes both mortars and milling slabs. Also during this complex, house pits increase up to 6 to 9 meters in diameter, and some house pits contain evidence of center posts.

Panoche Complex (ca. 450-200 BP). The protohistoric Panoche Complex succeeds the Gonzaga Complex. Typically, archaeological deposits characteristic of the Panoche Complex are identified by large circular structures up to 23 meters in diameter, and smaller dwellings 9 to 15 meters in diameter. Mortuary practices were flexed burials, as well as primary and secondary cremations. Artifacts typical of this complex are small side-notched arrow points and a varied assortment of shell and groundstone artifacts. Beads recovered from Panoche Complex deposits are clamshell disk, abalone disk, and snail shell-lipped, side-ground, and rough disk beads.

Ethnography

The Northern Valley Yokuts and the Costanoans traditionally inhabited what is now the project area. During the eighteenth and nineteenth centuries, a variety of factors affected the health and cultural stability of the native populations in the San Joaquin Valley. These included Spanish missionaries, disease, and the later arrival of settlers and miners to their traditional territories.

Initially, the coastal ranges served as a natural barrier from coastal Spanish missions. However, by the early nineteenth century, Spanish missionaries began to explore the interior valley searching for fugitive Native American neophytes who had fled the missions and to look for new converts. Many native populations in the valley were relocated to the missions of San Juan Bautista, San José, Santa Clara, Soledad, and San Antonio. Once in the missions, native peoples were forced into hard labor and suffered from malnutrition. In addition, they suffered a major blow to traditional social relations as a result of the isolation and oppression (Levy 1978).

The Panoche Valley was named for a sugar-like substance produced by the groups who occupied the valley and utilized its resources. Mr. Edward Ketchum, Tribal Historian for the Amah Mutsun Tribal Band, provided comments to the USACE, requesting that a plant traditionally harvested in the Panoche Valley, known as *Panoche* for which the valley was named, be investigated because of its significance to the Panoche Valley. Based on coordination with the Amah Mutsun Tribal Band and historical research, "panoche" was thought to be aphid excrement (also known commonly as 'honeydew'), which collected and dried on the leaves of

the reeds and canes the aphids infested. The Amah Mutsun Tribal Band noted that the plant most likely collected was the common reed, *phragmites australis*. The reed was harvested by Native Americans by cutting the leaves and canes and beating them on hides until the panoche sugar detached from the leaves and canes (Johnson 1856). As noted by the Amah Mutsun Tribal Band, the panoche was traded to neighboring groups; the Johnson article also notes that local settlers and immigrants used the panoche as a sugar substitute. The USACE is continuing to work with the tribe and applicant to further evaluate the tribe's concerns.

Northern Valley Yokuts

The project site is within the boundaries of the Northern Valley Yokuts territory at the north end of the San Joaquin Valley and eastern boundary of San Benito County. Yokuts is a term applied to a large and diverse group of native people inhabiting the San Joaquin Valley and Sierra Nevada foothills of Central California. The Northern Valley Yokuts occupied an area straddling the San Joaquin River, south of the Mokelumne River, east of the Diablo Range, and north of the sharp bend that the San Joaquin River takes to the northeast (Wallace 1978). Ethnographic accounts of the early historic Northern Valley Yokuts are sparse and are supplemented with archaeological evidence.

At the time of European contact, the Northern Valley Yokuts built their villages on mounds along river banks to avoid the spring floods that resulted from heavy Sierra snow melts. Living beside rivers and streams provided access to the plentiful river perch, Sacramento pike, salmon, and sturgeon that inhabited the waterways. Hunting provided geese, ducks, antelope, elk, deer, and brown bear. The surrounding woodland, grasslands, and marshes provided acorns, seeds, and tule roots (Wallace 1978).

For the Northern Valley Yokuts, the San Joaquin River and its main tributaries served as a lifeline to the valley as a source of fish and game, and as an environment favorable to another important food source, the valley oak (*Quercus lobata*). Acorns, in addition to other types of nuts, seeds, fruits, and roots, were also important subsistence items (Hatoff et al. 2006; Wallace 1978).

The Northern Valley Yokuts' tool kit included bone harpoon tips for fishing, stone sinkers for nets, projectile points for hunting, and mortars, pestles, scrapers, and knives for processing food. Marine shells, traded from coastal tribes, were used for necklaces and other adornments. The Yokuts used rafts made of tule reeds to navigate the waterways for fishing and hunting water fowl. They also manufactured intricate baskets for gathering, storing, cooking, eating, winnowing, and transporting food materials (Wallace 1978).

Each tribal village was headed by a chief, and each village averaged around 300 people. Family houses were round or oval, with sunken floors, conically shaped pole-frame structures, and woven tule mat coverings. Each village also had a lodge for dances and other community functions, as well as a sweathouse (Hatoff et al. 2006; Kroeber 1976; Wallace 1978).

According to early accounts, the Yokuts traded with neighboring tribes. The Northern Valley Yokuts' trade network extended to the Costanoans in the Monterey Bay region, the Salinans in the North Coast Ranges, and, in particular, the Sierra Miwok to the east (Wallace 1978).

Ethnographic accounts indicate that as many as 63 groups may have inhabited the Northern Valley Yokuts' territory (Latta 1999). According to Latta's map of the region (Latta 1999), the Kahwatchwah occupied the area surrounding Little Panoche Creek and the modern towns of Firebaugh, Los Banos, and Ingomar. A village, Kahtomah, was just north of Los Banos on the south bank of Los Banos Creek. However, many of the Kahtomah villagers were taken to Mission San Juan Bautista (Hatoff et al. 2006; Latta 1999).

Wallace describes a similar distribution of ethnographic groups in the Northern Valley Yokuts' territory. However, Wallace (1978) identifies the Nopchinchi, rather than the Kahwatchwah, as the group occupying the area west of the San Joaquin River near the extant towns of Firebaugh, Los Banos, and Ingomar.

Native populations in the San Joaquin Valley also declined as a result of a malaria epidemic in the summer of 1833 and the arrival of American miners and settlers in the late 1840s. Representatives of three Northern Valley Yokuts tribes signed land cession treaties in exchange for large reservations. However, these reservations never materialized, and the treaties were never ratified by the United States Senate (Hatoff et al. 2006; Wallace 1978).

Costanoans

The Costanoans inhabited west-central California, primarily living along the coastline (Kroeber 1976). The Costanoan culture consists of eight languages, including two subgroups, the Chalone and Mutsun (Levy 1978). The groups speaking these languages were located inland and frequently visited an area known as the Pinnacles, which is to the west of the project site in the San Benito Valley (NPS 2006). Subgroup populations ranged between 50 and 500 people (Levy 1978). The Chalone lived west of Pinnacles in the Salinas River Valley, and the Mutsun lived to the north and east in the San Juan Bautista area and along the San Benito River. The Pinnacles become extremely hot (over 100 degrees F) and dry during the summer. Because of this, the Chalone and Mutsun likely did not live at Pinnacles year-round.

The typical structures of the Costanoan were domed, with tule, grass, or other plant material thatching bound to poles (Levy 1978).

Acorns were a major food source for the Chalone and Mutsun. After the acorns were gathered and transported in baskets, some were then ground into meal and the rest were stored in granaries. Rabbits, deer, elk, antelope, and possibly fish from the Salinas Valley were also major food sources (Levy 1978). These groups also gathered grass seeds and the leafy parts of plants and plant bulbs

during the spring, leaving the area during the summer, and returning in the fall to gather acorns.

The Costanoans made boats called tule balsas for fishing and duck hunting. Bows and arrows were manufactured of local hardwood materials and local stone. Cordage nets were also used to hunt quail, ducks, and rabbits. Willow, rush, and tule were common materials used to make basketry. Metates (groundstones), mortars, and pestles were used to grind acorns, nuts, and seeds (Levy 1978).

Historical Context

Three historical periods are generally recognized in California: the Spanish exploration and settlement of California during the eighteenth and nineteenth centuries (Spanish Period, 1769 to 1821), the brief tenure of Mexico (Mexican Period, 1821 to 1848), and the subsequent American takeover and annexation of California (American Period, 1848 to present).

The aridity of most of the San Joaquin Valley made it unsuitable for the kind of agriculture Europeans and later Americans practiced. As a result, these groups did not occur on any significant scale in the project area until the early twentieth century, when irrigation systems were developed (Herbert et al. 2006).

Spanish Period (1769 to 1821)

In 1769, Spain sought to reinforce its claims to California by establishing a series of missions to pacify and Christianize the Indians of the territory. One of these missions was in San Juan Bautista, in what is now San Benito County. Expeditions in the early nineteenth century, sent from the coastal missions to the interior to find suitable locations for new missions, were met with resistance from Native Americans. In addition, one explorer-missionary's 1806 journal described the interior as a dry, miserable place, unsuitable for settlement (Smith 2004). Ultimately, sporadic Spanish and later Mexican, Russian, and American explorations in the Great Valley fed international tensions but resulted in no Euro-American settlement during the Spanish Period (Panoche Energy Center 2006).

Mexican Period (1821 to 1848)

After Mexico gained independence from Spain in 1821, Alta California became one of the provinces of the new Republic of Mexico. Starting in 1834, the government secularized the missions, and the Mexican governors of Alta California began issuing large rancho grants of former mission lands to Mexican citizens. The earliest nonnative settlers of San Benito County's mountain ranges, foothills, and valleys were Mexican citizens. In 1844, Mexican Governor Manuel Micheltorena granted a 22,000-acre tract of land in this region called Panoche de San Juan y los Carrisalitos to Julian Ursua and Pedro Romero. However, this tract did not include land in the project area.

American Period (1848 to the Present)

Panoche de San Juan y los Carrisalitos passed through a number of hands until the late 1870s, when Daniel Hernandez acquired the land for use as a sheep range. Large numbers of Euro-Americans began settling in the San Joaquin Valley in the 1860s from the Coast Range to Fresno City, establishing large ranching enterprises that covered tens of thousands of acres. With the enactment of federal homestead laws, settlers began to obtain title to land in Panoche Valley on a first-come/first-served basis. Among this group were C. F. and William E. Keith, A. M. Thompson, W. L. Stowell, and Stephen H. Langford.

Similar squatters' rights were afforded to settlers of the valley during the following decade. A further complication was that in the 1870s, the Southern Pacific Railroad planned to build a line from Hollister on the west to Huron in the San Joaquin Valley. The railroad would have run through Panoche Valley, following a stage route. Settlers, mostly alfalfa farmers, claimed portions of the railroad land with the understanding that if construction failed (which it did), the land would be returned to the public domain and they would be allowed to homestead. Some sections were set aside for the State of California (school allotments) in the 1860s and 1870s, but most patents to individuals occurred in the 1890s and early twentieth century.

In 1887, Bernardo Yturiarte, a rancher of Basque descent, arrived in Panoche Valley to enter the sheep herding business. He bought a small house, four feed troughs, and a corral on land in the project area. By 1915, he had become one of the wealthiest ranchers in the county. In addition to being locally known as the sheep king, he had the largest flock of turkeys in the state, and his land was reported to have an annual yield of 4,000 sacks of high-grade grain.

In 1897, Walter J. Curtner of San Jose acquired large holdings in the lower and middle section of the valley, also in the project boundary. For many years, Pete Bourdet and Bernardo Rey rented the Curtner ranch, where they ran several bands of sheep (Frusetta 1991).

In 1871, Augustus Snyder opened the valley's first saloon-store at Panoche Station at the western end of the valley on the road to Paicines. The German storekeeper sold the business in 1874 to Isaac Myer, for whom Myer Peak on the valley's southwestern horizon was named.

In 1891, Panoche Station was renamed Llanada and the settlement name of Panoche was officially transferred to a saloon hall and store a few miles to the east, near the home of George Berg. He and his brother Dan came to Panoche from Merced County in the late 1880s as investors in the mineral development of the area.

As the valley developed during the first half of the twentieth century, two additional saloon-stores opened—one in the 1930s on Tom Norton's ranch, one-mile north of Panoche Elementary School, and the other in the 1940s by

George and Ruth Cucal Valdez, on the northwest side of the valley (Frusetta 1991; Iddings 2008).

Panoche Elementary School was originally about one mile northwest of its current location and was relocated in 1880. Panoche's post office was established at Panoche Station in 1870 in what was then Fresno County. The office's name was changed to Llanada in 1891 when Panoche was moved. The new village of Panoche also had a post office, in addition to being the access point to the telephone system (which was owned by Berg) of that section of the county (Frusetta 1991). San Benito County was established in 1874 from portions of Monterey, Merced, and Fresno Counties.

In 1913, 1,600 acres of W. J. Curtner's land in the center of the valley floor were purchased by W. W. Giddings, a banker from Stanislaus County, to be used as stock range. The Evening Free Lance, a San Benito County newspaper, reported that two fine wells and two windmills furnish an abundance of water for the cattle and sheep now pastured there and make a supply available for irrigation whenever the owners may decide to cultivate the land. Giddings said he purchased the property because of the valuable assets of Panoche Valley, namely its fertile land and the big stream of water carried by Panoche Creek.

Panoche Road, as West Panoche Road was originally called, was established in the mid-1870s and ran southwest from the area of present-day White's Bridge Ferry to the mountains. It was designated a county road in 1892 and a principal California Automobile Association route in 1914. By 1922, it was the only oiled road in the area.

Panoche Valley has always been sparsely inhabited and has had few buildings. Since the mid-1800s, the land has been used almost exclusively for cattle, sheep, and horse grazing and associated cultivation of forage crops, primarily alfalfa.

According to evidence gleaned from historic maps and aerial photographs of the area, dating from throughout the twentieth century, early landowners established clusters of buildings and structures related to ranching and farming. There were fewer than ten clusters in the valley. Each cluster typically had a stand of trees and may have included residences, barns, sheds, water tanks, wells, shelters, corrals, troughs, and related outbuildings. A number of these clusters of buildings and structures have been demolished over the years, and at other clusters buildings have been destroyed and replaced. Evidence suggests that few, if any, new clusters have formed since the early 1900s.

Most often, ranchers grazed their herds until it was time to move them elsewhere. Similarly, landowners generally did not reside in the valley, which helps explain the scanty residential and commercial development [Frusetta 1991; Iddings 2008; US Department of Agriculture (USDA) aerial photographs 1939, 1949, 1967, and 1980; USGS Panoche 7.5-minute quadrangle 1969; USGS

Llanada, 7.5-minute quadrangle 1969; USGS Panoche 30-minute quadrangle 1913].

Proposed Project

Cultural Resource Inventories

Records Search

On June 29, 2009, Tom Origer & Associates performed a record search for land within one mile of the project site as it was defined at that time. The record search included examining site forms, reports, and maps at the Northwest Information Center at Sonoma State University to locate previously recorded sites and previous cultural resource surveys in the vicinity. In addition, they examined the 1871 Government Land Office plats for Township 14 South Range 10 East, Township 15 South Range 10 East, and Township 15 South Range 11 East; the 1913 USGS 30-minute Panoche quadrangle; the 1944 USGS 15-minute Panoche Valley quadrangle; and the 1956 USGS 15-minute Panoche quadrangle. This was to identify structures and features that once existed in the project area. In addition, Power Engineers examined BLM Government Land Office land patents.

JRP Historical 1,794 performed archival research for the project. This included research for developing a general historic context for the project location, as well as resource-specific research to confirm dates of construction and detailed physical histories. Research was conducted at the following locations:

- California State Archives and Library
- Shields Library (University of California, Davis)
- San Benito County Historical Society
- San Benito County Free Library
- San Benito County Assessor's office
- Science and Engineering Library (University of California, Santa Cruz)

In addition, JRP Historical 1,794 reviewed the results of a California Historical Resources Information System records search; California Historical Landmarks and Points of Interest publications and updates; National Register of Historic Places; and California Register of Historical Resources (Herbert and Rainka 2010).

The records search by Tom Origer & Associates did not identify any previous intensive cultural resource inventories in the project area but did find that one survey had been conducted within one mile of the proposed project boundaries. This was a survey of 60 acres in the hills 0.25 mile north of the project site. No cultural resources were identified (Power Engineers 2010a).

Archaeological Survey

The field investigations were an intensive pedestrian cultural resource survey of the entire 4,717 acres in the project boundaries (the size of the project at that time). The intensive survey was performed by six to eight archaeologists walking parallel transects at 15- to 20-meter intervals across the entire project area. The survey involved only surface inspection. No shovel test pits were excavated because soil data from the valley indicated that there has been considerable sedimentation over the past 2,000 years that would have buried prehistoric sites at depths below feasible hand excavation in the central portion of the project area.

Power Engineer's archaeologists examined subsurface exposures in erosional cut banks, road cuts, rodent burrow entrances, and ant hills for artifacts or evidence of buried cultural deposits. The only artifacts observed in subsurface exposures dated to the twentieth century. The survey area is used primarily for cattle grazing and is covered almost entirely in nonnative grasses. Surface visibility was variable but generally ranged from poor to moderate.

When cultural material was encountered, the archaeologists walked closely spaced transects and marked artifacts with pin flags to define the extent of the cultural material on the surface and to document artifact frequency and distribution. No artifacts were collected or removed from the field. Sites, structures, features, and isolated finds were photographed digitally in color. Only resources that appeared to be more than 45 years old were recorded.

For archaeological sites, the site datum and boundaries were mapped using a Trimble Geo XT Global Positioning System unit and are provided in North American Datum 83 CONUS datum, and Universal Transverse Mercator projection. The locations of isolated finds were recorded in the same way. Sites and isolated finds were recorded on the appropriate California SHPO DPR 523 inventory forms.

During part of the survey, Power Engineers was assisted by a geoarchaeologist from Far Western Anthropological Research Group, Inc. Representatives of the Amah Mutsun Tribal Band were present on the first day of the survey and again two days after completion of the survey.

As a result of the records search, archival research, and intensive cultural resources survey of the project site, Power Engineers' archaeologists and JRP Historical 1,794's historians recorded five archaeological/historical resources and 19 isolated finds (Power Engineers 2010a).

Survey Results

The Panoche Valley Solar Project survey identified five archaeological or historical resources (temporary numbers Panoche-01 through Panoche-05) and 19 isolated finds (temporary numbers Iso-01 through Iso-19; see **Table 3-18**).

Table 3-18
Cultural Resources Survey Results

Temporary Number	Description	Age	National Register of Historic Places Determination
Panoche-01	Remains of barn; some portions still standing	Historic (early-mid 20th c.)	Ineligible
Panoche-02	Concrete water diversion structure	Historic (20th c.)	Ineligible
Panoche-03	Remains of corral, foundations, wells, and troughs	Historic (20th c.)	Ineligible
Panoche-04	House, water tank, outbuildings, corrals	Historic (early-late 20th c.)	Ineligible
Panoche-05	Transmission line	Historic (late 20th c.)	Ineligible
Iso-01	1 brown glass screw top bottle; 1 clear glass ketchup bottle	Historic (mid-20th c.)	Ineligible
Iso-02	1 clear glass 4/5 quart bottle	Historic (mid-20th c.)	Ineligible
Iso-03	1 crushed tobacco tin	Historic (early-mid-20th c.)	Ineligible
Iso-04	Plow parts, brick fragments, old fence line	Historic (early-mid-20th c.)	Ineligible
Iso-05	1 crushed solder dot can with crimped seam	Historic (20th c.)	Ineligible
Iso-06	1 amethyst glass bottle, cork seal	Historic (early 20th c.)	Ineligible
Iso-07	1 former stock pond, scrap metal, 1 black glass bottle base	Historic (20th c.)	Ineligible
Iso-08	1 former stock pond	Historic (20th c.)	Ineligible
Iso-09	1 metal bracket plate for farm machinery	Historic (20th c.)	Ineligible
Iso-10	1 pile of about 15 cobbles and boulders	Historic (20th c.)	Ineligible
Iso-11	1 clear glass condiment bottle with screw top	Historic (early-mid 20th c.)	Ineligible
Iso-12	1 broken ketchup bottle	Historic (mid-20th c.)	Ineligible
Iso-13	Automobile frame/chassis including engine mounts, 3 fenders, headlight mounts, and steering column	Historic (early-mid 20th c.)	Ineligible
Iso-14	Concrete and plywood wall for water diversion, 39 feet 8 inches long, 5 feet high, 12.125 inches thick; inscribed with date	Historic (1938)	Ineligible
Iso-15	1 California motor vehicle license plate	Historic (1940)	Ineligible

Table 3-18
Cultural Resources Survey Results

Temporary Number	Description	Age	National Register of Historic Places Determination
Iso-16	Refuse eroding from bank of natural drainage; 7 glass bottles and fragments (medicine bottle, milk or juice bottle), 4 can fragments	Historic (mid-20th c.)	Ineligible
Iso-17	1 broken, clear glass bottle with beveled sides	Historic (20th c.)	Ineligible
Iso-18	Former stock pond, containing 8 large cobbles	Historic (20th c.)	Ineligible
Iso-19	Coca-Cola cooler panel	Historic (20th c.)	Ineligible

Source: Power Engineers 2010a

All 24 cultural resources were historic; no Native American cultural resources were found during the surface survey.

The study authors concluded that none of the individual resources appeared to be significant in the context of Panoche Valley, specifically in relation to the area's agricultural (ranching and farming) history or the history of electrical transmission in California (NRHP Criterion A). Similarly, none of these resources appeared to be associated with any historically significant individuals in this context (NRHP Criterion B). Furthermore, those resources that are applicable do not demonstrate distinctive characteristics of a type, period, or method of construction (NRHP Criterion C). While indicative of general rural architectural and engineering themes, the buildings, structures, and objects are not significant examples of their respective types. Rather, each illustrates common or standard design and construction practices reflective of its particular period and means of construction. None of the five resources contain archaeological evidence that would suggest that the resource would yield information important for understanding the development of agriculture and ranching in the Panoche Valley (NRHP Criterion D). In rare instances, buildings themselves can serve as sources of important information about historic construction materials or technologies; however, these types of rural construction are otherwise well documented, and the buildings do not appear to be principal sources of information in this regard.

For NRHP determinations, the study authors noted that none of the properties are eligible for listing on the NRHP under Criteria A through D. However, as the USACE has not yet initiated consultation with the State Historic Preservation Office, these eligibility determinations are preliminary. Only after receiving SHPO concurrence regarding the eligibility of the findings will the determinations be made final.

Historical Landscape Study

The study evaluated the historical landscape of the Panoche Valley and concluded that it did not qualify as a Rural Historic Landscape. This type of landscape, like other potential NRHP resources, must exhibit historical significance under at least one of the NRHP's criteria.

The ranching and farming history of Panoche Valley does not appear to be significant in the greater context of San Benito County and the State of California (NRHP Criterion A); research did not reveal individuals responsible for the development of Panoche Valley to be historically significant in their particular field of endeavor (Criterion B); the built environment, as a whole, does not demonstrate distinctive characteristics of a type, period, or method of planning, construction, or engineering but rather simply fits the rural landscape (NRHP Criterion C); and Panoche Valley does not appear to be a likely principal source of information important to history that is otherwise undocumented (NRHP Criterion D).

Panoche Valley is a rural landscape similar to many in the coastal mountains of California, where livestock formed the basis of the agricultural economy and settlement remained sparse.

In addition, the Panoche Valley has not sufficiently retained integrity to a discrete period of significance. A number of ranch complexes, the principal historic resource in the valley, have been completely or partially demolished. While the valley has largely retained its transportation pattern, based primarily on the public land survey's boundaries, the originally unimproved Panoche and Little Panoche Roads are now asphalt-paved.

JRP Historical 1,794 (Herbert and Rainka 2010) concluded that Panoche Valley, if evaluated as a rural historic landscape, does not appear to have historical significance, and many of its component parts lack integrity. Historic rural landscapes are defined by the grouping of their various resources, hence their usual classification as districts.

While the basic relationship and arrangement between Panoche Valley's resources—the land, creeks, roads, buildings, structures, and objects—has changed little since the onset of Euro-American activity, the combined features of the valley possess no discernible potential for significance. The reason Panoche Valley has been used exclusively for grazing and cultivating is because those are the highest and best uses of the land. The shaping of this landscape, therefore, is not unique and is not significantly representative of its time and place; rather, it is typical of the dry valleys of the Coastal Range of California.

PG&E Telecommunications Upgrades

Cultural Resource Inventories

Natural Investigations Company, LLC conducted a literature search for the PG&E area of potential effect at the Northwest Information Center on September 15, 2014, and at the Southern San Joaquin Valley Information Center on September 16, 2014. The area of potential effect included approximately 500 discontinuous acres along 17 miles of the Moss Landing-Panoche 230-kV transmission line corridor and an additional 23 acres around the off-site microwave tower site on Call Mountain (where it was thought a new tower would be required).

Natural Investigations Company, LLC conducted an intensive pedestrian cultural resource survey of the discontinuous area of potential effect between September 15 and 18, 2014. The 34 proposed work areas along the transmission line corridor were divided into 13 study areas, numbered from west to east. Approximately 471 acres were surveyed, most of which with transects spaced at intervals no greater than 15 meters.

Due to lack of access, the 13 study areas did not include the 23-acre area of potential effect around the potential Call Mountain microwave tower site or the 14 acres encompassed in the existing Panoche Substation and adjacent Panoche Energy Center and Starwood-Midway power plants. Additionally, 15 acres of hardscaped roadways were not surveyed since no exposed ground surface was visible. Ground visibility in the accessible, non-hardscaped portions of the area of potential effect varied from good to excellent depending, on the density of vegetation coverage.

Prior cultural work performed in the area includes 16 studies partially in the area of potential effect and five studies outside of but within a 0.25-mile search radius. Of 18 previously recorded cultural resources, 12 were outside the area of potential effect but in the search radius; six were in the discontinuous area of potential effect. One state agency bridge (42-0248) was also in the area of potential effect. According to the state agency bridge inventory completed by the California Department of Transportation, it is a category 5 bridge; this category of bridge is considered ineligible for NRHP listing (Sikes et al. 2014a). No cultural resources were newly identified during this survey, and no other cultural resources have been previously recorded in the area of potential effect (Sikes et al. 2014a).

Five previously recorded cultural resources in the discontinuous area of potential effect were re-identified during the surveys: P-10-000046 (CA-FRE-46, prehistoric site); P-10-005463 (prehistoric isolate); P-10-005887 (Chaney Ranch buildings); P-10-006013 (Panoche Substation); and Panoche-05 (PG&E's Moss Landing-Panoche 230 kV transmission line and towers). One resource, P-10-005835 (isolated porcelain fragment), was not re-identified because it is mapped

within the Starwood-Midway Power Plant for which access was not permitted. All but one of these resources were found to be ineligible for NRHP or CRHR inclusion; the exception was P-10-000046 (CA-FRE-46; prehistoric site), which remains unevaluated. This site would be avoided by the telecommunication upgrades. As described previously, the USACE has not yet initiated consultation with the State Historic Preservation Office. The USACE will confirm that these eligibility determinations have been concurred by the SHPO or will request SHPO concurrence regarding their eligibility.

A follow-on records search was performed for the Panoche Mountain microwave tower site (Sikes et al. 2014b). The only previous cultural resources study performed at the microwave tower site did not record the presence of any cultural resources. Following this earlier study, the microwave tower site was fenced and gated; therefore, a new field survey was not performed (Sikes et al. 2014b).

Westlands CREZ

No previous cultural resource field inventories for the Westlands CREZ have been identified, and no Class I or Class III inventories were performed as part of this EIS. On December 19, 2014, a letter was sent to the California Native American Heritage Commission (NAHC) requesting a sacred lands file search and list of local Native Americans who could be contacted regarding the Westlands CREZ.

3.7.3 Environmental Impacts

Effects on cultural resources occur when there is damage to or loss of cultural resources or their settings. Under NEPA, impacts on cultural resources are assessed by applying the criteria of adverse effect, as defined in the implementing regulations for Section 106 of the NHPA (36 CFR Part 800). "An adverse effect is found when an action may alter the characteristics of a historic property that qualify it for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, workmanship, feeling, or association. Adverse effects may include reasonably foreseeable effects caused by the action that may occur later in time, be farther removed in distance, or be cumulative" (36 CFR § 800.5).

Additionally, an assessment of effects involving Native American or other traditional community, cultural, or religious practices, resources, or areas requires focused consultation with the affected group; impact analysis would be informed by such consultation.

For the purposes of this analysis, criteria for determining effects on cultural resources are the following:

- Cause physical destruction or damage to all or part of the property

- Alter a property, by restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary of the Interior's standards for the treatment of historic properties (36 CFR 68) and applicable guidelines
- Remove the property from its historic location
- Change the character of the property's use or physical features within a property's setting that contribute to its historic significance (e.g., isolating the property from its setting)
- Introduce visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features
- Neglect a property, which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe
- Disturb any human remains, including those interred outside of formal cemeteries

Any of the these indicators would contribute to an adverse effect under the NHPA on a cultural resource if it is listed on or eligible for listing on the NRHP and if it is area of importance to a Native American or other traditional community. If a site is determined to be eligible for listing or is listed on the NRHP, any physical disturbance may also constitute a significant impact under NEPA. If a site is determined to be ineligible for listing, then any disturbance would not be significant under NEPA or adverse under NHPA.

Using the NEPA definition of direct and indirect effects in conjunction with the Section 106 definition (as noted above, 36 CFR § 800.5), the range of direct effects is narrowed, while the range of indirect effects is broadened. In practice, a direct effect would be limited to the direct physical disturbance of a historic property, such as destroying it to construct a project. Indirect effects include visual or audible intrusion as a result of the project being built or increased risk of looting as a result of better access and increased visitation to the area.

Effects on cultural resources are typically considered permanent, as these resources are finite and disturbance to them, particularly archaeological sites, cannot be reversed. However, effects on the historic landscape or the viewsheds of historic or other culturally significant areas may be temporary if projects do not permanently impact associated resources and are removed at a future date.

For cultural resources, impact assessment is based on a comparison of known resource locations with the placement of project activities that could remove, relocate, damage, or destroy the physical evidence of past cultural activities; an effect must also alter the quality that makes the resource eligible for listing in

the NRHP. If such activity overlaps recorded site locations, then a direct impact may occur. Historical buildings and structures may be directly impacted if the nearby setting and context is modified substantially, even if the building or structure itself is not physically affected. Indirect impacts may occur if activities occur near but not directly on known cultural resources or if activities occur at some time in the future.

No Action (No Build) Alternative

Under the no action (no build) alternative, the proposed project would not be constructed and no telecommunication upgrades would occur. Existing land uses, including livestock grazing, recreational actions, and population growth and community development, at the project site and on surrounding mitigation lands would continue. The impacts associated with each of these activities would continue and would possibly result in damage or destruction of eligible cultural resources through surface-disturbing activities, artifact collection, and vandalism.

No Action (No USACE Permit) Alternative

The following County-required measures were included as conditions of approval in the conditional use permit for the proposed project to reduce impacts on cultural resources and are considered part of the no action (no permit) alternative in this EIS. The full text of these measures is included in **Appendix C**, **Table C-2 and C-3**. The impacts of the no action (no permit) alternative on cultural resources with incorporation of these measures is discussed below.

- **Mitigation Measure CR-2.1. Conduct cultural resource monitoring during construction**. A professional archaeologist should conduct on-site monitoring during ground-disturbing activities and a Native American monitor should be on-site for work in locations sensitive for Native American archaeological deposits and human remains (i.e., within 200 meters of Panoche Creek and Las Aguilas Creek).
- **Mitigation Measure CR-2.2. Treat previously unidentified archaeological resources discovered during construction**. If archaeological remains are discovered during construction, the Applicant shall immediately cease all work activities within 100 feet of the discovery and notify the County within 24 hours. Work shall not resume in the affected area until a Registered Professional Archaeologist familiar with the resources of the region inspects the discovery and determines whether further investigation is required to evaluate the significance and CRHR eligibility of the site, including performing additional test excavation or other studies, as necessary, to fully evaluate the significance of the discovered resource. If the site meets California Register of Historic Resources significance criteria and further damage cannot be avoided, then a data recovery plan shall be developed and implemented prior to resuming ground

disturbance in the affected area. The data recovery plan shall make provisions for data collection, laboratory processing and technical analyses, final reporting, and curation of archaeological remains, and shall be reviewed and approved by the County Department of Planning and Building prior to implementation. All such work shall be fully funded by the Applicant.

- **Mitigation Measure CR-2.3. Inadvertent discovery of human remains**. If human remains are uncovered, or in any other case when human remains are discovered during construction, the San Benito County Coroner is to be notified immediately to arrange their proper treatment and disposition and the Applicant shall immediately cease all work activities within 300 feet of the discovery. If the remains are identified — on the basis of archaeological context, age, cultural associations, or biological traits — as those of a Native American, California Health and Safety Code 7050.5 and Public Resource Code 5097.98 require that the coroner notify the NAHC within 24 hours of discovery. The NAHC will then identify the Most Likely Descendent, who will determine the manner in which the remains are treated.
- **Mitigation Measure CR-2.4. Implement workers environmental awareness program**. All construction personnel shall be trained regarding the recognition of possible buried cultural remains and protection of all cultural resources, including prehistoric and historic resources during construction, prior to the initiation of construction or ground-disturbing activities. Training shall inform all construction personnel of the procedures to be followed upon the discovery of archaeological materials, including Native American burials. All personnel shall be instructed that unauthorized collection or disturbance of artifacts or other cultural materials within or outside the project area by the Applicant, their representatives, their contractors, or their employees will not be allowed. Violators will be subject to prosecution under the appropriate State and federal laws, and violations will be grounds for removal from the project. Unauthorized resource collection or disturbance may constitute grounds for the issuance of a stop work order.
- **AMM CR-1. Pre-construction worker cultural resources training**. Design and implement a Worker Cultural Resources Training Program before construction for all project personnel who may encounter and/or alter historical resources or unique archaeological properties. Construction supervisors, workers, and other field personnel will be required to attend the training program prior to their involvement in field operations.

- **AMM CR-2. Pre-construction worker cultural resources training**. There are no known archaeological or historical resources within the direct impact areas defined for the PG&E Upgrades. In keeping with the intent of the NHPA and CEQA, PG&E's preferred approach for archaeological resources and historical resources is avoidance of impacts to significant (or unevaluated) resources. Where avoidance is not feasible, potential impacts to significant cultural resources must be treated in a way that is acceptable to PG&E, the State Historic Preservation Officer (SHPO), and if applicable, the local Native American community and the BLM. Treatment might include data recovery excavations, public interpretation/education, or other measures. If there is an unanticipated discovery of a buried archaeological deposit or human remains, PG&E will implement AMM CR-4, and CR-5.
- **AMM CR-3. Cultural construction monitoring**. A qualified archaeologist field technician will monitor all project-related excavation that is within an area of moderate to high sensitivity for prehistoric or historical buried resources. This shall include monitoring areas within 167 feet (50 meters) of recorded or previously identified prehistoric and historical-era sites or features.
- **AMM CR-4. Unanticipated discoveries of cultural resources**. In the event that previously unidentified archaeological, cultural, or historical sites, artifacts, or features are uncovered during implementation of the project, work will be suspended within 100 feet (30 meters) of the find and redirected to another location. PG&E's cultural resources specialist or designated representative will be contacted immediately to examine the discovery and determine if additional work is needed. If the unanticipated discovery is on public lands, work must be suspended immediately and a BLM cultural resources specialist, or designated representative, must be contacted to examine the discovery and determine the appropriate course of action. If the discovery can be avoided or protected and no further impacts will occur, the resource will be documented on California Department of Parks and Recreation 523 forms and no further effort will be required. If the resource cannot be avoided and may be subjected to further impacts, PG&E or their representative will evaluate the significance of the discovery following federal and state laws and implement data recovery or other appropriate treatment measures if warranted.
- **AMM CR-5. Unanticipated discovery of human remains**. If human remains or suspected human remains are discovered during construction, work within 100 feet of the find will stop immediately and the construction foreman shall contact the PG&E cultural resources specialist, who will then call the San Benito or Fresno County Coroner, as appropriate. There shall be no further

excavation or disturbance of the site, or any nearby area reasonably suspected to overlie adjacent remains, until coroner has determined that the remains are not subject to provisions of Section 27491 of the Government Code.

Construction

Under the no action (no permit) alternative, the resources within the construction footprint would be affected by construction. Because the five archaeological or historical resources and 19 isolates identified are recommended as ineligible for listing on the NRHP, construction would not constitute an adverse effect under the NHPA or a significant effect under NEPA. The USACE will seek concurrence with this finding through the Section 106 consultation process.

As noted in **Section 3.7.2**, there have been extensive periods of alluvial deposition in the project area, suggesting a moderate to high likelihood of buried cultural remains. Due to a lack of knowledge regarding patterns of Native American occupation in Panoche Valley, there is a potential for buried cultural remains throughout the proposed project site. The possibility of encountering undiscovered resources exists under the no action (no permit) alternative, which could result in inadvertent artifact destruction or damage or the loss of scientific context. Should cultural artifacts or human remains be discovered, there is the possibility of indirect effects from increased human presence during construction, leading to possible illicit collecting of newly exposed materials. As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the mitigation measures described above. Under these measures, a professional archaeologist will conduct on-site monitoring during ground-disturbing activities, and a Native American monitor will be on-site for work in locations sensitive for Native American archaeological deposits and human remains. Work will cease immediately if archeological resources or human remains are discovered, and the applicant will follow the protocols described under Mitigation Measures CR-2.2 and 2.3 for evaluating and treating these resources or remains. All construction personnel will be trained regarding the recognition of possible buried cultural remains and the procedures to be followed upon the discovery of archaeological materials, including Native American burials. Because Mitigation Measures CR-2.1 through CR-2.4 have been incorporated into the no action (no permit) alternative evaluated in this EIS, the direct and indirect effects on cultural resources would be less than significant and would not constitute an adverse effect under the NHPA or a significant effect under NEPA. The USACE will seek concurrence with this finding through the Section 106 consultation process. No additional mitigation measures were identified to further reduce these impacts.

The no action (no permit) alternative would have indirect impacts on the historic landscape setting, altering the landscape by imposing modern industrial

features in the rural viewshed. As the Panoche Valley has not been recommended or identified as rural historic landscape (Herbert and Rainka 2010) and does not appear to have historical significance, and many of its component parts lack integrity, the alterations in the landscape setting would not result in an adverse effect under the NHPA or a significant impact under NEPA. The USACE will seek concurrence with this finding through the Section 106 consultation process. Impacts would be less than significant, and no mitigation measures are required.

Operational and Maintenance Activities

Proposed project operations would not encounter unanticipated resources due to the lack of surface-disturbing actions. However, if such discoveries were made, the County-required measures described above would reduce the potential for adversely affecting previously undiscovered cultural artifacts or human remains. With implementation of these measures, Operations-related impacts would be less than significant and would not constitute an adverse effect under the NHPA or a significant effect under NEPA. The USACE will seek concurrence with this finding through the Section 106 consultation process. No additional mitigation measures were identified to further reduce these impacts.

PG&E Telecommunication Upgrades

Primary telecommunication upgrades. As described in **Section 3.7.2**, there are six previously recorded cultural resources within the area of potential effect (Sikes et al. 2014a). Five of the six were noted as ineligible for listing on the NRHP (Sikes et al. 2014a), though the SHPO has not yet concurred with this determination. Cultural resources that have been determined ineligible for the NRHP are not required to be avoided by project design or implementation. Four of the ineligible resources are more than 28 meters (92 feet) from the proposed work areas, one is partially adjacent, and one (PG&E's Moss Landing-Panoche 230-kV transmission line) is overlapped by the proposed work areas. The sixth resource within the area of potential effect remains unevaluated (P-10-000046, CA-FRE-46). This resource is 100 meters (328 feet) from the nearest proposed work area (Sikes et al. 2014a) and will not be directly or indirectly impacted by the proposed telecommunication service improvements. As all of the sites are outside the work areas or would be avoided, there would be no direct effects on any of the identified cultural sites. Because no work would occur within 100 feet of the unevaluated resource, there would be no indirect effects.

Secondary telecommunication upgrades. No new ground disturbance would occur at the Call Mountain or Panoche Mountain tower locations, as equipment would be collocated on existing towers. These upgrades would have no adverse effects on cultural resources. Construction of a new microwave tower at the Helm Substation would occur within the previously disturbed fence line and would have no adverse effect. Effects associated with construction of a new

microwave tower at the project site are the same as those described under construction for the proposed project.

While primary and secondary upgrades would have no adverse effect on known resources, in the event that construction encountered an undiscovered resource or human remains, measures AMM CR-1 through AMM CR-5 have been incorporated as part of the no action (no permit) alternative. These measures include monitoring during any excavation, ceasing work if resources are discovered, and following protocols for evaluating and treating these resources. Because these measures have been incorporated into the no action (no permit) alternative evaluated in this EIS, the direct and indirect effects of PG&E actions would be less than significant and would not constitute an adverse effect under the NHPA or a significant effect under NEPA.

Alternative A (Applicant's Proposed Project)

Construction and Operational and Maintenance Activities

The impacts anticipated under Alternative A would be the same as those described for the no action (no permit) alternative, except that Alternative A would include potential construction within or along waters of the U.S. As noted above, there is a potential for buried cultural resources or human remains in the central portion of the proposed project site. The County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. Measures to minimize the potential for adverse effects on undiscovered cultural artifacts or human remains during construction, if encountered, would thus be the same as described under the no action (no permit) alternative. Impacts under Alternative A would not result in an adverse effect under the NHPA or a significant impact under NEPA for the reasons outline under the no action (no permit) alternative. No additional mitigation measures were identified to further reduce impacts.

PG&E Telecommunication Upgrades

Impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative.

Alternative B (On-Site Alternative)

Construction and Operational and Maintenance Activities

The impacts anticipated under Alternative B are the same as those described for Alternative A. The County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. Measures to minimize the potential for adverse effects on undiscovered cultural artifacts or human remains during construction, if encountered, would thus be the same as described under the no action (no permit) alternative. Impacts

under Alternative B would not result in an adverse effect under the NHPA or a significant impact under NEPA.

PG&E Telecommunication Upgrades

Impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative.

Alternative C (Off-Site Alternative, Westlands CREZ)

Construction

No Class I or Class III cultural surveys were performed for the Westlands CREZ as part of this EIS. California Historic Resource Information Service records indicate that 90 recorded cultural resource sites have been identified in Kings County, mostly in the upper three feet of the subsurface (Kings County 2002). Because of the active agriculture production throughout the valley floor portion of Kings County, including the Westlands CREZ, it is likely that agricultural activities have disturbed most of the archaeological resources (Kings County 2002).

However, should new sites be identified at a later time, the nature and type of impacts under this alternative would be the same as those described under the no action (no permit) alternative. Mitigation measures similar to those found in **Table C-2** should be adopted to avoid or minimize potential adverse effects from development of a 247 MW solar facility in the Westlands CREZ. The USACE would not have the authority to apply the cultural resource mitigation measures at the Westlands CREZ unless a Department of the Army permit would be required. If the USACE did have the authority, standard Section 106 processes and procedures would be followed (including requirements for a cultural resources survey report, mitigation of any adverse effects, and SHPO consultation), and the USACE may require additional mitigation measures such as avoidance of eligible resources and development of a Memorandum of Agreement to mitigate identified adverse effects. However, it would be unlikely that the USACE would require an archaeological monitor as there is a high likelihood that any subsurface sites have been previously disturbed due to active agricultural production. Additionally, the USACE does not generally require a tribal monitor.

Operational and Maintenance Activities

Proposed project operations would not be likely to encounter unanticipated resources due to the lack of surface-disturbing actions. However, if such discoveries were made, the measures described under construction are recommended to reduce the potential for adversely affecting previously undiscovered cultural artifacts or human remains. As described under construction, the USACE would not have the authority to apply the cultural

resource mitigation measures at the Westlands CREZ unless a Department of the Army permit would be required.

3.7.4 Cumulative Impacts

To more accurately describe cumulative effects on cultural resources, the resources are examined in light of the integrity of the collective regional cultural resources. Because the number of cultural resources is finite, limited, and nonrenewable, any assessment of cumulative impacts must take into consideration the extent to which the project's impacts degrade the integrity of the regional cultural resources, as well as impacts other projects may have on the regional cultural resources. If these effects, taken together, result in degradation of the regional resources, then those impacts are considered cumulatively considerable.

No Action (No Permit) Alternative and Alternatives A, B, and C

For all alternatives, the geographic scope of the cumulative effects analysis takes in a broad region, encompassing the entire Panoche Valley and Fresno, Kings, and San Benito Counties. It includes the ethnographic area inhabited by the Yokuts and Costanoan people.

The no action (no permit) alternative and Alternatives A, B, and C would not have significant effects on any known cultural resources. The project may impact previously unidentified cultural resources during construction. However, any such sites are expected to be similar to other sites found throughout the region, and mitigation measures governing previously unidentified cultural resources are assumed to apply to all cumulative projects in the study area. As a result, the proposed project and cumulative projects would not result in cumulatively significant impacts.

Ongoing natural processes (e.g., wind and water erosion and weathering) and use activities would continue, including livestock grazing, agricultural production, recreation, population growth and housing development, and transportation networks. Impacts from natural processes are the general degradation and damage of sites and would continue the gradual downward trend in site conditions.

Impacts from cumulative projects could include discovery and recordation of new sites resulting from field surveys and surface-disturbing activities, inadvertent and intentional vandalism or destruction of sites, and occasional artifact collection. However, if one assumes that the cumulative projects listed in **Table 3-1** are subject to the same federal and state cultural resource protection laws and requirements as noted here, then it is reasonable to conclude that these cumulative projects would implement similar mitigation measures to reduce impacts through avoidance, recordation, excavation, or other methods to preserve scientific information. While more sites would likely be found through permit requirements for cultural resource surveys, sites

would continue to be destroyed or damaged. The current trend of no change to a slight downward trend in the condition of sites would also continue.

Native American consultation and records searches in the Native American Heritage Commission database was initiated for all projects to determine the presence of Native American sacred lands or traditional cultural properties. Although no areas were found for this project, there are several areas considered sensitive or sacred to Native American peoples throughout the cumulative study area. The trend is for development to proceed with mitigation measures determined in consultation with tribes that would reduce or eliminate effects.

3.7.5 Tribal Consultation and Outreach

Consultation and Issue Identification

As the federal lead agency for the proposed undertaking, the USACE is responsible for initiating government-to-government consultation with federally recognized Native American tribes, per the laws, regulations, and policies noted in **Section 3.7.1**. Tribal consultation ensures that tribal rights and concerns are considered before the USACE takes actions, makes decisions, or implements programs that may affect tribes. Consultation is necessary to identify issues of tribal concern (which may include issues beyond cultural resources, such as other tribal resources), sacred sites, and other places of traditional religious and cultural importance and to incorporate appropriate mitigation measures in the event such sites are located during construction. There are no federally recognized tribes in the project area. Outreach to non-federally recognized tribes is described below.

On July 27, 2012, the USACE, through its EIS consultant, contacted the NAHC to request a sacred lands file search and a list of local Native Americans who could be contacted regarding the proposed project. The NAHC response, received on August 24, 2012, indicated that a record search of the sacred lands file failed to show the presence of Native American cultural resources in the immediate project area. The NAHC provided a list for five tribal contacts in San Benito County. The USACE sent letters to these contacts requesting tribal input on cultural or archaeological resources in the project area, including properties of traditional, religious, or cultural importance. Letters were also sent to the contacts on the NAHC Native American contact list generated during preparation of the EIR by San Benito County. The USACE received one response in the form of a scoping letter, described below.

Because of changes to the proposed project and the development of PG&E telecommunication network upgrades, the USACE, through its consultant, again contacted the NAHC on November 19, 2014, to request a sacred lands file search and a list of local Native Americans who could be contacted regarding the proposed project and PG&E telecommunication upgrades. The NAHC

response, received on December 5, 2014, included a Native American contact list for San Benito and Fresno Counties. The USACE sent letters to these contacts, as well as to the contacts on the EIS and EIR contact lists described in the previous paragraph on February 19, 2015.

The Amah Mutsun Tribal Band submitted a scoping letter on September 6, 2012, noting its opposition to the proposed project and identifying its concerns. The comment letter asserted that the proposed project would negatively intrude on the sacred lands of their ancestors, irreversibly damage natural resources with both ecological and cultural significance, and cause environmental and economic degradation to the tribe, their culture, and neighboring residents. The tribe noted that they believe the effects from the project on the resources would be significant and requested that if the proposed project is approved, that a Native American monitor from their tribe be hired to monitor all ground disturbance during construction and any removal, repair, or replacement of any solar panel poles during maintenance.

On June 29, 2015, Mr. Ed Ketchum of the Amah Mutsun Tribal Band responded to the follow-up telephone calls and emails sent. Mr. Ketchum noted that a plant traditionally harvested in the Panoche Valley, known as Panoche for which the valley was named, is not identified or included in any construction-related or operational environmental monitoring, protection, or enhancement plans. Mr. Ketchum noted that the plant should be investigated further because of its significance to the valley. In response to this concern, additional information regarding panoche has been included in the EIS (see discussion above under **Section 3.7.2**, Affected Environment, *Ethnography*). Mr. Ketchum noted that the source of panoche is likely the *Phragmites australis* (the common reed), the plant needs a fairly wet environment in which to grow, and the project site might not be wet enough to support *Phragmites australis*, though the stream areas might be wet enough. Mr. Ketchum indicated that based on this information, he did not think the subject warranted further investigation. However, the USACE is continuing to work with the tribe and applicant to further evaluate the tribe's concerns.

Non-Federal Consultation Actions

On January 14, 2010, before USACE involvement in the proposed project, Applied EarthWorks, Inc. contacted the NAHC to request a sacred lands file search and a list of local Native Americans who could be contacted regarding the Panoche Valley Solar project. The NAHC response, received on February 18, 2010, indicated that the NAHC sacred land files contained no information on Native American cultural resources in the immediate project area (Power Engineers 2010a).

The NAHC also provided a list of Native American individuals and organizations that may have knowledge of cultural resources in the project area. On April 16, 2010, Power Engineers sent letters to one Native American and to

representatives of three tribes listed by the NAHC—the Amah Mutsun Tribal Band, the Chowchilla Tribe of Yokuts, and the Southern Sierra Miwuk Nation.

Three responses to these letters were received. One response was from the Tribal Administrator of the Chowchilla Tribe, expressing an interest in monitoring future excavation and requesting a presentation about the proposed project. A representative of the Southern Sierra Miwuk commented that the proposed project was outside their area. The chairman of the Amah Mutsun reported that the letter had been received (Power Engineers 2010a).

Solargen initiated contact with the Amah Mutsun Tribal Band on January 30, 2010, to discuss the proposed project. In addition to numerous e-mails, contacts between Solargen and the Amah Mutsun included an in-person meeting on February 17, 2010, and a conference call on March 11, 2010. Power Engineers' staff communicated with the chairman of the Amah Mutsun on several occasions before fieldwork began for the cultural resources survey of the project site, documented in the cultural resources report for the survey (Power Engineers 2010a). On March 16, 2010, the first day of fieldwork for the intensive survey, a representative of the Amah Mutsun Tribe met with the Power Engineers cultural resource team and with a representative from Far Western Anthropological Research Group, Inc. at the project site.

A second on-site meeting, which included the tribal chairman and another tribal member, Power Engineers' principal investigator and field director, and an archaeologist from Applied EarthWorks, was held on the project site on March 29, 2010, shortly after completion of the survey. This meeting was held to discuss the survey results, the possibility that Native American cultural resources might be deeply buried due to past alluviation in the valley, and whether the proposed project could have impacts on deeply buried archaeological sites. The Amah Mutsun were provided with a copy of the geoarchaeological report (Appendix E of Power Engineers 2010a) on May 19, 2010.

Once PG&E upgrade actions were identified in 2014, Natural Investigations Company, LLC contacted the NAHC on September 15, 2014, regarding a search of their sacred lands file for traditional cultural resources in or near the area of potential effect for the PG&E telecommunication upgrade actions. Replies were received from the NAHC for Fresno County and San Benito County dated September 22 and October 27, 2014, respectively, stating that the searches failed to indicate the presence of Native American sacred lands or traditional cultural properties in the immediate vicinity of the project area. By letters dated September 25 and October 28, 2014, Natural Investigations Company, LLC then contacted each of the Native American tribes or individuals provided by the NAHC for Fresno County and San Benito County, respectively.

Environmental Impacts on Issues of Tribal Concern

Native American coordination was initiated in 2012 and is ongoing. Native American Heritage Commission searches failed to indicate the presence of

Native American sacred lands or traditional cultural properties in the immediate vicinity of the project site or PG&E upgrade locations.

As noted above, the Amah Mutsun Tribal Band noted several concerns with the proposed project in their scoping letter (dated September 6, 2012), including negatively intruding on the sacred lands of their ancestors, irreversibly damaging natural resources with both ecological and cultural significance, and causing environmental and economic degradation for the tribe, their culture, and neighboring residents. The tribe has noted that they believe the effects from the project on the resources would be significant.

While the geologic and soil records indicate there is a moderate to high likelihood for buried materials and archaeological reports indicate no known archaeological sites in the area, the tribe's concerns regarding disturbance of buried cultural resources and human remains have been addressed through the inclusion of measures CR-2.1, conduct cultural resource monitoring during construction, and CR-2.3, inadvertent discovery of human remains in **Table C-2**. Impacts on local plants and animals are discussed in **Section 3.6**, along with extensive measures to reduce those impacts. See **Tables C-1**, **C-2**, and **C-3** for full descriptions of the measures included to reduce or eliminate many of the effects noted by the tribe.

3.8 GEOLOGY AND SOILS

This section presents information on geology and soil resources in the project footprint, the project site, and the greater project area, as applicable. Baseline geologic, seismic, and soil information was collected from published and unpublished literature, geographic information systems (GIS) data, and online sources. Data sources were the following:

- Geologic literature from the US Geological Survey (USGS) and the California Geological Survey
- Geologic and soils GIS data and available geotechnical reports for the area
- Geotechnical Report by ENGEO dated March 26, 2010, and Geotechnical Report Addendum by ENGEO dated May 7, 2010

3.8.1 Regulatory Environment

International Building Code

Published by the International Code Council, the 2012 International Building Code addresses the design and installation of structures and building systems through requirements that emphasize performance. The International Building Code includes codes governing structural, fire, and life safety provisions covering seismic activity, wind, accessibility, egress, occupancy, and roofing.

California Building Code

The California Building Code (CBC), Title 24, Part 2 provides building codes and standards for design and construction of structures in California. The 2013 CBC is based on the 2012 International Building Code, with the addition of more extensive structural seismic provisions. As the proposed project lies in Seismic Zone 4, provisions for design should follow the requirements of Chapter 16 of the CBC, which contains definitions of seismic sources and the procedure used to calculate seismic forces on structures.

Alquist-Priolo Earthquake Fault Zoning Act, Public Resources Code, Sections 2621–2630

The Alquist-Priolo Earthquake Fault Zoning Act of 1972 (formerly the Special Studies Zoning Act) regulates development and construction of buildings intended for human occupancy to avoid the hazard of surface fault rupture. While this act does not specifically regulate solar fields and overhead transmission lines, it does help define areas where fault rupture is most likely to occur.

This act categorizes faults as active, potentially active, and inactive. Historic and Holocene age faults are considered active, Late Quaternary and Quaternary age faults are considered potentially active, and pre-Quaternary age faults are considered inactive. These classifications are qualified by the conditions that a fault must be shown to be "sufficiently active" and "well defined" by detailed site-specific geologic explorations in order to determine whether building setbacks should be established.

The Seismic Hazards Mapping Act, Public Resources Code, Sections 2690–2699

The Seismic Hazards Mapping Act of 1990 (Public Resources Code, Chapter 7.8, Division 2) directs the California Geological Survey to delineate Seismic Hazard Zones. The purpose of the Seismic Hazards Mapping Act is to reduce the threat to public health and safety and to minimize the loss of life and property by identifying and mitigating seismic hazards. Cities, counties, and state agencies are directed to use seismic hazard zone maps developed by the California Geological Survey in their land use planning and permitting processes. The Seismic Hazards Mapping Act requires that site-specific geotechnical investigations be performed before permitting most urban development projects in seismic hazard zones.

San Benito County General Plan

The Seismic Safety Element of the County General Plan is intended to reduce loss of life, injuries, property and economic damage, and social dislocation resulting from earthquakes and other geologic hazards (San Benito County 1980b). The seismic safety element addresses such seismic hazards as surface rupture from faulting, ground shaking, and ground failure (liquefaction, lateral spreading, lurching, and landslides) and effects of seismically induced waves, such

as tsunamis and seiches. In addition, the seismic safety element includes geologic hazards, such as mudslides, landslides, slope stability, and erosion.

The County's General Plan Land Use Element provides criteria that on-site septic systems may be allowed on parcels of one acre or greater if percolation tests demonstrate to the County Health Department Division of Environmental Health that the soil is suitable for septic use. The Land Use Element also states that septic systems shall be properly designed, constructed, and maintained to avoid degradation of groundwater and surface water quality (San Benito County 1992a).

The San Benito County Open Space and Conservation Element Update of the San Benito County General Plan (1995) identifies goals for public health and safety. These include areas that require special management or regulation because of hazardous or special conditions, such as earthquake fault zones and unstable soil areas.

Fresno County General Plan

The Fresno County General Plan uses the Safety Element to establish policies and programs to protect the community from risks associated with seismic, geologic, flood, and wildfire hazards and soils with shrink-swell potential.

Policy HS-D.3 enables the County to require a geologic-seismic analysis to be prepared by a California-registered engineer or engineering geologist before permitting development. This includes public infrastructure projects in areas prone to geologic or seismic hazards, such as fault ruptures, ground shaking, lateral spread, liquefaction, subsidence, settlement, unstable slopes, and landslides.

Policy HS-D.4 enables the County to require that all proposed structures, additions to structures, utilities, or public facilities in areas subject to geologic or seismic hazards, as identified in a geologic-seismic analysis, be sited, designed, and constructed according to applicable provisions of the Uniform Building Code (Title 24 of the California Code of Regulations).

Policy HS-D.8 enables the County to require a soils report by a California-registered engineer or engineering geologist for any proposed development that requires a County permit and is in an area that contains expansive soils or soil with high shrink-swell potential.

Finally, Policy HS-D.9 enables the County to minimize soil erosion by maintaining compatible land uses, suitable building design, and appropriate construction techniques.

Kings County General Plan

The natural hazards policies in the Health and Safety Element of the Kings County General Plan were developed to prepare the community for natural

hazard-related events and disasters, with the primary objective being to reduce loss of life, serious injury, property damage, and economic and social dislocation resulting from natural hazards. Kings County identified Geologic Hazards as part of the Health and Safety Element, including seismically induced surface rupture, ground shaking and ground failure, liquefaction, landslides, and subsidence.

HS Goal A1 of the Kings County General Plan is to implement preventive measures to reduce the potential impacts of natural hazards on lives, property, and the environment. As part of this goal, the County identified Objective A1-4—maintain county building and construction standards and regulations—to remain current with state and federal requirements that serve and protect residences from natural hazards.

Moreover, HS Policy A1.4.1 allows the County to implement the current California Building Codes and any subsequent amendments as contained in the California Code of Regulations Title 24 to improve disaster resistance of future buildings.

In addition, HS Policy A2.1.4 states that the County can review all development proposals to determine whether a geotechnical soils report is required for new construction; HS Policy A2.1.5 enables the County to consider the environmental review process for land use projects' seismic hazards, including subsidence, liquefaction, flooding, local soils, and geologic conditions.

3.8.2 Affected Environment

Proposed Project

Regional Geology

Geologic units underlying the project footprint are primarily composed of Quaternary alluvium (97.5 percent) and sediments deposited by streams and alluvial fans from surrounding mountains emptying onto and crossing the Panoche Valley (Ninyo and Moore 2009; Dibblee 1975). The eastern edge of the project footprint is bordered by sandstone and is likely composed of older non-marine deposits of alluvium, which are terrace deposits of clay, sand, and gravel from the Plio-Pleistocene age Tulare Formation. According to the California Department of Water Resources, these deposits likely fill the local basin to depths of up to 1,500 feet (California Department of Water Resources 2004).

ENGEO (2010a, 2010b) conducted a geotechnical investigation for the proposed project site. The study included 34 borings to characterize geologic materials underlying the site. Results of the borings indicated 3 to 7 feet of unconsolidated alluvium lies on top of consolidated older alluvium or terrace deposits (ENGEO 2010a). The alluvium is composed of clayey sand, sandy silt, sandy and silty clay, and minor silty sand. Older alluvium consists of silty sand, poorly graded gravel with sand and silt, silty clay, sandy clay, and clayey sand. Calcareous or carbonate cement and iron staining are common.

Groundwater was not encountered in the borings drilled to the maximum drilled depths of 51 feet. Minor perched water was observed, however, in a boring near the southern boundary of the project site near Panoche Creek at a depth of 39 feet.

Topography and Slope Stability

Panoche Valley is a gently southeast sloping plain or valley with drainage from the surrounding hills directed to the margins and then to a few incised channels. These drainages connect to Panoche Creek near the center of the valley. Small ephemeral drainages dissect the surface of the valley, which is generally flat to gently sloping. The low hills at the valley margins, near to but outside of the project footprint, ascend from the valley at gradients ranging from 10 to 30 percent. Slope gradients are 2.5 to 3.5 percent toward the center of the valley, and gradients along the center and south side of the valley are generally less than one percent. The very low slope inclinations preclude the occurrence of landslides or slope instability, other than very small slumps along the sides of the natural drainage channels.

Faults and Seismicity

The project site is in a seismically active area typical for Central California (Ninyo and Moore 2009), where the San Andreas Fault System dominates the seismicity. Nearby active faults are the Ortigalita to the north, Great Valley to the east, and the San Andreas to the west (see **Figure 3-13**). Active regional faults that could cause ground shaking at the project site are associated with the San Andreas Fault System and compressional faulting and folding of the Coast Ranges. Active and potentially active faults within 50 miles of the project alignments that are significant potential seismic sources are presented in **Table 3-19**.

The active fault closest to the project site is the Ortigalita Fault Zone (Ninyo and Moore 2009), and the closest active segment of the fault is approximately seven miles north of the project site (San Benito County 2010c). Additional fault sections occur in the region; the Little Panoche Valley and Piedra Azul are closest to the site. Several Great Valley blind thrust faults are less than 15 miles east of the project site.

The San Andreas Fault is 15 miles to the west and has ruptured historically within 50 miles of the project site (USGS 2010a). Though no known faults cross the project site, active faults in the region could generate an earthquake, causing ground shaking at the project site.

Seismologists classify earthquakes using the Moment Magnitude (M), which measures the amount of energy released more accurately than the traditional Richter scale. Historic seismic activity near the proposed project has been moderate to low, with primarily small earthquakes of M5 or less occurring in the last two centuries (Blake 2000). The proposed project site would likely

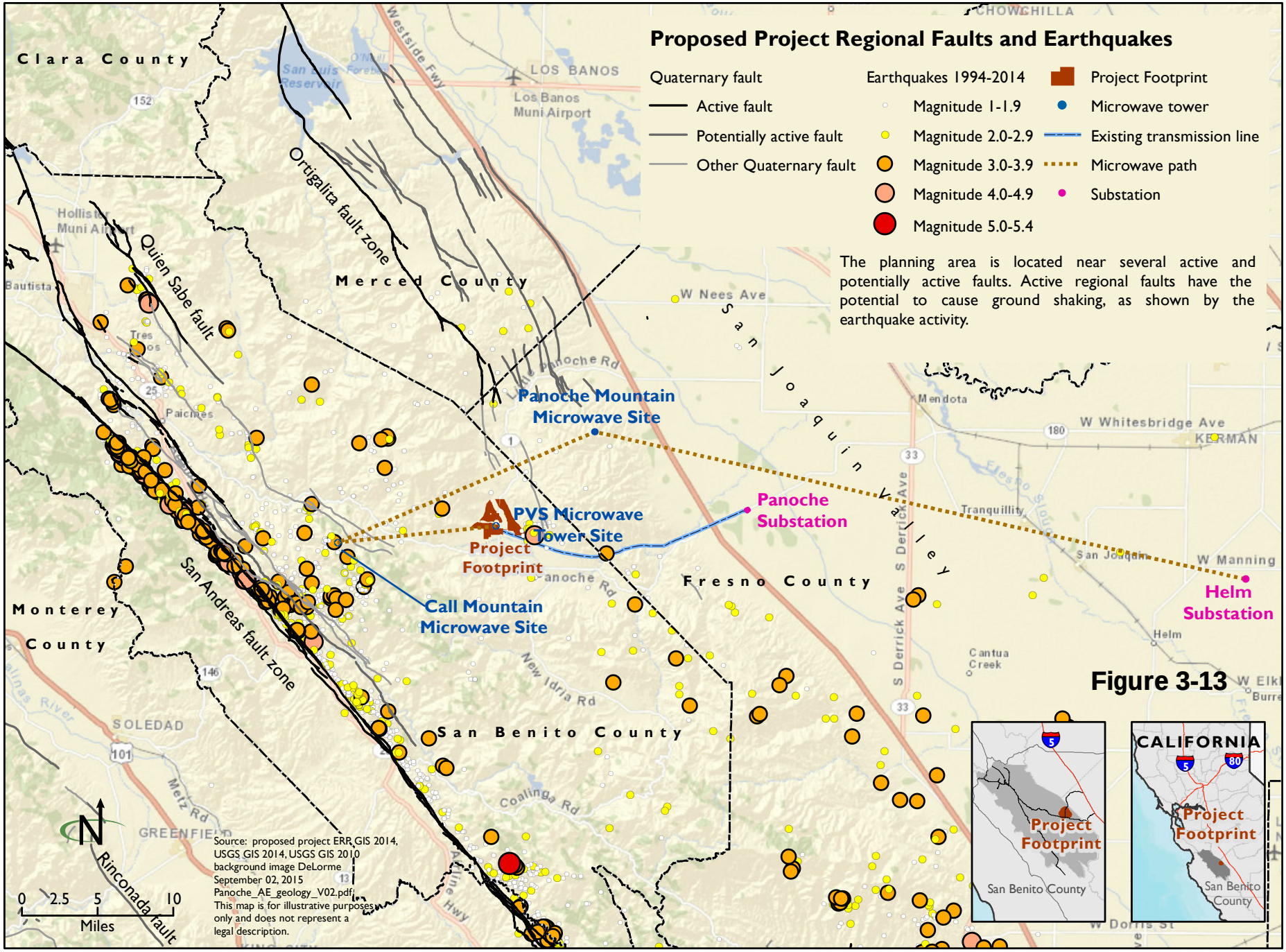

Proposed Project Regional Faults and Earthquakes
Quaternary fault
Active fault
Potentially active fault
Other Quaternary fault
Earthquakes 1994-2014
Magnitude 1-1.9
Magnitude 2.0-2.9
Magnitude 3.0-3.9
Magnitude 4.0-4.9
Magnitude 5.0-5.4
Project Footprint
Microwave tower
Existing transmission line
Microwave path
Substation
The planning area is located near several active and potentially active faults. Active regional faults have the potential to cause ground shaking, as shown by the earthquake activity.
Clara County
Merced County
Monterey County
Fresno County
San Benito County
Ortigalita fault zone
Quien Sabe fault
San Andreas fault zone
Rinconada fault
Panoche Mountain Microwave Site
PVS Microwave Tower Site
Project Footprint
Panoche Substation
Call Mountain Microwave Site
Helm Substation
Figure 3-13
CALIFORNIA
Project Footprint
San Benito County
0 2.5 5 10
Miles
Source: proposed project ERR GIS 2014, USGS GIS 2014, USGS GIS 2010 background image DeLorme September 02, 2015 Panoche_AE_geology_V02.pdf
This map is for illustrative purposes only and does not represent a legal description.

Table 3-19
Active and Potentially Active Faults in the Project Area

Fault Name	Approx. Distance to Site (miles)[1]	Estimated Max. Earthquake Magnitude[2, 3]	Fault Type and Dip Direction[3]	Slip Rate (mm/yr)[3, 4]
Ortigalita	7	7.1	Right lateral strike slip, 90°	1.0
Great Valley 10	8	6.4	Blind thrust, 15°SW	1.5
Great Valley 11	11	6.4	Blind thrust, 15°SW	1.5
Great Valley 9	11	6.6	Blind thrust, 15°SW	1.5
San Andreas creeping section	15	6.2	Right lateral strike slip, 90°	34
Quien Sabe	21	6.4	Right lateral strike slip, 90°	1.0
Great Valley 12	24	6.3	Blind thrust, 15°SW	1.5
Calaveras southern section	32	5.8	Right lateral strike slip, 90°	15
Rinconada	33.5	7.5	Right lateral strike slip, 90°	1.0

Source: San Benito County 2010c
[1]Fault distances from approximate location of the proposed project area were obtained from USGS Quaternary fault GIS data (2010a) and EQFault, a computer program that performs deterministic seismic hazard analyses (Blake 2000).
[2]Maximum earthquake magnitude is the maximum earthquake that appears capable of occurring under the presently known tectonic framework, using the Richter scale.
[3]Fault parameters are taken from the California Geological Survey Revised 2002 California Probabilistic Seismic Hazard Maps report, Appendix A - 2002 California Fault Parameters (California Geological Survey 2002).
[4]References to fault slip rates are traditionally presented in millimeters per year.

experience moderate-to-strong ground shaking from earthquakes in the design life of proposed project facilities (Ninyo and Moore 2009).

Ground Shaking

The intensity of ground shaking resulting from an earthquake depends on the distance between the project site and the epicenter of the earthquake, the magnitude of the earthquake, and the geologic conditions underlying and surrounding the project site. Earthquakes occurring on faults closest to the project site would most likely generate the most ground motion.

Peak ground accelerations at the project site were estimated using USGS National Seismic Hazard Maps (USGS 2010b). The National Seismic Hazard Maps depict peak ground accelerations with a 10 percent probability of exceedance in 50 years. This corresponds to a return interval of 475 years for a maximum considered earthquake and two percent probability of exceedance in 50 years. This, in turn, corresponds to a return interval of 2,475 years for a maximum considered earthquake.

The estimated peak ground acceleration from large earthquakes on the causative fault (the Ortigalita Fault) expressed in g (acceleration due to Earth's gravity; equivalent to gravitational force) ranges from 0.35 g to 0.40 g and 0.60 g to 0.65 g for earthquake recurrence intervals of 475 and 2,475 years,

respectively (USGS 2010b). This corresponds to moderate to strong ground shaking.

Liquefaction

Liquefaction is the phenomenon in which saturated granular, non-plastic sediments temporarily lose their shear strength during strong earthquakes (ENGEO 2010a). The susceptibility of a site to liquefaction is a function of the depth, density, and water content of the granular sediments and the magnitude and frequency of earthquakes in the surrounding region. Saturated, unconsolidated silts, sands, and silty sands within 50 feet of the ground surface are most susceptible to liquefaction. Liquefaction-related phenomena are lateral spreading, ground oscillation, flow failures, loss of bearing strength, subsidence, and buoyancy effects (Youd and Perkins 1978). In addition, densification of the soil can occur, resulting in vertical settlement of the ground.

Geotechnical borings conducted by ENGEO (2010a, 2010b) for the proposed project indicate that materials underlying the project site generally consist of medium dense to very dense, fine-grained alluvial deposits. These consist primarily of silty clay, sandy clay, and clayey sand, with minor local sandy and gravelly layers. Some local sandy and gravelly deposits were noted in the sedimentary units identified as fluvial deposits in the southern portion of the site. Loose silty sand was identified in the upper 6 to 13 feet in more than half of the borings in this unit (ENGEO 2010a, 2010b).

No groundwater was encountered in most of the borings to a maximum depth of 51 feet. As mentioned above, perched groundwater was encountered in one boring near Panoche Creek at a depth of 39 feet below ground surface. Groundwater levels in wells in and near the project footprint generally are greater than 100 feet (San Benito County 2010c).

Based on the specific geotechnical observations, liquefaction hazards for the proposed project are considered to be generally low. Localized areas of liquefaction, although unlikely, may occur near Panoche Creek, where loose sandy fluvial deposits were identified in the upper 10 feet.

Soils

Soils in the project footprint reflect the underlying alluvial sediments, variability of source area, the extent of weathering, the degree of slope, and the degree of human modification. The project footprint is underlain by ten soil units identified by the National Resource Conservation Service (NRCS GIS 2014; **Figure 3-14**). The hazard of erosion, soil corrosivity, shrink/swell potential, laboratory analysis, and suitability for on-site sewage disposal adsorption fields for these soils were reviewed to evaluate potential hazards to the proposed project from unsuitable soil conditions.

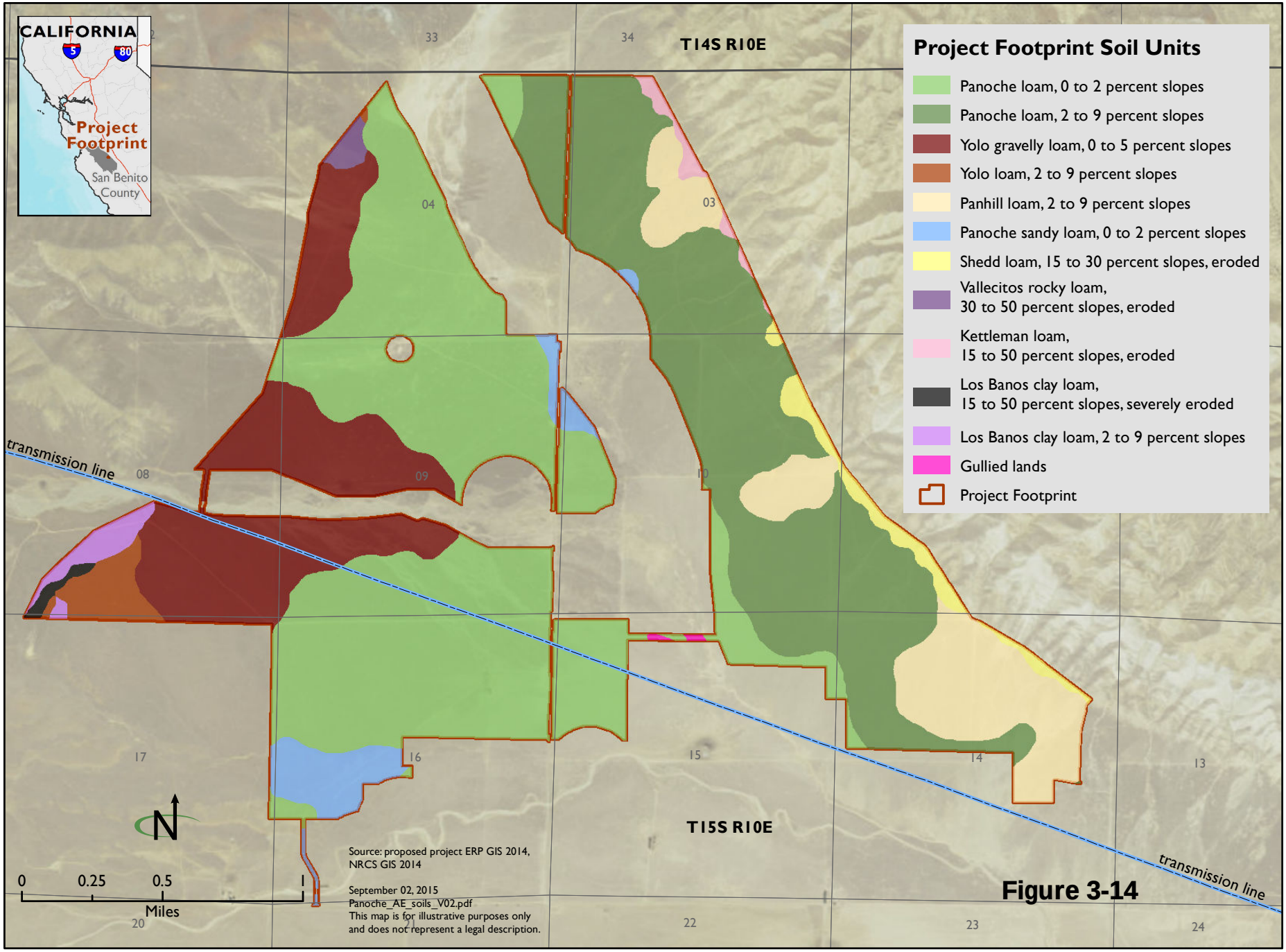

CALIFORNIA
5
80
Project Footprint
San Benito County
T14S R10E
T15S R10E
33
34
04
03
08
09
10
17
16
15
14
13
20
21
22
23
24
transmission line
transmission line
Project Footprint Soil Units
Panoche loam, 0 to 2 percent slopes
Panoche loam, 2 to 9 percent slopes
Yolo gravelly loam, 0 to 5 percent slopes
Yolo loam, 2 to 9 percent slopes
Panhill loam, 2 to 9 percent slopes
Panoche sandy loam, 0 to 2 percent slopes
Shedd loam, 15 to 30 percent slopes, eroded
Vallecitos rocky loam, 30 to 50 percent slopes, eroded
Kettleman loam, 15 to 50 percent slopes, eroded
Los Banos clay loam, 15 to 50 percent slopes, severely eroded
Los Banos clay loam, 2 to 9 percent slopes
Gullied lands
Project Footprint
N
0
0.25
0.5
1
Miles
Source: proposed project ERP GIS 2014, NRCS GIS 2014
September 02, 2015
Panoche_AE_soils_V02.pdf
This map is for illustrative purposes only and does not represent a legal description.

Figure 3-14

Erosion Hazard

Potential soil erosion hazards vary depending on the use, conditions, and textures of the soils. The properties of soil that influence erosion by rainfall and runoff are ones that affect the infiltration capacity of a soil. These properties also affect the resistance of a soil to detachment and being carried away by water. Soils on steeper slopes would be more susceptible to erosion due to the effects of increased runoff. Soils containing high percentages of fine-grained sand and silt and having low densities (loose, uncompacted), are generally the most erodible.

All of the soils on the project footprint are classified as slightly susceptible to wind erosion and sheet and rill water erosion (NRCS GIS 2014). Erosion potential increases where these soils are disturbed by grading or by vehicles that loosen the upper surface or remove protective vegetation. However, due to the relatively gentle nature of the slope gradients at the project footprint (less than 30 percent), surface erosion is not expected to be a significant constraint to the proposed project (Ninyo and Moore 2009).

Soil Corrosivity

Soil corrosivity is generally related to the following key parameters: soil resistivity, presence of chlorides and sulfates, oxygen content, and pH. Typically, the most corrosive soils are those with the lowest pH and highest concentration of chlorides and sulfates. High sulfate soils are corrosive to concrete and may prevent complete curing, reducing its strength considerably. Low pH and low resistivity soils could corrode buried or partially buried metal structures (San Benito County 2010c).

The corrosive potential of several soil varieties at the project site has been reported by the NRCS. Those data were used to determine the corrosive soil potential in the project footprint. Ninyo and Moore (2009) categorized the soils on the project site in the range of low to high for corrosivity of concrete and low to high for steel.

Expansive Soils

Expansive soils are typically very fine grained, with a high to very high percentage of clay. Expansive soils are characterized by their ability to undergo significant volume change (shrink and swell) due to variation in soil moisture content. Soil moisture is affected by rainfall, irrigation, utility leaks, and perched groundwater. Shrinking and swelling can damage buildings, roads, and other structures when soils have moderate and higher shrink-swell potential. Special design commonly is needed in areas with expansive soils (San Benito County 2010c).

Soils in the project area are formed on alluvial fans at the west and east edges of Panoche Valley and on the alluvial plain in the center of the valley. The Panhill loam soil unit consists primarily of an equal mixture of sand-silt-clay, with moderate high shrink-swell potential (NRCS GIS 2014). The Panoche soil

complex consists primarily of loam and sandy loam, with a moderate shrink-swell potential (NRCS GIS 2014). The Yolo soils on the west side of the valley consist of an even mixture of sand-silt-clay loam and gravelly loam, with a low to moderate shrink-swell potential (NRCS GIS 2014).

Laboratory Results

Laboratory tests were performed on soil samples obtained during the geotechnical investigations to characterize soil characteristics of expansion and corrosivity (ENGEO 2010a).

Laboratory testing conducted for expansion indicated that near-surface soils exhibit low to high shrink-swell potential with variations in moisture content. The corrosion tests indicated that most of the samples tested have sulfate exposure characteristics that can be categorized as negligible and one sample having sulfate exposure that can be categorized as moderate. These classifications are in accordance with Table 19-A-4 of the California Building Code. This indicates that most of the soils would have low to no potential to corrode concrete.

The samples tested had low resistivities, which indicates that they are moderately to highly corrosive to buried metal (ENGEO 2010b). These tests generally verify the soil characteristics identified in the Panoche Valley NRCS soil survey, except that most of the soils tested actually had negligible potential for corrosion of concrete (San Benito County 2010c).

Sewage Disposal

The geotechnical investigation performed at the project site identified soils generally underlain by silty sand to a depth on 34 feet (ENGEO 2010a). Generally, silty sand has a percolation rate appropriate for on-site septic systems. Nonetheless, San Benito County Environmental Health Division would require a permit, a site evaluation including soil borings, and percolation testing by a registered professional who is competent in the field of sewage treatment and disposal (San Benito County Environmental Health Division 2010; San Benito County Municipal Code Section 15.07.002; San Benito County 2010c).

PG&E Telecommunications Upgrades

The environmental setting and potential geologic hazards of active faulting and seismicity are the same as those described above for the proposed project. Modifications and upgrades to the existing Call Mountain site, Panoche Mountain site, and Helm Substation would occur on previously disturbed land, so additional soils would not be disturbed.

No telecommunication upgrades would occur near any existing mineral resources or oil fields.

Westlands CREZ

Faults and Seismicity

In Fresno County the principal earthquake hazard is ground shaking (Fresno County 2014a). Most of Fresno County is in an area of relatively low seismic activity, in comparison to other areas of the state; however, there are a number of active and potentially active faults, as shown in **Figure 3-15**. These faults and fault systems, located along the eastern and western boundaries of the county, could produce high-magnitude earthquakes throughout the county.

There are no major fault zones in Kings County, and as such the county has not experienced any damaging earthquakes equal to or greater than M6.0 in the last 200 years (Kings County 2010a). Kings County is subject to natural hazards, including flooding, earthquakes, freezes, extreme heat, and thunder or hail storms. The County has developed proper hazard mitigation planning to diminish the impacts of these hazards on residents and on public facilities, businesses, and private property (Kings County 2010a).

The Westlands CREZ is not in an Alquist-Priolo Earthquake Fault Zone; therefore, the possibility of ground surface rupture at the site is remote (Westlands Water District 2013). The Westlands CREZ would be subject to ground shaking from an earthquake centered on the San Andreas Fault Zone, which is in the Coast Ranges Geomorphic Province to the west of the site.

Soils

The Westlands CREZ is composed of alluvial terrace (gently sloping to flat landscape with deposits of clay, silt, sand, and gravel left by rivers in a valley) material dated from Pliocene to Holocene (5.3 MA to present). Deposited material is composed of 14 soil types in the CREZ boundary (**Figure 3-16**).

NRCS data were also used to determine the presence of soils that could corrode steel and concrete, and expansive soils in the CREZ project boundary, as identified in **Table 3-20** and **Table 3-21**. Risk of corrosion pertains to soils with chemical and electrochemical characteristics that corrode or break down steel and concrete. The risk of corrosion is expressed as low, moderate, or high.

Table 3-20
Soils Corrosive to Steel in the Westlands CREZ in Acres

High	33,300
Moderate	2,000
Unclassified	60

Source: NRCS 2014

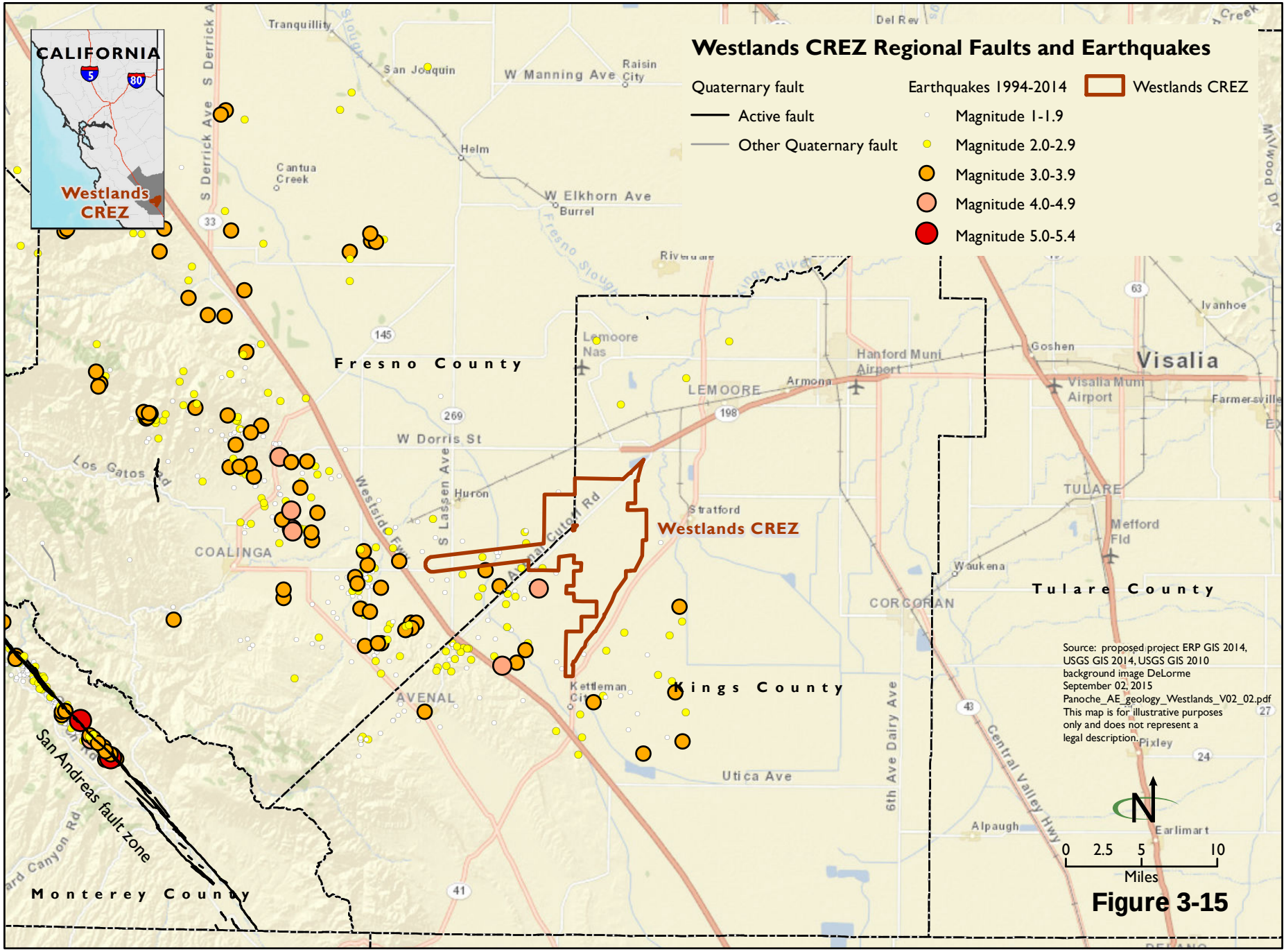

Westlands CREZ Regional Faults and Earthquakes
Quaternary fault
Active fault
Other Quaternary fault
Earthquakes 1994-2014
Magnitude 1-1.9
Magnitude 2.0-2.9
Magnitude 3.0-3.9
Magnitude 4.0-4.9
Magnitude 5.0-5.4
Westlands CREZ
CALIFORNIA
Westlands CREZ
Fresno County
Kings County
Tulare County
Monterey County
San Andreas fault zone
Visalia
TULARE
LEMOORE
COALINGA
AVENAL
CORCORAN
Hanford Muni Airport
Visalia Muni Airport
Lemoore Nas
Tranquillity
San Joquin
Raisin City
Helm
Burrel
Cantua Creek
Stratford
Huron
Kettleman City
Goshen
Ivanhoe
Armona
Waukena
Alpaugh
Pixley
Earlimart
Mefford Fld
Farmersville
W Manning Ave
W Elkhorn Ave
W Dorris St
Utica Ave
6th Ave Dairy Ave
Central Valley Hwy
Westside Fwy
S Lassen Ave
S Derrick Ave
Los Gatos Rd
Source: proposed project ERP GIS 2014, USGS GIS 2014, USGS GIS 2010 background image DeLorme September 02, 2015 Panoche_AE_geology_Westlands_V02_02.pdf This map is for illustrative purposes only and does not represent a legal description.
0 2.5 5 10
Miles

Figure 3-15

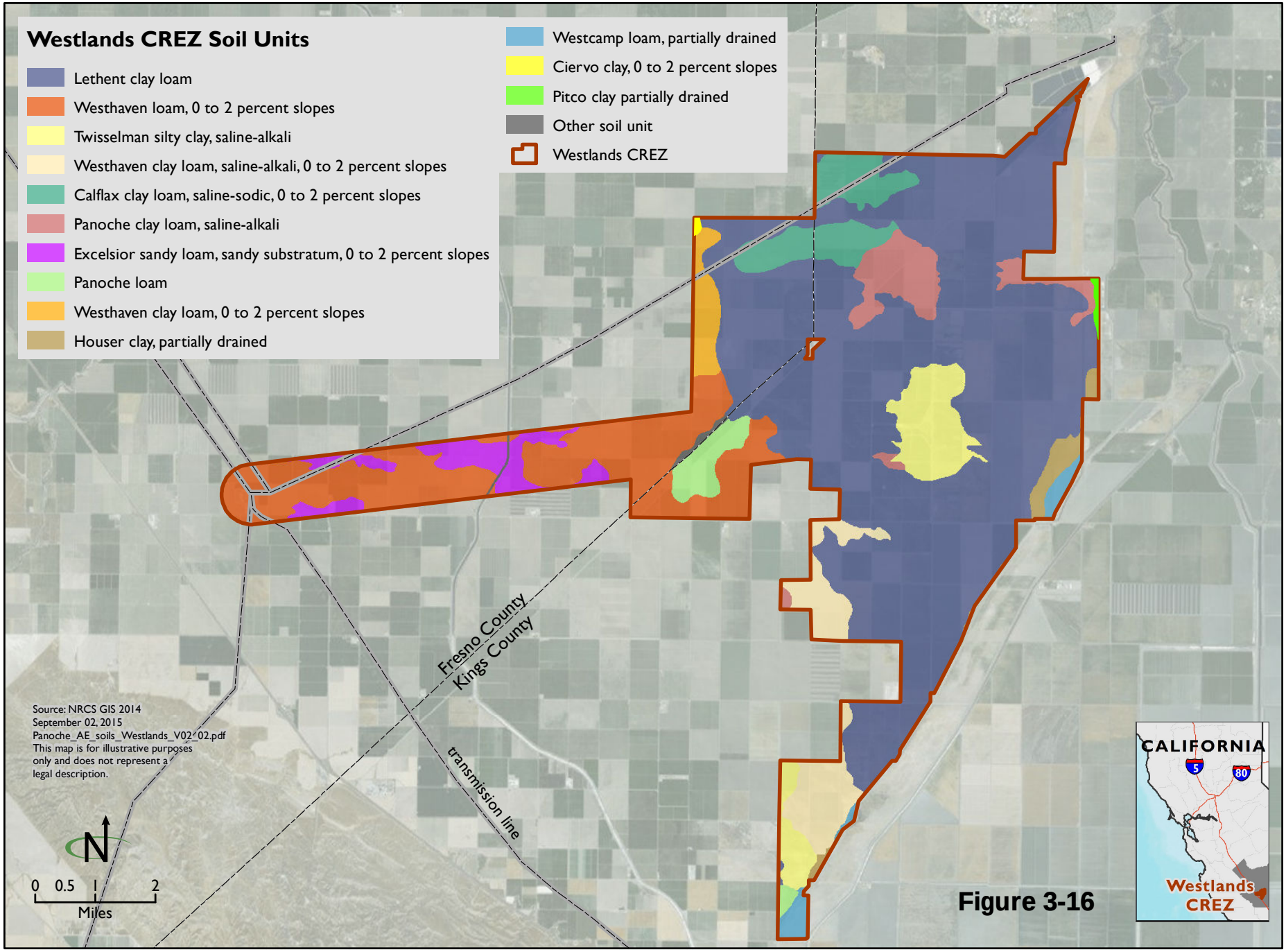

Westlands CREZ Soil Units
Lethent clay loam
Westhaven loam, 0 to 2 percent slopes
Twisselman silty clay, saline-alkali
Westhaven clay loam, saline-alkali, 0 to 2 percent slopes
Calflax clay loam, saline-sodic, 0 to 2 percent slopes
Panoche clay loam, saline-alkali
Excelsior sandy loam, sandy substratum, 0 to 2 percent slopes
Panoche loam
Westhaven clay loam, 0 to 2 percent slopes
Houser clay, partially drained
Westcamp loam, partially drained
Ciervo clay, 0 to 2 percent slopes
Pitco clay partially drained
Other soil unit
Westlands CREZ
Fresno County
Kings County
transmission line
Source: NRCS GIS 2014
September 02, 2015
Panoche_AE_soils_Westlands_V02_02.pdf
This map is for illustrative purposes only and does not represent a legal description.
N
0 0.5 1 2
Miles
CALIFORNIA
5
80
Westlands CREZ

Figure 3-16

Table 3-21
Soils Corrosive to Concrete in the Westlands CREZ in Acres

High	21,510
Moderate	9,680
Unclassified	60

Source: NRCS 2014

Expansive soils were determined using hydrologic soil groups, which are based on estimates of runoff potential. Hydrologic soil groups are broken into four categories, A, B, C, and D (NRCS 2014; **Table 3-22**):

- Group A soils have high infiltration rates when thoroughly wet and consist mainly of deep, well-drained sands or gravelly sands.
- Group B soils have moderate infiltration rates when thoroughly wet and are moderately deep and moderate well drained or well drained.
- Group C soils have slow infiltration rates when thoroughly wet and usually have a layer that impedes the downward movement of water.
- Group D soils have a very slow infiltration rate when thoroughly wet and consist chiefly of clays that have a high shrink well potential.

Table 3-22
Hydric Soils in the Westlands CREZ in Acres

A	1
B	3,120
C	13,070
D	19,120
Unclassified	60

Source: NRCS 2014

Groups C and D are the highest risk groups for expansive soils. The Westlands CREZ boundary would be further evaluated by a qualified engineering geologist if this project area were selected for development.

3.8.3 Environmental Impacts

This section analyzes the effects of each alternative on geology and soils and the effects on proposed project structures from geologic features or soil characteristics. The region of influence for geology and soils is the project footprint and telecommunications sites. Impacts would be considered significant if they were to result in one or more of the following:

- Expose people or structures to potential risk of loss or injury where there is high potential for seismically induced ground shaking, landslides, liquefaction, settlement, lateral spreading, or surface cracking
- Expose people or structures to potential risk of loss or injury where there is high potential for earthquake-related ground rupture in the vicinity of major fault crossings
- Trigger or accelerate geological processes, such as landslides, substantial soil erosion, or loss of topsoil during construction
- Expose people or structures to potential risk of loss or injury where corrosive, expansive, or other unsuitable soils are present
- Result in soils that are unable to support an on-site wastewater disposal system (septic)

Impacts on geology and soil resources are described below for construction of the solar facility.

No Action (No Build) Alternative

Under the no action (no build) alternative, the proposed project would not be constructed and no telecommunication upgrades would occur. Ongoing impacts on soils and erosion would continue from agricultural use of the project site.

No Action (No USACE Permit) Alternative

The following County-required measures were included as conditions of approval in the conditional use permit for the proposed project to reduce impacts on geology and soils and are considered part of the no action (no permit) alternative in this EIS. The full text of these measures is included in **Appendix C**, **Table C-1**, **Table C-2**, **and Table C-3.** The impacts of the no action (no permit) alternative on geology and soil resources with the incorporation of these measures is discussed below.

- **APM AQ-3. Reduce fugitive dust emissions during construction**. The applicant shall reduce fugitive dust emissions during construction through implementation of the following best management practices to be shown on grading and building plans:
  - Water graded/excavated areas and active unpaved roadways, unpaved staging areas, and unpaved parking areas at least three times daily or apply chemical soil stabilizers per manufacturer recommendations. Frequency should be based on the type of operations, soil, and wind exposure.
  - Apply chemical soil stabilizers or water on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days).

- Stabilize all disturbed soil areas not subject to revegetation using approved chemical soil binders, jute netting, or gravel for temporary roads.
- Place gravel on all roadways and driveways as soon as possible after grading.
- Implement permanent dust control measures identified in revegetation and landscape plans as soon as possible following completion of any soil-disturbing activities.

- **APM BIO-1.** All construction vehicle movement outside the project area would normally be restricted to pre-designated access, contractor acquired access, or public roads.
- **APM BIO-2.** The areal limits of construction activities would normally be predetermined, with activity restricted to and confined within those limits.
- **APM GEO-1.** In order to avoid expansive clay and mitigate possibly disturbed surface soil, overexcavation of building and equipment pads will be considered as required by the geotechnical report.
- **Mitigation Measure AQ-1.1. Further reduce fugitive dust emissions during construction**. Implement additional measures to significantly reduce fugitive dust emissions and require measures to be shown on grading and building plans. Such measures include limiting grading to 50 acres per day, and grading and excavation to 2.2 acres per day; watering graded/excavated areas and active unpaved roadways, unpaved staging areas, and unpaved parking areas at least three times daily or apply non-toxic chemical soil stabilization materials per manufacturer's recommendations; prohibiting all grading activities during periods of high wind (sustained over 15 mph); and minimizing dust leaving the site through wheel washers, street sweepers, gravelling roadways and driveways, and maintaining two feet of freeboard on haul truck.
- **Mitigation Measure BR-G.3. Develop and implement a Habitat Restoration and Revegetation Plan.** The Applicant shall restore disturbed areas to pre-construction conditions or better. Prior to the issuance of a building permit and removal of any soil or vegetation, the Applicant shall retain a County-approved, qualified biologist, knowledgeable in the area of annual grassland habitat restoration, to prepare a Habitat Restoration and Revegetation Plan (HRRP). The biologist would also be responsible for monitoring the initial implementation of the plan as the Applicant's attainment of the established success criteria.

- **Mitigation Measure GE-4.1. Implement Geotechnical Report recommendations.** All earthwork operations, including site preparation, and the selection, placement, and compaction of fill materials shall been performed in accordance with the recommendations and the project specifications set forth in the Geotechnical Report to ensure the safety of people and structures.
- **AMM AQ-1. Minimize fugitive dust**. PG&E will minimize dust emissions during construction by implementing the following measures: water all active construction areas at least twice daily; cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard; pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites; sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites; sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets; and post a publicly visible sign with the telephone number and person to contact regarding dust complaints.
- **AMM BR-PGE-2. Park vehicles and equipment in disturbed areas.** Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.
- **AMM BR-PGE-4. Minimize disturbance from vehicle access.** The development of new access and ROW roads will be minimized, and clearing vegetation and blading for temporary vehicle access will be avoided to the extent practicable.
- **AMM BR-PGE-9. Restoration and erosion control.** Upon completion of any Project component, all areas that are significantly disturbed and not necessary for future operations, shall be stabilized to resist erosion, and re- vegetated and re-contoured if necessary, to promote restoration of the area to pre-disturbance conditions.

Construction

Construction of the solar facility would include the installation of more than 1 million PV panels, 151 power blocks and associated inverter and transformer systems, and fencing and perimeter road. This would result in the direct surface disturbance of 1,796 acres of soils that are at least slightly susceptible to wind erosion. Soils could be further impacted indirectly through increased erosion rates after disturbance. As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Under these measures, the applicant would control fugitive dust emissions to the extent possible, including suspending grading during high wind conditions (APM AQ-3 and Mitigation Measure AQ-1.1). In addition, areas of temporary disturbance

would be restored to their preconstruction state or better, in accordance with the Habitat Restoration and Revegetation Plan (Mitigation Measure BR-G.3). Disturbed areas would be recontoured, where appropriate, and planted with an approved certified weed-free seed mix. This would reduce the potential for erosion in these areas once the vegetation becomes established. Erosion and sediment control measures as described above would be implemented at revegetated areas to minimize soil movement. If revegetation does not work, then interim erosion control measures would be implemented, such as use of certified weed-free straw mulch, fiber rolls, or straw bale barriers. Because these measures have been incorporated into the no action (no permit) alternative to minimize erosion, direct and indirect impacts on soils would be less than significant. No additional mitigation measures were identified to further reduce impacts.

Geotechnical investigations completed for the project site indicate the presence of soils that are potentially corrosive to steel and concrete and soils with shrink/swell potential or expansive soils. If site soils are expansive or are corrosive to unprotected steel and concrete, the support structures for the solar arrays and building foundations can be weakened. As part of the CEQA EIR certification and project approval process, the applicant committed to implementing APM GEO-1 and Mitigation Measure GE-4.1, which would prevent the weakening of structures due to expansive and corrosive soils through proper design, selection of materials, and site preparation. Soils identified as expansive would be overexcavated if directed by the geotechnical report. PV panels would be installed on direct-driven, corrosion-resistant, galvanized steel support structures. These structures may be placed in holes and backfilled with concrete, depending on the local soil characteristics, to reduce corrosion potential, based on additional geotechnical evaluations. Because measures to prevent impacts related to expansive and corrosive soils have been incorporated into the no action (no permit) alternative, impacts from these soil characteristics would be less than significant. No additional mitigation measures were identified to further reduce impacts.

Moderate to strong ground shaking may occur at the project site during construction and over the life of the project as a result of the proximity of the Ortigalita and San Andres fault zones. However, no known active faults cross the project site, indicating that there is a low potential for damage to the structures from fault rupture. Local ground shaking with vertical and horizontal ground accelerations may occur. Adherence to the California Building Code design requirements, standard geotechnical engineering practices, and seismic building code requirements would reduce the potential for major damage to structures during ground shaking, resulting in a less than significant impact. Seismically induced slope failures and landslides are not expected to impact the proposed facilities due to the flat and gently sloping topography. Overall, impacts associated with ground shaking would be direct and indirect and less

than significant. No additional mitigation measures were identified to further reduce impacts.

Liquefaction hazards for the site are considered to be low due to groundwater being more than 100 feet in depth, except for one area of perched groundwater at 39 feet. Another factor is that the local sediments generally are dense to very dense, as identified by geotechnical investigations, a condition that is not conducive to liquefaction. Loose sediments were identified in the southern portion of the project footprint, but the groundwater depth indicates that this area is still considered to have low potential for liquefaction. The no action (no permit) alternative would therefore have no impacts related to liquefaction. No mitigation measures are required.

The no action (no permit) alternative would include an on-site septic and leach field for wastewater disposal for staff at the O&M building. The geotechnical investigation identified soils at the proposed O&M building site as silty sand to a depth of 34 feet, which generally has an appropriate percolation rate for on-site septic systems. A sewage disposal installation permit would be required with the policy and procedures for sewage disposal system application. The planning, site evaluation, percolation testing, and design of the on-site septic system must comply with the requirements of the San Benito County Health Department, Environmental Health Division, and must be acceptable to health officials. Compliance with San Benito County's regulatory requirements for the on-site septic system would ensure there would be no impacts from inadequate soils on the septic system. No further mitigation is required.

Operational and Maintenance Activities

There would be no ground-disturbing activities under operations and thus no direct impacts associated with erosion. The perimeter road and driveways would be graveled and interstitial space between the arrays would be vegetated, limiting soil erosion associated with on-site travel. Adherence to speed limits would further limit erosion from on-site travel. Therefore, erosion impacts associated with operational and maintenance activities would be less than significant. Impacts from ground shaking, corrosive soils, and liquefaction would be as described under *Construction*, above, and would be less than significant. No additional mitigation measures were identified to further reduce impacts.

PG&E Telecommunication Upgrades

<u>Primary Telecommunication Upgrades</u>. Primary telecommunication upgrades would temporarily disturb approximately 5.73 acres at 12 pull/splice sites, 4 helicopter landing zones, 11 temporary guard structure sites, and 12 wood pole work areas along 17 miles of the Moss Landing-Panoche transmission line corridor right-of-way. Activities at these sites would disturb soils, resulting in soil erosion. PG&E has committed to avoidance and minimization measures to reduce dust (AMM AQ-1) and to stabilize all areas that are significantly

disturbed to resist erosion and to restore areas to pre-disturbance conditions (AMM BR-PGE-9). Because these measures have been included as County-required conditions of approval and are part of the no action (no permit) alternative, impacts would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Secondary Telecommunication Upgrades. Construction impacts from installing a new microwave tower at the project site would be the same as described for constructing project structures, as described above; approximately 0.23 acre would be permanently disturbed within the footprint of the project switching station.

Modifications to the Call Mountain and Panoche Mountain towers would have no impacts on geology and soils, as equipment would be collocated on existing towers, and disturbance would be limited to the existing access roads leading to these sites and the footprint around the towers.

Installing a new microwave tower at Helm Substation would have no impacts, as work would occur within the graveled fence line of the substation and the tower would comply with all applicable California Building Code design requirements, standard geotechnical engineering practices, and adherence to seismic building code requirements.

Alternative A (Applicant's Proposed Project)

Construction and Operational and Maintenance Activities

Alternative A would have similar geology and soils impacts as the no action (no permit) alternative. The applicant-proposed measures and County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. Under Alternative A there would be a similar amount of disturbance. Because the overall level of permanent and temporary disturbance is not substantially different under Alternative A, impacts would be similar to those described under the no action (no permit) alternative and would be less than significant. No additional mitigation measures were identified to further reduce impacts.

PG&E Telecommunication Upgrades

Impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative.

Alternative B (On-Site Alternative)

Construction and Operational and Maintenance Activities

Direct and indirect impacts on geology and soils under Alternative B would be the same as described above for the no action (no permit) alternative. The applicant-proposed measures and County-required mitigation measures

identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. No additional mitigation measures were identified to further reduce impacts.

PG&E Telecommunication Upgrades

Impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative.

Alternative C (Off-Site Alternative, Westlands CREZ)

Construction

The Westlands CREZ includes 35,470 acres of Westlands Water District lands in Kings and Fresno Counties that have been or are being retired from agricultural production. This is because of water shortages and salt buildup in the soil that makes the soil toxic to crops. Permanent and temporary disturbance would result from the construction of solar project features within the Westlands CREZ. Impact levels and appropriate mitigation measures would vary, depending on the location of the project within the Westlands CREZ but would likely be similar in type to those described under the no action (no permit) alternative.

NRCS data indicate that there are soils identified as highly corrosive to steel and concrete, and soils that may be expansive within the Westlands CREZ. As described under the no action (no permit) alternative, the area is susceptible to moderate to strong ground shaking due to the proximity of the San Andres and Oritgas fault zones. No faults cross through the Westlands CREZ, so the area is not at risk for fault rupture.

The Westland CREZ is a gently sloping to flat landscape with deposits of clay, silt, sand, and gravel. This indicates that the area is not a risk for landslides but may be at risk for liquefaction.

The Westlands CREZ soils are classified by the NRCS Septic Tank Absorption Fields as somewhat limited to very limited. This indicates soils that are moderately favorable to unfavorable for a septic system installation. NRCS states that areas identified as very limited may have soil constituents that cannot be overcome and cannot be used for septic system placement; by contrast, soils classified as somewhat limited may have those limitations overcome by appropriate project planning, design, and installation (NRCS 2014).

Geotechnical analysis would be required when designing materials for and building structures in the Westlands CREZ.

Specific BMPs and measures have not been developed for this alternative. However, measures similar to those described under the no action (no permit)

alternative are recommended to reduce potential impacts on soils and geologic resources. These measures also would ensure that project features are designed and constructed in compliance with California Building Codes and in consideration of site conditions. The USACE does not have the authority to require or implement such measures at the Westlands CREZ; however, similar measures would be required if necessary for specific site conditions as part of the process to obtain the necessary building and grading permits from Fresno or Kings Counties. With the implementation of the mitigation measures identified, impacts would be less than significant.

Westlands CREZ

Operational and Maintenance Activities

Impacts would be the same as those described under the no action (no permit) alternative and would be less than significant. This is because similar operational and maintenance activities would occur. No additional mitigation measures were identified to further reduce impacts.

3.8.4 Cumulative Impacts

No Action (No Permit) Alternative, Alternative A, and Alternative B

The geographic scope for the cumulative effects analysis for geology and soils is the project footprint and associated telecommunication sites that would be updated or modified, as well as the areas immediately surrounding project work sites. The proposed project and other reasonably foreseeable actions have the potential for increasing erosion associated with earth-disturbing actions. Triggering or accelerating erosion or slope failures would be limited to the areas in and next to the boundaries of individual projects.

Generally, geology and soil resources occur at specific locales and are unaffected by activities not acting on them directly. In order to be cumulatively considerable, such conditions usually would have to occur at the same time and in the same location as the proposed project. However, where multiple projects would occur at the same time within a watershed, they could have a cumulatively significant impact on the watershed (see **Section 3.9**, Hydrology and Water Quality). All projects would be subject to County, Regional Water Quality Control Board, or California Public Utilities Commission requirements for erosion controls. Additionally, the projects would require the use of BMPs to prevent erosion and sedimentation. Therefore, proposed project impacts are would be cumulatively less than significant.

Seismic impacts (ground shaking, earthquake induced ground failure, and fault rupture) from the numerous local and regional faults could result in an impact on individual projects. Strong to severe ground shaking may occur at the project sites during their life. This could result in collapse of structures and the potential for transmission line damage, damage to nearby roads or structures, and possibly injury or death. Past and future projects close to existing structures

would be exposed to the same conditions and therefore the same impacts. However, building design that complies with the California Building Code and transmission lines complying with CPUC design specifications would minimize risks to the listed cumulative projects to less than significant levels.

Alternative C

The geographic scope for the cumulative effects analysis for geology and soils for Alternative C is the 35,470-acre Westland CREZ site. As with no action and Alternatives A and B, geologic soils resources occur at specific locales and are unaffected by activities not acting on them directly. Thus, cumulative impacts of a proposed solar facility on soils or of geologic features on proposed projects are the same as those described under no action and Alternative A and B. Less than significant cumulative impacts would be the same as described above.

3.9 HYDROLOGY AND WATER QUALITY

3.9.1 Regulatory Environment

Clean Water Act

Applicable Sections 303, 401, 402, and 404 of the CWA are described below.

Section 303. Under Section 303(d), states, territories, and authorized tribes must identify and make a list of surface water bodies that are polluted. These water bodies, referred to in law as "water quality limited segments," do not meet water quality standards even after discharges of wastes from point sources have been treated by the minimum required levels of pollution control technology. States are required to compile these water bodies into a list, referred to as the "Clean Water Act Section 303(d) List of Water Quality Limited Segments" (the list). States must also prioritize the water bodies on the list and develop total maximum daily loads (TMDLs) to improve the water quality (State Water Resources Control Board 2014a).

In California, the State Water Resources Control Board and Regional Water Quality Control Boards (RWQCBs) have ongoing efforts to monitor and assess water quality, to prepare the Section 303(d) list, and to develop TMDL requirements.

Section 401. Under Section 401, every applicant for a federal permit or license for any activity that could result in a discharge to a water body must obtain a State Water Quality Certification. This certifies that the proposed activity would comply with state water quality standards and other applicable requirements (Lahonton RWQCB 2014). In California, RWQCBs issue or deny water quality certification for discharges in their jurisdiction. For the proposed project, the Central Valley RWQCB would be responsible for issuing a water quality certification. Most water quality certifications are issued in connection with USACE Clean Water Act Section 404 permits for dredge and fill discharges (described below).

Section 402. Under Section 402, the National Pollutant Discharge Elimination System (NPDES) Permit Program controls water pollution by regulating point sources that discharge pollutants into waters of the U.S. (State Water Resources Control Board 2014b). Stormwater discharges from construction that disturbs one or more acres are regulated under the NPDES stormwater program (EPA 2014a). Before discharging stormwater, construction site operators must obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (referred to as a construction general permit) according to State Water Resources Control Board Order 2009-0009-DWQ (State Water Resources Control Board 2014c). construction general permits are typically implemented and enforced by the RWQCB with jurisdiction over the location of construction. For the proposed project, NPDES regulations are administered by the Central Valley RWQCB.

The construction general permit requires the development and implementation of a stormwater pollution prevention plan (SWPPP). In addition to contacting the Central Valley RWQCB for assistance, there are various sources of guidance, such as *Developing Your Stormwater Pollution Prevention Plan, A Guide for Construction Sites* (EPA 2007), for construction site operators needing to prepare an SWPPP. The plan should contain the following:

- A site map depicting construction site perimeter, existing and proposed buildings, lots, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the project
- A list of BMPs the discharger would use to protect stormwater runoff and the placement of those BMPs
- A visual monitoring program
- A chemical monitoring program for "nonvisible" pollutants to be implemented if there is a failure of BMPs
- A sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment (State Water Resources Control Board 2014c)

Section 404. Under Section 404, a permit is required from USACE prior to the discharge of dredged or fill material into the waters of the U.S., including wetlands. USACE responsibilities under Section 404 are discussed in Section 3.6, Biological Resources.

Executive Order 11988

A floodplain is a geographic area of relatively level land that is occasionally subject to inundation by surface water from rivers or streams. A 100-year flood has a one percent chance of being equaled or exceeded in magnitude in any given year. A 100-year floodplain is covered by water in the event of a 100-year flood.

Executive Order 11988 requires federal agencies to avoid to the extent possible the long-term and short-term adverse impacts associated with the occupancy and modification of floodplains. It also requires federal agencies to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. In accomplishing this objective, "each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities" for the following actions:

- Acquiring, managing, and disposing of federal lands and facilities
- Providing federally undertaken, financed, or assisted construction and improvements
- Conducting federal activities and programs affecting land use, including water and related land resources planning, regulation, and licensing activities (Federal Emergency Management Agency [FEMA] 2014a)

Executive Order 11988 guidelines address an eight-step process that agencies should carry out as part of their decision-making on projects that have potential impacts on or in the floodplain. The following steps reflect the decision-making process required in Section 2(a) of the Executive Order (FEMA 2014a):

1. Determine if a proposed action is in the base floodplain (that area that has a one percent or greater chance of flooding in any given year)
2. Conduct early public review, including public notice
3. Identify and evaluate practicable alternatives to locating in the base floodplain, including alternative sites outside of the floodplain
4. Identify impacts of the proposed action
5. If impacts cannot be avoided, develop measures to minimize the impacts and restore and preserve the floodplain, as appropriate
6. Reevaluate alternatives
7. Present the findings
8. Implement the action

The Interagency Task Force on Floodplain Management emphasizes the requirement for agencies to select alternative sites for projects outside the floodplains, if practicable, and to develop measures to mitigate unavoidable impacts (FEMA 2014a). Policy, procedure, and responsibilities to implement and enforce Executive Order 11988, Floodplain Management, are found in 44 CFR, Part 9.

Senate Bills 610 and 221

Senate Bill (SB) 610 and SB 221 are companion measures that seek to promote more collaborative planning between local water suppliers and cities and counties. Both statutes require detailed information regarding water availability to be provided to the city and county decision-makers before approval of specified large development projects (California Department of Water Resources [DWR] 2003). Due to the size and water use of the project, it does not meet the criteria for projects that need to comply with SB 610 and SB 221 requirements, such as preparing an SB 610 water supply assessment. Nonetheless, a comprehensive hydrological study was prepared that analyzed the adequacy of the water supply to serve project water demand (Geologica, Inc. 2010a).

Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Water Quality Control Act, the State Water Resources Control Board has the ultimate authority over state water rights and water quality policy. However, the Porter-Cologne Water Quality Control Act also establishes nine RWQCBs to oversee water quality at the local and regional levels.

The RWQCBs engage in a number of water quality functions in their respective regions. One of the most important is preparing and periodically updating water quality control plans (basin plans). Each basin plan establishes beneficial uses of water designated for each water body to be protected; water quality standards, known as water quality objectives, for both surface water and groundwater; and actions necessary to maintain these standards in order to control pollution to the state's waters (California Natural Resources Agency 2014a).

The proposed project falls under the jurisdiction of the Central Valley RWQCB, which has developed two basin plans. These plans identify how the quality of the surface and groundwater in the Central Valley should be managed to provide the highest water quality reasonably possible.

The particular basin plan that covers the area of the proposed project is the Tulare Lake Basin Plan. It lists designated beneficial uses of water in the region, describes the water quality that must be maintained to allow for those uses, describes the programs, projects, and other actions necessary to achieve the standards established in the basin plan, and summarizes plans and policies to protect water quality.

No surface waters on the proposed project site have designated beneficial uses, while groundwater resources in the project area (Panoche Valley Groundwater Basin) has the beneficial use designation of Municipal and Domestic Supply. In accordance with the designation, as defined by the Tulare Lake Basin Plan, "…uses of water for community, military, or individual water supply systems, including but not limited to drinking water supply" are permitted (Central Valley

RWQCB 2004). The proposed project may not disrupt designated beneficial uses of any waters in the project area.

California Fish and Game Code Section 1602

Section 1602 of the California Fish and Game Code applies to any work undertaken in or near a river, stream, or lake that flows at least intermittently through a bed or channel. This includes ephemeral streams, desert washes, and watercourses with a subsurface flow. It may also apply to work undertaken in the floodplain of a body of water (California Department of Fish and Wildlife 2014a). It requires any person, state, or local governmental agency or public utility to notify the CDFW before beginning any activity that would result in one or more of the following:

- Substantially divert or obstruct the natural flow of any river, stream, or lake
- Substantially change or use any material from the bed, channel, or bank of any river, stream, or lake
- Deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake (California Department of Fish and Wildlife 2014a)

If the CDFW determines that the activity may substantially adversely affect fish and wildlife resources, a lake or streambed alteration agreement would be prepared. The agreement includes reasonable conditions necessary to protect those resources and must comply with the CEQA (CDFW 2014a).

California Water Code Section 13050(e)

California Water Code Section 13050(e) defines waters of the State as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Legislative Counsel of California 2014a). Because basin plans establish water quality objectives for waters of the State, the proposed project is subject to the Tulare Lake Basin Plan.

California Water Code Section 13260

California Water Code Section 13260 requires that any person discharging waste or proposing to discharge waste in any region that could affect the quality of the waters of the State, other than into a community sewer system, to file a report of waste discharge with the appropriate regional water board. The report should contain such information and data as may be required by the board (Legislative Counsel of California 2014b). Proposed project actions subject to California Water Code Section 13260 would be reported to the Central Valley RWQCB.

California Department of Water Resources Bulletins 74-90 and 74-81

Groundwater can be polluted when poor-quality water or chemicals enter a well at the surface and then travel through that well to groundwater. Groundwater can also be polluted when poor-quality groundwater or chemicals already in an underground layer enter a well and then move through that well to another layer containing good-quality groundwater.

In order to protect groundwater, the Department of Water Resources published Bulletin 74-90 as a supplement to Bulletin 74-81. Together, the two bulletins form the complete minimum well standards for the construction, maintenance, abandonment, and destruction of water wells, monitoring wells, and cathodic protection wells (California Department of Water Resources 2014a). The proposed project would be subject to Bulletins 74-90 (California Well Standards) and 74-81 (Water Well Standards: State of California).

California Water Code Section 13750.5 and 13751

California Water Code Section 13750.5 requires that those responsible for the construction, alteration, or destruction of water wells, cathodic protection wells, groundwater monitoring wells, or geothermal heat exchange wells possess a C-57 Water Well Contractor's License. California Water Code Section 13751 requires that anyone who constructs, alters, or destroys a water well, cathodic protection well, groundwater monitoring well, or geothermal heat exchange well must file with the Department of Water Resources a report of completion within 60 days of the completion of the work (California Department of Water Resources 2014b). The proposed project would be subject to California Water Code Section 13750.5 and 13751.

San Benito County General Plan

San Benito County is updating its 1995 general plan. The Open Space And Conservation Element of the general plan contains goals, policies, and actions involving water resources that are applicable to the proposed project. They are as follows (San Benito County 1995):

<u>Policy 7. Grading, erosion, and native tree removal</u>. It is the policy of the County to minimize erosion resulting from grading and cutting and native tree removal for all development proposals.

> Action 2: Topsoil shall be stockpiled and reapplied after grading to enhance revegetation, and sedimentation shall be retained on-site and outside of water features (including seasonal).
>
> Action 3: Measures shall be taken to reduce erosion of stockpiles topsoil.

<u>Policy 8. Development in drainage basins</u>. It is the County's policy to minimize development/uses in drainage basins that could alter the path of watercourses and impede groundwater recharge.

Action 2: Limit cut-and-fill of watercourses for flood control improvements.

Action 3: Prohibit dumping into creek beds and watercourses and require property owners to clean up existing unauthorized dumps.

Policy 9. Water quality improvement. It is the policy of the County to cooperate with the Regional Water Quality Control Board to improve water quality problems identified for the County, to maintain water quality on all drainage, and to develop policies and programs for the protection and enhancement of habitat for fish on major tributaries to the Pajaro River (San Benito River, Pacheco Creek) and water quality in the Silver Creek watershed.

Policy 19. Natural resources protection. The County recognizes the need for both conservation and development of natural resources, and recognizes that the use of these natural resources, if not properly managed, can lead to their loss. It would be the County's policy to protect, wherever possible, watersheds, creeks, and rivers, soil, and mineral resources through the enactment of appropriate legislative vehicles.

Policy 24. Floodplain and agricultural areas. Where there is a coincidence of high agricultural productivity and 100-year flood plain/groundwater recharge area, the land should be retained in agriculture to serve dual open space functions.

Policy 30. Water quality from development. It is the policy of the County to require development projects that could contribute to the contamination and degradation of groundwater quality to be redesigned to avoid significant impacts.

Action 1: Applications for development proposals (e.g., mining, golf course, or industry near watercourse) that could contribute to ground or surface water degradation shall be designed to minimize water quality impacts.

Policy 31. Wastewater treatment. Wastewater treatment systems shall be designed to ensure the long-term protection of groundwater resources in San Benito County. Septic systems shall be limited to areas where sewer services are not available and where it can be demonstrated that septic systems would not contaminate groundwater. Every effort should be made in developing and existing developed areas to reduce the use of septic systems in favor of domestic wastewater treatment. Domestic wastewater treatment systems shall be required to use tertiary wastewater treatment as defined by Title 22.

Policy 32. Groundwater studies for new development. To prevent overdrafting in San Benito County, a groundwater development plan shall be required for appropriate new development proposals.

Action 1: For large-scale development projects, the cumulative effects of development on water quality and quantity shall be evaluated in a geohydrology study that determines the effect of the development on the safe-yield of the applicable groundwater basin.

Action 2: Discourage land uses that would contribute to overdraft.

Policy 33. Water conservation. To ensure more efficient use of groundwater resources it will be the policy of the County to require conservation of water resources in San Benito County and encourage interagency conservation to develop policies and programs for the protection and enhancement of habitat for fish on major tributaries to the Pajaro River (San Benito River, Pacheco Creek).

Action 1: Implement the San Benito County Conservation Plan.

Action 3: Require the use of reclaimed water irrigation systems wherever possible.

Policy 34. Evidence water quality and quantity for development. Approval of new developments shall not be allowed without evidence of adequate water quality and quantity.

Action 2: Development applications shall be strongly discouraged if proposed water sources do not meet primary state drinking water standards (with the exception of specific conductance and total dissolved solids).

Action 3: Well tests for nonagricultural development shall provide evidence that 100 percent of the water needs may be met without use of San Felipe Water.

Policy 40. Development in State Responsibility Areas. All new development shall be required to conform to the standards and recommendations for applicable fire protection agency to an acceptable fire protection risk level (California Department of Forestry and Fire Protection, County, incorporated city).

Action 5: Measures to reduce fire hazards for the protection of persons, property, and natural resources for existing and new development (e.g. fuel modification zones) shall provide evidence that they will implement policies for preservation of wildlife, reduction of soil erosion, watershed, and protect natural resources from fire hazards.

Policy 42. Flood hazard. One of the County's prime responsibilities is for the health, safety, and welfare of its citizens and property. Because the County recognizes the inherent dangers of construction or development in a flood prone area, it shall be the County's policy to discourage development in areas

identified as potential flood hazard areas. Furthermore, it is the County's policy to protect and preserve the 100-year floodplain on the most recent adopted FEMA maps or other maps as wetland resources, watersheds, and tributaries as natural resources for water supply, groundwater recharge, riparian habitat, and fishes.

> Action 1: The County recognizes that the flood prone areas make up only a small portion of the entire County lands, and therefore significant amounts of developable areas still remain. With this in mind, the County has enacted a Flood Plain zoning designation, which would preclude development in areas subject to flooding as identified on the FEMA maps.

Policy 43. Reduce effects of flooding from development. It is the County's policy to take measures to reduce potential effects of flooding from new development and encourage flood control improvements.

> Action 3: Drainage systems shall be designed to reduce the velocity and volume of stormwater runoff off site to predevelopment levels for a 10-year storm interval.

Fresno County General Plan

The Public Facilities and Services Element of the Fresno County General Plan contains the following water resources policies (Fresno County 2014a):

- PF-E.9 100-year Flood Protection—The County shall require new development to provide protection from the 100-year flood as a minimum.
- PF-C.21 Wells Near Water Courses—For development projects that are subject to discretionary permit and include new wells close to live streams or water courses, the County may require a hydrological study to evaluate potential effects on live streams or water courses.

The Health and Safety Element of the Fresno County General Plan contains the following water resources policy (Fresno County 2014a):

- HS-C.917 Essential Facilities Siting—The County shall prohibit the construction of essential facilities (e.g., hospitals, police and fire facilities) in the 100- and 200-year floodplains, unless it can be demonstrated that the facility can be safely operated and accessed during flood events.

The Open Space and Conservation Element of the Fresno County General Plan contains the following water resources policies (Fresno County 2014a):

- OS-A.1921 Floodplain Protection—The County shall require the protection of floodplain lands and, where appropriate, acquire

public easements for purposes of flood protection, public safety, wildlife preservation, groundwater recharge, access, and recreation.

- OS-A.2224 Septic Systems Design—The County shall not approve the creation of new parcels that rely on the use of septic systems of a design not found in the California Plumbing Code (California Code of Regulations, Title 24, Part 5).
- OS-D.1 No-Net-Loss Wetlands Policy—The County shall support the "no-net-loss" wetlands policies of the US Army Corps of Engineers, the US Fish and Wildlife Service, and the California Department of Fish and Game. Coordination with these agencies at all levels of project review shall continue to ensure that appropriate mitigation measures and the concerns of these agencies are adequately addressed.
- OS-D.2 Wetland Loss Mitigation—The County shall require new development to fully mitigate wetland loss for function and value in regulated wetlands to achieve "no-net-loss" through any combination of avoidance, minimization, or compensation. The County shall support mitigation banking programs that provide the opportunity to mitigate impacts on rare, threatened, and endangered species and the habitat which supports these species in wetland and riparian areas.
- OS-D.3 Adjacent Wetland Protection—The County shall require development to be designed in such a manner that pollutants and siltation do not significantly degrade the area, value, or function of wetlands. The County shall require new developments to implement the use of Best Management Practices (BMPs) to aid in this effort.
- OS-D.4 Riparian Protection Zones—The County shall require riparian protection zones around natural watercourses and shall recognize that these areas provide highly valuable wildlife habitat. Riparian protection zones shall include the bed and bank of both low- and high-flow channels and associated riparian vegetation, the band of riparian vegetation outside the high-flow channel, and buffers of 100 feet in width as measured from the top of the bank of unvegetated channels and 50 feet in width as measured from the outer edge of the dripline of riparian vegetation.
- OS-D.6 Native Riparian Habitat Protection—The County shall require new private or public developments to preserve and enhance existing native riparian habitat unless public safety concerns require removal of habitat for flood control or other purposes. In cases where new private or public development results in modification or destruction of riparian habitat for purposes of flood control, the developers shall be responsible for creating new

riparian habitats in or near the project area. Adjacency to the project area shall be defined as being in the same watershed sub-basin as the project site. Compensation shall be at a ratio of three acres of new habitat for every one acre destroyed.

Kings County General Plan

The Resource Conservation Element of the Kings County General Plan contains the following water resources policies (Kings County 2010a):

- RC Policy A1.1.2—Review new discretionary development proposals, including new or expanded uses in agricultural zone districts, to ensure that there are adequate water supplies to accommodate such uses. Projects should provide evidence of adequate and sustainable water availability before approval of a tentative map or other land use approval.
- RC Policy A1.4.3—Require the use of feasible and cost-effective Best Management Practices (BMPs) and other measures designed to protect surface water and groundwater from the adverse effects of construction activities and urban and agricultural runoff in coordination with the California Water Quality Control Board, Central Valley Region.
- RC Policy D2.1.1—Follow state and federal guidelines for the protection of natural wetlands. Require developers to obtain authorization from the appropriate local, state, or federal agency before any wetland fill activities begin.

The Health and Safety Element of the Kings County General Plan contains the following water resources policies (Kings County 2010a):

- HS Policy A4.1.3—Determine base flood elevations for new development proposals in or next to 100 year flood zone areas as identified in latest FEMA Digital Flood Insurance Rate Map, to definitively assess the extent of property potentially subject to on-site flood hazards and risks.
- HS Policy A4.1.5—Regulate development, water diversion, vegetation removal, and grading to minimize any increase in flood damage to people and property.
- HS Policy A4.1.6—New development shall provide on-site drainage or contribute towards their fair share cost of off-site drainage facilities to handle surface runoff.

The Land Use Element of the Kings County General Plan contains the following water resources policies (Kings County 2010a):

- LU Policy A1.2.5—All new temporary and permanent structures proposed by private land owners within designated floodway channels as identified by FEMA shall be submitted to the County for review and required to comply with Central Valley Flood Protection Board requirements, and all other applicable Federal, State, or Local agency requirements.
- LU Policy B6.2.1—Flood zones within the General Agriculture designations shall be considered appropriate land use areas that have the potential to receive emergency floodwater. Specific basin sites shall be determined by the relevant water, irrigation, reclamation or flood control district having authority over territories along waterways and the Tulare Lake Basin.
- LU Policy F1.1.2—New community proposal(s) are strongly discouraged in locations designated "Medium" to "Highest" Priority Agricultural Areas according to the County's Priority Agricultural Lands Map, or Special Flood Hazard Areas identified on FEMA Flood Insurance Rate Maps (See Figure LU-18 in the Land Use Element of the Kings County General Plan).

3.9.2 Affected Environment

Proposed Project

Regional Watersheds

Three major ephemeral creeks or washes flow through the project site: an unnamed creek, Panoche Creek, and Las Aguilas Creek (WH Pacific 2014); these creeks are part of the larger Panoche/Silver Creek Watershed, which is upstream and to the west of Mendota, California, in the Panoche-San Luis Reservoir 8-digit hydrologic unit code (HUC) watershed (HUC 18040014). Silver Creek Ranch, Valadeao Ranch, and the Valley Floor Conservation Lands are in this watershed. The watershed encompasses approximately 300 square miles upstream of Interstate 5 (Power Engineers 2009a). The watershed is on the western edge of the San Joaquin Valley and is in a semiarid region (McCulley, Frick & Gilman, Inc. and William Lettis & Associates, Inc.1998).

Influx of water into Panoche Valley is limited to precipitation in the drainage basin. Average precipitation varies over the Panoche Valley; 10 to 12 inches of precipitation falls annually on the western edge of the valley, and as little as five to six inches falls to the north and east. An average of seven inches of precipitation was estimated for the approximately 12,000 acres of rangeland in the valley floor and eight inches per year in the surrounding 21,000 acres of sparsely vegetated uplands. This yields approximately 21,000 acre-feet of water per year for the Panoche Valley Basin (Geologica, Inc. 2010b).

Surface Water Sources

Surface water in the area is generally ephemeral, present only in response to precipitation (**Figure 3-17**). Multiple unnamed intermittent streams and washes drain from the Panoche Hills to the northeast, the Las Aguilas Mountains to the northwest, and the Diablo Range to the south and southeast. The proposed project site is traversed by multiple intermittent and ephemeral streams and washes, including Panoche Creek, Las Aguilas Creek, and an unnamed wash. Numerous smaller unnamed ephemeral drainages are located along the eastern boundary of the project footprint.

Panoche Creek

Panoche Creek traverses the southern portion of the proposed project for approximately 18,700 feet; this segment is ephemeral. The main stem of the drainage is crossed by a bridge on Little Panoche Road. The OHWM varies from 5 to 90 feet in width, and the low flow channel of the drainage below the OHWM generally does not support vegetation. Panoche Creek flows out of the Panoche Valley between the Panoche Hills and Tumey Hills, and northeast into the San Joaquin Valley. Approximately 18,700 feet of stream channel exhibiting an OHWM was delineated in the Panoche Creek drainage on-site (Power Engineers 2009a).

Portions of Panoche Creek traverse the proposed project to the Moss Landing substation and also traverses through the Valley Floor Conservation Lands. The main stem of the drainage is crossed by a bridge on Little Panoche Road, which runs north-south through the proposed project. Panoche Creek flows out of the Panoche Valley, between the Panoche Hills and Tumey Hills, and northeast into the San Joaquin Valley (Energy Renewal Partners, LLC 2014c).

Las Aguilas Creek

Las Aguilas Creek traverses the central portion of the proposed project site for approximately 18,500 feet. It is an ephemeral drainage, whose main stem is crossed by Little Panoche Road. The OHWM varies from 10 to 360 feet in width.

The lower reaches of Las Aguilas Creek, from the confluence with Panoche Creek to a point approximately 5,930 feet northwest, lacked indicators of an OHWM and resembled a swale. From the bottom of the drainage northwest to Little Panoche Road, there was virtually no drainage visible. The drainage is interrupted by Little Panoche Road at this location and by two culverts for ephemeral discharge.

Immediately above the road, sediment deposits have built up, eliminating any definable channel. Approximately 417 feet northwest of Little Panoche Road, the drainage begins to exhibit a bed and bank again. There is a transition from low flow channels to an active floodplain. Approximately 7,025 feet of stream channel exhibiting an OHWM was delineated in the Las Aguilas Creek drainage on-site (Power Engineers 2009a).

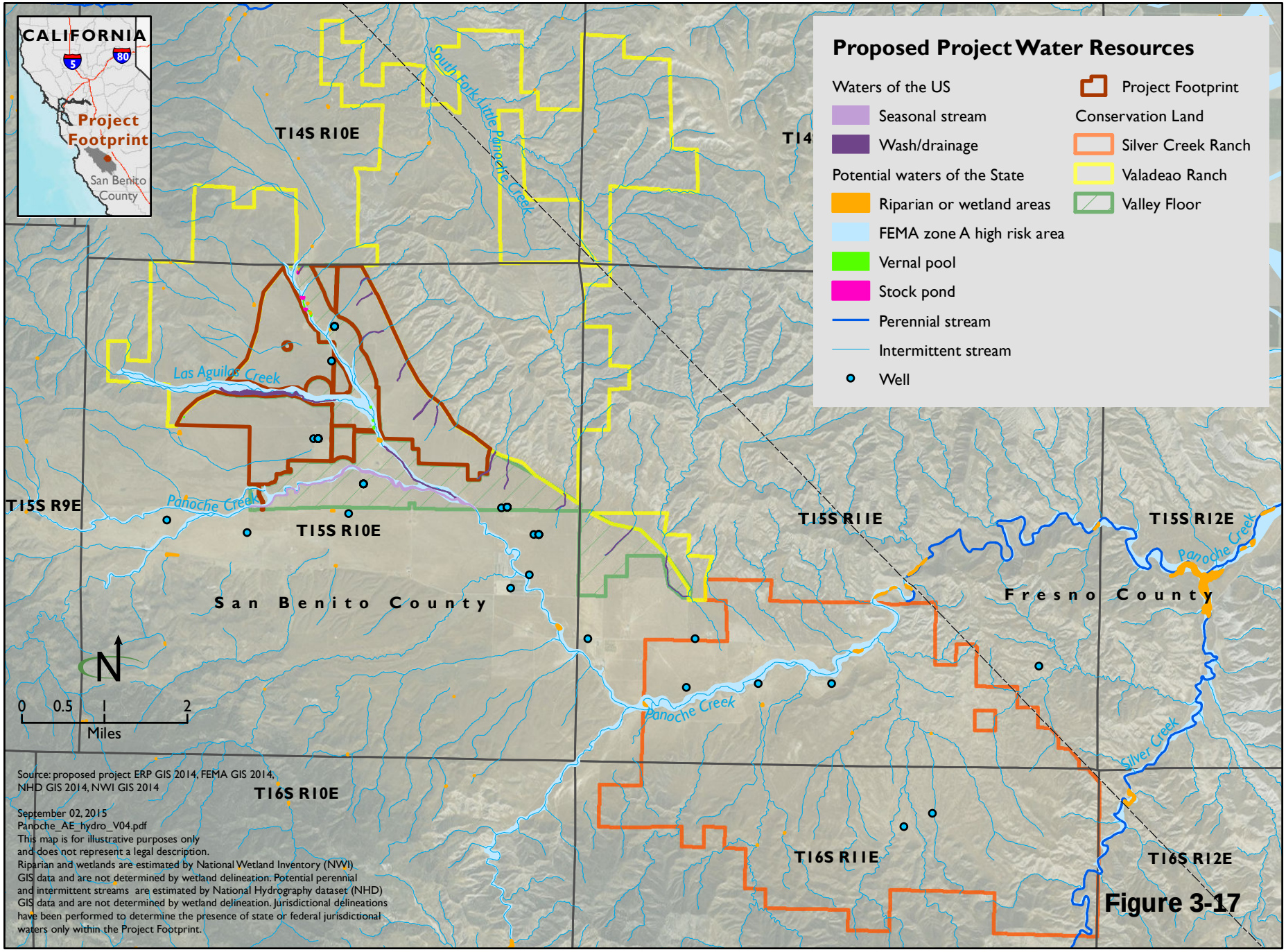

Proposed Project Water Resources
Waters of the US
Seasonal stream
Wash/drainage
Potential waters of the State
Riparian or wetland areas
FEMA zone A high risk area
Vernal pool
Stock pond
Perennial stream
Intermittent stream
Well
Project Footprint
Conservation Land
Silver Creek Ranch
Valadeao Ranch
Valley Floor
CALIFORNIA
5
80
Project Footprint
San Benito County
T14S R10E
T14
South Fork Little Panoche Creek
Las Aguilas Creek
Panoche Creek
T15S R9E
T15S R10E
T15S R11E
T15S R12E
San Benito County
Fresno County
Silver Creek
T16S R10E
T16S R11E
T16S R12E
N
0 0.5 1 2
Miles
Source: proposed project ERP GIS 2014, FEMA GIS 2014, NHD GIS 2014, NWI GIS 2014
September 02, 2015
Panoche_AE_hydro_V04.pdf
This map is for illustrative purposes only and does not represent a legal description.
Riparian and wetlands are estimated by National Wetland Inventory (NWI) GIS data and are not determined by wetland delineation. Potential perennial and intermittent streams are estimated by National Hydrography dataset (NHD) GIS data and are not determined by wetland delineation. Jurisdictional delineations have been performed to determine the presence of state or federal jurisdictional waters only within the Project Footprint.

Figure 3-17

Las Aguilas Creek traverses the central portion of the Valley Floor Conservation Lands through the project site. The lower reaches of Las Aguilas Creek traverse from the confluence with Panoche Creek toward the northwest, where the creek becomes ephemeral (Energy Renewal Partners, LLC 2014c).

Unnamed Ephemeral Wash

An unnamed ephemeral wash traverses the north-central portion of the project site for approximately 1,549 feet. It drains water from the Panoche Hills to the northeast and connects with Las Aguilas Creek in the center of the project site (Power Engineers 2012). It lies between the western and eastern portions of the project footprint and would be entirely avoided by the proposed project.

Unnamed Ephemeral Drainages

Numerous smaller unnamed intermittent ephemeral drainages are located along the eastern boundary of the project footprint. As described in Section 3.6, Biological Resources, five of these drainages are considered waters of the U.S. Only three of these washes would be affected by the proposed project.

Surface Water Quality

There are no surface waters on the project site that are on the Section 303(d) list (US EPA GIS 2014), although portions of Panoche Creek downstream of the proposed project site, from Silver Creek to Belmont Avenue (approximately 9 miles east of the proposed project site), are on the 303(d) list for mercury, sediment toxicity, sedimentation/siltation, and selenium. Rainfall yields erosion and the downstream transport of sediment, and high concentrations of selenium are contained in this sediment. The Panoche alluvial fan is the principal source of selenium from the Panoche/Silver Creek Watershed to the downstream Grasslands Watershed water bodies and the San Joaquin River (McCulley, Frick & Gilman, Inc. and William Lettis & Associates, Inc.1998).

Panoche Valley Basin is in the Tulare Lake Hydrologic Region. San Carlos, Silver, and Panoche Creeks in the northwest part of the Tulare Lake Hydrologic Region are impacted by discharges from legacy mercury mining (California Department of Water Resources 2009).

Floodplains

Flood Hazard Area "Zone A" indicates an area that is subject to inundation by the 100-year flood, or the flood with a one percent chance of occurring in a year. The unnamed ephemeral wash, Las Aguilas Creek, and Panoche Creek have associated 100-year floodplains (FEMA Zone A) on the project site. The project footprint lies entirely outside of the mapped FEMA Zone A, apart from six acres associated with the emergency access roads and associated drainage crossings at Las Aguilas and Panoche Creeks (FEMA GIS 2014). The FEMA mapped 100-year floodplain for the project site and conservation lands are shown on **Figure 3-17**.

Groundwater

The proposed project is in the Panoche Valley Groundwater Basin, which has a surface area of approximately 33,100 acres (52 square miles). The basin is composed of shallow alluvium, Quaternary nonmarine terrace deposits, and Plio-Pleistocene nonmarine sediments. Panoche Creek and Griswold Creek drain the Panoche Valley eastward to the San Joaquin Valley (California Department of Water Resources 2004).

Driller logs available as part of San Joaquin District well completion reports include data for nine wells in the basin. These wells range in depth from 171 feet to 1,500 feet and generally penetrate alluvial materials, including gravels, sands, silts, and clays. Additional descriptive units are shale, clay, rocks, and hard sand. It is likely that water-bearing units may include the alluvium, Quaternary nonmarine terrace deposits, and Plio-Pleistocene nonmarine sediments (California Department of Water Resources 2004).

Groundwater Quality

Groundwater chemistry appears to vary across the valley, with sulfate and total dissolved solids increasing to the south in the probable groundwater flow direction (away from the hills) and in the deeper wells. Water quality in the valley is generally acceptable for drinking. Groundwater meets the EPA and California primary drinking water standards; however, some wells in the south or the deeper wells do not meet the secondary standards, thereby possibly making the water undesirable for drinking.

Irrigation with on-site groundwater would be slightly to moderately restricted due to boron, sodium, and, to a lesser extent, total dissolved solids and conductivity. Elevated concentrations of selenium, arsenic, and mercury sometimes found in groundwater in this region were not observed in groundwater samples collected from wells on the project site (Geologica, Inc. 2010b).

Groundwater Use and Availability

Groundwater recharges primarily through the infiltration of precipitation, which falls mostly between November and April. A significant portion of rainfall, however, does not infiltrate because it leaves the watershed as surface runoff and enters Panoche Creek (McCulley, Frick & Gilman, Inc. and William Lettis & Associates, Inc. 1998).

All water used in the Panoche Valley comes from groundwater wells (Geologica, Inc. 2010b). On-site groundwater users are ranchers, who use groundwater pumped to replenish grazing livestock troughs. There are three water wells in the project footprint and additional wells in the surrounding areas. There are approximately 47 water wells in the groundwater basin (Geologica, Inc. 2010a). **Figure 3-17** depicts the location of active and inactive water wells.

A hydrologic study (Geologica, Inc. 2010b) evaluated the following:

- Publically available data and information on the geologic and hydrologic setting of Panoche Valley and potential groundwater aquifers
- Existing groundwater wells, well construction and productive aquifers
- Historical and existing groundwater levels
- Historical and existing water uses and usage
- Proposed project water consumption
- A groundwater pumping test and well test analysis
- A water budget for the valley

The following summarizes groundwater use, groundwater availability, and groundwater budget information from the study:

> "The existing water wells were originally drilled for irrigation, domestic use and for livestock water. Although irrigation was significant through the early 1970s, it is now limited to a few hundred acres southeast of the site. With declining irrigation and groundwater extraction, groundwater levels have risen from approximately 100 feet below ground surface (bgs) during the period of significant irrigation to between 30 and 60 feet bgs at the most recent measurements.
>
> "Current groundwater use in the valley is estimated to total approximately 180 AFY [acre-feet per year]. The extraction rate is lower in winter when livestock need less water and there is no irrigation. Approximately 7.5 AFY of groundwater is currently extracted from wells on the proposed project area for livestock watering.
>
> "A water budget for the Panoche Valley groundwater basin was developed using published data and information. This analysis indicated that the basin receives approximately 21,000 AFY of precipitation (and no other influx), of which 9,870 acre-feet is lost from runoff, 8,243 acre-feet is lost from evapotranspiration, and 180 acre-feet is extracted for current uses including domestic supply, livestock watering, and limited irrigation. Based on the difference between inflow and outflow components, aquifer recharge was estimated to be approximately 2,700 AFY. Although these numbers may vary with annual variations in precipitation, groundwater usage, and run-off, and site-specific data were limited for several components of the water budget, the observed rise in the water table (since irrigation declined)

supports the conclusion that the Panoche Valley aquifer is being recharged by precipitation infiltration."

PG&E Telecommunications Upgrades

The telecommunications sites are confined to developed areas atop mountains and the Moss Landing-Panoche transmission line right-of-way. The proposed microwave tower sites have no sources of natural water, other than precipitation. The Moss Landing-Panoche transmission line right-of-way crosses 100-year floodplains twice. Surface water sources are depicted on **Figure 3-17.**

Westlands CREZ

Regional Watersheds

Surface Water Sources

Surface water sources within the Westlands CREZ are depicted on **Figure 3-18**. There is a concentration of hydrological features, primarily in the form of canals and ditches, on the eastern side of the Westlands CREZ. The Governor Edmund G. Brown California Aqueduct bisects the western side of CREZ for approximately 1.1 miles (NHD GIS 2014).

Surface water drainage in the CREZ has been heavily altered; the lands are formally recognized as "drainage impaired" by the US Bureau of Reclamation (Westlands Water District 2013).

Surface Water Quality

There are no surface waters in the Westlands CREZ that are on the Section 303(d) list (US EPA GIS 2014).

The Westlands CREZ is primarily composed of agricultural lands, much of which are drainage impaired and contaminated with selenium precipitated from irrigation water (HT Harvey & Associates 2010).

Floodplains

The northcentral portion of the CREZ is identified as Flood Hazard Area "Zone A," indicating an area that is subject to inundation by the 100-year flood, or the flood with a one percent chance of occurring in a year (FEMA GIS 2014). There are approximately 6,120 acres in FEMA Zone A in the Westlands CREZ. These areas are depicted on **Figure 3-18**.

There are small low-lying areas at the southern and eastern ends of the Westlands CREZ that are not FEMA-designated floodplains but are identified in the "Awareness Floodplain Mapping" by the California Department of Water Resources as being subject to minor flooding. The flood hazard is unspecified, and no regulatory requirements apply to these areas (Westlands Water District 2013).

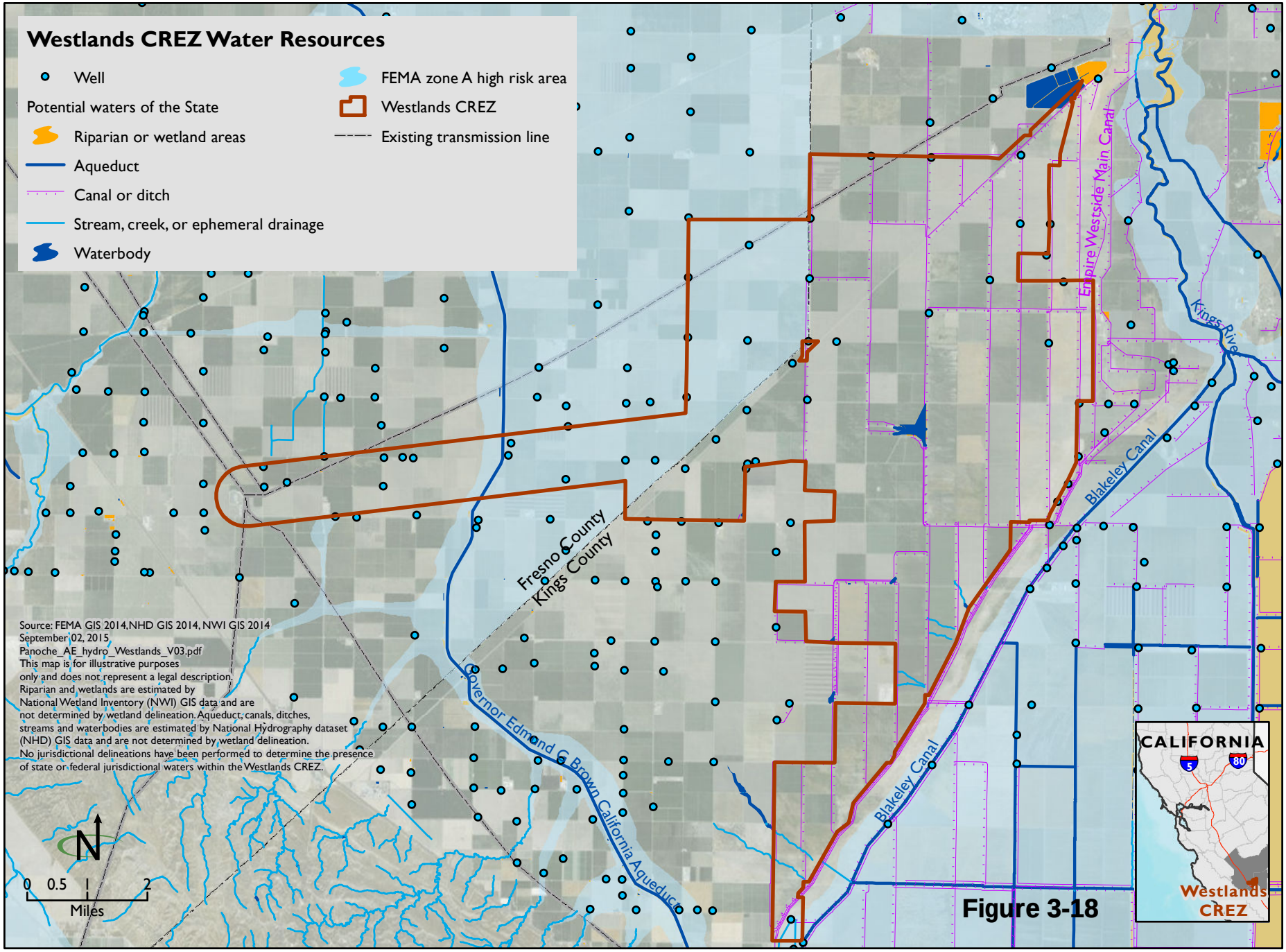

Westlands CREZ Water Resources
Well
Potential waters of the State
Riparian or wetland areas
Aqueduct
Canal or ditch
Stream, creek, or ephemeral drainage
Waterbody
FEMA zone A high risk area
Westlands CREZ
Existing transmission line
Source: FEMA GIS 2014,NHD GIS 2014, NWI GIS 2014
September 02, 2015
Panoche_AE_hydro_Westlands_V03.pdf
This map is for illustrative purposes only and does not represent a legal description. Riparian and wetlands are estimated by National Wetland Inventory (NWI) GIS data and are not determined by wetland delineation. Aqueduct, canals, ditches, streams and waterbodies are estimated by National Hydrography dataset (NHD) GIS data and are not determined by wetland delineation. No jurisdictional delineations have been performed to determine the presence of state or federal jurisdictional waters within the Westlands CREZ.
N
0 0.5 1 2
Miles
Fresno County
Kings County
Governor Edmund G. Brown California Aqueduct
Blakeley Canal
Blakeley Canal
Empire Westside Main Canal
Kings River
CALIFORNIA
5
80
Westlands CREZ

Figure 3-18

Groundwater

The Westlands CREZ is in the San Joaquin Valley Groundwater Basin Westside Subbasin, which has a surface area of approximately 640,000 acres (1,000 square miles). The Westside Subbasin consists mainly of the lands in Westlands Water District. It is between the Coast Range foothills on the west and the San Joaquin River drainage and Fresno Slough on the east. Average annual precipitation varies across the subbasin from 7 inches in the south to 9 inches in the north (California Department of Water Resources 2006).

The aquifer system comprising the Westside Subbasin consists of unconsolidated continental deposits of Tertiary and Quaternary age. These deposits form an unconfined to semiconfined upper aquifer and a confined lower aquifer. These aquifers are separated by an aquitard named the Corcoran Clay (E-Clay), a member of the Tulare Formation (California Department of Water Resources 2006).

Flood basin deposits along the eastern subbasin have caused near-surface soils to drain poorly, thereby restricting the downward movement of percolating water. This causes agriculturally applied water to build up as shallow water in the near surface zone. Areas prone to this buildup are often referred to as drainage problem areas (California Department of Water Resources 2006).

Groundwater Quality

Groundwater is relatively high in the area of the Westlands CREZ. In areas between the California Aqueduct and CA-41, groundwater is within five feet of the ground surface (Westlands Water District, undated). The western edge of the Westlands CREZ contains groundwater within five feet of the ground surface.

Groundwater on the west side of the San Joaquin Valley is generally of the sulfate or bicarbonate type. The waters of the upper aquifer, generally, are high in calcium and magnesium sulfate. Groundwater below 300 feet and above the Corcoran Clay shows a tendency of decreased dissolved solids with increased depth. Most of the groundwater of the lower aquifer is of the sodium sulfate type. The difference in quality between the upper and lower aquifers is that the confined zone contains less dissolved solids. An impairment of groundwater in the subbasin is high total dissolved solids. Groundwater at certain locations contains selenium and boron that may affect usability (California Department of Water Resources 2006).

The accumulation of naturally occurring salts combined with high groundwater conditions has created severe limitations on agricultural land capability (Westlands Water District 2013).

Groundwater Use and Availability

There are numerous water wells within the Westlands CREZ (**Figure 3-18**; NHD GIS 2014).

3.9.3 Environmental Impacts

This section describes the impacts on hydrology and water quality that would occur from implementing the proposed project and alternatives. Impacts on jurisdictional waters of the U.S. are discussed in more detail **Section 3.6**, Biological Resources. The region of influence is the surface water and groundwater resources within the boundaries of all affected areas. Potential impacts on water resources are analyzed for construction under each alternative. Potential impacts on water resources would be significant if they resulted in one or more of the following:

- Water quality
  - Substantial change in drainage patterns, resulting in sedimentation or siltation
  - Substantial change in surface water or groundwater quality from the release of pollutants
- Water supply
  - Substantial change in groundwater recharge rates, levels, and availability for other users
  - Substantial change in source water at wetland areas
  - Substantial change in flow from springs
- Flooding and drainage
  - Change in drainage patterns resulting in flooding or erosion on- or off-site
  - Placement of structures in floodplain, resulting in flooding on or off the site
  - Change in floodplain capacity

No Action (No Build) Alternative

Under the no action (no build) alternative, existing land uses at the proposed project site and on surrounding mitigation lands would continue. No telecommunication upgrades would occur. There would be no change in water quality or existing water uses, and there would be no change in flooding or drainage patterns.

No Action (No Permit) Alternative

Construction

Effects on Water Quality

The following County-required measures were included as conditions of approval in the conditional use permit for the proposed project to reduce impacts on water quality and are considered part of the no action (no permit)

alternative in this EIS. The full text of these measures is included in **Appendix C**, **Table C-1** and **Table C-2**. The impacts of the no action (no permit) alternative on water quality with incorporation of these measures is discussed below.

- **APM AQ-3. Reduce fugitive dust emissions during construction**. Reduce fugitive dust emissions during construction through implementation of listed BMPs for air quality.
- **APM BIO-34(m)**. Use of rodenticides and herbicides in project areas is prohibited with the exception of those applied near buildings/critical facilities. Only agency approved compounds will be applied (if necessary) by licensed applicators in accordance with label directions and other restrictions mandated by EPA, County Agricultural Commissioner, regional label prescriptions on use, California Department of Food and Agriculture, and other State and Federal legislation.
- **APM HAZ-1. Properly use, store, and dispose of hazardous materials.** Hazardous materials shall not be drained onto the ground or into streams or drainage areas. Totally enclosed containment shall be provided for all trash, as well as recyclable materials. All construction waste, including trash and litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials, shall be removed to a disposal facility authorized to accept such materials.
- **APM HAZ-2. Check PV panels for cracks or other defects to avoid the possible exposure of toxic metals**. Prior to construction and mounting of the PV panels, each panel will be checked for cracks or other defects to avoid the possible exposure of toxic metals on the surface. The panels will be properly cleaned, if necessary, to prevent any potential contaminated water from contacting the ground or native vegetation.
- **APM WR-1. Protect water facilities to ensure their integrity and proper function**. If they are damaged or destroyed by construction activities, water facilities (i.e., physical damage to equipment or infrastructure) would be repaired or replaced to their pre-disturbed condition as required by the landowner or land management agency
- **APM WR-3. Include dust-control measures during road construction in sensitive areas**. Roads would be built as near as possible to right angles to the streams and washes or as required by project permits. Culverts would be installed where necessary. All construction and maintenance activities shall be conducted in a manner that would minimize disturbance to vegetation, drainage channels, and intermittent or perennial stream banks. In addition,

road construction would include dust-control measures during construction in sensitive areas. All existing roads would be left in a condition equal to or better than their condition prior to the construction of the solar farm.

- **Mitigation Measure EM-1. Provide funding for environmental monitoring**. Before building or grading permits are issued, whichever occurs first, the applicant shall provide funding for the County of San Benito to ensure monitoring for all measures requiring environmental mitigation. The goal of the mitigation monitoring program is to ensure compliance with county conditions of approval and EIR mitigation measures. Monitoring would be carried out during all applicable stages of the project.
- **Mitigation Measure AQ-1.1. Further reduce fugitive dust emissions during construction**. Implement additional measures to significantly reduce fugitive dust emissions and require measures to be shown on grading and building plans.
- **Mitigation Measure BR-G.2. Implement Best Management Practices.** BMPs shall be implemented as standard operating procedures during all ground disturbance and construction-related activities to avoid or minimize project impacts on biological resources. No vehicles or equipment will be refueled within 100 feet of an ephemeral drainage or wetland unless a bermed and lined refueling area is constructed. Spill kits will be maintained on-site in sufficient quantity. Any vehicles operated within or next to drainages or wetlands will be checked and maintained daily to prevent leaks of materials.
- **Mitigation Measure BR-1.1. Prepare and implement a Weed Control Plan**. Prepare and implement a weed control plan to manage the use of herbicides. Herbicides shall not be used within Ephemeral Drainages, Stock Ponds, or Ephemeral Pools without approval of the County of San Benito and if necessary, the USFWS, and only water-safe herbicides shall be used in these locations.
- **Mitigation Measure WR-6.1. Accidental spill control and environmental training.** The Construction Stormwater Pollution Prevention Plan (SWPPP) to be prepared for the proposed project shall include procedures for quick and safe cleanup of accidental spills. The Construction SWPPP shall prescribe hazardous materials handling procedures for reducing the potential for a spill during construction, and shall include an emergency response program to ensure quick and safe cleanup of accidental spills. Additionally, an environmental training program shall be established to communicate environmental concerns and appropriate work practices, including spill prevention and response measures, and SWPPP measures, to all field personnel. A monitoring program shall be implemented to

ensure that the plans are followed during all construction, operational, and maintenance activities.

- **Mitigation Measure WR-6.2. Store fuels and hazardous materials away from sensitive water resources.** Storage of fuels and hazardous materials will be prohibited within 200 feet of groundwater supply wells. If community or municipal wells are present on the project site or immediate vicinity, storage of fuels and hazardous materials will be prohibited within 400 feet.
- **Mitigation Measure WR-6.3. Maintain vehicles and equipment.** All vehicles and equipment, including all hydraulic hoses, shall be maintained in good working order so that they are free of any and all leaks that could escape the vehicle or contact the ground. A vehicle and equipment maintenance log shall be updated and provided by the Applicant to the County of San Benito on a monthly basis for the duration of project construction.

Under the no action (no permit) alternative, indirect impacts on hydrology and water quality may occur during construction and following construction. Because no waters of the U.S. would be directly filled under the no action (no permit) alternative, there would be no direct impacts.

During construction, disturbed ground would be susceptible to wind and water erosion, which can transport soil to a water body. This can contaminate water with sediment or silt. Also, disturbed ground would alter drainage patterns. Altering drainage patterns can channel stormwater runoff toward soils or terrains that are highly erodible, resulting in surface water runoff transporting soil to a water body. These ground disturbances can indirectly contaminate water quality by causing sedimentation and siltation in a water body.

Construction activities can contaminate surface water or groundwater. Contaminated water may be generated by the accidental release of hazardous materials or wastes such as fuels and oils. The release of these substances can directly contaminate water if the release were to occur in water. The accidental release of these substances can indirectly contaminate water; this would happen if the release were to occur on dry land and then stormwater were to transport the substance to a water body or to percolate into the groundwater.

The no action (no permit) alternative is required to comply with the NPDES Construction General Permit. This permit requires the development and implementation of a SWPPP. A draft SWPPP has been prepared for the project. The SWPPP outlines the various BMPs for minimizing erosion and runoff, addresses accidental spills, prescribes hazardous materials handling procedures for reducing the potential for a spill during construction, and outlines an emergency response program to ensure quick and safe cleanup of accidental spills. The SWPPP involves an environmental training program to communicate environmental concerns and appropriate work practices, including spill

prevention and response measures and SWPPP measures, to all field personnel. A monitoring program will be implemented by San Benito County to ensure that the plans are followed during all construction activities.

Additionally, per California regulations, a hazardous materials business plan (HMBP) will be prepared and a spill prevention, control, and countermeasure (SPCC) plan has been prepared. The HMBP will contain detailed information on storing hazardous materials. Its purpose is to prevent or minimize damage to public health and safety, and the environment from a release or threatened release of a hazardous material. The HMBP also provides emergency response personnel with adequate information to prepare and respond to chemical-related incidents. The SPCC plan is designed to prevent any discharge of oil into navigable waters of the U.S.

Under Section 401 of the Clean Water Act, every applicant for a federal permit or license for any activity that may result in a discharge to a water body must obtain state water quality certification that the proposed activity would comply with state water quality standards and other applicable requirements. Most water quality certifications are issued in connection with USACE Clean Water Act Section 404 permits for dredge and fill discharges. As described in **Table 1-1** in **Chapter 1**, the applicant initiated the 401 certification process for the currently proposed project footprint in 2014 and expects to receive the 401 certification from the Central Regional Water Quality Control Board in September 2015.

The various regulatory requirements and measures described above and included as part of the no action (no permit) alternative would minimize the potential for changing water quality. In addition, this alternative would avoid all construction within 100 feet of waters of the U.S. There would be less than significant indirect adverse impacts on surface and groundwater quality from construction due to the implementation of the measures included as part of the no action (no permit) alternative and the buffers from waters of the U.S. No additional mitigation measures were identified to further reduce impacts.

<u>Effects on Water Supply</u>

The following County-required measures were included as conditions of approval in the conditional use permit for the proposed project to reduce impacts on water supply and are considered part of the no action (no permit) alternative in this EIS. The full text of these measures is included in **Appendix C**, **Table C-1** and **Table C-2**. The impacts of the no action (no permit) alternative on water supply with incorporation of these measures is discussed below.

- **APM WR-4.** The Applicant would limit the panel washing to two washings per year during project operation. Should this estimate need to be revised once the project is fully operational depending on soil/dust conditions, the Applicant would consult with the

County and obtain the requisite approvals prior to any modifications to this schedule.

- **Mitigation Measure WR-1.1. Groundwater Monitoring and Reporting Plan.** The applicant shall prepare a groundwater monitoring and reporting plan and submit it to San Benito County for review and approval 60 days before project-related pumping activities begin. The plan shall document the location of project well(s) and well construction details (diameter, total depth, depth of screen interval, depth of sanitary seal, pumping equipment). The plan shall identify the procedures to install and monitor a water meter on a daily basis. The meter shall be equipped with a flow totalizer at each project well, and shall include requirements to document the gradient and directional flow of groundwater. The plan shall also provide detailed methodology for monitoring groundwater levels in the valley based on readings taken on at least a monthly basis. The primary objective for the monitoring is to establish pre- and post-construction groundwater level trends that can be quantitatively compared against observed and calculated trends near the project pumping wells and near potentially impacted existing private wells. The monitoring wells shall include a minimum of three new or existing on site or off-site down-gradient wells near the southern project boundary.
- **Mitigation Measure WR-1.2. Aquifer Testing and Well Interference Analysis.** Prior to pumping or making operational any existing wells or construction of any new wells south of Well #19, the applicant shall prepare and submit an Aquifer Testing and Well Interference Analysis Plan to San Benito County for review and approval 14 days prior to commencing the aquifer testing. The Aquifer Testing and Well Interference Analysis Plan shall discuss the methodology for conducting a 72-hour aquifer test, analysis of aquifer parameters, and the analysis of well interference at nearby private wells. The primary objective of the aquifer test and well interference analysis is to evaluate potential adverse well interference effects prior to the onset of sustained pumping for the project.

The no action (no permit) alternative would use groundwater for storage ponds, mass grading and excavation, and dust control during construction. Total water use for these purposes would be 125,400,000 gallons (Geologica 2014). The rate of groundwater extraction would vary, depending on the activity and phase of the proposed project. Pumping too much groundwater can deplete groundwater supplies and reduce recharge rates.

Geologica (2014) analyzed groundwater supply and recharge. Groundwater extraction during the construction phase could result in maximum groundwater

drawdown of three feet near the southern edge of the property and one to two feet at locations farther off-site at the end of construction. This assumes a construction duration of 18 months. These drawdown effects would be transient, and the analysis suggests that the water table would begin to recover once construction ends. The drawdown would most likely dissipate over roughly the same time as it developed during construction.

Water levels in the water supply wells in the valley have a history of fluctuating several feet, likely as a result of intermittent pumping or seasonal changes in precipitation recharge (Geologica 2014). There is more precipitation in the winter than the summer; therefore, the predicted drawdown levels during construction are unlikely to substantially impair water supply well use in the valley and may be difficult to distinguish from natural variations. Because impacts on groundwater supply would be temporary and mitigation measures are incorporated into the no action (no permit) alternative, the impacts on water supply would be less than significant. No additional mitigation measures were identified to further reduce impacts.

Effects on Flooding and Drainage

The following San Benito County-required measures were included as conditions of approval in the conditional use permit for the proposed project to reduce impacts related to flooding and drainage and are considered part of the no action (no permit) alternative in this EIS. The full text of these measures is included in **Appendix C**, **Table C-1** and **Table C-2**. The impacts of the no action (no permit) alternative related to flooding and drainage with incorporation of these measures is discussed below.

- **APM WR-3**. Roads would be built as near as possible to right angles to the streams and washes or as required by project permits. Culverts would be installed where necessary. All construction and maintenance would be conducted so as to minimize disturbance to vegetation, drainage channels, and intermittent or perennial stream banks. All existing roads would be left in a condition equal to or better than their condition before the construction of the solar farm.
- **Mitigation Measure BR-G.1. Implement a Worker Environmental Education Program.** Prior to any project activities on the site, a Worker Environmental Education Program (WEEP) shall be implemented by a qualified biologist or qualified biologists. Both the biologist(s) and the WEEP shall be subject to County approval. The WEEP shall be put into action prior to the beginning of any project activities and implemented throughout the duration of project construction. Include on the projects plans and specifications drawings maps showing the known locations of special-status wildlife, populations of rare plants and sensitive vegetative communities, seasonal depressions and known water

bodies, wetland habitat, exclusion areas, and other construction limitations (e.g., limited operating periods).

- **Mitigation Measure BR-G.2. Implement Best Management Practices.** BMPs shall be implemented as standard operating procedures during all ground disturbance and construction-related activities to avoid or minimize project impacts on biological resources. Development on the main project site would maintain existing hydrologic patterns with respect to runoff supporting seasonal wetlands, vernal pools, and ephemeral drainages. The proposed project would minimize vegetation removal within active construction areas. This would include flagging sensitive vegetative communities or plants. There would be no ground disturbance within 100 feet of washes and streams. No vehicles or equipment will be refueled within 100 feet of an ephemeral drainage or wetland unless a bermed and lined refueling area is constructed. Spill kits will be maintained on-site in sufficient quantity. Any vehicles operated within or next to drainages or wetlands will be checked and maintained daily to prevent leaks of materials.
- **Mitigation Measure BR-G.3**. **Develop and implement a Habitat Restoration and Revegetation Plan.** The Applicant shall restore disturbed areas to pre-construction conditions or better. Prior to the issuance of a building permit and removal of any soil or vegetation, the Applicant shall retain a County-approved, qualified biologist, knowledgeable in the area of annual grassland habitat restoration, to prepare a Habitat Restoration and Revegetation Plan (HRRP). The biologist would also be responsible for monitoring the initial implementation of the plan as the Applicant's attainment of the established success criteria.
- **Mitigation Measure BR-8.3. Avoid seasonal depressions and known waterbodies.** All known seasonal depressions and water bodies that have been verified to be occupied by listed fairy shrimp shall be shown on all applicable construction plans and submitted with the construction permit application. The Applicant shall avoid seasonal depressions known to support listed fairy shrimp. A 100-foot buffer shall be placed around these seasonal depressions and known waterbodies to prevent equipment from entering these areas. This buffer shall be shown on all applicable construction plans (with a highly visible method easily identifiable by construction workers in the field). On-site delineation of this buffer shall be in place prior to the commencement of construction activities. The method used for delineating the buffer shall be kept in good working order for the duration of the construction period, and removed prior to final County inspection.

The no action (no permit) alternative would create temporary construction areas and permanent structures, resulting in additional impervious surfaces. Project features with permanent impervious surfaces involve 42 acres of the 2,506-acre project footprint for roads, pullouts, substation, switching station, and O&M building. These sources of impervious surfaces would not be concentrated in a single area. The remaining project features with permanent impervious surfaces involve 1,584 acres for the solar arrays. Although the ground beneath the solar arrays would remain pervious (excluding the foundations containing the support posts for the solar arrays), the solar panels would still unnaturally focus precipitation to the areas between the panels, both between rows and around the arrays. Impervious surfaces can reduce surface water infiltration and subsequently increase surface water runoff or alter surface water drainage patterns.

An increase in impervious surfaces can cause an increase in on- or off-site flooding or erosion by directing water toward or focusing water in areas that typically do not receive concentrated stormwater. For the proposed solar panels, a vegetated understory composed of indigenous flora species consistent with existing vegetation would be planted under the panels. Vegetation would intercept precipitation, slowing stormwater runoff. It would also stabilize the ground surface. This would minimize impacts on flooding and drainage, resulting in less than significant direct and indirect impacts.

The areas of potential grading within the project footprint overlap with permanent project features, including solar arrays, perimeter road, substation, switching station and O&M building, stormwater retention ponds, and collector lines; graded areas have a combined acreage of 348 acres for the 2,506-acre project footprint. Most of the grading would occur in the areas of the solar arrays. Changing the grading within the project footprint by earthmoving activities can alter surface water drainage patterns. This can cause on- or off-site flooding or erosion by directing water toward areas that typically do not receive concentrated stormwater.

The unnamed drainages and creeks are usually dry, thereby minimizing natural water sources capable of impacting flooding and erosion. Precipitation would be allowed to fall between the arrays or drip from the arrays. Grading and impervious surfaces would be located a minimum of 100 feet from waters of the U.S. The additional undeveloped buffer areas from these waters of the U.S. would slow stormwater runoff. The slope of the terrain would be relatively flat (three percent or less) under the arrays, thereby minimizing overland flow. Stormwater flow would be directed along natural contours into existing intermittent streams and washes flowing off the site, consistent with current drainage patterns.

Under the no action (no permit) alternative, flood and stormwater retention capacity would be maintained and protected. Impacts on flood retention values

of the jurisdictional ephemeral drainages would be minimized by constructing at-grade road crossings and backfilling utility line crossings to original grade. Stormwater would be managed primarily through the use of planted and maintained grassland habitat and revegetation of exposed soils on the project site and through the use of two stormwater basins that were designed using hydrologic modeling software developed by USACE. Storm frequencies used to determine basin design included the 2-, 10-, 25- and 100-yr 24-hour storm events. One proposed stormwater basin would be located on the west/southwest portion of the project site to meet peak rate attenuations. Another stormwater basin would be at the switching station. In accordance with San Benito County Flood Damage Prevention Ordinance Section 23.31.042(E), stormwater basins would have outlet facilities providing terminal drainage capable of emptying a full basin within 24 hours or be designed to retain water for no more than 24 hours; a minimum one foot of freeboard would be provided from the top of the pond to the 100-year ponding elevation; basins would have maximum 5:1 side slopes; and stormwater basins would exceed minimum required detention volume for the 100-year post- development runoff minus the 10-year pre-development runoff from impervious area (Energy Renewal Partners 2015).

The various regulatory requirements and County-required measures described above and included as part of the no action (no permit) alternative would minimize the potential for changing flooding and drainage from impervious surfaces, grading, and placing structures or fill in areas containing water resources. Because of the measures incorporated as part of the no action (no permit) alternative, the vegetation that would be planted beneath solar arrays, the buffers from waters of the U.S., and the relatively gentle slopes, impacts on flooding and drainage from the no action (no permit) alternative would be less than significant. No additional mitigation measures were identified to further reduce impacts.

Operational and Maintenance Activities

Water Quality. Operational and maintenance activities would result in impacts on water quality that are similar in nature to the impacts discussed above under construction. The various regulatory requirements and measures described under construction and included as part of the no action (no permit) alternative would minimize the potential for changing water quality. There would be less than significant indirect adverse impacts on surface and groundwater quality from operational and maintenance activities due to the implementation of the measures included as part of the no action (no permit) alternative and the buffers from waters of the U.S. No additional mitigation measures were identified to further reduce impacts.

Water Supply. The applicant would use groundwater for employee use and panel washing. The applicant estimated that operational groundwater needs

would include 812,000 gallons per year for panel washing and 112,500 gallons per year for employee use. The operational water needs yield a fixed continuous groundwater extraction rate of approximately 2,533 gallons per day (Geologica, Inc. 2014). Operational and maintenance activities would result in impacts on water supply that are similar to the impacts discussed under construction. The applicant has committed to limiting panel washing to twice annually (see APM WR-4). Should this estimate need to be revised once the project is fully operational depending on soil/dust conditions, the Applicant would consult with San Benito County and obtain the requisite approvals prior to any modifications to this schedule.

Geologica, Inc. (2014) analyzed groundwater supply and recharge associated with operational water use. Because of the relatively small volume of water needed for operation, groundwater usage after completion of the PV system would be unlikely to have a substantial impact on groundwater levels in the valley. Water levels in the water supply wells in the valley have a history of fluctuating several feet, likely as a result of intermittent pumping or seasonal changes in precipitation recharge (Geologica, Inc. 2014). There is more precipitation in the winter than the summer, so the predicted drawdown levels during operation would not impair existing water supply well use in the valley and may be difficult to distinguish from natural variations. There would be less than significant impacts on water supply. No additional mitigation measures were identified to further reduce impacts.

Flooding and drainage. Operational and maintenance activities would have no impacts related to flooding and drainage.

PG&E Telecommunication Upgrades

Primary and Secondary Telecommunication Upgrades

The following PG&E avoidance and minimization measures were included as conditions of approval in the amended conditional use permit for the proposed project and are considered part of the no action (no permit) alternative in this EIS. The full text of these measures is included in **Appendix C**, **Table C-3**. The impacts on water resources from PG&E actions with incorporation of these measures are discussed below.

- **AMM HAZ-1. Proper storage and disposal of waste and hazardous materials.** Hazardous materials shall not be drained onto the ground or into streams or drainage areas. Totally enclosed containment shall be provided for all trash, as well as recyclable materials. All construction waste, including trash and litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials, shall be removed to a disposal facility authorized to accept such materials.

- **AMM WR-1. Hazardous material spill prevention and response plan.** PG&E will implement construction controls, training and communication to minimize the potential exposure of the public and site workers to potential hazardous materials during all phases of project construction. These construction practices include construction worker training appropriate to the site worker's role, containment and spill control practices in accordance with the SWPPP, and emergency response to ensure appropriate cleanup of accidental spills. If it is necessary to store chemicals, they will be managed in accordance with all applicable regulations. Material safety data sheets will be maintained and kept available on site, as applicable. The project SWPPP will identify areas where refueling and vehicle-maintenance activities and storage of hazardous materials, if any, will be permitted. All vehicles and equipment, including all hydraulic hoses, shall be maintained in good working order so that they are free of any and all leaks that could escape the vehicle or contact the ground. A monitoring program shall be implemented to ensure that the plans are followed during all construction, operational, and maintenance activities.

Water quality. For the primary and secondary telecommunications upgrades, no construction activities would occur within the bed and bank of areas identified as potential waters of the U.S. within the PG&E right-of-way. Therefore, there would be no direct impacts on water quality. However, construction activities, including ground-disturbing activities, could contaminate surface water or groundwater. Contaminated water may be generated by the accidental release of hazardous materials or wastes, such as fuels and oils. The accidental release of these substances can indirectly contaminate water if the release were to occur on dry land and then stormwater were to transport the substance to a water body or percolate into the groundwater. Because of the small area of proposed construction associated with the primary and secondary telecommunication upgrades (5.73 acres), the lack of activity within waters of the U.S., and the identified avoidance and minimization measures, impacts on water quality would be less than significant. No additional mitigation measures were identified to further reduce impacts.

Water Supply. The PG&E telecommunication actions would have no impact on water supply. No additional mitigation measures were identified to further reduce impacts.

Flooding and drainage. Approximately 2.16 acres of PG&E-related work areas fall within Zone A designated 100-year floodplains; however, there would be no grading and no new structures would be placed in these areas, and there would be no impact related to flooding and drainage. No additional mitigation measures were identified to further reduce impacts.

Alternative A (Applicant's Proposed Project)

Construction

Effects on Water Quality

Impacts under Alternative A would be similar in nature to those described under the no action (no permit) alternative for water quality. However, unlike the no action (no permit) alternative, Alternative A would result in direct impacts on water quality as a result of the discharge of fill material into waters of the U.S. These impacts would be similar in type and magnitude to the indirect impacts on water quality described under the no action (no permit) alternative. In total, Alternative A would place fill in 0.122 acre of waters of the U.S.

The various regulatory requirements, applicant-proposed measures, and County-required mitigation measures described under the no action (no permit) alternative and included as part of Alternative A would minimize the potential for changing water quality. Because these measures and requirements would also be implemented as part of Alternative A, there would be less than significant direct and indirect adverse impacts on surface and groundwater quality from construction under Alternative A. No additional mitigation measures were identified to further reduce impacts.

Effects on Water Supply

Impacts under Alternative A would be the same as those described under the no action (no permit) alternative for water supply. The applicant-proposed measures and County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. Because these measures would also be implemented as part of Alternative A, direct and indirect impacts on water supply would be less than significant. No additional mitigation measures were identified to further reduce impacts.

Effects on Flooding and Drainage

Impacts under Alternative A would be similar in nature to those described under the no action (no permit) alternative for flooding and drainage. However, unlike the no action (no permit) alternative, Alternative A would also result in direct impacts on flooding and drainage as a result of the discharge of fill material into 0.122 acre of waters of the U.S., including 0.001 acre into Las Aguilas Creek, 0.001 acre into Panoche Creek, and 0.12 acre associated with ephemeral drainages on the eastern side of the project footprint. These impacts would be similar in nature to the indirect impacts discussed under the no action (no permit) alternative. Under Alternative A, there would be 5.6 acres of temporary disturbance and 2 acres of permanent disturbance within FEMA-designated 100-year floodplains.

While Alternative A would have additional direct impacts, the various regulatory requirements and County-required measures described as part of the no action (no permit) alternative and included as part of Alternative A would minimize the

potential for changing flooding and drainage from impervious surfaces, grading, and placement structures or fill in 0.122 acre of waters of the U.S. Because of the measures incorporated as part of Alternative A, the vegetation that would be planted beneath solar arrays, the relatively gentle slopes, and the small additional area that would be affected, impacts on flooding and drainage from Alternative A would be less than significant. No additional mitigation measures were identified to further reduce impacts.

Operational and Maintenance Activities

Operational and maintenance-related impacts on water quality, water supply, and flooding and drainage would be the same as described under the no action (no permit) alternative. The applicant-proposed measures and County-required mitigation measures identified as part of the no action (no permit) alternative for operation are also included as part of this alternative. As described for the no action (no permit) alternative, impacts would be less than significant. No additional mitigation measures were identified to further reduce impacts.

PG&E Telecommunication Upgrades

Less than significant indirect impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative.

Alternative B (On-Site Alternative)

Construction and Operational and Maintenance Activities

Water quality, water supply, and flooding and drainage. Impacts on water quality, water supply, and flooding and drainage would be similar to those described under Alternative A, except that Alternative B would have direct impacts on 0.124 acre instead of 0.122 acre of waters of the U.S. The applicant-proposed measures and County-required mitigation measures identified as part of the no action (no permit) alternative and Alternative A are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. No additional mitigation measures were identified to further reduce impacts.

PG&E Telecommunication Upgrades

Less than significant indirect impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative.

Alternative C (Off-Site Alternative, Westlands CREZ)

Construction

Water quality. Construction would result in impacts on water quality that are similar to those discussed under construction for the no action (no permit)

alternative. The same federal and state regulatory requirements to protect water quality discussed for the no action (no permit) alternative would also apply to the Westlands CREZ alternative. This includes preparing an SWPPP and HMBP and obtaining a state water quality certification. To minimize impacts on water quality, the measures applied to the no action (no permit) alternative are recommended to be implemented for Alternative C. These measures are APMs AQ-3, BIO-34(m), HAZ-1, HAZ-2, WR-1, and WR-3 and Mitigation Measures EM-1, AQ-1.1, BR-G.2, BR-1.1, WR-6.1, WR-6.2, and WR-6.3, summarized above under the no action (no permit) alternative and described in detail in **Appendix C**, **Tables C-1** and **C-2**. The USACE does not have the authority to implement these measures. Because it is uncertain whether measures other than those required by federal and state regulations would be required by Fresno and Kings Counties, direct and indirect impacts on surface water and groundwater quality are potentially significant.

Water supply. Construction may result in impacts on water supply that are similar to those discussed under construction for the no action (no permit) alternative. The various regulatory requirements discussed under construction for the no action (no permit) alternative would apply. The Notice of Preparation for the Westlands Solar Park (Westlands Water District 2013) indicated that a water supply assessment would be required pursuant to Senate Bills 610 and 221 in order to verify that solar development would not have a substantial impact on groundwater supply. Existing on-site agricultural wells would provide nonpotable water for filling storage ponds, mass grading and excavating, and controlling dust during construction. Based on the water supply assessment, mitigation measures would be developed to ensure that construction water requirements do not impact groundwater supplies on the project site or in the surrounding area. These measures may be similar to mitigation measures described under the no action (no permit) alternative, including WR-1.1 (Groundwater Monitoring and Reporting Plan) and WR-1.2 (Aquifer Testing and Well Interference Analysis). These would be implemented in order to comply with water regulations. There would be less than significant direct impacts on water supply.

Flooding and drainage. Construction would result in impacts on flooding and drainage that are similar to those from impervious surfaces and grading discussed under construction for the no action (no permit) alternative. The Westlands CREZ contains 6,050 acres of FEMA-designated 100-year floodplains. Assuming the Westlands CREZ alternative avoided constructing in 100-year floodplains, there would be no impacts on placing structures or fill in floodplains. Given that the Westlands CREZ is over 35,000 acres, the USACE has determined that it is reasonable to assume that a 247 MW solar facility could be developed that avoided placement of structures in the 100-year floodplain.

Operational and Maintenance Activities

Water quality. Operational and maintenance activities would result in impacts on water quality that are similar to those discussed under construction for Alternative C. The recommended mitigation measures and regulatory requirements would minimize the potential for impacting water quality. There would be less than significant direct and indirect adverse impacts on surface and groundwater quality under the Westlands CREZ alternative.

Water supply. A 247 MW solar facility would require water for panel washing. Operational water supply would consist of imported surface water provided through the Westlands Water District. In 2011, the Westlands Water District Board of Directors established an annual water allocation for solar facilities of up to five acre-feet per 160 acres for operational demands from facilities on retired farmland (Westlands Water District 2013). This allocation would provide for at least four annual panel washings and general maintenance, which is considered adequate for PV solar operations in the San Joaquin Valley. Potable water for employee consumption would be brought to the site. There would be less than significant direct and indirect adverse impacts on water supply under the Westlands CREZ alternative.

Flooding and Drainage. No impacts on flooding and drainage would occur. Given that the Westlands CREZ is over 35,000 acres, the USACE has determined that it is reasonable to assume that a 247 MW solar facility could be developed that avoided placement of activities and structures in the 100-year floodplain.

3.9.4 Cumulative Impacts

No Action (No Permit) Alternative, Alternative A, and Alternative B

The geographic scope for the cumulative effects water resources analysis includes the surface watershed and groundwater basin in which the proposed project is located.

Surface water resources. Panoche Creek and Las Aguilas Creek are the primary water sources crossing the project site. They are part of the larger Panoche/Silver Creek Watershed, which is upstream and to the west of Mendota, California, in the Panoche-San Luis Reservoir Watershed (Hydrologic Unit Code 18040014). The watershed area encompasses approximately 300 square miles upstream of Interstate 5 (Power Engineers 2009a). It is on the western edge of the San Joaquin Valley, a semiarid region (McCulley, Frick & Gilman, Inc. and William Lettis & Associates, Inc.1998).

There are no cumulative projects in the watershed that would affect surface water. Therefore, there would be no adverse cumulative impacts on surface water. Furthermore, 24,176 acres of land would be held as conservation easements in perpetuity. This would maintain drainage patterns, prevent potential point and nonpoint sources of pollutants, maintain groundwater

recharge rates and levels, and maintain natural floodplains, because the opportunity for these areas to be converted to uses that, for example, contain impervious surfaces or altered drainage courses, would be removed.

Groundwater resources. The proposed project site is in the Panoche Valley Groundwater Basin, which has a surface area of approximately 33,100 acres (52 square miles). Panoche Creek and Griswold Creek drain the Panoche Valley eastward to the San Joaquin Valley (California Department of Water Resources 2004).

There are no cumulative projects in the basin that would affect groundwater, so there would be no adverse cumulative impacts on groundwater. Furthermore, 24,176 acres of land would be held as conservation easements in perpetuity. This would maintain drainage patterns, prevent potential point and nonpoint sources of pollutants, maintain groundwater recharge rates and levels, and maintain natural floodplains, because the opportunity for these areas to be converted to uses that, for example, contain impervious surfaces or altered drainage courses, would be removed.

Alternative C

The geographic scope for the cumulative impacts water resources analysis for Alternative C are the surface watershed and groundwater basin in which Alternative C would be located.

Surface water resources. The Westlands CREZ is in the Tulare-Buena Vista Lakes Watershed (Hydrologic Unit Code 18030012). The watershed covers approximately 5,508,052 acres (approximately 8,600 square miles).

There are no natural water courses in the Westlands CREZ. Surface water drainage has been heavily altered. The lands in the Westlands CREZ are formally recognized as drainage impaired by the US Bureau of Reclamation (Westlands Water District 2013).

Historical activities in the watershed are farming, livestock grazing, infrastructure development, rural and urban residential and commercial development, and cities between Fresno and Bakersfield. These activities have affected surface water quality, water supply, and flooding and drainage by changing drainage patterns, acting as point and nonpoint sources of pollutants, changing groundwater recharge rates and levels, and placing structures in floodplains. The Westlands CREZ contains 6,050 acres of FEMA-designated 100-year floodplains.

In 2011, the Westlands Water District Board of Directors established an annual water allocation for solar facilities of up to 5 acre-feet per 160 acres for operational demands from facilities on retired farmland within the district. This allocation would provide for at least four annual panel washings and general

maintenance, which is considered adequate for PV solar operations in the San Joaquin Valley (Westlands Water District 2013).

Cumulative adverse effects on surface water would be minimized through various project elements and regulatory requirements. This would be done to minimize significant cumulative adverse impacts on surface water quality, surface water supply, and flooding and drainage. However, the USACE does not have the authority to implement all of the measures.

Groundwater resources. The Westlands CREZ is in the San Joaquin Valley Groundwater Basin, Westside Subbasin (Groundwater Subbasin Number 5-22.09). It has a surface area of 640,000 acres (1,000 square miles).

Historical activities in the basin are farming, livestock grazing, infrastructure development, rural and urban residential and commercial development, and towns. These activities have affected groundwater quality and water supply by acting as point and nonpoint sources of pollutants and changing groundwater recharge rates and levels.

Cumulative adverse effects on groundwater can be minimized through various project elements and regulatory requirements. This would be done to minimize significant cumulative adverse impacts on groundwater quality, groundwater supply, and drainage. However, the USACE does not have the authority to implement all of the measures.

3.10 Land Use, Ownership, and Planning

This section describes the land use conditions associated with the proposed project, PG&E telecommunication upgrade actions, and the Westlands CREZ. Federal, state, and local laws and regulations are considered in this section.

3.10.1 Regulatory Environment

Bureau of Land Management

The BLM Hollister Field Office administers the BLM portion of the lands on which PG&E telecommunications network upgrades would occur. These lands are managed under the policies contained within the Resource Management Plan (RMP) for the Southern Diablo Mountain Range and Central Coast of California (BLM 2007), which was prepared under the authority and direction of the Federal Land Policy and Management Act (FLPMA) of 1976. Applicable policies are as follows:

- The goal for energy and mineral resource management is to allow development of energy and mineral resources to meet the demand for energy and mineral production while protecting natural and cultural resources in the area.

- The goal for lands and realty management is to provide lands, interests in land, and authorizations for public and private uses while maintaining and improving resource values and public land administration.

California Public Utilities Commission

PG&E, as an investor-owned utility, is regulated by the California Public Utilities Commission (CPUC). The CPUC has jurisdiction over the siting and design of the PG&E upgrades required for the proposed project. Although the upgrades are exempt from local land use and zoning regulations and permitting, in accordance with the CPUC's General Order 131D, Section III.C requires that the utility communicate with, and obtain the input of, local authorities regarding land use matters and obtain any nondiscretionary local permits. The CPUC's most applicable regulations and standards are the following:

- General Order 131D, Rules Relating to the Planning and Construction of Electric Generation, Transmission/Power/ Distribution Line Facilities and Substations Located in California, defines the CPUC requirements for environmental compliance regarding utility projects, the need for public notice, and other topics.
- General Order 95, Rules for Overhead Electric Line Construction, governs the construction, operation, and maintenance of electric supply and communication lines.

San Benito County General Plan

All lands in the proposed project site are privately held, and San Benito County has jurisdiction over land use and reserves all permitting authority for projects and activities at the proposed project site. San Benito County originally adopted its general plan in 1980, and the plan has been subsequently amended with the most recent amendment adopted in 2010. The land use element was amended in 1992. It defines existing land uses and establishes a series of land use goals, objectives, policies, and actions. In general, policy statements emphasize a desire to accommodate population growth while preserving the county's rural character (San Benito County 1992a).

To achieve the goals in the general plan, San Benito County has the legal authority to maintain a land use zoning ordinance. Zoning control affords the County the ability to guide development and protect the viability of agricultural, industrial, commercial, and residential uses. The zoning designation AR–Agricultural Rangeland covers 800,454 acres (90 percent) of the county, including the Panoche Valley and the entire project site. The zoning designation AP–Agricultural Productive covers an additional 68,000 acres in the county (San Benito County 2010c).

Beginning in 2007, San Benito County initiated a comprehensive general plan update process to establish countywide planning objectives through 2035. It will enforce the existing general plan until the comprehensive update is complete.

Fresno County General Plan

The Fresno County general plan was adopted in 2000 and is being updated. The September 2014 Revised Public Review Draft (Fresno County 2014a) proposes updated goals and policies for land use and other elements under County jurisdiction. Land use designations and allowable uses, along with accompanying development density limitations, apply to unincorporated portions of Fresno County and are implemented through its zoning ordinance.

Land Use H.7, Principles for Planned Development, Part J, states that energy conservation and use of renewable resources should be given prominent consideration (Fresno County 2014a). Fresno County processes photovoltaic solar facilities through the unclassified conditional use permit process, based on Section 853.B.14 of the Fresno County zoning ordinance, which includes public utility and public services, structures, uses, and buildings.

The open space and conservation element addresses groundwater and surface water management, forestry, and mineral extraction. It also contains measures to protect and conserve open space and natural resources (e.g., air quality and wildlife habitat) and to promote recreational opportunities (Fresno County 2014a).

Kings County General Plan

The Kings County 2035 general plan was updated in 2010. Its land use element designates the general distribution, location, and intensity of land uses throughout the unincorporated territory of the county. It also establishes land use policies to guide and direct future land use decisions and development. The plan groups land use policies into five distinctive categories that reflect the county's unincorporated environment: natural lands, agriculture open space, rural interface, community districts, and urban fringe. The Westlands CREZ area is categorized as Agriculture Open Space (Kings County 2010a).

The agricultural open space category is further classified as general agriculture-40 acre (AG-40), general agriculture-20 acre (AG-20), and exclusive agriculture-40 acre (AX-40; Kings County 2010a).

Lands designated as AG-40 are characterized by large corporate farming areas and valley floor areas with extensive and intensive agricultural uses that are incompatible with urban uses.

Lands designated as AG-20 are characterized by the following:

- Extensive and intensive agricultural uses that are historically smaller in parcel size, so designated due to high quality soil

- Existing natural and man-made water ways and their scenic nature, due to larger concentrations of orchards, vineyards, and valley oak trees

Lands designated as exclusive agriculture are around the Naval Air Station Lemoore (NAS Lemoore) and are subject to military noise and safety issues.

The agricultural land use designations are used to define distinct areas of agricultural intensity and to protect agricultural lands from incompatible uses. The physical development of agricultural properties is regulated and implemented by the zoning ordinance, in which the zone districts have the same designations as the land use designations (Kings County 2010a).

Land Use Goal B7 of the Kings County general plan is to keep community-benefitting nonagricultural uses compatible with the county's agricultural open space area. Such uses may include school sites, county parks, utility power facilities, waste management facilities, wastewater treatment facilities, communication towers, and open space buffers.

Land Use Policy B7.1.3 states that power generation facilities for commercial markets shall be allowed and regulated through the conditional use permit approval process. These are thermal, wind, and solar PV electric-generating facilities that produce power. The zoning ordinances for AG-20, AG-40, and AX-40 allow a conditional use permit for wind and solar PV electric-generating facilities that commercially produce power for sale. These facilities must comply with all local, regional, state, and federal regulations.

The open space element of the Kings County general plan identifies the county's open space land and establishes guiding policies for preserving and conserving land in the county that is essentially unimproved and devoted to open space use (Kings County 2010a). The plan identifies six categories of open space resources: agricultural resources, scenic resources, community character, outdoor recreation, military compatibility, and access to light and air in developed areas. The goal, objective, and policies related to agricultural resources in the open space element are as follows:

- OS Goal A1—Preserve agricultural land as open space.
  - OS Objective A1.1. Protect agricultural land as an important, sustainable component of the Kings County economy.
    - OS Policy A1.1.1. Preserve agricultural land in open and economically sustainable sized parcels for farming and establishment of agricultural processing facilities.
    - OS Policy A1.1.2. Recognize agricultural land as a valued open space feature in the county that promotes the

economy, public welfare, and quality of life for Kings County residents.

- OS Policy A1.1.3. Designate the area within three miles of the Naval Air Station Lemoore as well as its defined flight paths for Exclusive Agricultural use, at a minimum parcel size of 40 acres, in order to limit the potential effect of jet aircraft noise on nearby land uses, and to ensure the preservation of large and sparsely developed parcels for public safety purposes.

Kings County Military Lands

Naval Air Station (NAS) Lemoore is in northwestern Kings County, about three miles north of the Westlands CREZ. NAS Lemoore has a Military Influence Area that covers most of the northwest portions of the county and the Westlands CREZ (Kings County 2010a). The Military Influence Area subjects the CREZ to NAS Height Restriction Zones D and G, both of which require that the maximum allowable structure height be 500 feet (Westlands Water District 2013).

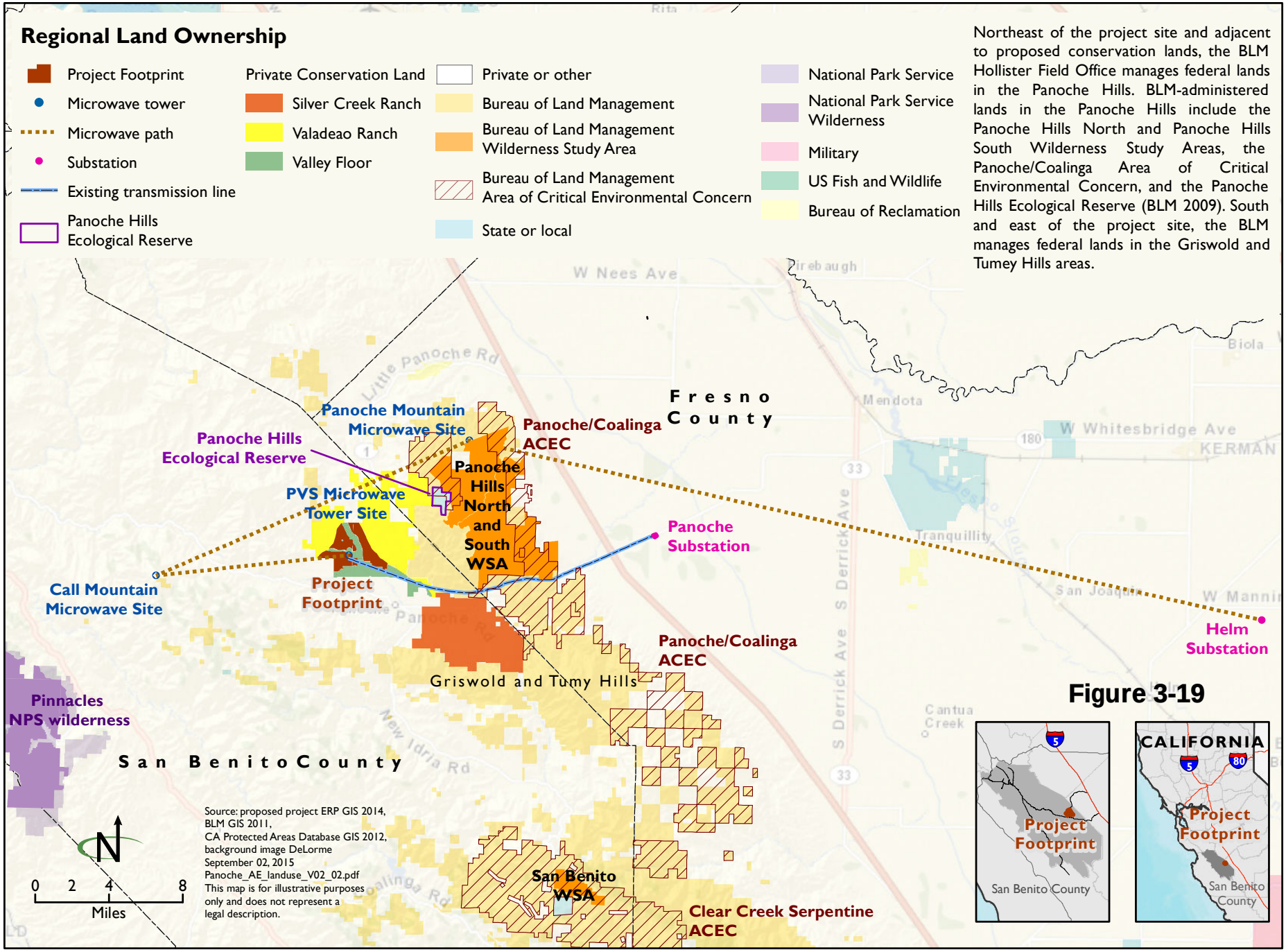
3.10.2 Affected Environment

Proposed Project

Regional Setting

The Panoche Valley is a remote rural valley in southeast San Benito County. It is surrounded by the Panoche Hills on the northeast, the Tumey Hills on the southeast, and the Griswold Hills on the south; these hills are all part of the Diablo Range. The valley is generally undeveloped, with scattered residential and agricultural buildings located around the valley, primarily along local roadways. Lands surrounding the Panoche Valley are rural and used primarily for agriculture and open space. The nearest urban areas are Hollister, approximately 35 miles to the north; Salinas, 45 miles to the northwest; and Fresno, approximately 60 miles to the east of the valley.

Northeast of the project site and next to proposed conservation lands, the BLM Hollister Field Office manages federal lands in the Panoche Hills. BLM-administered lands in the Panoche Hills are the Panoche Hills North and Panoche Hills South Wilderness Study Areas, the Panoche/Coalinga Area of Critical Environmental Concern (ACEC), and the Panoche Hills Ecological Reserve (BLM 2009). South and east of the project site, the BLM manages federal lands in the Griswold and Tumey Hills areas. BLM-administered lands in the region are popular recreation areas, particularly for hiking, hunting, birding, stargazing, and camping. In addition, organized recreation activities occur in the valley and surrounding hills. Examples are the Panoche Valley Road Race, an annual cycling race, glider plane activities, and horseback riding (San Benito County 2010a). **Figure 3-19** shows the landownership status in the region.


Regional Land Ownership
Project Footprint
Microwave tower
Microwave path
Substation
Existing transmission line
Panoche Hills Ecological Reserve
Private Conservation Land
Silver Creek Ranch
Valadeao Ranch
Valley Floor
Private or other
Bureau of Land Management
Bureau of Land Management Wilderness Study Area
Bureau of Land Management Area of Critical Environmental Concern
State or local
National Park Service
National Park Service Wilderness
Military
US Fish and Wildlife
Bureau of Reclamation
Northeast of the project site and adjacent to proposed conservation lands, the BLM Hollister Field Office manages federal lands in the Panoche Hills. BLM-administered lands in the Panoche Hills include the Panoche Hills North and Panoche Hills South Wilderness Study Areas, the Panoche/Coalinga Area of Critical Environmental Concern, and the Panoche Hills Ecological Reserve (BLM 2009). South and east of the project site, the BLM manages federal lands in the Griswold and Tumey Hills areas.
Fresno County
San Benito County
Panoche Mountain Microwave Site
Panoche Hills Ecological Reserve
PVS Microwave Tower Site
Call Mountain Microwave Site
Panoche/Coalinga ACEC
Panoche Hills North and South WSA
Panoche Substation
Project Footprint
Panoche/Coalinga ACEC
Griswold and Tumy Hills
Pinnacles NPS wilderness
San Benito WSA
Clear Creek Serpentine ACEC
Helm Substation
W Nees Ave
Little Panoche Rd
Mendota
W Whitesbridge Ave
KERMAN
Tranquillity
S Derrick Ave
Biola
Cantua Creek
New Idria Rd
Panoche Rd
Figure 3-19
CALIFORNIA
Project Footprint
San Benito County
0 2 4 8
Miles
Source: proposed project ERP GIS 2014, BLM GIS 2011, CA Protected Areas Database GIS 2012, background image DeLorme September 02, 2015 Panoche_AE_landuse_V02_02.pdf
This map is for illustrative purposes only and does not represent a legal description.

Project Setting

The project site is composed of 23 individual parcels in the Panoche Valley. With the exception of one residential structure, lands on the project site are undeveloped. Consistent with agricultural lands throughout San Benito County, cattle grazing is the primary use.

The existing PG&E Moss Landing-Panoche 230-kV transmission line bisects the proposed project site from northwest to southeast. Existing ground disturbance associated with the transmission line is the foundations for 24 steel lattice towers. PG&E maintains a right-of-way/easement for the line.

Properties surrounding the project site are zoned for agricultural use and are used primarily for grazing. Within one mile of the project footprint boundary there are approximately twelve parcels with structures. These are primarily residential and agricultural buildings associated with small ranchettes.

The one-room Panoche Elementary School is over one mile south of the project footprint at the intersection of Panoche Road and North Road. There is one residence west of the project footprint; the other residences are south of it. The nearest occupied residence is approximately 1,700 feet southwest of the southwest corner of the project footprint off Yturiarte Road; all other residences are at least half a mile from the project boundary. In addition, the project footprint is half a mile from the nearest boundary of BLM-administered land and 4.5 miles from the nearest Wilderness Study Area (WSA) boundary. The Panoche/Coalinga ACEC and the Panoche Hills Ecological Reserve are approximately 5 miles from the nearest project boundary.

The San Benito County general plan land use designation for the project site and surrounding lands is agriculture rangeland (San Benito County 2010c). This zoning designation allows for the "development of natural resources together with the necessary buildings, apparatus, or appurtenances incidental thereto, including concrete and asphalt batch plants and concrete and asphalt recycling plants" with issuance of a conditional use permit (San Benito County 2008a). The San Benito County Planning Commission issued the applicant a conditional use permit for the proposed project in October 2010 and amended the conditional use permit in April 2015.

<u>PG&E Telecommunications Upgrades</u>

The PG&E primary telecommunications upgrades would occur in the existing PG&E right-of-way corridor of the Moss Landing-Panoche 230-kV transmission line. This corridor is between the project site and the Panoche Substation, 17 miles east of the project site. Approximately 6.4 miles of the corridor run through BLM-administered lands. Rural undeveloped land surrounds the transmission line between the project site and Interstate 5 to the east; rural agricultural land surrounds the line between Interstate 5 and the Panoche Substation.

The PG&E secondary telecommunication upgrades would be as follows:

- Construct a new microwave communication tower at the proposed project site
- Construct a new microwave communication tower at the existing Helm Substation (approximately 13 miles southwest of Fresno)
- Collocate new microwave equipment on an existing CAL FIRE tower on Call Mountain (west of the Panoche Valley in San Benito County)
- Collocate new microwave equipment on an existing American Tower Corporation tower on Panoche Mountain (east of the Panoche Valley in Fresno County)

The new tower on the project site would be constructed within the fence line of the proposed substation and switching station on land controlled by the applicant, while the Helm Substation tower would be constructed within the fence line of the Helm Substation on land controlled by PG&E. The towers proposed for collocation would be on BLM-administered lands for which CAL FIRE and American Tower Corporation have existing right-of-way grant agreements.

Westlands CREZ

Project Setting

The Westlands CREZ is within western Fresno and Kings County and is composed of privately held parcels of land. The lands of the Westlands CREZ and surrounding areas consist almost entirely of cultivated agricultural land and do not have any residential or nonresidential structures. The Shannon Ranch complex, west of the CREZ at the intersection of Avenal Cutoff Road and Gale Avenue, consists of 20 single-family units of worker housing, a ranch office, a machine shop, various other outbuildings and infrastructure facilities, and an airstrip.

The remaining lands surrounding the CREZ are sparsely settled; apart from the Shannon Ranch there are six dwellings within one mile of the CREZ boundary (Westlands Water District 2013). As described under Regulatory Framework, NAS Lemoore is approximately three miles north of the CREZ and has a Military Influence Area that covers most of the Westlands CREZ.

Within Kings County, CREZ lands are designated by the Kings County 2035 General Plan as Agricultural Open Space. The Land Use Element of the General Plan designates CREZ lands as either General Agriculture – 40 Acres (South County) or Exclusive Agriculture – 40 acres. Under the general plan, commercial solar facilities are an allowable use with a conditional use permit (Kings County 2010a).

Within Fresno County, CREZ lands are designated by the Fresno County General Plan for agriculture. Like Kings County, solar facilities are an allowable use on agricultural lands with a conditional use permit (Fresno County 2014a).

3.10.3 Environmental Impacts

Effects on land use were evaluated within the context of applicable federal, state, and local laws and regulations. Impacts on land use would be considered significant if the proposed action or alternatives would result in any of the following:

- Conflict with any applicable land use plan, policy, or regulation
- Directly or indirectly divide an established community or disrupt, displace, or divide an existing land use

No Action (No Build) Alternative

Under the no action (no build) alternative, existing land uses at the proposed project site and on surrounding mitigation lands would continue. No telecommunication upgrades would occur. There would be no changes in land use on the project site, and no land use impacts would occur. Under the no action (no build) alternative, conservation lands would not be created; therefore, maintaining these lands as undeveloped open space in perpetuity would not be guaranteed.

No Action (No USACE Permit) Alternative

The following County-required measures were included as conditions of approval in the conditional use permit for the proposed project to reduce land use-related impacts and are considered part of the no action (no permit) alternative in this EIS. The full text of these measures is included in **Appendix C**, **Table C-2**. The impacts of the no action (no permit) alternative on land use with incorporation of these measures is discussed below.

- **Mitigation Measure LU-1.1. Establish construction liaison**. The Applicant shall provide a toll-free general phone number and the name and contact information for a local public liaison to all property owners within a one-mile radius of the project's boundaries. The toll-free access number and the identified local public liaison shall act as points of contact between property owners and construction crews. During construction, the local public liaison shall respond to all construction-related questions and concerns within 72-hours. Post-construction responses shall be made within 1 week. The Applicant shall provide summary documentation of all comments and concerns communicated to the liaison monthly for the duration of construction and for one year following the completion of construction.
- **Mitigation Measure LU-1.2. Provide advance notice of construction**. Prior to and during construction, the Applicant shall

give at least 30 days advance notice of the start of any construction-related activities to all residences within 5 miles of the construction boundary, the Principal of the Panoche Elementary School, and the BLM Hollister Field Office. The notification shall include the toll-free general phone number and contact information for the local public liaison. The announcement shall state where and when construction would occur; provide tips on reducing noise intrusion; and provide a point of contact for any noise complaints.

- **Mitigation Measure LU-1.3. Provide quarterly construction updates**. Following publication/transmittal of the advance notification of construction, the Applicant shall provide all property owners within a one-mile radius of the project site's boundaries with updates and changes to all of the information provided in the pre-construction notification. The updates shall be provided every quarter for the duration of all construction-related activities. The updates shall continue to provide the toll-free number and the name and phone number of the local public liaison to respond to all construction-related questions and concerns. The local public liaison shall continue to respond to all questions and complaints within a 72-hour period during construction and within one week for post-construction activities.

Construction

The no action (no permit) alternative would not conflict with any applicable land use plan, policy, or regulation. San Benito County approved the conditional use permit for the proposed project in October 2010 and amended the permit in April 2015 to account for changes in the applicant's proposed project. In approving the conditional use permit, San Benito County determined that the solar facility is an allowed use and, as conditioned, is compatible with the objectives, policies, general land uses, and programs specified in the general plan. The use of free-span bridges instead of single span bridges would be a similar use to that approved by San Benito County. Because the no action (no permit) alternative would incorporate all of the mitigation measures required by the County and would be similar to the proposed project, it is expected that the no action (no permit) alternative would also not conflict with any applicable land use plan, policy, or regulation.

Construction of the no action (no permit) alternative would not directly or indirectly divide an established community. While the no action (no permit) alternative would introduce a different land use into the Panoche Valley, this land use would not prevent the continued agricultural and residential land uses of surrounding lands or lands throughout the Panoche Valley. There would be no impact, and no mitigation is required.

Construction of the no action (no permit) alternative would temporarily disrupt surrounding residential land uses and the Panoche Elementary School from the

proximity of these land uses to construction crews, heavy equipment, construction staging, and increased traffic on local roadways during construction. As part of the CEQA EIR certification and project approval process, the applicant committed to implementing Mitigation Measures LU-1, LU-2, and LU-3, described above. These measures require the applicant to notify surrounding land owners of upcoming construction activities throughout the construction process, provide a means of lodging comments or complaints, and require the applicant to respond to comments and complaints in a timely manner. Because these measures have been incorporated into the no action (no permit) alternative indirect impacts from disruption of surrounding land uses would be less than significant. No additional mitigation measures were identified to further reduce these impacts. Potential construction impacts on area residents from increased dust generation, noise, and traffic and transportation are discussed in **Sections 3.4**, **3.13**, and **3.15**, respectively.

Construction of the no action (no permit) alternative would have less than significant direct impacts associated with conversion of the project site from agricultural use to passive solar use (see **Section 3.3**, Agricultural Resources). The presence of the solar infrastructure would have a less than significant indirect impact on scattered rural residences, recreationists en-route to BLM-administered lands, and other travelers through the Panoche Valley by altering the rural and agricultural character of the immediate project area from the presence of solar arrays, fencing, electrical collection equipment, overhead lines, and the substation in an otherwise rural environment. Conversely, the proposed project would create permanent conservation easements on the 10,772-acre Valadeao Ranch and 10,890-acre Silver Creek Ranch that lie between the project footprint and BLM-administered lands in the Panoche Hills to the east. These conservation easements would ensure that the open space value and rural character of these lands are preserved in perpetuity. While the no action (no permit) alternative would introduce a different land use into the Panoche Valley, this land use would not divide an established community or prevent the continued uses on surrounding lands or lands throughout the Panoche Valley. No mitigation measures were identified.

Operational and Maintenance Activities

Per the conditional use permit for the project site issued by San Benito County, operational and maintenance activities for the solar facility are allowable activities and would not conflict with any local plans or regulations. These activities would not divide a community or disrupt uses on surrounding lands. Potential operational impacts on area residents from increased dust generation, noise, and traffic and transportation would be low and are discussed in **Sections 3.4**, **3.13**, and **3.15**, respectively. No mitigation measures are required.

PG&E Telecommunication Upgrades

Primary Telecommunication Upgrades. Primary telecommunication upgrades would be an allowable use within the PG&E Moss Landing-Panoche transmission line right-of-way between the project site and the existing Panoche substation in Fresno County. Upgrades would not conflict with the San Benito and Fresno County General Plans or the BLM's RMP, as applicable, and would have no direct impact on land use.

Construction activities within the right-of-way would have a less than significant direct impact related to temporarily displacing some current land uses within temporary work areas (see **Section 3.3**, Agricultural Resources) and no direct impact within the BLM-administered portions of the PG&E right-of-way. Construction activities occurring within the right-of-way would have no indirect impact on surrounding land uses, which include only undeveloped open space lands or agricultural lands.

Construction traffic related to the primary telecommunication upgrades may temporarily and intermittently disrupt travel to local BLM-administered lands, resulting in a less than significant indirect impact given the intermittent nature and short duration of the work.

Secondary Telecommunication Upgrades. Secondary telecommunication upgrades would not alter the land uses at Call Mountain, Panoche Mountain, or Helm Substation. Collocating microwave equipment on existing towers at Call and Panoche Mountains would have no direct impact on land use or indirect impact on recreation related to the use of surrounding BLM-administered lands. Likewise, constructing a new 100-foot tower within the fence line of Helm Substation would be consistent with the transmission-related use on the substation site and would have no direct or indirect impact.

Constructing a new 100-foot microwave tower at the project site would introduce a new structure on the site. The presence of this tower near substation equipment and existing transmission line lattice towers would have a less than significant indirect impact on surrounding land uses as it would not disrupt uses of lands surrounding the project site.

Alternative A (Applicant's Proposed Project)

Construction and Operational and Maintenance Activities

Direct and indirect land use impacts under Alternative A would be the same as described above for the no action (no permit) alternative. The applicant-proposed measures and County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. No additional mitigation measures were identified to further reduce impacts.

PG&E Telecommunication Upgrades

Impacts associated with PG&E primary and secondary telecommunication network upgrades would be the same as described under the no action (no permit) alternative.

Alternative B (On-site Alternative)

Construction and Operational and Maintenance Activities

Direct and indirect land use impacts under Alternative B would be the same as described above for the no action (no permit) alternative. The applicant-proposed measures and County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. No additional mitigation measures were identified to further reduce impacts.

PG&E Telecommunication Upgrades

Impacts associated with PG&E primary and secondary telecommunication network upgrades would be the same as described under the no action (no permit) alternative.

Alternative C (Off-site Alternative, Westlands CREZ)

Construction

Development of a 247 MW solar facility on lands within the Westlands CREZ would be consistent with both the Fresno County and Kings County General Plans. Both plans allow development of commercial solar generation facilities on lands zoned as agriculture through the conditional use permitting process. Within Kings County, a master plan is being developed for the Westlands Solar Park, a subset of the Westlands CREZ in the county (Westlands Water District 2013). Future development in this area would be subject to the terms of this master plan once the plan is approved by Kings County.

Construction activities would have indirect impacts on residential land uses or other sensitive land uses to the extent that these land uses exist within proximity of a proposed project site and the area roadways leading to the site. These impacts would introduce heavy equipment, delivery trucks, and construction commute traffic to an agricultural environment during the construction period. Because there are limited residences and other sensitive lands uses adjacent to the Westlands CREZ, these impacts are expected to be less than significant.

Potential construction impacts from increased dust generation, noise, and traffic are discussed in detail in **Sections 3.4**, **3.13**, and **3.15**, respectively.

The presence of a solar facility within the Westlands CREZ would introduce a nonagricultural, industrial use into a predominantly agricultural portion of the

affected county. The presence of a solar facility would have a less than significant indirect impact on the character of the rural setting, though the degree of impact would depend on its distance from roadways and rural residences and the immediately adjacent land uses. A solar facility in the Westlands CREZ would have no direct impact on recreation, as no recreational uses exist on the Westlands CREZ. Development in the CREZ would not be within the viewshed of federal land opportunities or state or local parks in the project area, resulting in no indirect impacts on recreation.

The presences of a solar facility in the Westlands CREZ would not be a conflicting land use with the NAS Lemoore Military Influence Zone, which limits the height of structures that could be placed in this zone. Infrastructure associated with a solar facility itself would likely comply with height restrictions. Necessary interconnection infrastructure, such as generation-tie lines or microwave towers, would need to be evaluated for compliance with the restrictions on development in the NAS Lemoore Military Influence Zone.

Operational and Maintenance Activities

Impacts from operational and maintenance activities would be the same as those described under the no action (no permit) alternative. Operational and maintenance activities would not conflict with any of the indicators of significant impacts as described in the no action (no permit) alternative. As a result, impacts would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

3.10.4 Cumulative Impacts

No Action (No Permit) Alternative, Alternative A, and Alternative B

The geographic scope for the cumulative effects analysis is eastern San Benito County, particularly the Panoche Valley and BLM management areas in the hills to the east.

The Panoche Valley is a remote rural valley in southeastern San Benito County. The valley is generally undeveloped, with scattered residential and agricultural buildings primarily along local roadways. Lands immediately surrounding the Panoche Valley are rural and used primarily for agriculture and open space.

The Panoche Valley has always been sparsely inhabited with few buildings. Since the mid-1800s, the land has been used almost exclusively for cattle, sheep, and horse grazing and associated cultivation of forage crops, primarily alfalfa. There are no industrial developments in the area. Utilities include the Moss Landing-Panoche 230-kV transmission line running in an east-west direction through the proposed project site.

Northeast of the project site and next to the proposed conservation lands, the BLM Hollister Field Office manages federal lands in the Panoche Hills. South and east of the project site, the BLM manages federal lands in the Griswold and

Tumey Hills areas. BLM-administered lands in the region are popular recreation areas, particularly for hiking, hunting, birding, stargazing, and camping.

Past and present actions on private lands in the project area consist primarily of grazing. Mean annual precipitation in Panoche Valley is 9 inches, and local soils cannot produce a crop in 7 out of 10 years without irrigation (Oster 2015). The California Department of Conservation's Farmland Mapping and Monitoring Program classifies the entire project site and proposed conservation lands as Grazing Land. No reasonably foreseeable future actions have been identified in the geographic scope area that would overlap the construction period for the proposed project and thus contribute to cumulative land use effects, including temporary, short-term, or long-term effects.

The no action (no permit) alternative, Alternative A, and Alternative B would convert approximately 2,506 acres from a rural, agricultural use to a more developed, though passive, use. Activity levels in the area would increase during the construction period; after construction of the facility is complete, the area would return to activity levels only slightly higher than current conditions. Construction would have adverse indirect effects on area residents for the duration of the construction period, as discussed under air quality, noise, and transportation. The telecommunications upgrades would not result in a land use change along the transmission line corridor or at the microwave tower sites; however, construction actions could temporarily affect residents in the vicinity of these activities. The no action (no permit) alternative, Alternative A, and Alternative B would have less than significant cumulative land use impacts when taking past and present actions into account.

Alternative C

The geographic scope for the cumulative effects analysis for Alternative C is Fresno and Kings County. Cumulative projects identified within the study area are 19 solar projects that are operational or under construction and another 18 proposed solar projects under review. Combined with these cumulative projects, the proposed project would result in a further loss of open space and agricultural land in Fresno and Kings Counties.

The nearest cumulative projects are a series of solar facilities near Lemoore, approximately 10 miles north of the Westlands CREZ. The distance between the proposed project and these cumulative projects would minimize impacts on land use by reducing the amount of contiguous developed land in the cumulative effects analysis area. The 10-mile distance also reduces the cumulative impact of fragmented development that can cumulatively change the character of the cumulative effects analysis area. Thus, the cumulative impact of multiple solar facilities on land use is less than significant.

There are no known recreational uses in the Westlands CREZ; therefore, the proposed project would not contribute to any cumulative loss of recreational opportunities in the cumulative effects analysis area.

3.11 SOCIOECONOMICS

This section describes the baseline socioeconomic resources of the project area and analyzes potential effects of the proposed project on these resources. The socioeconomic resources discussed are demographic information on population and housing and economic conditions such as employment and income. Data sources are federal data from the US Department of Commerce Census Bureau, Bureau of Economic Analysis, Department of Labor, as well as data collected at the state and county level.

Data from the US Census Bureau consists of both data collected every ten years as available (US Census Bureau 2000 and 2010a) and American Community Survey data (US Census Bureau 2010b, 2012, 2013a, b, and c), as indicated. American Survey Data is composed of data collected for three- or five-year increments and do not represent a single point in time.

3.11.1 Regulatory Environment

No laws, regulations, or standards were identified that pertain to socioeconomics of the proposed project.

3.11.2 Affected Environment

Proposed Project and PG&E Telecommunications Upgrades

The project site is in San Benito County in Central California, in census tract 8.02, block group 1. Research has indicated that construction workers may commute as far as two hours away from their residence to a project site rather than relocate (Electric Power Research Institute 1982). Based on the population centers in the region, the project location, and the types of jobs created by project activities, it is likely that the pool of workers for the project would be drawn primarily from San Benito, Santa Clara, and Fresno Counties. Therefore, the socioeconomic study area for which population, housing, and employment data are collected includes Fresno, Santa Clara, and San Benito Counties and census tract 8.02. (Note that larger metropolitan areas in Fresno and Santa Clara Counties result in data that is generally not reflective of the socioeconomic setting of the project area. Because the broad socioeconomic study area applies to all project components, separate discussion of the proposed project site and PG&E telecommunications sites is not warranted.)

Population

In the vicinity of the project area, San Benito County's population has remained similar for the past decade, with only a 4.2 percent population change since 2000 (**Table 3-23**). The county is rural, with a population density of only 39.8 people per square mile, compared to 156.2 people per square mile and 1,381.0 per square mile in neighboring Fresno and Santa Clara Counties, according to 2010 census data. In other counties, population has changed at a more rapid pace, with a 16.4 percent increase in Fresno County and a 6.3 percent increase in Santa Clara County.

Table 3-23
Population Profile

Geographic Area	2000	2010	2012	Percent Change 2000-2012
Block group 1	NA	720	NA	NA
Census Tract 8.02	NA	2,534	2,295	NA
San Benito County	53,234	55,269	55,467	4.2
Fresno County	799,407	930,450	930,517	16.4
Santa Clara County	1,682,585	1,781,642	1,788,393	6.3
California	33,871,648	37,253,956	37,325,068	10.2

Source: US Census Bureau 1990, 2000, 2010a, 2012
NA: Census tract and block group created in 2010 census redistricting; data not available for 2000 census

Population projections for the area indicate that San Benito County may have an increase in population, with an estimated 20.3 percent population change by 2030, as compared to 25.5 percent in Fresno County, 6.0 percent in Santa Clara County, and 14.1 percent in the state overall (**Table 3-24**).

Table 3-24
Population Projections

Geographic Area	2015	2020	2025	2030	Estimated Percent Change 2015-2030
San Benito County	57,521	60,278	64,658	69,215	20.3%
Fresno County	988,970	1,071,728	1,151,711	1,241,773	25.5%
Santa Clara County	1,874,604	1,889,898	1,936,386	1,986,545	6.0%
California	38,801,063	40,643,643	42,451,760	44,279,354	14.1%

Source: California Department of Finance 2013

Housing

Housing data, including number of units, ownership, occupancy, and median dollar value, for the region of influence and surrounding areas is summarized in **Table 3-25**.

According to 2011-2013 census data, there were approximately 16,499 housing units in San Benito County. This was an 8.8 percent increase since 2000. The estimated vacancy rate in the county was 5.1 percent, which was less than the statewide vacancy rate of 8.6 percent. Vacancy rates were lowest in Santa Clara County and highest in Fresno County for the study area as a whole.

The median home price in San Benito County was slightly lower than that of California ($335,100 and $369,400 for 2011-2013 data). Median gross rent was slightly lower than the state average ($1,150 and $1,147 for 2011-2013). Median home prices and rents were highest in Santa Clara County and lowest in Fresno County. Fresno County, however, had the highest rate of housing growth over the past years (18 percent). For all geographic areas examined, the recession is reflected in a decrease in median home value between 2010 and 2011-2013 data.

Table 3-25
Housing Characteristics

	San Benito County	Santa Clara County	Fresno County	California
Total Housing Units 2013	17,956	639,173	319,551	13,762,376
Total Housing Units 2000	16,499	579,239	270,767	12,214549
Percent Change (since 2000)	8.8	10.3	18	12.7
Percent occupied	94.9	96.2	91.2	91.4
Percent vacant	5.1	3.8	8.8	8.6
Homeowner vacancy rate	1.3	0.8	1.6	1.6
Rental vacancy rate	2.1	2.8	6.2	4.5
Median Value (owner occupied units)				
2000	$284,000	$446,400	$104,900	$211,500
2010	$410,700	$674,100	$235,500	$405,800
2013	$335,100	$648,800	$180,800	$369,400
Median Gross Rent				
2000	$765	$1,185	$534	$747
2010	$1,183	$1,426	$825	$1,163
2013	$1,260	$1,583	$869	$1,216

Source: US Census Bureau 2000, 2010b, 2013b

Vacant housing in the immediate project area is dominated by housing for seasonal or recreational use (27 percent of vacant housing for San Benito County; see **Table 3-26**).

Table 3-26
Vacancy Status

	San Benito County	Santa Clara County	Fresno County	California
Total Vacant Units	913	24,246	28,111	1180,654
For rent	15%	33%	33%	23%
Rented not occupied	2%	8%	5%	5%
For sale only	16%	12%	10%	10%
Sold not occupied	9%	6%	4%	5%
For seasonal, recreational, or occasional use	27%	13%	21%	31%
For migrant workers	0%	0%	1%	0%
Other vacant	32%	28%	27%	26%

Source: US Census Bureau 2013b

Employment and Income

Based on 2011-2013 data, per capita income in San Benito County was $25,886, compared to a high of $41,771 in Santa Clara County and a low of $19,269 in Fresno County. Median household income was $67,268 in San Benito County compared to a high of $91,201 in Santa Clara County and a low of $43,785 in Fresno County. **Table 3-27** and **Table 3-28** summarize income statistics by county, as compared to the state average.

Table 3-27
Per Capita Income

Geographic Location	2000	2010	2013
San Benito County	$20,932	$25,376	$25,886
Fresno County	$15,495	$19,924	$19,269
Santa Clara County	$32,795	$39,091	$41,771
California	$22,711	$28,551	$29,103

Source: US Census Bureau 2010b, 2000, 2013b
Per capita income for 2000 is in 1999 dollars, for 2010 is in 2010 dollars, and for 2013 is in 2013 dollars.

Table 3-28
Median Household Income

Geographic Location	2000	2010	2013
San Benito County	$57,469	$61,561	$67,268
Fresno County	$34,725	$45,439	$43,785
Santa Clara County	$74,335	$86,435	$91,201
California	$47,493	$60,016	$59,645

Source: US Census Bureau 2010b 2000, 2013b
Median household income for 2000 is in 1999 dollars, for 2010 is in 2010 dollars, and for 2013 is in 2013 dollars.

Income is derived from two major sources: labor earnings (income from the workplace) and non-labor income (e.g., dividends, interest, and rent [collectively referred to as money earned from investments] and transfer payments, such as payments from governments to individuals, including Medicare, disability, and Social Security insurance payments, and retirement payments).

Labor income is the main source of income in all study area counties; however, non-labor income from rent, dividends, and other sources provides approximately 33 percent of income in San Benito County. For more details regarding income source, refer to **Table 3-29**. Note that the Bureau of Economic Analysis data collection for data in **Table 3-29** differs slightly from those used by the US Census Bureau, and exact income amounts are not comparable with previous tables.

As listed in **Table 3-30**, San Benito County's annual unemployment in 2013 was 11.1 percent, declining since a high of 17.2 percent in 2000 during the economic recession. San Benito County's unemployment is consistently higher than that for the state and Santa Clara County, but it remains lower than Fresno County.

As shown in **Table 3-31**, government was the largest employment sector in all counties except Santa Clara. San Benito County had a larger contribution of employment from non-service sectors, such as farming, construction, and manufacturing, compared to other counties. Of service-related jobs, the most important industries in San Benito County are retail trade, real estate and rental leasing, administrative and waste services, health care and social assistance, and

Table 3-29
Study Area Labor and Non-Labor Income (2012)

Location	Personal Income Total (Thousands of $)	Labor Income (Net Earnings)		Non-Labor Income			
				Dividends, Interest, Rent		Personal Transfer Receipts	
		Thousands of $	% of Personal Income Total	Thousands of $	% of Personal Income Total	Thousands of $	% of Personal Income Total
San Benito County	2,195,743	1,479,731	67.4%	380,986	17.4%	335,026	15.3%
Fresno County	32,782,756	19,804,592	60.4%	5,319,526	16.2%	7,658,639	23.4%
Santa Clara County	124,092,906	89,212,431	71.9%	23,945,082	19.3%	10,935,393	8.8%
California	1,794,559,870	1,171,983,911	65.3%	348,975,571	19.4%	273,600,387	15.2%

Source: Headwaters Economics 2014, based on BEA 2012 (Table CA05N)
Estimates are in thousands of 2013 dollars.
Non-labor income and labor earnings may not add to total personal income because of adjustments made by the Bureau of Economic Analysis to account for contributions for Social Security, cross-county commuting, and other factors.

Table 3-30
Unemployment Rates

Geographic Location	2000	2005	2010	2011	2012	2013
San Benito County	6%	8.1%	17.2%	15.6%	13.9%	11.1%
Fresno County	10.4%	9%	16.8%	16.5%	15.0%	12.9%
Santa Clara County	3%	5.3%	11%	9.7%	8.4%	6.8%
California	5%	5.4%	12.3%	11.8%	10.4%	8.9%

Source: California Employment Development Department 2014
Note: Data are not seasonally adjusted.

Table 3-31
Employment by Industry (2012)

	San Benito County		Fresno County		Santa Clara County		California	
	Total Employees	Percent	Total Employees	Percent	Total Employees	Percent	Total Employees	Percent
Total employment (number of jobs)	21,116	-	437,934	-	1,187,799	-	20,653,860	-
Non-services-related	~5,167	~24.5%	94,367	21.5%	~214,314	~18.0%	2,737,024	13.3%
Farm	1,073	5.1%	19,624	4.5%	2,643	0.2%	218,826	1.1%
Forestry, fishing, and related activities	NA	NA	31,653	7.2%	2,908	0.2%	224,938	1.1%
Mining (including fossil fuels)	NA	NA	487	0.1%	1,258	0.1%	57,679	0.3%
Construction	1,224	5.8%	17,393	4.0%	46,062	3.9%	893,094	4.3%
Manufacturing	2,870	13.6%	25,210	5.8%	161,443	13.6%	1,342,487	6.5%
Services-related	~11,855	~56.1%	277,168	63.3%	~886,832	~74.7%	15,326,359	74.2%
Utilities	NA	NA	2,080	0.5%	1,929	0.2%	61,302	0.3%
Wholesale trade	500	2.4%	15,514	3.5%	42,292	3.6%	767,848	3.7%
Retail trade	2,827	13.4%	43,178	9.9%	101,183	8.5%	1,962,335	9.5%
Transportation and warehousing	NA	NA	14,647	3.3%	~18,841	~1.6%	600,618	2.9%
Information	112	0.5%	4,622	1.1%	55,761	4.7%	524,458	2.5%
Finance and insurance	737	3.5%	19,770	4.5%	50,023	4.2%	1,055,137	5.1%
Real estate and rental and leasing	1,302	6.2%	19,751	4.5%	68,389	5.8%	1,264,203	6.1%
Professional and technical services	~917	~4.3%	17,998	4.1%	~167,326	~14.1%	1,799,570	8.7%
Management of companies and enterprises	~77	~0.4%	2,069	0.5%	10,929	0.9%	218,090	1.1%
Administrative and waste services	1,187	5.6%	24,968	5.7%	71,928	6.1%	1,338,321	6.5%
Educational services	213	1.0%	6,566	1.5%	47,566	4.0%	458,215	2.2%
Health care and social assistance	1,121	5.3%	46,576	10.6%	98,774	8.3%	1,947,136	9.4%
Arts, entertainment, and recreation	500	2.4%	5,777	1.3%	21,926	1.8%	570,960	2.8%
Accommodation and food services	1,072	5.1%	27,339	6.2%	75,725	6.4%	1,472,918	7.1%
Other services, except public administration	1,290	6.1%	26,313	6.0%	54,240	4.6%	1,285,248	6.2%
Government	2,670	12.6%	66,399	15.2%	88,349	7.4%	2,590,477	12.5%

Source: Headwaters Economics 2014; data compiled from US Department of Commerce, Bureau of Economic Analysis, table CA25N
All employment data are reported by place of work. Estimates for data that were not disclosed are indicated with tildes (~).

food service. Fresno County has a similar balance of industries, while Santa Clara County has a notably higher proportion of jobs contributed from the professional and technical services, information, and educational services sectors.

Income by industry is displayed in **Table 3-32**. The largest contribution to personal income in San Benito County comes from the manufacturing, government, and retail trade sectors. In Fresno County, top sectors are farming, health care and social services, and government, while in Santa Clara County, manufacturing, information, and the professional and technical services sectors are the largest contributors.

County commuting data can be examined to indicate the degree to which residents commute to neighboring counties for work. Approximately 11,909 workers live and work in San Benito County, 11,196 workers commute to other counties from San Benito, and 3,551 commute into San Benito County (**Table 3-33**). Types of commuters are based on industry and local economic conditions.

Local Fiscal Conditions

California's counties receive most of their revenue from property taxes, charges for local services, and redistribution of state and federal sources. Funding sources for the 2012-2013 adopted budget for San Benito County are shown in **Table 3-34**.

Project activities have the potential to impact tax revenues collected from products sold in San Benito County, as well as in surrounding counties. In addition, commercial and residential property values and associated taxes collected may be impacted directly or indirectly by the proposed project.

Sales taxes are imposed at the state, county, and local level. California's standard statewide tax rate is 7.5 percent, effective January 1, 2013. Local communities and districts have additional taxes added onto this base rate; for example, Hollister has a rate of 8.5 percent (California Board of Equalization 2014a). Total taxable sales for 2012 in San Benito County were approximately $530,017,000 (California Board of Equalization 2014b). Revenues collected from sales taxes for San Benito County for 2012-2013 are estimated at $1,630,000 (San Benito County 2014a).

Property taxes fund local governments and are imposed and collected by the county where the property is located. Proposition 13 limits the basic property tax rate to one percent of the property's net taxable value. Current value of assessed properties for 2014 in San Benito County was estimated at $6,467,025,504 (San Benito County 2014b). A breakdown of property values by type is shown in **Table 3-35**. Total property taxes collected were valued at $10,843,756 for the 2012-2013 fiscal year (San Benito County 2014a). Taxes were distributed, with approximately 54 percent going to local schools, 2 percent to cities, 6 percent to counties, and the remainder to fund redevelopment and other special funds (San Benito County 2014b).

Table 3-32
Income by Industry (2012)

	San Benito County		Fresno County		Santa Clara County		California	
	Total Labor Earnings	Percent	Total Labor Earnings	Percent	Total Labor Earnings	Percent	Total Labor Earnings	Percent
Total employment (number of jobs)	964,305	-	21,968,660	-	116,890,808		1,292,202,787	-
Non-services-related	~302,196	~31.3%	5,296,367	24.1%	~33,462,367	~28.6%	215,032,570	16.6%
Farm	35,516	3.7%	1,839,814	8.4%	69,491	0.1%	15,628,063	1.2%
Forestry, fishing, and related activities	NA	NA	1,017,631	4.6%	~288,960	0.2%	7,780,861	0.6%
Mining (including fossil fuels)	NA	NA	38,894	0.2%	50,396	0.0%	7,199,840	0.6%
Construction	56,060	5.8%	991,584	4.5%	3,531,259	3.0%	57,110,848	4.4%
Manufacturing	210,620	21.8%	1,408,444	6.4%	29,522,261	25.3%	127,312,959	9.9%
Services-related	~396,384	~41.1%	11,549,991	52.6%	~76,755,987	~65.7%	840,678,456	65.1%
Utilities	NA	NA	301,471	1.4%	~736,617	~0.6%	9,521,017	0.7%
Wholesale trade	27,525	2.9%	1,029,882	4.7%	5,368,826	4.6%	61,419,543	4.8%
Retail trade	113,263	11.7%	1,456,448	6.6%	5,064,100	4.3%	75,513,487	5.8%
Transportation and warehousing	NA	NA	905,009	4.1%	~1,558,629	~1.3%	36,144,061	2.8%
Information	3,340	0.3%	388,476	1.8%	14,253,756	12.2%	65,655,095	5.1%
Finance and insurance	18,247	1.9%	794,194	3.6%	3,595,636	3.1%	74,167,250	5.7%
Real estate and rental and leasing	10,084	1.0%	397,810	1.8%	1,718,284	1.5%	27,281,737	2.1%
Professional and technical services	~52,659	~5.5%	951,023	4.3%	~21,734,052	~18.6%	163,871,627	12.7%
Management of companies and enterprises	~5,982	~0.6%	173,818	0.8%	1,553,055	1.3%	26,351,329	2.0%
Administrative and waste services	38,466	4.0%	722,031	3.3%	4,790,478	4.1%	53,463,537	4.1%
Educational services	2,850	0.3%	185,782	0.8%	3,282,651	2.8%	20,084,383	1.6%
Health care and social assistance	44,108	4.6%	2,696,363	12.3%	7,879,823	6.7%	120,417,837	9.3%
Arts, entertainment, and recreation	7,495	0.8%	97,150	0.4%	790,601	0.7%	20,804,846	1.6%
Accommodation and food services	24,768	2.6%	558,416	2.5%	2,156,543	1.8%	39,801,767	3.1%
Other services, except public administration	47,596	4.9%	892,119	4.1%	2,272,936	1.9%	46,180,941	3.6%
Government	228,916	23.7%	5,122,302	23.3%	8,864,153	7.6%	236,491,761	18.3%

Source: Headwaters Economics 2014; data compiled from US Department of Commerce, Bureau of Economic Analysis, table CA05N
All employment data are reported by place of work. Estimates for data that were not disclosed are indicated with tildes (~).

Table 3-33
Commuting Patterns

Geographic Location	Workers to San Benito County	Workers From San Benito County
Alameda	35	299
Fresno	80	12
Merced	289	38
Monterey	1,187	1,606
San Mateo	15	178
Santa Clara	1,017	8,054
Santa Cruz	622	714
Stanislaus	104	23

Source: California Employment Development Department 2014
Note: Data are not seasonally adjusted.

Table 3-34
San Benito County Revenue 2012-2013

Source	Revenue
Taxes	$14,018,891
License, permit, and franchise fees	$796,752
Fines, and forfeitures	$1,004,400
Income from use of money and property	$363,032
Other government aid	$47,013,361
Charges for current services	$5,045,434
Other revenue	$40,377,205
Intra-fund transfers	$10,063,753
Total	$118,682,828

Source: San Benito County 2014a

Table 3-35
Property Value

Property Type	Parcels	Assessed Value 2014 Before Exceptions
Industrial	244	350,192,532
Commercial	605	413,111,898
Agricultural	4,510	1,066,358,551
Residential	14,300	4,274,916,852
Total	19,659	$6,104,579,833

Source: San Benito County 2014b

Social Setting

San Benito County is characterized by mountains, rolling hills, and valleys. The area is generally rural, with the largest city, Hollister, supporting a population of approximately 34,000. The area has a long history of agriculture, including farming and ranching. In recent years, organic farming has become an important

component of the local economy. Earthbound Farm Organic represents the top private employer (San Benito County Chamber of Commerce 2012).

Based on project scoping, the following groups have been identified as having an interest in the proposed project:

- Project area farmers and ranchers—The project area has a history of agricultural use. Approximately 5.1 percent of jobs are related to farming. A concern brought forward in scoping was related to the short- and long-term impacts of project activities on area farming and ranching.
- Area residents—Residents with property near the proposed project site are concerned about project activities and the potential for short-term impacts from construction, including noise, dust, and traffic, and potential long-term impacts on property value due to changes to the visual landscape and other quality of life features.
- Individuals and groups who prioritize resource protection—Various individuals and groups at the local, regional, and national levels are interested in preserving the landscape and wildlife in the planning area. Many of their concerns are in regard to wildlife, particularly special status species, visual quality, and open space and preservation of rural character.
- Individuals and groups who prioritize resource use—Some individuals and groups view development of the project area as a potential boost to the local area and regional economy and are concerned about limitations on development.

Westlands CREZ

The Westlands CREZ site is in Fresno and Kings Counties. Data for Fresno County was provided for the proposed project; the description of the regional economy and social setting is also relevant for the Westlands CREZ site. Data are repeated in tables here for comparison. Additional demographic and economic information is supplied below for Kings County and Fresno County, where appropriate, to support analysis of the Westlands CREZ alternative.

Population

Population change in the area around the Westlands CREZ has been stable or has decreased slightly since 2010 (**Table 3-36**). At the county level, growth has occurred at a faster rate than that of California since 2000. Population projections for 2000-2013 also indicate increases above that of the California state average (14.1 percent) for both Kings County (30.7 percent) and Fresno County (25.5 percent) by 2030 (see **Table 3-37**).

Table 3-36
Population Profile

Geographic Area	2000	2010	2013	Percent Change 2000-2013
Block Group 1 Census tract 16.01	-	1,869	1,283	-
Kings County Census Tract 16.01	-	4,516	4,422	-
Kings County	129,461	152,982	151,806	17.2
Block Group 1 Census tract 78.01	-	2,722	2,694	-
Fresno County Census Tract 78.01	-	2,722	2,694	-
Fresno County	799,407	930,450	939,605	16.4
California	33,871,648	37,253,956	37,325,068	10.2

Source: US Census Bureau 1990, 2000, 2010a, 2013c
NA: Census tract and block group were created in 2010 census redistricting; data are not available for 2000 census.

Table 3-37
Population Projections

Geographic Area	2015	2020	2025	2030	Estimated Percent Change 2015-2030
Kings County	157,314	176,647	192,147	205,627	30.7%
Fresno County	988,970	1,071,728	1,151,711	1,241,773	25.5%
California	38,801,063	40,643,643	42,451,760	44,279,354	14.1%

Source: California Department of Finance 2013

Housing

Housing data are summarized in **Table 3-38**. Based on 2011-2013 census data, there were approximately 319,551 units in Fresno County and 44,328 units in Kings County. Rates of housing unit increase since 2000 were higher for both Fresno County (18 percent) and Kings County (21.2 percent) than the state average (12.7 percent).

The median home price in Fresno County ($180,800) and Kings County ($165,800), which was lower than that of California using 2011-2013 data ($369,400). Similarly, median gross rent was lower for Fresno ($869) and Kings Counties ($855) than the state average of $1,216 for 2011-2013. Median home value in all areas decreased between 2008-2010 and 2011-2013 data, reflecting the housing slump during the recession.

Vacant housing in Fresno and Kings Counties consists of units for sale or rent, with a lower level of seasonal rentals than that of the state, particularly for Kings County (10 percent versus 31 percent in California). See **Table 3-39** for additional details.

Table 3-38
Housing Characteristics

	Fresno County	Kings County	California
Total housing units 2013	319,551	44,328	13,762,376
Total housing units 2000	270,767	36,563	12,214549
Percent change (since 2000)	18	21.2	12.7
Percent occupied	91.2	92.6	91.4
Percent vacant	8.8	7.4	8.6
Homeowner vacancy rate	1.6	3.0	1.6
Rental vacancy rate	6.2	5.2	4.5
Median value (owner-occupied units)			
2000	$102,600	$96,500	$211,500
2010	$235,500	$207,900	$405,800
2013	$180,800	$165,800	$369,400
Median gross rent			
2000	$534	$533	$747
2010	$825	$842	$1,163
2013	$869	$855	$1,216

Source: US Census Bureau 2000, 2010b, 2013b

Table 3-39
Vacancy Status

	Fresno County	Kings County	California
Total vacant units	28,111	3,294	1180,654
For rent	33%	36%	23%
Rented not occupied	5%	0%	5%
For sale only	10%	20%	10%
Sold not occupied	4%	6%	5%
For seasonal, recreational, or occasional use	21%	10%	31%
For migrant workers	1%	0%	0%
Other vacant	27%	30%	26%

Source: US Census Bureau 2013b

Employment and Income

Table 3-40 and **Table 3-41** summarize income statistics by county compared to the California average. Based on 2011-2013 data, per capita income was lower than the state average of $29,103, at $19,629 in Fresno County and $18,412 in Kings County. Median household income was similarly lower in Kings County ($47,035) and Fresno County ($43,785) compared to the state average ($59,645).

Table 3-40
Per Capita Income

Geographic Location	2000	2010	2013
Fresno County	$15,495	$19,924	$19,629
Kings County	$15,848	$17,604	$18,412
California	$22,711	$28,551	$29,103

Source: US Census Bureau 2000, 2010b, 2013b
Per capita income for 2000 is in 1999 dollars, for 2010 is in 2010 dollars, and for 2013 is in 2013 dollars.

Table 3-41
Median Household Income

Geographic Location	2000	2010	2013
Fresno County	$34,725	$45,439	$43,785
Kings County	$35,749	$47,108	$47,035
California	$47,493	$60,016	$59,645

Source: US Census Bureau 2000, 2010b, 2013b
Median household income for 2000 is in 1999 dollars, for 2010 is in 2010 dollars, and for 2013 is in 2013 dollars.

Labor income is the main source of income in all study area counties; however, income from interests, dividends, and rent provided approximately 16 percent of income in both Fresno and Kings Counties. Personal transfer receipts, such as retirement benefits and government assistance, made up an additional 23.4 percent of income in Fresno County and 19.5 percent in Kings County (see **Table 3-42**).

Table 3-42
Study Area Labor and Non-Labor Income (2013)

Location	Personal Income Total (Thousands of $)	Labor Income (Net Earnings)		Non labor Income			
				Dividends, Interest, Rent,		Personal Transfer Receipts	
		Thousands of $	Percent of Personal Income Total	Thousands of $	Percent of Personal Income Total	Thousands of $	Percent of Personal Income Total
Fresno County	32,782,756	19,804,592	60.4%	5,319,526	16.2%	7,658,639	23.4%
Kings County	4,926,506	3,173,488	64.4%	792,245	16.1%	960,773	19.5%
State of California	1,794,559,870	1,171,983,911	65.3%	348,975,571	19.4%	273,600,387	15.2%

Source: Headwaters Economics 2014, based on BEA 2012 (Table CA05N)
Estimates are in thousands of 2013 dollars. Non-labor income and labor earnings may not add to total personal income; this is because of adjustments made by the Bureau of Economic Analysis to account for contributions for Social Security, cross-county commuting, and other factors.

As shown in **Table 3-43**, Fresno and Kings County have has consistently high rates of unemployment than the state average. Most recent annual unemployment rates at 12.9 percent and 13.5 percent for Fresno and Kings Counties were down from highs of over 16 percent in 2010.

Table 3-43
Unemployment Rates

Geographic Location	2000	2005	2010	2011	2012	2013
Fresno County	10.4%	9%	16.8%	16.5%	15.0%	12.9%
Kings County	10.0%	9.5%	16.5%	16.2%	15.1%	13.5%
California	5.0%	5.4%	12.3%	11.8%	10.4%	8.9%

Source: California Employment Development Department 2014
Note: Data are not seasonally adjusted.

County commuting data can be examined to indicate the degree to which residents commute to neighboring counties for work. In total, approximately 273,212 and 33,257 workers live and work in Fresno and Kings Counties. An additional 25,216 and 8,687 workers commute to other counties from Fresno and Kings Counties, and 21,730 and 7,366 commute into Fresno and Kings Counties (see **Table 3-44**).

Table 3-44
Commuting Patterns

Geographic Location	Workers to Kings County	Workers From Kings County	Workers to Fresno County	Workers From Fresno County
Alameda	0	0	101	350
Contra Costa	0	0	80	127
Fresno	2,840	3,939	-	-
Kern	284	717	450	379
Kings	-	-	3,939	2,870
Los Angeles	52	78	0	0
Madera	132	97	9,765	7,674
Merced	26	0	1,325	612
Monterey	0	160	254	484
San Joaquin	0	0	181	247
San Luis Obispo	132	304	143	99
San Mateo	0	0	12	275
Santa Clara	22	34	97	699
Stanislaus	0	0	278	234
Tulare	3,340	2,727	6,418	5,374

Source: California Employment Development Department 2014
Note: Data are not seasonally adjusted.

As shown in **Table 3-45**, government was the largest employment sector for both counties and made up 31 percent of the workforce in Kings County. Fresno County had a larger contribution of employment from service-related jobs (64 percent) than Kings County (45 percent), but both were less than the state average of 75 percent. Of service-related jobs, the most important industries in Kings County were health care and social assistance, retail trade, and accommodation and food service. Fresno County had a similar balance of industries, with administration and waste service representing another top sector.

Income by industry is displayed in **Table 3-46**. The largest contribution to personal income in Kings County comes from government, health care, retail trade, and farming. In Fresno County, top sectors are government, retail trade, health care, and forestry, fishing, and related activities.

Local Fiscal Conditions

California's counties receive most of their revenue from property taxes, charges for local services, and redistribution of state and federal sources. Funding source for the 2012-2013 adopted budgets are shown in **Table 3-47**.

As discussed under the proposed project, project activities could impact tax revenues collected from products sold, as well as from direct and indirect change to property collected. Revenue from property tax in Kings County was estimated at $310,057,810 and from sales tax was $98,230,605 (Kings County 2014). Revenues collected from sales taxes and property taxes for Fresno County for 2014 is estimated at a combined $240,125,139 (Fresno County 2014a).

Social Setting

The immediate area surrounding the proposed project for the Westland's CREZ consists primarily of agricultural lands and low population density. Small farming communities in the area have experienced economic depression from the recent drought.

Table 3-45
Employment by Industry (2013)

	Fresno County		Kings County		California	
	Total Employees	Percent	Total Employees	Percent	Total Employees	Percent
Total employment (number of jobs)	459,844	-	56,488	-	21,449,488	-
Non-services-related	97,425	21.2%	13,113	23.2%	2,861,713	13.3%
Farm	19,992	4.3%	4,106	7.3%	232,584	1.1%
Forestry, fishing, and related activities	33,016	7.2%	2,859	5.1%	235,963	1.1%
Mining (including fossil fuels)	658	0.1%	204	0.4%	71,067	0.3%
Construction	18,886	4.1%	1,294	2.3%	967,007	4.5%
Manufacturing	24,873	5.4%	4,650	8.2%	1,355,092	6.3%
Services-related	296,074	64.4%	25,594	45.3%	15,999,083	74.6%
Utilities	2,135	0.5%	92	0.2%	61,352	0.3%
Wholesale trade	16,366	3.6%	769	1.4%	785,177	3.7%
Retail trade	44,428	9.7%	5,184	9.2%	1,996,030	9.3%
Transportation and warehousing	15,516	3.4%	1,297	2.3%	633,750	3.0%
Information	4,649	1.0%	236	0.4%	533,794	2.5%
Finance and insurance	19,268	4.2%	1,051	1.9%	1,034,895	4.8%
Real estate and rental and leasing	18,989	4.1%	1,471	2.6%	1,227,311	5.7%
Professional and technical services	18,166	4.0%	1,316	2.3%	1,839,548	8.6%
Management of companies and enterprises	2,292	0.5%	117	0.2%	234,681	1.1%
Administrative and waste services	27,818	6.0%	1,211	2.1%	1,389,073	6.5%
Educational services	6,020	1.3%	421	0.7%	469,658	2.2%
Health care and social assistance	59,601	13.0%	6,543	11.6%	2,364,162	11.0%
Arts, entertainment, and recreation	5,884	1.3%	404	0.7%	595,006	2.8%
Accommodation and food services	28,000	6.1%	3,050	5.4%	1,525,575	7.1%
Other services, except public administration	26,942	5.9%	2,432	4.3%	1,309,071	6.1%
Government	66,345	14.4%	17,781	31.5%	2,588,692	12.1%

Source: Headwaters Economics 2014; data compiled from US Department of Commerce, Bureau of Economic Analysis, table CA25N.
All employment data are reported by place of work. Estimates for data that were not disclosed are indicated with tildes (~).

Table 3-46
Income by Industry (2013)

	Fresno County		Kings County		California	
	Total Labor Earnings	Percent	Total Labor Earnings	Percent	Total Labor Earnings	Percent
Labor Earnings	22,870,630	-	3,484,439		1,338,611,887	-
Non-services-related	5,473,333	23.9%	~1,164,784	~33.4%	220,883,867	16.5%
Farm	1,844,799	8.1%	691,402	19.8%	17,155,685	1.3%
Forestry, fishing, and related activities	1,090,672	4.8%	109,418	3.1%	8,180,241	0.6%
Mining (including fossil fuels)	42,459	0.2%	~25	~0.0%	6,892,409	0.5%
Construction	1,085,162	4.7%	74,623	2.1%	62,113,085	4.6%
Manufacturing	1,410,241	6.2%	289,316	8.3%	126,542,447	9.5%
Services-related	12,364,930	54.1%	942,042	27.0%	884,979,192	66.1%
Utilities	320,091	1.4%	10,400	0.3%	9,685,829	0.7%
Wholesale trade	1,076,311	4.7%	53,241	1.5%	63,119,835	4.7%
Retail trade	1,486,048	6.5%	160,427	4.6%	76,817,610	5.7%
Transportation and warehousing	837,134	3.7%	68,755	2.0%	36,740,615	2.7%
Information	401,747	1.8%	13,001	0.4%	78,653,544	5.9%
Finance and insurance	839,652	3.7%	40,006	1.1%	75,493,224	5.6%
Real estate and rental and leasing	672,218	2.9%	28,201	0.8%	42,849,117	3.2%
Professional and technical services	960,203	4.2%	64,371	1.8%	160,332,940	12.0%
Management of companies and enterprises	180,086	0.8%	11,962	0.3%	28,951,320	2.2%
Administrative and waste services	789,348	3.5%	30,914	0.9%	53,961,392	4.0%
Educational services	175,789	0.8%	7,610	0.2%	20,599,473	1.5%
Health care and social assistance	3,018,450	13.2%	297,793	8.5%	127,657,789	9.5%
Arts, entertainment, and recreation	103,251	0.5%	6,318	0.2%	21,389,827	1.6%
Accommodation and food services	567,489	2.5%	58,594	1.7%	40,892,327	3.1%
Other services, except public administration	937,113	4.1%	90,449	2.6%	47,834,350	3.6%
Government	5,032,367	22.0%	1,377,611	39.5%	232,748,828	17.4%

Source: Headwaters Economics 2014; data compiled from US Department of Commerce, Bureau of Economic Analysis, table CA05N.
All employment data are reported by place of work. Estimates for data that were not disclosed are indicated with tildes (~).

Table 3-47
Revenue Sources (2014)

Source	Fresno County	Kings County
Property tax	$176,366,141	$310,057,810
Sales tax	5,732,073	$98,230,605
License, permit, and franchise fees	$8,902,054	$3,844,38
Fines and forfeitures	$9,634,014	$8,612,52
Income from use of money and property	$3,748,677	$1,985,64
Other government aid	$729,927,985	$76,784,59
Charges for current services	$65,121,596	$43,558,83
Other revenue	$293,468,533	$15,103,86
Intra-fund transfers	$33,225,236	$72,272,36
Total	$1,874,725,705	$697,450,750

Sources: Fresno County 2014a; Kings County 2014

3.11.3 Environmental Impacts

Impacts on social and economic conditions are evaluated at the county level. The region of influence is focused on San Benito County, but it includes Fresno and Santa Clara Counties for relevant impacts on jobs and economic changes. Significant impacts on social and economic resources could occur if the proposed project were to directly or indirectly result in any of the following:

- Significant changes to the economy, including temporary and short term impacts on job opportunities and impacts on the local and regional economy
- Significant population growth in an area
- Significantly impact quality of life factors, including short-term impacts from increased noise, dust, and traffic and long-term changes to visual landscape, traditional land uses, rural setting

No Action (No Build) Alternative

Under the no action (no build) alternative, existing land uses at the proposed project site and on surrounding mitigation lands would continue. No telecommunication upgrades would occur. Beneficial impacts on employment and the local economy from construction-related jobs and expenditures would not occur.

No Action (No Permit) Alternative

The following County-required measure was included as a condition of approval in the conditional use permit for the proposed project to reduce impacts on socioeconomic resources and is considered part of the no action (no permit) alternative in this EIS. The full text of this measure is included in **Appendix C**, **Table C-1**. The impacts of the no action (no permit) alternative on socioeconomic resources with incorporation of this measure is discussed below.

- **APM PH-1.** At least thirty days prior to commencing construction, the Applicant will provide construction contractors with information, including general information on the facility, telephone numbers, addresses and contact information, on temporary housing opportunities in coordination with San Benito County and the San Benito County Chamber of Commerce. The information will be provided on a website, pamphlet, or other written material.

Construction

The no action (no permit) alternative would result in direct temporary impacts on local employment. As discussed in **Chapter 2**, the no action (no permit) alternative would result in a peak force of approximately 100 to 500 workers for daytime crews and 20 to 50 workers for nighttime activities. Construction would occur over 18 months.

The unemployment rate has decreased in recent years to 11.1 percent in San Benito County, 12.9 percent in Fresno County, and 6.8 percent in Santa Clara County. San Benito and Fresno Counties remain above the state unemployment average of 8.9 percent (see **Table 3-30**). Due to the large workforce available in Santa Clara County, Fresno County, and neighboring counties, most of the workforce is expected to be drawn from the surrounding region, and a large number of workers would not need to relocate. The applicant has estimated that approximately 5 percent of the workforce would come from Panoche Valley, 75 percent from the Hollister area, and 20 percent from San Benito, Santa Clara, and Fresno Counties.

While most workers would travel from their areas of residence, some may require temporary housing, such as hotels, motels, or private lodging. These temporary housing accommodations would be expected to occur as near to the project site as available. Based on most recent data, housing vacancies in the area were at 5.1 percent for San Benito County. As workers requiring relocation would not represent the majority of the workforce, this need is expected to be absorbed by area accommodations. However, there is the potential for short periods when demand exceeds supply, requiring lodgers to find accommodations farther away. As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measure ARM PH-1 described above. Under this measure, the applicant will the applicant will provide construction contractors with general information on the facility, telephone numbers, addresses, and contact information on temporary housing opportunities at least 30 days before construction begins. This measure would offset issues associated with lodging capacity by providing additional time to coordinate temporary housing opportunities. Because APM PH-1 has been incorporated into the no action (no permit) alternative evaluated in this EIS, direct effects on housing and lodging would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

The construction workforce would contribute to the local economy and would have indirect beneficial impacts through employment and income. Average wage for solar construction employment in California is estimated to be $78,000 per year (Philips 2014), as compared to the average construction wage of $54,130 (Bureau of Labor Statistics 2013).

As shown in **Table 3-31**, in 2012 San Benito County had a construction sector employment of 1,224, while Fresno County's was 17,393, and Santa Clara County's was 46,062. A construction workforce of 100 to 500 would represent between 0.2 and 0.8 percent of combined construction employment for the three counties. The creation of up to 500 construction jobs in the region would result in a temporary reduction in unemployment and a temporary increase in employment in the region. This beneficial indirect impact would be a less than significant due to the small level of the increase and the short-term nature of employment.

Additional indirect and beneficial economic impacts would occur through money spent on local material suppliers, equipment suppliers, mechanics, and business support services related to construction. Induced impacts would occur from spending on lodging, food, retail, and other service industries in the area. The level of impacts would depend on source of materials for construction and the residence location of employees. This impact would be temporary and less than significant due to the small level of the increase and the short-term timeframe for construction.

Estimates for recently completed studies indicate an average of 0.4 indirect and 0.9 induced workers per megawatt in California commercial scale solar (Phillips 2014). Based on these estimates, for the proposed 247 MW solar facility, an additional 98 indirect and 222 induced jobs could be created. Exact numbers would depend on the final number of construction workers employed, location of project spending, place of residence of employees, and other factors.

Local governments could also indirectly benefit from tax revenues due to construction. Purchase of construction-related supplies could result in sales tax revenue for San Benito County, with the exact amount determined by the amount of supplies purchased locally as compared to those brought into the area from other regions.

Within one mile of the project site there are approximately twelve parcels with structures, including approximately seven residential structures. The Panoche Elementary School is over one mile south of the project footprint boundary. Impacts of the no action (no permit) alternative on area residents related to aesthetics, agriculture, dust, noise, and traffic are described in **Section 3.2.3**, Aesthetics, **Section 3.3.3**, Agricultural Resources, **Section 3.4.3**, Air, **Section 3.13.3**, Noise, and **Section 3.15.3**, Traffic and Transportation and would be less than significant. Long-term indirect impacts on quality of life for residents near the project site could occur from changes to the visual landscape that

would alter the rural setting. As discussed in **Section 3.2**, Aesthetics, indirect impacts on the visual landscape would be less than significant.

Changes in property values are possible for the parcels next to the project site, including from deterioration in aesthetic quality and real or perceived health effects. Studies are limited on the impacts of commercial solar development on property values. Studies on energy development and other facilities with potentially noxious materials indicate that there may be a small negative effect on property values in the immediate vicinity of noxious facilities (i.e., less than 1 mile [1.6 km]). This effect is often temporary and associated with announcements related to specific project phases, such as site selection, the start of construction, or the start of operations (BLM and DOE 2010). Because of the limited number of nearby residences and the generally temporary nature of this impact, it would be less than significant. No mitigation measures were identified to reduce impacts.

Operational and Maintenance Activities

The full-time staff would consist of up to 50 people. This would represent a minor increase in the local employment and population and would not result in measureable direct or indirect impacts on housing availability or cost. Local governments would benefit economically from tax revenues during project operation. Impacts on quality of life would be similar to those described for construction, but there would be less noise and traffic. As a result, impacts on quality of life would be less than significant.

PG&E Telecommunication Upgrades

Primary and secondary telecommunication upgrades would be performed by a smaller crew over a shorter timeframe than the construction of the proposed solar facility. Direct and indirect economic impacts are similar to, but at a much lesser scale, than those described for the solar facility.

The proposed upgrades to the Moss Landing-Panoche transmission line and at the Call Mountain and Panoche tower sites would occur in remote or rural areas lacking any residences; therefore, short-term impacts on local residents would be negligible. Short-term impacts for those using private or BLM-administered lands near the sites include increased noise, traffic from construction equipment or helicopters, and surface disturbance. As upgrade actions would be short term, intermittent, and not concentrated in one area, impacts on recreationists would be less than significant. No mitigation measures were identified to reduce impacts.

Telecommunication upgrades would not introduce a perceived visual change because they would be similar to existing infrastructure. The addition of a new tower at the Helm Substation would have no impact on surrounding land uses because there are existing towers of similar size and type at this site. As a result, impacts would be less than significant. No mitigation measures were identified to reduce impacts.

Alternative A (Applicant's Proposed Project)

Construction and Operational and Maintenance Activities

Direct and indirect impacts on socioeconomic resources under Alternative A would be the same as described for the no action (no permit) alternative. The applicant-proposed measure identified as part of the no action (no permit) alternative is also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. No additional mitigation measures were identified to further reduce impacts.

PG&E Telecommunication Upgrades

Less than significant impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative.

Alternative B (On-Site Alternative)

Construction and Operational and Maintenance Activities

Direct and indirect impacts on socioeconomic resources under Alternative B would be the same as described above for the no action (no permit) alternative. The applicant-proposed measure identified as part of the no action (no permit) alternative is also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. No additional mitigation measures were identified to further reduce impacts.

PG&E Telecommunication Upgrades

Less than significant impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative.

Alternative C (Off-Site Alternative, Westlands CREZ)

Construction

The region of influence for the Westlands CREZ alternative includes Fresno and Kings Counties.

Impacts from construction are similar in nature to those described under the no action (no permit) alternative. As discussed in **Section 3.11.2**, the Westlands CREZ is in Fresno and Kings Counties, and the locations of residences for the workforce would therefore differ from the no action (no permit) alternative. The exact breakdown of workforce place of residence would be determined by the specific location of the project. There is a 12.9 percent and 13.5 percent annual average unemployment rate in Fresno and Kings Counties, compared to the state average of 8.9 percent (see **Table 3-30**) based on most recent data. Based on these unemployment levels, the CREZ location, and current

commuting patterns (see **Table 3-33**), it is likely that most of the workforce would be drawn from current residents of Fresno and Kings Counties. Large-scale relocation is not anticipated as a result of construction. In addition, more lodging opportunities exist near the Westlands CREZ than described under the no action (no permit) alternative; therefore, adequate temporary lodging is expected to be available in the project area. Given the relatively small number of temporary housing units that are anticipated to be needed, impacts related to construction housing would be less than significant.

As shown in **Table 3-31**, in 2013 Kings County had a construction sector employment of 1,294, while Fresno County's construction employment was 18,886. A construction workforce of 100 to 500 individuals would represent between 0.5 and 2.5 percent of combined construction employment for the two counties. The creation of up to 500 construction jobs in the region would have a small temporary reduction in unemployment and a beneficial impact on employment in the region. Impacts would be similar to those described for the no action (no permit) alternative.

Local governments could benefit economically from tax revenues due to project construction. Purchase of construction-related supplies could result in direct sales tax revenue for Kings, Fresno, and neighboring counties, with the exact amount determined by the amount of supplies purchased locally, as compared to those brought into the area from other regions. Impacts would be the same as described for the no action (no permit) alternative and would be less than significant.

Approximately 20 single-family units of worker housing are in the Shannon Ranch complex, and an additional six dwellings are within one mile of the CREZ boundary. Short-term changes to quality of life due to increased noise, dust, and traffic would potentially occur for residents who live near the construction site or along travel routes to the site. Impacts and suggested mitigation measures would be as discussed in **Section 3.2.3**, Aesthetics, **Section 3.3.3**, Agricultural Resources, **Section 3.4.3**, Air, **Section 3.13.3,** Noise, and **Section 3.15.3**, Traffic and Transportation and are less than significant.

Impacts on residential property values from developing a solar facility at the CREZ would be less than significant. This is because the setting of the CREZ is agricultural rather than pastoral, and solar facility development is already an established use on retired agricultural lands in both Fresno and Kings Counties.

Should the Westlands CREZ lands be removed from agricultural use, there is potential for impacts on local farming income and related expenditures. This is because the Westlands CREZ area contains approximately 27,730 acres of prime farmlands of statewide importance. Total market value of all agricultural products sold was $1,829,236,000 and $4,973,041,000, and the estimated value of agricultural land per acre was $6,031 and $8,286 for Kings and Fresno Counties, respectively, in the 2012 agricultural census (USDA NASS 2013).

Some agricultural parcels in the area may be eligible for compensation of 10 percent of fair market value of property under a Williamson Act contract or Farmland Security Zone by reentry into a solar-use easement (SB 618). The exact number of parcels impacted and potential economic impacts would be determined when a specific project site is selected and the parcels are examined for eligibility.

Operational and Maintenance Activities

Impacts on the local economy and population would be similar to those described under the no action (no permit) alternative. This is because operational and maintenance activities would be similar, including the number of employees needed to operate and maintain the facility.

3.11.4 Cumulative Impacts

No Action (No Permit) Alternative, Alternative A, and Alternative B

The geographic scope for the cumulative impacts socioeconomic analysis includes San Benito, Fresno, and Santa Clara Counties. Most of the construction workforce would be drawn from these three counties. The no action (no permit) alternative, Alternative A, and Alternative B are anticipated to contribute up to 500 temporary construction jobs. No cumulative projects are proposed for San Benito County. Proposed solar projects in Fresno County could take place in the same timeframe as the proposed project and would use the same types of laborers in their workforces (see **Table 3-1**). Projects that have county approval and power purchase agreements are the most likely to have construction periods overlapping that of the proposed project.

Exact construction workforces for projects identified in **Table 3-1** are not available for all proposed projects; however, large solar projects completed in California have an estimate of 2.4 direct construction full-time equivalent jobs per MW (Philips 2014). If all projects proposed or under environmental review had construction schedules that overlapped with the proposed project, the construction workforce is estimated to account for approximately 2.4 percent of construction jobs in the three-county region and 3.4 percent if Kings County proposed projects are added.

The no action (no permit) alternative, Alternative A, and Alternative B would result in a short-term demand for workers to be recruited from within the region, including Fresno, San Benito, and Santa Clara Counties and potentially other counties. Actual numbers of workers employed in the solar construction industry in the area at any given time is likely to be much lower and would be determined by the timing of construction and exact location of projects in relation to the population bases.

This demand for construction jobs would have short-term cumulative impacts on employment by decreasing unemployment rates in the region.

Due to the presence of a large construction workforce in the cumulative effects analysis area, most of the workforce is not likely to require relocation. The region's vacancy rate and availability of temporary lodging indicate that, if required, temporary housing would likely be available for construction. It is possible that during peak construction periods, an unknown percentage of the construction workers may require temporary housing; however, the number of workers requiring housing and related impacts is likely to be less than significant. With the implementation of applicant-proposed measure PH-1 in **Table C-1**, the cumulative contribution of the no action (no permit) alternative, Alternative A, and Alternative B would be less than significant.

As only a small number of the workforce in the region would be recruited for operating the proposed project and other reasonably foreseeable proposed projects, cumulative impacts on employment and housing due to operation of these projects would be less than significant.

Alternative C

The geographic scope for the cumulative effects analysis for Alternative C includes Kings and Fresno Counties. Most of the construction workforce would be drawn from these two counties.

A proposed project is anticipated to contribute up to 500 temporary construction jobs. Proposed solar projects in Fresno County could take place in the same timeframe as a 247 MW solar facility in the Westlands CREZ and would use the same types of laborers.

Impacts would be as similar to those discussed for the no action (no permit) alternative and Alternatives A and B; if all proposed projects had construction overlapping with the proposed project and all workers were drawn from Kings and Fresno Counties, the workforce would account for approximately 14 percent of construction jobs in the two-county region with additional employment. Proposed projects would result in a temporary demand for workers to be recruited from region, including Fresno and Kings Counties. The projects would likely draw on other counties in the region, especially those where other solar projects have recently been completed and a trained workforce is available.

Actual numbers of workers employed in the solar construction industry in the area at any given time is likely to be much lower and would be determined by the timing of construction activities and the exact location of projects in relation to the population bases. It is possible that during peak construction periods, an unknown percentage of the construction workers may require temporary housing; however, impacts are likely to be less than significant, as most workers would not relocate.

3.12 ENVIRONMENTAL JUSTICE

As defined by the EPA, environmental justice is "The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental, and commercial operations or policies" (EPA 2012).

3.12.1 Regulatory Environment

Executive Order 12898

In February 1997, President Clinton issued Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations. This order requires that "each Federal agency make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or Environmental Impacts of its programs, policies, and activities on minority populations and low-income populations" (Executive Order 12898, 59 *Federal Register* 7629 [Section 1-201]).

CEQ has issued guidance to federal agencies to assist them with their NEPA procedures so that environmental justice concerns are effectively identified and addressed. Guidance recommends that agencies consider pathways or uses of resources that are unique to a minority or low-income community before determining that there are no disproportionately high and adverse impacts on the minority or low-income population.

Executive Order 13045

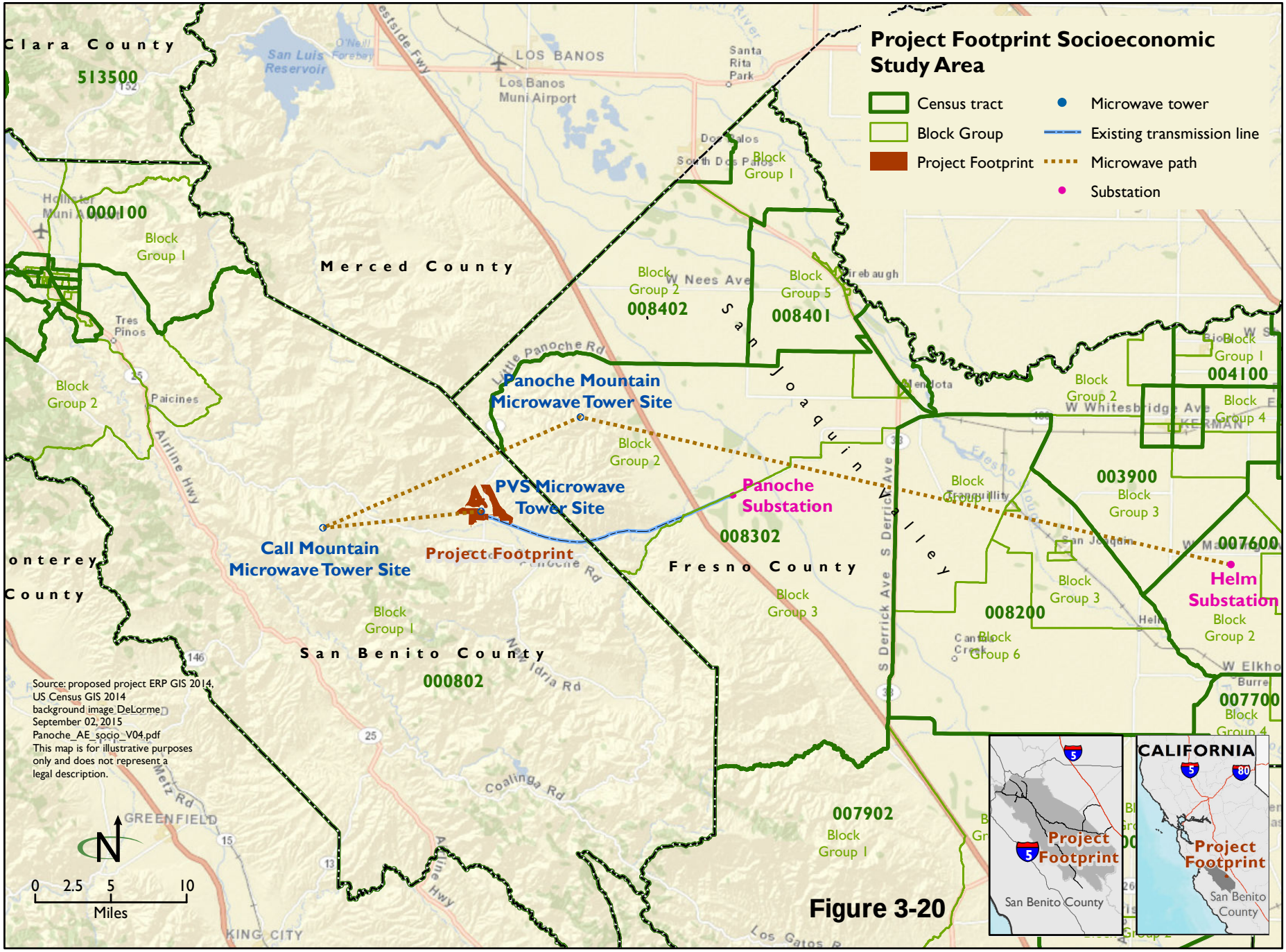
Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks (Executive Order 13045, 62 *Federal Register* 19885), states that each federal agency shall make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children and ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks. Environmental health risks and safety risks mean risks to health or safety that are attributable to products or substances that children are likely to come in contact with or to ingest.

3.12.2 Affected Environment

Proposed Project and PG&E Telecommunications Upgrades

Demographics

The proposed project is located entirely within block group 1 of census tract 8.02 in San Benito County (see **Figure 3-20**, Socioeconomic Study Area). Racial


Project Footprint Socioeconomic Study Area
Census tract
Block Group
Project Footprint
Microwave tower
Existing transmission line
Microwave path
Substation
Clara County
513500
Merced County
000100
Block Group 1
Block Group 2
008402
Block Group 5
008401
Block Group 1
Panoche Mountain Microwave Tower Site
PVS Microwave Tower Site
Call Mountain Microwave Tower Site
Project Footprint
Panoche Substation
008302
Fresno County
Block Group 3
San Benito County
000802
Block Group 1
007902
Block Group 1
Helm Substation
007600
003900
Block Group 3
004100
Block Group 1
Block Group 2
Block Group 4
008200
Block Group 3
Block Group 6
007700
Block Group 2
Block Group 4
San Joaquin Valley
LOS BANOS
Los Banos Muni Airport
San Luis Reservoir
O'Neill Forebay
Santa Rita Park
Dos Palos
South Dos Palos
Mendota
Firebaugh
Tres Pinos
Paicines
Hollister Muni Airport
GREENFIELD
KING CITY
Helm
Source: proposed project ERP GIS 2014,
US Census GIS 2014
background image DeLorme
September 02, 2015
Panoche_AE_socio_V04.pdf
This map is for illustrative purposes only and does not represent a legal description.
0 2.5 5 10
Miles
CALIFORNIA
Project Footprint
San Benito County
Figure 3-20

and ethnic data for these areas along with comparative data for California are presented in **Table 3-48**. The 2010 data are the most recently available data for the census tract and block group level. Although some economic impacts may occur in neighboring counties, as discussed in **Section 3.11**, Socioeconomics, direct project activities and related impacts on environmental justice would be contained primarily in San Benito County.

In block group 1 and census tract 8.02, the white population accounted for approximately 86.0 and 79.2 percent, respectively, of the total population, based on 2010 census data (US Census Bureau 2010c). Total aggregate minority population for these geographic areas was 26.7 and 35.7. The census tract and block group therefore do not represent minority populations, based on CEQ standards. In comparison, the aggregate minority population in the state and county was over 50 percent (62.7 percent in San Benito County and 60.8 percent in California) and would be considered to contain a minority population by CEQ standards.

The largest single minority population for both geographic areas was the Latino population, at 56.4 percent in San Benito County and 37.6 percent in California in 2010 and 57.3 and 38.2 in 2011-2013 estimates. Data from the 2000 census indicate that the percentage of minorities in the county and the state is increasing. Comparable data are not available from 2000 for the census tract or block group due to redistricting.

Income and Poverty Level

As shown in **Table 3-49**, Income and Poverty, in 2010 the median household income in census tract 8.02, $80,842, was higher than that of San Benito County ($65,771) and California ($60,883). This trend continued in 2008-2012 American Community Survey estimates. Per capita income was highest at the census tract level for 2010 ($34,337) and 2012 ($33,400), and lowest at the county level ($25,508 and $25,791).

Census tract 8.02 had a relatively small population (6.9 percent) living in poverty compared to the other geographic areas examined. The percentage of San Benito County's population below poverty (11.7 percent) was lower than that of California (13.7 percent) in 2010. For 2008-2012 estimates, the poverty rate in the census tract remained the lowest (6.1 percent), while the poverty rate in San Benito County increased (12.7 percent) but remained lower than that of California (15.3 percent). The number of individuals living below poverty increased in San Benito County since 2000 and decreased in California over the same period. Data were not available for the census tract in 2000, as this tract was new for the 2010 census.

Protection of Children

Based on American Community Survey five-year estimates (2008-2012), the populations of census tract 8.02 and of San Benito County were older than

Table 3-48
Total Percentage of Population by Race/Ethnicity

Population		White	Black, African American	Native American, Alaskan Native	Asian or Pacific Islander	Some Other Race	Two or More Races	Hispanic or Latino (Any Race) [1]	Aggregate Minority Population
Census Tract/Block Group									
Block Group 1 (2010)		86.0	0.3	1.0	1.7	14.7	NA	25.3	27.6
Census Tract 8.02 (2010)		79.2	0.2	1.0	0.9	14.7	NA	32.8	35.7
County									
San Benito County	2000	65.2	1.1	0.2	2.6	24.9	5.1	47.9	54.0
	2010	63.7	0.9	1.6	2.8	26.2	4.9	56.4	61.7
	2013	86.2	1.1	0.7	2.1	5.6	4.3	57.3	62.7
State									
California	2000	59.5	6.7	1.0	11.2	16.8	4.7	32.4	53.3
	2010	57.5	6.2	1.0	13.4	17.0	4.9	37.6	59.9
	2013*	62.3	6.0	0.7	13.8	12.8	4.4	38.2	60.8

Source: US Census Bureau 2000, 2010c, 2013b
*Data for 2103 are American Community Survey estimates from 2011-2013 and do not represent a single point in time.
[1]Aggregate minority population is calculated by total population minus whites of non-Hispanic or Latino descent. Sum of Not Hispanic or Latino plus Hispanic or Latino (Any Race) may not add up to exactly 100 percent due to rounding.
NA: data not available

Table 3-49
Income and Poverty (2010)

Geographic Area	Per Capita Income			Median Household Income			Percent of Individuals below Poverty		
	2000	2010	2012	2000	2010	2012	2000	2010	2012
Census tract 8.02	NA	$34,377	$33,400	NA	$80,842	$78,333	NA	6.9%	6.1%
San Benito County	$20,932	$25,508	$25,791	$57,469	$65,771	$63,939	10.0%	11.7%	12.7%
California	$22,711	$29,188	$29,551	$47,493	$60,883	$61,400	14.2%	13.7%	15.3%

Source: US Census Bureau 2000, 2010c, 2012
Note: Data were not available for census tract 8.02 in 2000 because this tract was new for the 2010 census; 2012 data are from the American Community Survey and represent 2008-2012 five-year estimates.

California's population. In census tract 8.02, 25.4 percent of the population was below 18, and the median age was 42.6. For San Benito County, 28.8 percent of the population was below 18, and the median age was 34.1. In comparison, in California 24.9 percent of the population was below 18, and the median age was 35.2 (**Table 3-50**).

The closest school to the project area is the Panoche Elementary School, which is over one mile from the nearest project footprint boundary. There are three students currently enrolled (Education Data Partnership 2014).

Table 3-50
Age Profile

Geographic Location	Median Age (Years)	Percent Population Below 18
Census tract 8.02	42.6	25.4%
San Benito County	34.1	28.8%
California	35.2	24.9%

Source: US Census Bureau 2012

Westlands CREZ

Demographics

The proposed project area is located entirely within block group 1 of Census Tract 16.01 in Kings County and block group 1 of census tract 78.01 in Fresno County (see also **Figure 3-21**, Westlands CREZ Socioeconomic Study Area). Racial and ethnic data for Fresno County, Kings County, census tracts, and block groups as applicable in the Westlands CREZ are presented in **Table 3-51**.

The 2010 data are the most recently available for the census tract level. Although some economic impacts may occur in neighboring counties, as discussed in **Section 3.11**, Socioeconomics, direct project activities and related impacts on environmental justice for the Westlands CREZ would be contained within Fresno and Kings Counties.

In the block groups and census tracts (16.01 in Kings County and 78.01 in Fresno County), total aggregate minority populations and Hispanic population was well over 50 percent. The census tracts and block group therefore represent minority populations based on CEQ standards. Similarly, for both counties, the Hispanic population was just over 50 percent and the aggregate minority population was also over the state level. All would be considered to contain minority populations by CEQ standards. Data from the 2000 census and 2010 American Community Survey indicate that the percentage of minorities in the counties and the state is increasing.

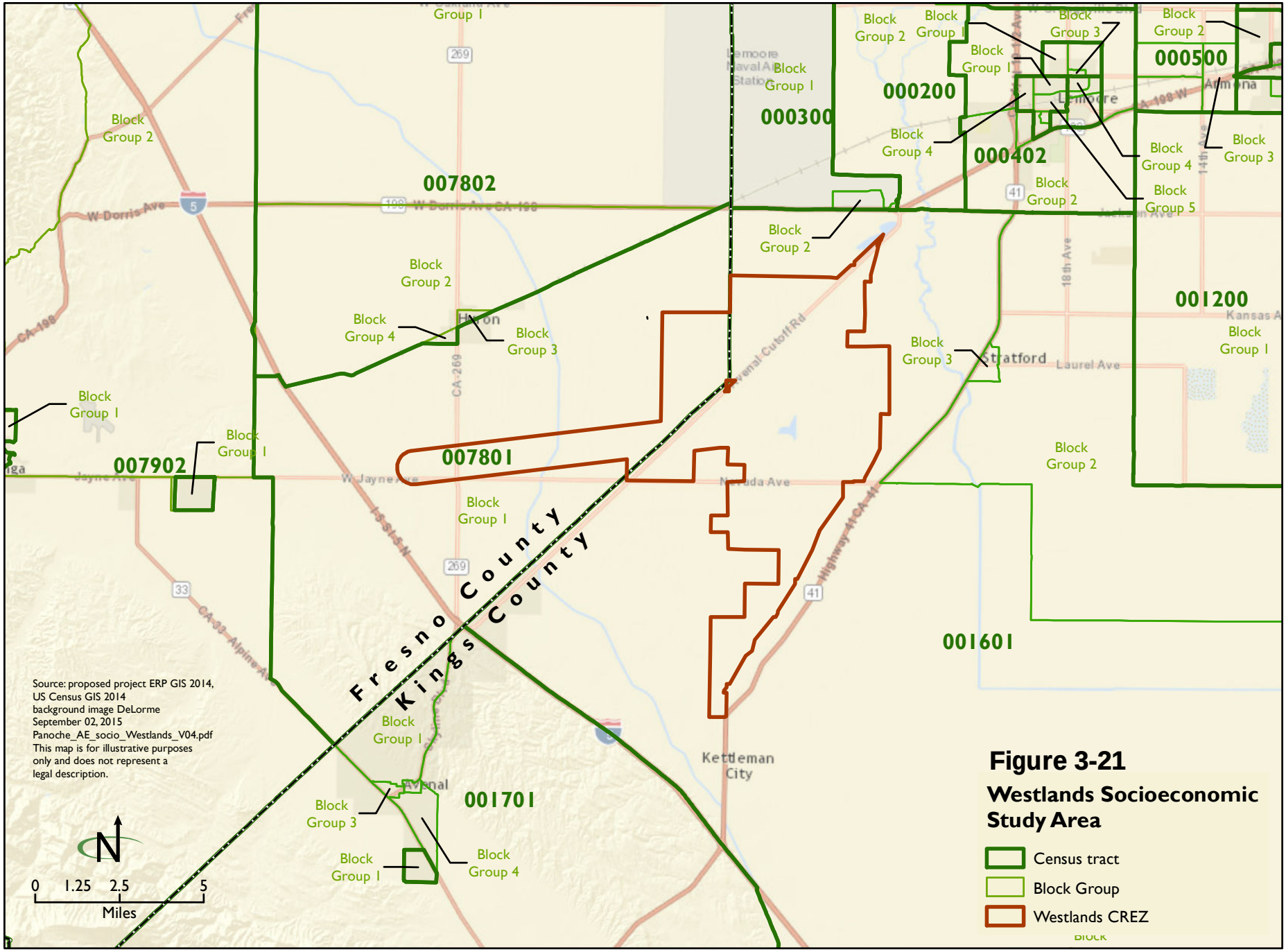


Figure 3-21
Westlands Socioeconomic Study Area
Census tract
Block Group
Westlands CREZ
Source: proposed project ERP GIS 2014,
US Census GIS 2014
background image DeLorme
September 02, 2015
Panoche_AE_socio_Westlands_V04.pdf
This map is for illustrative purposes only and does not represent a legal description.
0 1.25 2.5 5
Miles
Fresno County
Kings County
007802
007801
007902
000300
000200
000402
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001200
001601
001701
Block Group 1
Block Group 2
Block Group 3
Block Group 4
Block Group 5
Lemoore
Armona
Stratford
Kettleman City
Avenal
Huron
W Dorris Ave
W Jayne Ave
Nevada Ave
Laurel Ave
18th Ave
14th Ave
Avenal Cutoff Rd
Highway 41/CA-41
CA-198
CA-269
CA-33 Alpine Ave
US 101 N

Table 3-51
Total Percentage of Population by Race/Ethnicity

Population		Total Population	White	Black, African American	Native American, Alaskan Native	Asian or Pacific Islander	Some Other Race	Two or More Races	Hispanic or Latino (Any Race)	Aggregate Minority Population[1]
Census Tract/Block Group										
Census Tract 78.01 Fresno County (2013**)		2,694	76.3%	0.4%	0%	0%	22.8%	.6%	96.6%	97.3 %
Census tract 16.01 Block Group 1 Kings County (2013**)		1,822	75.1%	0%	0%	0%	24.9%	0%	92.2%	93.6%
Census tract 16.01 Kings County (2013**)		4,422	67.3%	.9%	12.7%	.8%	17.9%	.2%	70.7%	83.6%
County										
Fresno County	2000	799,407	54.3%	5.3%	1.6%	8.2%	25.9%	4.7%	44.0%	60.3%
	2010	930,450	55.4%	5.3%	1.7%	9.8%	23.3%	4.5%	50.3%	67.3%
	2013*	955,272	61.8%	5.1%	1.1%	10.2%	17.9%	3.9%	51.6%	68.7%
Kings County	2000	129,461	53.7%	8.3%	1.7%	3.3%	28.3%	4.8%	43.6%	58.4%
	2010	152,982	54.3%	7.2%	1.7%	3.9%	28.1%	4.9%	50.9%	64.8%
	2013*	150,960	66.7%	6.7%	1.1%	3.9%	17.8%	3.8%	52.7%	66.0%
State										
California	2000		59.5	6.7	1.0	11.2	16.8	4.7	32.4	53.3
	2010		57.5	6.2	1.0	13.4	17.0	4.9	37.6	59.9
	2013*		62.3	6.0	0.7	13.8	12.8	4.4	38.2	60.8

Source: US Census Bureau 2000, 2010c, 2013a, 2013b
*2103a data are American Community Survey data one-year estimates from 2013.
**2013b data are American Community Survey data five-year estimates from 2009-2013 and do not represent a single point in time.
[1]All Minority category is calculated by total population minus whites of non-Hispanic or Latino decent. Sum of Not Hispanic or Latino plus Hispanic or Latino (Any Race) may not add up to exactly 100 percent due to rounding.
NA: data not available
Note that for census tract 78.01, no block group 1 data were available.

Income and Poverty Level

As shown in **Table 3-52**, per capita income was highest at the state level for 2000, 2010, and 2013 estimates ($29,513 in 2013). Census tracts in the planning area consistently had lower per capita income ($13,431 in Fresno County and $14,258 in Kings County in 2013). Median household income followed similar trends, with census tracts remaining below state and county averages for all timeframes examined.

The number of individuals living below poverty has increased in Fresno and Kings Counties as well as in California since 2000. The census tract and county levels continue to indicate that a higher level of people live in poverty than the state average. Data were not available for the census tract in 2000, as this tract was new for the 2010 census.

Protection of Children

On average, the census tracts in the Westland CREZ project area had a younger population (median age of 28.3 and 26.9) as compared to the county averages (31.4 and 31.6 for Fresno and Kings Counties, respectively) and the state average (35.7; see **Table 3-53**).

The schools closest to the Westlands CREZ are Kettleman Elementary and Adelante High School, within two miles of the nearest CREZ boundary. Within approximately seven miles of the CREZ site there are additional elementary, middle, and high schools in the communities of Avenal, Stratford, Lemoore, and Huron.

3.12.3 Environmental Impacts

Significant impacts on environmental justice could occur if the proposed project were to result in disproportionately high and adverse human health or environmental effects on a low-income population, minority population, Indian tribe, or children.

As discussed in **Section 3.12.1**, Environmental Justice and Protection of Children, low-income and minority populations for the purpose of environmental justice analysis are defined based on CEQ guidance. For the purpose of analysis, minority and low-income populations are defined as follows:

- Minority populations are identified where either (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis. For the purpose of this analysis, "meaningfully greater" is defined as 15 percentage points higher than the comparison population for the state. A minority population also exists if there is more than one minority group present and the minority percentage, as calculated

Table 3-52
Income and Poverty (2010)

Geographic Area	Per Capita Income			Median Household Income			Percent of Individuals below Poverty		
	2000	2010	2013	2000	2010	2013	2000	2010	2013
Census Tract 78.01, Fresno County	NA	$11,628	$13,431	NA	$29,120	$46,318	NA	31.8%	22.0%
Census tract 16.1, Kings County	NA	$12,653	$14,258	NA	$38,933	$39,881	NA	17.0%	30.5%
Fresno County	$15,495	$19,924	$19,629	$34,725	$45,439	$43,785	22.9%	23.8%	27.4%
Kings County	$15,848	$17,604	$18,412	$35,749	$47,108	$47,035	19.5%	19.7%	21.4%
California	$22,711	$28,551	$29,103	$47,493	$60,016	$59,645	14.2%	14.5%	16.8%

Source: US Census Bureau 2000, 2010b, 2010c, 2013c, 2013b
Data for 2013 inflation are adjusted dollars. Data for 2000 were not available for census tracts due to redistricting.

Table 3-53
Age Profile

Geographic Location	Median Age (Years)	Percent Population Below 18
Census tract 78.01, Fresno County	28.3	31.3
Census tract 16.1, Kings County*	26.9	34.2
Fresno County	31.4	29.1
Kings County	31.6	27.7
California	35.7	23.9%

Source: US Census Bureau 2013a, 2013b

by aggregating all minority persons, meets one of the stated thresholds.

- Low-income populations in an affected area are identified with the annual statistical poverty thresholds from the Bureau of the Census Current Population Reports on Income and Poverty. No specific threshold is defined by CEQ for definition of poverty; populations are examined in comparison with state averages.

No Action (No Build Alternative)

Under the no action (no build) alternative, no solar facility would be constructed; therefore, there is no potential for disproportionate adverse impacts on minority or low-income populations and no increased potential for adverse impacts on children.

No Action (No USACE Permit) Alternative

Construction

The following County-required measures were included as conditions of approval in the conditional use permit for the proposed project to reduce impacts on environmental justice and are considered part of the no action (no permit) alternative in this EIS. The full text of these measures is included in **Appendix C**, **Table C-1** and **Table C-2**. The impacts of the no action (no permit) alternative on environmental justice with incorporation of these measures is discussed below.

- **Mitigation Measure LU-1.1. Establish construction liaison.** The Applicant shall provide a toll-free general phone number and the name and contact information for a local public liaison to all property owners within a one-mile radius of the project's boundaries. The toll-free access number and the identified local public liaison shall act as points of contact between property owners and construction crews. The local public liaison shall be

available both in person and by phone, as necessary, for at least 30 days prior to the start of any construction-related activities and for up to one year following construction. During construction, the local public liaison shall respond to all construction-related questions and concerns within 72 hours. Post-construction responses shall be made within 1 week.

The Applicant shall provide summary documentation of all comments and concerns communicated to the liaison monthly for the duration of construction and for one year following the completion of construction. The compliance documentation shall include the name and address of the person (if known) contacting the local public liaison, the date of contact, and what actions were taken to rectify and/or address the comments or concerns expressed. The compliance documentation shall be submitted to the County of San Benito Planning and Building Department on a quarterly basis throughout the duration of construction and for one year following construction.

- **Mitigation Measure LU-1.2. Provide advance notice of construction.** Prior to and during construction, the Applicant shall give at least 30 days advance notice of the start of any construction-related activities for each phase (Phases 1 through 5) to all residences located within 5 miles of the project phase boundary, the Principal of the Panoche Elementary School, and the Bureau of Land Management Hollister Field Office. The notification shall include the toll-free general phone number and contact information for the local public liaison (Mitigation Measure LU-1.1, Establish construction liaison). Notification shall be provided by: (1) mailing notices to all property within a five-mile radius of the project site's boundaries; (2) placing notices in local newspapers; (3) mailing to the Principal of the Panoche Elementary School; (4) website posting with a link from the County website, and (4) signs shall be posted at the project site in areas accessible to the public. The announcement shall state where and when construction would occur; provide tips on reducing noise intrusion (e.g., closing windows facing the planned construction); and provide a point of contact for any noise complaints. The Applicant shall provide to the Department of Planning and Building within 72 hours of any complaints received a report that documents the complaints and the strategy for resolution of any noise complaints.
- **Mitigation Measure NS-1.1. Shield construction staging areas.** Prior to using noisy equipment during construction and decommissioning activities, the Applicant shall install adequate temporary noise barriers around the construction staging areas to reduce noise levels associated with deliveries to these areas and construction equipment staging to meet County noise level

standards (45 dBA hourly Leq daytime; 35 dBA hourly Leq nighttime at the project's property line). Temporary noise barriers include noise-attenuating shields, shrouds, or portable barriers or enclosures that block the line of sight between the activity and the sensitive use, which would include schools, churches, hospitals, nursing homes, parks, and campgrounds. Temporary noise barriers may include wood fencing, hay bales, or noise curtains. Noise control shields shall be made of a durable, flexible composite material featuring a noise barrier layer bonded to a weather-protected, sound-absorptive material on the construction-activity side of the noise shield. Noise levels shall be monitored during construction at the project's property line closest to the construction staging areas. Should hourly noise level standards be exceeded as a result of work occurring at a staging area, all noise-related work at that staging area shall stop until adequate noise attenuation measures are installed to meet these standards. Any measure installed shall remain in good working order during the duration of the noisemaking activity.

- **Mitigation Measure NS-1.2. Implement noise-reducing features and practices for construction noise.** Prior to work commencing, the Applicant shall employ and clearly specify in its contractors' specifications the following noise-suppression techniques to minimize the impact of temporary noise associated with construction and decommissioning activities:
  - Trucks and other engine-powered equipment shall be equipped with noise reduction features, such as intake and exhaust mufflers and engine shrouds, which are no less effective than those originally installed by the manufacturer. Engine shrouds shall be closed during equipment operations.
  - Trucks and other engine-powered equipment shall be operated in accordance with posted speed limits (see Air Quality Mitigation Measure AQ-1.1) and limited engine idling requirements (see Air Quality APM AQ-2).
  - Truck engine exhaust ("jake") brake use shall be limited to emergencies.
  - Back-up beepers for all construction equipment and vehicles shall be adjusted to the lowest noise levels possible, provided that OSHA and Cal OSHA's safety requirements are not violated. These settings shall be retained for the life of the project.
  - Vehicle horns shall be used only when absolutely necessary, as specified in the contractors' specifications.

- Radios and other "personal equipment" shall be kept at low volume.

- **Mitigation Measure NS-1.3. Provide advance notice of construction.** The Applicant shall provide advance notice of construction and decommissioning between two and four weeks prior to the start of construction or decommissioning activities to all residences located within 5 miles of the project phase boundary, and the Principal of the Panoche Elementary School. The notices shall be mailed directly to residences and the Principal of the Panoche Elementary School, as well as posting signs at the project site in areas accessible to the public. The announcement shall state where and when construction would occur; provide tips on reducing noise intrusion (e.g., closing windows facing the planned construction); and provide a point of contact for any noise complaints. The Applicant shall provide to the Department of Planning and Building (Environmental Monitor) within 48 hours of any complaints received a report that documents the complaints and the strategy for resolution of any noise complaints, which may include limiting the hours of construction in the particular location of concern, putting up additional noise barriers, or otherwise implementing means to reduce and resolve to the extent feasible the issue brought forth. The County's Environmental Monitor shall verify implementation of agreed upon strategy.

- **Mitigation Measure NS-1.4. Limit pile driving activities.** The Applicant shall employ the following limitations on pile driving activities to reduce noise levels:

  - Complete pile driving activities in as short a period as feasible.

  - Use and operate sonic or vibratory pile drivers at reduced driving force where feasible soil conditions occur instead of impact pile drivers.

  - If several pile drivers are to be used, the pile driving activities shall be arranged so that no two pile driving are driving simultaneously within 160 feet of each other.

- **Mitigation Measure TR-1.1. Prepare and implement Traffic Control Plan.** Prior to the start of construction and decommissioning, the Applicant shall submit a Traffic Control Plan (TCP) to San Benito County for its review and approval and to Caltrans. The TCP shall include the following components and requirements that the Applicant shall implement:

  - Define the locations of project access points and location and timing of any temporary lane closures;

- Identify and make provision for circumstances requiring the use of flag persons, warning signs, lights, barricades, cones, and etcetera to provide safe work areas in the vicinity of the project site and to warn, control, protect, and expedite vehicular and pedestrian traffic;
- Implement traffic control (flag persons, signage, barricades, cones, etc.) along all roadway segments that have substandard width (less than 18 feet);
- Include signage placed along all proposed construction haul routes and alternate haul routes at appropriate intervals notifying drivers of the presence of construction traffic on those roadways;
- Restrict use of Panoche Road from SR-25 to private automobiles and trucks with no more than two axles, only;
- Address the potential for construction related traffic to impede emergency response vehicles (in conjunction with Mitigation Measure PS-1.1 [Develop and implement service agreement with San Benito County Fire Department]) and present a specific training and information program for construction workers to ensure awareness of emergency procedures from project-related accidents or wildfires;
- Preclude all construction traffic (personal vehicles and all trucks) from using the unpaved portion of Panoche Road from Interstate 5 to the project site. The TCP shall include a Truck and Bus Safety Plan that ensures:
- Construction deliveries (including heavy/combination trucks with more than two axles and single-unit trucks with two axles) would be restricted to traveling to and from the project site via Interstate 5 and Little Panoche Road only and would be precluded from using Panoche Road or SR-25;
- That construction material and equipment deliveries requiring pilot cars are limited to traveling along Little Panoche Road during daylight hours;
- All construction truck and bus drivers are informed of and required to adhere to the designated traffic haul routes.

• **Mitigation Measure TR-1.4. Ensure Traffic Safety.** The Applicant shall ensure traffic safety through a two pronged approach: first, the development of a mandatory Traffic Safety Plan (TSP) including the components defined below, and second, a flexible response program throughout construction implemented by the Applicant in coordination with County, the California Highway Patrol (CHP), and the San Benito County Sheriff. These two sets of

actions will ensure: (a) the ability of emergency service providers to access the Panoche Valley region during project construction, and (b) the safety of the public and project traffic using regional roads during peak construction traffic conditions.

Construction

The region of influence for environmental justice is San Benito County, including the census tract and block group in and next to the project site: San Benito County census tract 8.02 and block group 1.

San Benito County has a Hispanic population of 57.3 percent (US Census Bureau 2013b) and therefore qualifies as a minority population for environmental justice analysis. San Benito County census tract 8.02 and block group 1 have minority populations below 50 percent, and below that of the state population (US Census Bureau 2010c); therefore, they are not considered minority populations (see **Table 3-48**, Total Percentage of Population by Race/Ethnicity). As described in **Section 3.10**, Land Use, Ownership, and Planning, and in **Section 3.11**, Socioeconomics, impacts on land use and socioeconomics would be less than significant. Because the majority of construction-related activities will occur in or near San Benito County census tract 8.02 and block group 1, which are not considered minority populations, there would be less than significant impacts on minority populations. Although San Benito County qualifies as a minority population, impacts from traffic and transportation along roadways used to access the project site would be less than significant, as described in **Section 3.15**, Traffic and Transportation. No additional mitigation measures were identified to further reduce these impacts.

Impacts on issues of tribal concern are described in **Section 3.7.5**, Tribal Consultation and Outreach.

There would be no impacts on low-income populations. San Benito County census tract 8.02, block group 1, and San Benito County as a whole all had percentages of the population below the poverty level that were less than 50 percent and less than that of California (see **Table 3-49**, Income and Poverty (2010)). Based on these data, no populations in the project area qualify as low-income for environmental justice analysis; therefore, low-income populations are not discussed further in this section.

The proximity of Panoche Elementary School to the project site and associated transportation routes could result in disproportionate impacts on children. The school is located along Panoche Valley Road approximately one mile south of the project footprint boundary; children could be disproportionately affected by construction noise, traffic, and health and safety risks. As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the mitigation measures described above. These measures would minimize impacts by providing advance notice of construction activities, reducing noise levels from vehicles and equipment, and by implementing specific

measures to improve traffic safety. In addition, the school site is fenced, which would prevent children from inadvertently leaving school grounds, and impacts would be temporary. Because mitigation measures LU-1.1, LU-1.2, NS-1.1, NS-1.2, NS-1.3, NS-1.4, TR-1.1, and TR-1.4 have been incorporated into the no action (no permit) alternative evaluated in this EIS, impacts would not pose a substantial health or safety risk to children and impacts would be less than significant. Long term, project facilities would be fenced and no public access would be permitted. Therefore, no long-term indirect impacts would occur for children at Panoche Elementary School. No additional mitigation measures were identified to further reduce these impacts.

Operational and Maintenance Activities

Impacts from operational and maintenance activities would be similar to those described in **Section 3.7**, Cultural Resources and Tribal Consultation; **Section 3.10**, Land Use, Ownership, and Planning; **Section 3.11**, Socioeconomics; **Section 3.13**, Noise; **Section 3.14**, Public Health and Safety, and **Section 3.15**, Traffic and Transportation. This is because the nature, type, and location of the impacts described in these sections is applicable to the minority populations, children, and Indian tribal concerns addressed in the Environmental Justice analysis. As described in each of those sections, impacts would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

PG&E Telecommunication Upgrades

Due to the lack of residents in the immediate area proposed for telecommunications upgrades, no impacts are anticipated on minority populations, children, or issues of tribal concern for either primary or secondary telecommunication upgrades. No mitigation measures were identified to reduce impacts.

Alternative A (Applicant's Proposed Project)

Construction and Operational and Maintenance Activities

Direct and indirect impacts on environmental justice under Alternative A would be the same as described for the no action (no permit) alternative. The County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. No additional mitigation measures were identified to further reduce impacts.

PG&E Telecommunication Upgrades

Less than significant direct impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative.

Alternative B (On-Site Alternative)

Construction and Operational and Maintenance Activities

Direct and indirect impacts on environmental justice under Alternative B would be the same as described above for the no action (no permit) alternative. The County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. No additional mitigation measures were identified to further reduce impacts.

PG&E Telecommunication Upgrades

Less than significant direct impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative.

Alternative C (Off-Site Alternative, Westlands CREZ)

Construction

The region of influence for environmental justice analysis for the Westlands CREZ is Kings and Fresno Counties, including the census tract and block group in and next to the CREZ: Kings County census tract 16.01, block group 1 and Fresno County Census tract 78.01, block group 1.

Based on available data, Kings County census tract 16.01, block group 1, and Fresno County census tract 78.01 have Hispanic populations well above 50 percent (ranging from 70.7 to 96.6 percent) and are considered minority populations (see **Table 3-51**). No data were available for Fresno County census tract 78.01, block group 1. Both Kings and Fresno Counties as a whole also have Hispanic populations over 50 percent (52.7 and 51.6 percent) and therefore qualify as minority populations for environmental justice analysis.

Income level was also examined for the Westlands CREZ area. Kings County, Fresno County, and all block groups and census tracts examined had higher rates of individuals below the poverty line than the state average of 16.8 percent (see **Table 3-52**). In particular, census tract 16.1 for Kings County was more than 10 percentage points higher than the state average, with 30.7 percent of the population below poverty.

As discussed in **Section 3.12.2**, the Westlands CREZ area was examined for impacts on children, in accordance with Executive Order 13045. The closest schools to the Westlands CREZ are Kettleman Elementary and Adelante High School, within two miles of the nearest CREZ boundary. Potential impacts are discussed below.

Construction would temporarily increase noise, traffic, and dust, which could result in temporary changes to the quality of life for area residents, particularly

for those near the construction site. As discussed in **Section 3.2.3** Aesthetics, **Section 3.3.3** Agricultural Resources, **Section 3.4.3** Air, **Section 3.13.3,** Noise, and **Section 3.15.3**, Traffic and Transportation, impacts would be less than significant for all populations, including minority populations.

In addition, public involvement and outreach designed to target all socioeconomic populations and Spanish language outreach materials would aid in informing potentially impacted populations about the proposed project. These instruments would also contain information about opportunities for involvement and measures that would be required to reduce the level of impact. The USACE does not have the authority to require outreach for a project constructed at the Westlands CREZ; however, such outreach would likely be required to be undertaken by the appropriate county for any CEQA compliance necessary in evaluating a conditional use permit application.

Two schools are within two miles of the Westlands CREZ; therefore, children could be disproportionately affected by construction noise, traffic, and health and safety. The exact level of impact would be determined by the specific site selected for construction. Measures to reduce noise, address traffic safety concerns, and require fencing of the construction site would result in less than significant impacts if fully implemented.

As discussed in **Section 3.11**, Socioeconomics, impacts on local residents would be minor and limited to those in the immediate vicinity of the site. All populations in the vicinity of the planning area are minority populations and the Kings County census tract represents a low-income population. Because of this, any long-term impacts could disproportionately impact minority and low-income populations. The exact level of impacts would depend on the siting of the project.

Operational and Maintenance Activities

Impacts from operational and maintenance activities would be similar to those described in **Section 3.10**, Land Use, Ownership, and Planning, **Section 3.11**, Socioeconomics, **Section 3.13**, Noise, **Section 3.14**, Public Health and Safety, and **Section 3.15**, Traffic and Transportation. This is because the nature, type, and location of the impacts described in these sections are applicable to the minority populations, low-income populations, and children addressed in the Environmental Justice analysis. As described in each of those sections, impacts would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

3.12.4 Cumulative Impacts

No Action (No Permit) Alternative, Alternative A, and Alternative B

The geographic scope for environmental justice-related cumulative impacts for the no action (no permit) alternative and Alternatives A and B is San Benito County.

While minority populations have been identified for San Benito County overall, no minority populations have been identified in the direct vicinity of the proposed project, and no additional reasonably foreseeable projects have been identified. As a result, no adverse cumulative impacts on minority populations are anticipated. On the other hand, the construction and operation of these projects would induce jobs in the area. This may benefit minority and low-income populations through direct employment or indirect positive effects on the local economy.

Alternative C

The geographic scope for environmental justice-related cumulative impacts for Alternative C is Fresno and Kings Counties.

Minority and low-income populations have been identified for Kings County census tract 16.01, and Fresno County census tract 78.01, in the direct vicinity of proposed project activities for the Westlands CREZ. Measures to minimize overall impacts from noise, dust, and other construction disturbance from a proposed project, as described under **Section 3.12.3**, above, are likely to be employed on the project and other individual projects in the Westlands CREZ. While the exact measures have not been determined and are not under USACE authority, employment of such measures is standard practice and would minimize impacts on all area residents, including minority and low-income populations. As described for the no action (no permit) alternative, Alternative A, and Alternative B, construction jobs may provide additional employment opportunities in the area with potential for direct and indirect economic impacts.

3.13 NOISE

3.13.1 Regulatory Environment

Occupational Safety and Health Act of 1970, 29 USC, Section 651, et seq.

The Occupational Safety and Health Act of 1970 created the Occupational Safety and Health Administration under the US Department of Labor. The Occupational Safety and Health Administration ensures safe and healthful working conditions for men and women by setting and enforcing standards and by providing training, outreach, education, and assistance.

The Occupational Safety and Health Administration adopted federal regulations to implement the act that are contained in 29 CFR 1900, including those designed to protect workers against effects of noise exposure. Employers must ensure that working conditions comply with Occupational Safety and Health Administration permissible noise exposure standards and that safety measures, including hearing protection, are provided in compliance with Occupational Safety and Health Administration regulations.

California Code of Regulations, Title 8, Sections 5095–5099

State regulations concerning worker noise exposure are contained in the California Code of Regulations, Title 8, Sections 5095-5099 and are managed by the California Occupational Safety and Health Administration. These standards are the state version of the federal Occupational Safety and Health Administration standards. In cases where the California Occupational Safety and Health Administration standards are less stringent than the federal standards, the more stringent standards apply for projects in California.

California Government Code Section 65302

California law encourages local governmental entities to incorporate and implement a noise element as part of their general plan. The Governor's Office of Planning and Research has developed guidelines for preparing noise elements, including establishing land use compatibility guidelines for noise exposure. These guidelines are normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable noise levels for different land use categories.

San Benito County General Plan

Noise Element, Policy 1. The Noise Element of the San Benito County General Plan (amended 1984) provides policy framework in which potential future noise impacts are minimized, including noise from airports, transportation, industries, and construction (Goals #1-4). As it relates to traffic noise, the General Plan notes that "…road noise becomes a concern when traffic counts approach 20,000 vehicles per day (24-hour period)" (San Benito County 1984). For traffic flows under 20,000 vehicles per day, the General Plan follows the State Office of Noise Control guidance that low speed highways may have noise levels that average 65 dBA in a 24-hour period within 100 feet of the roadway and 60 dBA or less beyond 100 feet (San Benito County 1984).

San Benito County Ordinances

Title 19 (Land Use and Environmental Regulations), Chapter 39 (Noise Control Regulations) establishes countywide standards for regulating noise. The maximum permissible sound pressure levels in a rural residential area is 45 dBA (A-weighted decibel scale) during the day or 35 dBA at night. Title 25 (Zoning), Chapter 25.37 (Development and Operational Standards), Article III (Noise Level Standards), provides an exception for noise sources associated with temporary construction, demolition, or maintenance activities, provided such activities occur between 7:00 a.m. and 7:00 p.m. Monday through Saturday, but not on Sundays or federal holidays.

Fresno County General Plan

The Fresno County 2000 General Plan includes a Health and Safety Element with noise policies to manage sources of noise and protect noise sensitive land uses. The General Plan was implemented with anticipated growth of population,

employment, and developed land uses that lead to the expansion of activities that could generate adverse noise effects. Noise Policy HS-G.1 states that the County shall require that all proposed development incorporate design elements necessary to minimize adverse noise impacts on surrounding land uses (Fresno County 2014a).

Fresno County Ordinances

Title 8 (Health and Safety), Chapter 8.40 (Noise Control) establishes countywide standards for regulating noise. The board of supervisors declared that excessive noise levels are detrimental to public health, welfare, and safety by interfering with sleep, contributing to hearing impairment, and adversely affecting property values. The maximum permissible sound pressure level during the daytime is 65 dBA, and 60 dBA during nighttime. Title 8 Chapter 8.40.60 provides for exemptions for noise sources associated with construction, provided such activities occur between 6:00 a.m. and 9:00 p.m. Monday through Friday, and 7:00 a.m. and 9:00 p.m. on Saturday or Sunday.

Kings County General Plan

The Kings County General Plan Noise Element contains several relevant noise policies to protect residents and other sensitive receptors from excessive noise, including mitigation requirements for transportation and non-transportation noise sources. It also establishes non-transportation noise standards: industry is limited to 60 dBA average and 80 dBA maximum levels, while residential area average and maximum limits are 55 dBA and 75 dBA (Kings County 2010a).

Kings County Ordinances

The Kings County ordinances contain a noise abatement policy designed to protect residents from nuisance noises.

3.13.2 Affected Environment

Noise is defined as unwanted sound and can be intermittent or continuous, steady or impulsive. The decibel (dB) is the accepted unit of measurement for noise. Human response to noise is extremely diverse and varies according to the type of noise source, the sensitivity and expectations of the receptor, the time of day, and the distance between the noise source and the receptor. The sensitivity of the human ear to sounds of different frequencies is measured by the A-weighted decibel scale (dBA). The smallest change in noise level that a human ear can perceive is about 3 dBA, increases of 5 dBA or more are clearly noticeable, and a 10 dBA change in noise levels is judged by most people as a doubling of sound level. **Table 3-54** describes the noise levels of some familiar sources.

Table 3-54
Example Noise Levels

Characterization	dBA	Example Noise Condition Or Event
Threshold of pain	130	Surface detonation, 30 pounds of TNT at 1,000 feet
	125	F/A-18 aircraft takeoff with afterburner at 470 feet
Possible building damage	120	Mach 1.1 sonic boom under aircraft at 12,000 feet
	115	F/A-18 aircraft takeoff with afterburner at 1,600 feet
	110	Peak crowd noise, pro football game, open stadium
	105	Emergency vehicle siren at 50 feet
	100	F/A-18 aircraft departure climbout at 2,400 feet
Extremely noisy	95	Locomotive horn at 100 feet
8-hour workplace limit	90	Heavy truck, 35 mph at 20 feet; leaf blower at 5 feet
Very noisy	85	Power lawn mower at 5 feet; city bus at 30 feet
	80	2-Axle commercial truck, 35 mph at 20 feet
Noisy	75	Street sweeper at 30 feet; idling locomotive, 50 feet
	70	Auto, 35 mph at 20 feet; 300 feet from busy 6-lane freeway
Moderately noisy	65	Typical daytime busy downtown background conditions
	60	Typical daytime urban mixed use area conditions
	55	Typical urban residential area away from major streets
	50	Typical daytime suburban background conditions
Quiet	45	Typical rural area daytime background conditions
	40	Quiet suburban area at night
Very quiet	30	Quiet rural area, winter night, no wind
	20	Empty recording studio
Barely audible	10	Audiometric testing booth
Threshold of hearing	0	---

Source: Beranek 1988

Proposed Project

Existing Noise Levels and Sources

Noise levels in the project area are representative of a rural western environment. Noise sources in rural areas are natural sounds, such as wind, weather, and wildlife; vehicles on area roadways; and agricultural equipment. Ambient sound levels typical of rural areas range between 30 and 40 dBA (EPA 1978). No noise studies utilizing field measurements have been performed for the project site.

Sensitive noise receptors are generally considered to be homes, hospitals, schools, libraries, parks, and recreation areas. Within one mile of the project footprint boundary there are approximately twelve parcels with primarily residential and agricultural buildings associated with small ranchettes. The Panoche Elementary School, a one-room schoolhouse, is over one mile south of the project footprint at the intersection of Panoche Road and North Road. There is one residence west of the project footprint; the remainder are south of it. The nearest occupied residence is approximately 1,700 feet southwest of the southwest corner of the project footprint, off Yturiarte Road; all other

residences are at least 0.5 mile from the project footprint boundary (see **Figure 3-22**).

PG&E Telecommunications Upgrades

Primary telecommunication upgrades would occur along the existing Moss Landing-Panoche 230 kV transmission line between the project site and the existing Panoche Substation, 17 miles east of the project site in Fresno County. The transmission line crosses over Interstate 5 approximately two miles west of the Panoche Substation.

Noise conditions along the existing Moss Landing-Panoche 230 kV transmission line between the project site and Interstate 5 are similar to those described under Existing Noise Levels and Sources. This portion of the transmission line crosses lands representative of a rural western environment, with noise levels generally ranging from 30 to 40 dBA. There are no sensitive noise receptors along the transmission line between the project site and Interstate 5. In the vicinity of Interstate 5, noise levels may average 90 dBA (EPA 1978). There are four potential occupied residential buildings and several businesses along the transmission line between Interstate 5 and the Panoche Substation.

For the secondary telecommunications upgrades, microwave towers would be constructed on the proposed project site and at the Helm Substation, and microwave equipment would be placed on existing towers on Call Mountain and Panoche Mountain.

The Call Mountain microwave tower is in San Benito County, with no noise receptors within one mile of the site. The Panoche Mountain microwave tower site is in Fresno County, with no residential areas within one mile of the site. The Helm Substation, within one mile of the city of San Joaquin, is surrounded by rural residential areas, including approximately 10 residences.

Westlands CREZ

Kings County maintains a short-term noise measurement site at 22nd Avenue between State Route 41 and Laurel Avenue, approximately 1.25 miles from the Westlands CREZ's eastern boundary. A noise survey in 2007 recorded an estimated day-night average sound level (Ldn; the average noise level over a 24-hour period) of 40 Ldn. Primary noise sources were natural sounds and distant traffic (Kings County 2010a).

While traffic noise levels have not been directly measured on roads in and next to the Westlands CREZ, Kings County used the FHWA Noise Prediction Model (FHWA-RD-77-108) to predict existing and 2035 noise levels. Within one mile of the CREZ boundary, predicted day-night average sound levels were generated for State Routes 41 and 198, Avenal Cutoff Road, and Nevada Avenue. Estimated existing noise levels at 100 feet from the roadways ranged from 56 to 73 Ldn. Predictions for future noise levels were the same as existing conditions (Kings County 2010a).

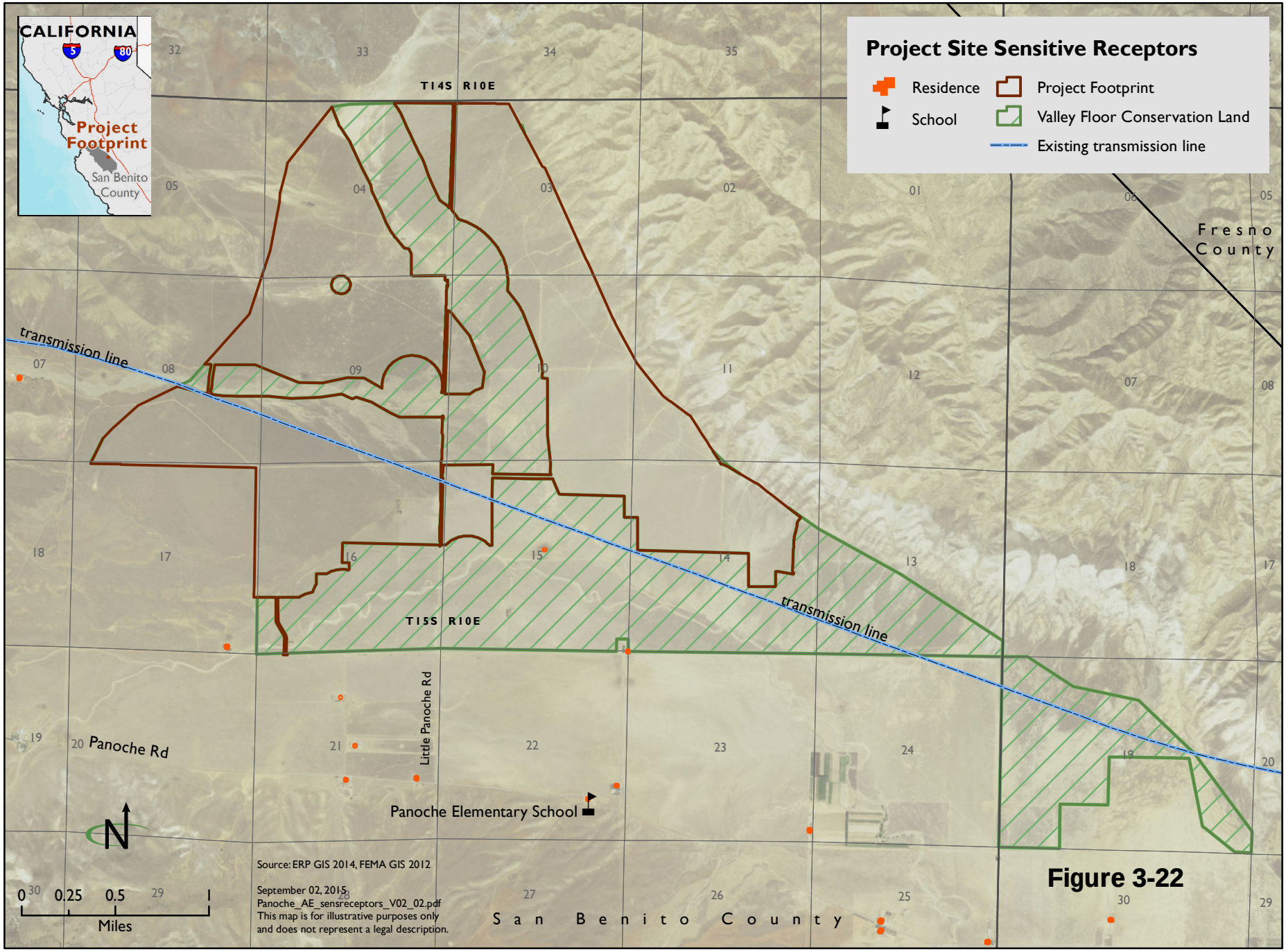
Project Site Sensitive Receptors
Residence
School
Project Footprint
Valley Floor Conservation Land
Existing transmission line
CALIFORNIA
5
80
Project Footprint
San Benito County
T14S R10E
T15S R10E
Fresno County
transmission line
transmission line
Panoche Rd
Little Panoche Rd
Panoche Elementary School
San Benito County
N
0 0.25 0.5 1
Miles
Source: ERP GIS 2014, FEMA GIS 2012
September 02, 2015
Panoche_AE_sensreceptors_V02_02.pdf
This map is for illustrative purposes only
and does not represent a legal description.

Figure 3-22

There are several sensitive receptors within one mile of the Westlands CREZ, including scattered rural residences.

3.13.3 Environmental Impacts

The region of influence for noise includes the areas within one mile of the project footprint, telecommunications sites, Westlands CREZ, and truck delivery and employee commuting routes. Noise impacts would be considered significant if the proposed project resulted in any of the following:

- Noise levels would exceed those required or approved by local agencies
- Sensitive receptors are exposed to permanent increases in ambient noise levels of 10 dBA or more (the level at which most people perceive a doubling of sound)

No Action (No Build) Alternative

Under the no action (no build) alternative, existing land uses at the proposed project site and on surrounding mitigation lands would continue. No telecommunication upgrades would occur. Noise levels would remain the same as those currently experienced.

No Action (No USACE Permit) Alternative

The following County-required measures were included as conditions of approval in the conditional use permit for the proposed project to reduce impacts on noise resources and are considered part of the no action (no permit) alternative in this EIS. The full text of these measures is included in **Appendix C**, **Table C-1** and **Table C-2**. The impacts of the no action (no permit) alternative on noise resources with incorporation of these measures is discussed below.

- **APM N-1.** To comply with the County's noise standards, the Applicant shall prohibit the use of fuel operated generators running at 100 percent load within 350 feet of the property boundary between 7:00 p.m. and 7:00 a.m. Battery-operated generators, generators that tie into a temporary or permanent electrical power source, or fuel-operated generators dampened to a noise level measured at less than 40 dBA Ldn at the property line shall be permitted within 350 feet of the property boundary. No fuel-operated generators, dampened or otherwise, shall be permitted within 200 feet of the property boundary. The Applicant shall also prohibit pile driving and grading of the site during these hours. The Applicant will incorporate these restrictions into construction contracts and/or construction specifications.
- **Mitigation Measure BR-16.2. Minimize impacts of foundation support installations.** The Applicant shall evaluate

and implement feasible foundation installation systems to minimize noise and vibration that would affect ground-dwelling wildlife.

- **Mitigation Measure NS-1.1. Shield construction staging areas.** Prior to using noisy equipment during construction and decommissioning activities, the Applicant shall install adequate temporary noise barriers around the construction staging areas to reduce noise levels associated with deliveries to these areas and construction equipment staging to meet County noise level standards (45 dBA hourly Leq daytime; 35 dBA hourly Leq nighttime at the project's property line). Temporary noise barriers include noise-attenuating shields, shrouds, or portable barriers or enclosures that block the line of sight between the activity and the sensitive use, which would include schools, churches, hospitals, nursing homes, parks, and campgrounds. Temporary noise barriers may include wood fencing, hay bales, or noise curtains. Noise control shields shall be made of a durable, flexible composite material featuring a noise barrier layer bonded to a weather-protected, sound-absorptive material on the construction-activity side of the noise shield. Noise levels shall be monitored during construction at the project's property line closest to the construction staging areas. Should hourly noise level standards be exceeded as a result of work occurring at a staging area, all noise-related work at that staging area shall stop until adequate noise attenuation measures are installed to meet these standards. Any measure installed shall remain in good working order during the duration of the noisemaking activity.

- **Mitigation Measure NS-1.2. Implement noise-reducing features and practices for construction noise.** Prior to work commencing, the Applicant shall employ and clearly specify in its contractors' specifications the following noise-suppression techniques to minimize the impact of temporary noise associated with construction and decommissioning activities:

  - Trucks and other engine-powered equipment shall be equipped with noise reduction features, such as intake and exhaust mufflers and engine shrouds, which are no less effective than those originally installed by the manufacturer. Engine shrouds shall be closed during equipment operations.

  - Trucks and other engine-powered equipment shall be operated in accordance with posted speed limits (see Air Quality Mitigation Measure AQ-1.1) and limited engine idling requirements (see Air Quality APM AQ-2).

  - Truck engine exhaust ("jake") brake use shall be limited to emergencies.

- Back-up beepers for all construction equipment and vehicles shall be adjusted to the lowest noise levels possible, provided that OSHA and Cal OSHA's safety requirements are not violated. These settings shall be retained for the life of the project.
- Vehicle horns shall be used only when absolutely necessary, as specified in the contractors' specifications.
- Radios and other "personal equipment" shall be kept at low volume.

- **Mitigation Measure NS-1.3. Provide advance notice of construction.** The Applicant shall provide advance notice of construction and decommissioning between two and four weeks prior to the start of construction or decommissioning activities to all residences located within 5 miles of the project phase boundary, and the Principal of the Panoche Elementary School. The notices shall be mailed directly to residences and the Principal of the Panoche Elementary School, as well as posting signs at the project site in areas accessible to the public. The announcement shall state where and when construction would occur; provide tips on reducing noise intrusion (e.g., closing windows facing the planned construction); and provide a point of contact for any noise complaints. The Applicant shall provide to the Department of Planning and Building (Environmental Monitor) within 48 hours of any complaints received a report that documents the complaints and the strategy for resolution of any noise complaints, which may include limiting the hours of construction in the particular location of concern, putting up additional noise barriers, or otherwise implementing means to reduce and resolve to the extent feasible the issue brought forth. The County's Environmental Monitor shall verify implementation of agreed upon strategy.

- **Mitigation Measure NS-1.4. Limit pile driving activities.** The Applicant shall employ the following limitations on pile driving activities to reduce noise levels:
  - Complete pile driving activities in as short a period as feasible.
  - Use and operate sonic or vibratory pile drivers at reduced driving force where feasible soil conditions occur instead of impact pile drivers.
  - If several pile drivers are to be used, the pile driving activities shall be arranged so that no two pile driving are driving simultaneously within 160 feet of each other.

- **Mitigation Measure NS-4.1. Locate PV inverters and transformers away from the project's property line.** Locate PV inverters and transformers at least 180 feet from the project's property line and at least 300 feet apart from each other or as needed to meet the County's daytime hourly noise level standard of 45 dBA Leq at the project's property line. Should hourly daytime noise level standards (45 dBA Leq) be exceeded or ambient noise levels increase by more than 5 dBA Ldn, enclosures or other noise attenuation measures will be installed to meet these requirements. Any measure installed shall remain in good working order throughout project operations.

- **Mitigation Measure NS-5.1. Limit panel washing activities.** Panel washing activities shall be restricted to Monday through Saturday 7:00 a.m. to 7:00 p.m. excluding federal holidays, when occurring within 1,900 feet of the project's property line, such that these activities would be exempt from the County's noise level standards when the potential exists to exceed the standards. At greater distances from the project's property line, the County's noise level standards would be met and panel washing activities may occur any time during daylight hours. If noise complaints are received during panel washing activities occurring outside of the exempted times, the County shall monitor noise levels at the project's property line. Should the hourly daytime noise level standard of 45 dBA Leq be exceeded, all noise-related work shall stop in that area and be resumed during the exempted time period.

Construction

Construction would result in increased noise levels during the approximately 18-month construction period. Increases in on-site noise levels would be temporary and intermittent as construction is completed in one area and progresses to the next area. Noise levels along transportation routes would also increase during the construction period, most notably when workers or materials are arriving or leaving the project site. Most regular traffic and all heavy truck traffic would access the project site from the east via Little Panoche Road; limited traffic would access the project site from the west via Panoche Road.

Construction would occur from sunset to sunrise (as published by the National Oceanic and Atmospheric Administration), as late as 9:00 p.m. to as early as 5:00 a.m., depending on the time of year. However, some activities would occur at night. These activities would be limited to the following:

- Commissioning activities to be performed when PV arrays are not energized
- Interior use of the operations and maintenance facility

- Unanticipated emergencies
- Special status species impact avoidance and minimization activities and research (e.g., giant kangaroo rat trapping and San Joaquin kit fox radio telemetry)
- Security patrols

San Benito County's Code of Ordinances exempts temporary construction from noise level standards between 7:00 a.m. and 7:00 p.m., except Sundays and federal holidays (San Benito County 2008b). Under County noise control regulations (Title 19, Chapter 39), the maximum permissible sound pressure level in a rural residential area is 45 dBA during the day or 35 dBA at night at the receiving land use's property boundary. To comply with the County code, a project may not exceed these levels for more than 15 minutes in 60 minutes or may not exceed the existing ambient sound level by more than 5 decibels, as measured at the property boundary of the receiving land use. The applicant would largely comply with San Benito County noise standards by limiting noisy construction activities to between 7:00 a.m. and 7:00 p.m. However, some activities may exceed these standards during the times of year when sunrise and sunset fall outside of the 7:00 a.m. and 7:00 p.m. period and during work that occurs on Sundays or federal holidays. No ground-disturbing activities would take place during nighttime hours; therefore, standards would not be exceeded at night. In addition, from 7:00 p.m. to 7:00 a.m., fuel-operated generators within 350 feet of the project boundary would not run at 100 percent or would be less than 40 dBA at the project's property line.

On-site construction noise. Equipment used for solar panel and rack installation would likely include 4x4 forklifts, all-terrain vehicles, truck-mounted pile drivers, cranes, and pickup trucks. The greatest source of noise during construction would be the pile drivers used for installing the steel support posts. As displayed in **Table 3-55**, the maximum discrete noise level from one impact pile driver is calculated to be 101 dBA at 50 feet.

A noise analysis was performed as part of the original EIR for the proposed project (San Benito County 2010a). This analysis calculated hourly equivalent noise levels (Leq) for different construction scenarios. **Table 3-56** shows composite noise levels at various distances from construction activities.

Noise from construction equipment on the project site would be short term, temporary, and intermittent. As part of the CEQA EIR certification and project approval process, the applicant committed to implementing a number of measures, described in detail above, to minimize construction-related noise, or the amount of time sensitive receptors are exposed to this noise, to the greatest extent possible. These measures include limiting noisy equipment use near property boundaries, shielding staging areas, implementing noise suppression techniques for equipment, and limiting pile driving activities. While

Table 3-55
Maximum Discrete Construction Equipment Noise Levels (Unmitigated)

Equipment	Maximum Discrete Noise Level (Lmax dBA)			
	50 feet[1]	1,700 feet[2, 3]	2,640 feet	5,280 feet
Auger driller	84	53	50	44
Backhoe	78	47	44	38
Compactor	83	52	49	43
Concrete mixer truck	79	46	45	39
Concrete pump truck	81	50	47	41
Crane	81	50	47	41
Dozer	82	51	48	42
Drill rig truck	79	48	45	39
Dump truck	76	45	42	36
Excavator	81	50	47	42
Flatbed truck	74	43	40	34
Front end loader	79	48	45	39
Generator	81	50	47	42
Grader	85	54	50	45
Impact pile driver	101	70	67	61
Pickup truck	75	44	41	35
Pneumatic tools	85	54	50	45
Post driver	75	44	41	35
Pumps	81	50	47	41
Roller	80	49	46	40
Scraper	84	53	50	44
Vibratory concrete mixer	80	49	46	40
Warning horn	83	52	49	43
Welder/torch	74	43	40	34

[1]Source: US Federal Highway Administration 2006
[2]Calculated using a sound calculator: http://www.sengpielaudio.com/calculator-distance.htm
[3]Distance to nearest residence

Table 3-56
Construction Noise Estimates (Unmitigated) (Leq)

Activity	Peak Hourly Equivalent Noise Level (dBA Leq)			
	50 feet	1,700 feet[1, 2]	0.5 mile[1]	1 mile[1]
Grading (scraper, motor grader, dump truck)	82.9	52.3	48.5	42.3
Panel Installation (concrete truck, backhoe, crane, grade-all, flatbed, impact pile driver, generator)	94.3	63.7	60	53.8
Grading plus panel installation (all above-listed equipment)	94.3	63.7	60	53.8

Source: San Benito County 2010a, Appendix 7
Leq = Average hourly sound level. Includes a composite of construction equipment and their hourly usage rates.
[1]Calculated using a sound calculator: http://www.sengpielaudio.com/calculator-distance.htm
[2]Distance to nearest residence

construction noise may sometimes exceed San Benito County noise standards over the course of the construction period, the San Benito County approved this exceedence with a determination that the benefits of the project outweigh the temporary noise impacts that would be associated with construction. Because the San Benito County approved the increased noise levels associated with construction of the no action (no permit) alternative, this impact would be less than significant. No additional mitigation measures were identified to further reduce this impact.

Nighttime activities on the project site would be limited; primary noise sources would be vehicles used by security patrols and research crews. No ground-disturbing activities (including grading, pile driving, or trenching) would take place at night. Nighttime noise impacts would be minimized by implementing APM N-1, which is considered part of the no action (no permit) alternative evaluated in this EIS, and requires compliance with San Benito County's noise standards and in particular a reduction in noise emissions between 7:00 p.m. and 7:00 a.m. As a result, noise impacts during nighttime would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Construction-related traffic noise. Construction-related traffic would be a source of noise outside the project site. Primary sources of traffic noise are commute vehicles, heavy duty trucks, and tractor trailers. Construction-related traffic along Panoche Road and Little Panoche Road were estimated to result in noise levels of approximately 55 dBA Ldn at locations 50 feet from the road centerline, while the noise level for a truck pass-by is between 74 to 76 dBA Lmax (San Benito County 2010a, Appendix 7). Delivery and equipment trucks would travel to and from the project site via Interstate 5 and Little Panoche Road. Project-related traffic on Panoche Road would be limited to private cars and trucks with no more than two axles. This would lessen the potential for noise impacts on residents who live along Panoche Road and on Panoche Elementary School.

Discrete maximum noise levels along delivery and commuting routes would likely not exceed current levels, but average daytime noise levels and the frequency of noise exposure may increase due to the additional number of vehicles. This would be an indirect and temporary impact. Noise levels and impacts associated with construction traffic would be reduced by implementing Mitigation Measures NS-1.2 and NS-1.3, which are considered part of the no action (no permit) alternative evaluated in this EIS. These measures would limit truck noise and provide advance notice of construction activities along with advice for reducing noise exposure. With implementation of these measures, construction-related indirect noise impacts would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Operational and Maintenance Activities

Noise from operation of the proposed project would be limited to vehicle use, the transformers and inverters, and heating, ventilation, and air conditioning systems. Operation activities would be required to conform with San Benito County noise level standards and would not exceed 45 dBA Leq during the daytime and 35 dBA during the night at the property boundary. **Table 3-57** shows composite noise levels associated with operational activities.

Table 3-57
Operational Noise Estimates (Leq)

Activity	Peak Hourly Equivalent Noise Level (dBA Leq)			
	50 feet	1,700 feet[1, 2]	0.5 mile[1]	1 mile[1]
Panel washing (pickups, high-pressure sprayers)	76.6	46	42.1	36.1
Power block (4 inverters, 1 transformer)	61	30	26.6	20.5
Substation	46	15.4	11.6	5.53

Source: San Benito County 2010a, Appendix 7
Leq = Average hourly sound level. Includes a composite of construction equipment and their hourly usage rates.
[1]Calculated using a sound calculator: http://www.sengpielaudio.com/calculator-distance.htm
[2]Distance to nearest residence

Sensitive noise receptors would be separated from the equipment by a great enough distance to meet the San Benito County noise standards. This would be achieved by locating inverters and transformers at least 180 feet from the property line and at least 300 feet from each other. This would ensure noise levels at the property line do not exceed the San Benito County standard of 45 dBA. If noise levels were to exceed 45 dBA, the applicant would be required to install noise attenuation measures to ensure compliance with San Benito County code. No other equipment would be near enough to sensitive receptors to exceed San Benito County noise standards.

Operation of the collector lines would produce no notable noise or hum and would therefore have no impact. Vehicle traffic generated by permanent employees would represent a negligible increase in ambient noise levels. Noise from PV panel washing would be reduced by implementing Mitigation Measure NS-5.1, which is considered part of the no action (no permit) alternative evaluated in this EIS. This measure limits panel washing to twice yearly and restricts panel washing to Monday through Saturday 7:00 a.m. to 7:00 p.m., excluding federal holidays, when occurring within 1,900 feet of the property line. Because these measures have been incorporated into the no action (no permit) alternative, operation-related noise impacts would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

PG&E Telecommunication Upgrades

Primary telecommunication upgrades. The Moss Landing-Panoche transmission line corridor spans portions of San Benito County and Fresno County and is situated in a rural setting with ambient noise levels similar to those at the project site. The telecommunications upgrades would not conflict with any applicable noise ordinance. Fresno County code exempts construction from noise standards, provided activities occur between 6:00 a.m. and 9:00 p.m. on weekdays and 7:00 a.m. and 5 p.m. on weekends (Fresno County 2014b). Fewer than 10 potential occupied residences are within 1,000 feet of the PG&E Moss Landing-Panoche transmission line right-of-way. Because construction would occur only during the daytime, upgrade activities would be exempted from San Benito County and Fresno County noise standards.

The use of heavy machinery and helicopters along the transmission line would temporarily increase ambient noise levels at nearby rural residences by more than 10 dBA during the 12- to 16-week construction period. Construction would take between 2 and 3 weeks at any one location. Because these activities would be temporary and intermittent, confined to the daytime, and would not exceed those levels approved by the local agencies, they would result in a less than significant impact. No additional mitigation measures were identified to further reduce these impacts.

Secondary Telecommunication Upgrades. The Call Mountain and Panoche Mountain microwave tower sites are both remote, and there are no sensitive receptors within one mile of either site. Therefore, noise impacts would be less than significant. No mitigation measures are required.

The closest sensitive receptors to the Helm Substation are four residences approximately 0.5 mile south. Construction would be limited to the daytime and would be in compliance with Fresno County code. Noise levels during construction of a new tower would be similar to those experienced at the project footprint. Assuming a maximum noise level of 85 dBA at 50 feet, these residences would be exposed to maximum noise levels of approximately 52 dBA. Construction noise would be temporary and intermittent. Because of the long distance between the residences and the Helm Substation, the temporary and intermittent nature of the construction noise, and noise would not exceed those levels approved the local agency, impacts would be less than significant. No mitigation measures are required.

Alternative A (Applicant's Proposed Project)

Construction and Operational and Maintenance Activities

Direct and indirect noise impacts under Alternative A would be the same as described above for the no action (no permit) alternative. The applicant-proposed measure and County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this

alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. No additional mitigation measures were identified to further reduce impacts.

PG&E Telecommunication Upgrades

Less than significant impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative.

Alternative B (On-Site Alternative)

Construction and Operational and Maintenance Activities

Direct and indirect noise impacts under Alternative B would be the same as described above for the no action (no permit) alternative. The applicant-proposed measure and County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. No additional mitigation measures were identified to further reduce impacts.

PG&E Telecommunication Upgrades

Less than significant impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative.

Alternative C (Off-Site Alternative, Westlands CREZ)

Construction

Noise-related impacts under Alternative C are similar to those described under the no action (no permit) alternative. Assuming a similar mix of equipment, construction would result in maximum discrete noise levels of 101 dBA and equivalent noise levels between 83 dBA and 94 dBA at 50 feet from the activity, as described in **Table 3-55**. Noise levels at one-half mile from the project site would range from 48 to 60 dBA and at one mile would range from 42 to 54 dBA.

Noise levels would be short term, temporary, and intermittent, and the level of impact would depend on the location of the project site and the distance to sensitive land uses, such as schools or residences. Fresno County code exempts construction from noise standards, provided activities occur between 6:00 a.m. and 9:00 p.m. on weekdays and 7:00 a.m. and 5:00 p.m. on weekends (Fresno County 2014b). Kings County does not address construction-related noise in its ordinances. With exemption of construction from noise standards during the hours described above in Fresno County and no noise standards in Kings County, construction of a proposed solar facility at the Westlands CREZ would likely be in conformance to county standards. Direct impacts would likely be less than significant.

Traffic-related construction noise impacts would be similar to those described for the no action (no permit) alternative along State Routes 41 and 198, the primary roads likely to be used for accessing the CREZ. Impacts would likely be less than significant, as there are few residences along these routes.

Operational and Maintenance Activities

Impacts from operational and maintenance activities would be similar to those described for the no action (no permit) alternative. Because Fresno County requires that all proposed development incorporate design elements necessary to minimize adverse noise impacts on surrounding land uses, permitting for the facility would likely require design features such as shielding and spacing to ensure that operational-related noise complied with applicable noise standards for that county. Similarly, the Kings County General Plan Noise Element contains noise policies to protect residents and other sensitive receptors from excessive noise, including mitigation requirements for transportation and non-transportation noise sources. It also establishes non-transportation noise standards. Therefore, permitting for a solar facility in Kings County would also be likely to require design features such as shielding and spacing to ensure that operational-related noise complied with applicable noise standards for that county. Given county regulations and the limited number of sensitive land uses near the Westlands CREZ, long-term noise impacts on surrounding land uses would likely be less than significant.

3.13.4 Cumulative Impacts

No Action (No Permit) Alternative, Alternative A, and Alternative B

The geographic scope for the cumulative effects analysis for noise under the no action (no permit) alternative and Alternatives A and B includes areas within one mile of a noise source. Since noise dissipates with distance, the cumulative effects analysis area for cumulative noise impacts is more limited than for other resources.

The existing noise environment at the proposed project site is described in **Section 3.13.2**, above. Noise levels in the project area are representative of a rural western environment. Noise sources in rural areas are natural sounds, such as wind, weather, and wildlife; vehicles on area roadways; and agricultural equipment. Ambient sound levels typical of rural areas range between 30 and 40 dBA (EPA 1978).

As described in **Section 3.13.2**, construction would produce direct adverse impacts on residents near the project site and along area roadways; these direct impacts would be significant during certain phases of the construction process and while work is occurring closer to sensitive receptors. Noise impacts would be reduced through the implementation of measures described in **Appendix C** (see APM N-1 in **Table C-1** and mitigation measures NS-1.1 through NS-1.4, NS-4.1, and NS-5.1 in **Table C-2**), which are included as part of the proposed

project. Because there are no reasonably foreseeable projects proposed in the project area, the proposed project would not contribute to cumulative noise impacts in the project area.

Delivery truck and employee traffic routes could overlap with cumulative projects in adjacent counties and would increase existing noise levels along regional roadways, most likely Interstate 5. Noise impacts would be less than significant, as temporary increases in traffic-related noise from cumulative projects are not likely to be perceptible to sensitive receptors, given the high volume of existing traffic on Interstate 5.

Alternative C

The geographic scope for the cumulative effects analysis for noise under Alternative C is that area within one mile of the Westlands CREZ. The cumulative analysis considers existing noise levels of a proposed project and other planned and reasonably foreseeable projects within one mile of the CREZ.

A noise survey in 2007 recorded an estimated day-night average sound level (Ldn; the average noise level over a 24-hour period) of 40 dBA. Primary noise sources were natural sounds and distant traffic (Kings County 2010a). Estimated existing noise levels at 100 feet from State Routes 41 and 198, Avenal Cutoff Road, and Nevada Avenue ranged from 56 to 73 dBA. Predictions for future noise levels are the same as existing conditions (Kings County 2010a). Sensitive receptors within one mile of the Westlands CREZ are limited to scattered rural residences.

The construction of a 2,506-acre solar facility in this environment would raise noise levels temporarily in the adjacent lands within and surrounding the CREZ. Depending on the location in the CREZ in which the proposed project is constructed, construction could have direct adverse impacts on residents. If multiple solar projects were constructed at the same time within one mile of each other, these projects could have short-term, potentially significant cumulative impacts on area residents. Measures required to reduce noise impacts on an individual project basis, such as installing noise attenuating devices and shielding particularly loud equipment, would also lessen the severity of cumulative noise impacts. However, it is uncertain if such measures would be required by the county during its permitting process.

Noise levels along primary regional transportation routes would also increase during construction of these overlapping projects. Increases would be intermittent and temporary and would be most noticeable along access routes shared with other projects if construction periods overlap. The degree of cumulative impact would depend upon the location of the project, the location of other projects in the area, and the location of sensitive receptors and cannot be qualified at this time.

3.14 PUBLIC HEALTH AND SAFETY, INCLUDING HAZARDOUS MATERIALS

This section provides an overview of the laws, regulations, and policies that influence the management of public safety, hazards, and potentially hazardous conditions on the project site and in the surrounding area.

3.14.1 Regulatory Environment

Occupational Safety and Health Act

The Occupational Safety and Health Act of 1970 recognized that personal injuries and illnesses incurred in a work setting result in reduced productivity, wage loss, and medical expenses. As a result of the act, the Occupational Safety and Health Administration was established to ensure the health and safety of workers by setting and enforcing standards, providing training, outreach, and education, establishing partnerships, and encouraging continual improvement in workplace safety and health (29 CFR, Part 1910).

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act of 1976 (RCRA) charges the EPA with controlling the generation, transportation, treatment, storage, and disposal of hazardous waste (42 USC, Section 6901 et seq.). The RCRA also promulgated a framework for the management of nonhazardous solid wastes. The 1986 amendments to the RCRA enabled the EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances.

Toxic Substances Control Act

The federal Toxic Substances Control Act of 1976 and the RCRA established a program administered by the EPA for regulating the generation, transportation, treatment, storage, and disposal of hazardous waste.

Clean Water Act

The Clean Water Act (33 USC, Section 1251 et seq.) was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the U.S. Oil pollution prevention regulations describe the requirements for facilities to prepare, amend, and implement SPCC plans. A facility is subject to SPCC regulations if the total aboveground oil storage capacity exceeds 1,320 gallons or the underground oil storage capacity exceeds 42,000 gallons, and if, due to its location, the facility could reasonably be expected to discharge oil into or on the Navigable Waters of the U.S.

California Code of Regulations Title 24, Part 9. California Fire Code

The California Fire Code (2007) sets forth fire-safe building standards and practices, including emergency ingress and egress. San Benito County has adopted the California Fire Code (2007) in its entirety, with a few minor changes.

San Benito-Monterey Unit Strategic Fire Plan

The 2012 Fire Plan is a planning document of the California Department of Forestry and Fire Protection that aims to reduce the incidence and losses from wildfires and to increase the safety of residents and firefighters during wildland fires. The document includes a risk assessment for communities, fire prevention, and vegetation management programs and an action plan for education, inspection, and fuel treatment.

Fresno-Kings Unit Strategic Fire Plan

The 2014 plan from the California Department of Forestry and Fire Protection includes goals and strategic actions for the fire departments of Fresno County and Kings County, working with CAL FIRE, in order to expand the service area, reduce the incidence of and losses from wildfires, and increase safety of residents and firefighters.

San Benito County General Plan: Safety Element

Policy #1 (roads should be of adequate capacity for use in times of emergency). In accordance with Government Code Section 65302(i), the County hereby establishes a minimum all-weather road width for private driveways serving two or more units as 16 feet.

Policy #2 (review on a biannual basis the Emergency Plan of San Benito County). The County will continue its policy of reviewing the disaster plan every two years.

Policy #3 (ensure safe development). It will be the County's policy to require that lands which are subdivided and developed in the future to residential or commercial uses be designed and constructed in such a manner that levels of "acceptable risk" identified in Appendix A of the Seismic Safety Element are not exceeded. It will be the County's policy that these uses will supply adequate water for normal use and fire suppression. Roads which are suitable for safe passage for emergency vehicles, legible street name signs, and two means of access to all parcels except on those with cul-de-sacs 600 feet or less.

- The County will adopt minimum street standards in the subdivision ordinance that will provide a 16-foot all-weather road width for private driveways.
- The County will adopt and maintain an appropriate fire protection water standard for application to land development.

Policy #4 (update periodically information on existing hazards and reduce the risk from them).

- In areas where substandard water supplies exist, the County will take steps to improve the systems.

- In areas of existing and new development, the County will review road signs and require the placement of legible road signs.

Policy #5 (maintain local police, fire, and health forces in a state of readiness to insure adequate protection for the citizens of San Benito County). The County will continue its policy of training programs, periodic review of organization, and the provisions of supplies, equipment, and facilities for use in disaster response.

Policy #6 (cooperate with other local state and federal agencies in the event of a major disaster). The County will continue its mutual assistance programs and will work closely with the Cities of San Juan Bautista and Hollister as well as state and federal authorities in assuring emergency preparedness.

Policy #7 (incorporate fire safe guides). Fire safe guidelines are adopted by the Board of Supervisors and entitled "Fire Safe Guides for Residential Development in California (in or near forests, brush and grassland areas)," revised and printed by the California Department of Forestry, May 1980.

a. The County will continue to improve and provide for the safety of the residents of the County by taking immediate steps to modify the subdivision and other appropriate ordinances in the County to incorporate fire safe standards as delineated in the California Department of Forestry publication where they apply to San Benito County.

b. Adopt and maintain a fire protection plan.

c. Adopt those "Fire Safe Guides" as they relate to San Benito County's land use planning development, open space, conservation, resource management, circulation, and housing.

d. Actively support and cooperate with the California Department of Forestry's Range Improvement and Vegetation Management Programs, with particular emphasis on their impact on water quality and production, resource management, range management, wildlife habitat management, fire defense improvements, and public safety where determined to be appropriate by the County.

San Benito County Code of Ordinances

Section 15.01.022 Solid Waste Storage

(A) During intervals between collection, transportation, or disposal, the storage, accumulation, collection, keeping, handling, or maintaining of solid waste on premises shall be performed in such a manner so as to discourage the harboring and breeding of rodents and insects and the ready access to the solid waste by dogs and other small animals, and so as not to objectionably and unreasonably pollute the air, or so as not to constitute a fire or health hazard.

(B) Other than at an approved solid waste facility, in any premises where the volume of solid waste accumulates in excess of two cubic yards between intervals of collection or disposal, the solid waste shall be stored in fire-resistant containers approved by the local fire authority and in a manner approved by the County's Health Officer.

Section 15.01.025 Solid Waste; Accumulation Prohibited. No person owning or possessing any land, dwelling, or industrial, commercial, or business premises or structure shall allow or permit any solid waste to collect and accumulate on or in any such premises or structure except as otherwise provided by law.

Section 25.37.004 Road and Safety Standards. This code specifies roadway design standards, gate entrance and lock standards, provision of water for fire protection, hydrant specifications, signage, setbacks for structure defensible space, and disposal of flammable vegetation and fuels to ensure safe and expedient access for fire apparatus and adequate provisions for firefighting.

Section 21.01.021 Adoption of Uniform Codes. San Benito County has adopted the California Fire Code, 2007 Edition, with minor amendments. The California Fire Code sets forth fire-safe building standards and practices, including emergency ingress and egress.

Fresno-Kings Unit Strategic Fire Plan

The 2014 plan from the California Department of Forestry and Fire Protection includes goals and strategic management actions for the fire departments of Fresno County and Kings County, working with CAL FIRE to expand the service area, reduce the incidence of and losses from wildfires, and increase safety of residents and firefighters.

Fresno County General Plan: Safety Element

The 2014 draft General Plan contains provisions for minimizing flood damage, seismic hazards, airport hazards, noise, fire hazards, emergency management, and hazardous waste. Pertinent provisions concerning fire, emergency management, and hazardous waste are described below.

Emergency Management

HS-A.1 Operational Area Master Emergency Service Plan. The County shall, through the Fresno County Operational Area Master Emergency Services Plan and the Fresno County Multi-Hazard Mitigation Plan, maintain the capability to effectively respond to emergency incidents, including maintenance of an emergency operations center.

HS-A.2 Multi-Jurisdictional Hazard Mitigation Plan. In coordination with cities, special districts, and other state and federal agencies, the County shall maintain the Fresno County Multi-Jurisdictional Hazard Mitigation Plan to identify and mitigate, to the extent feasible, natural and human-made hazards in the county.

HS-A.23 Emergency Services During Major Disasters. The County shall, in its authority and to the best of its ability, ensure that emergency dispatch centers, emergency operations centers, communications systems, vital utilities, and other essential public facilities necessary for the continuity of government are designed in a manner that would allow them to remain operational during and following an earthquake or other disaster.

HS-A.5 Disaster Response Coordination. The County shall maintain coordination with other local, state, and federal agencies to provide coordinated disaster response.

HS-A.7 Building Design. The County shall review the design of all buildings and structures to ensure they are designed and constructed to state and local regulations and standards as part of the building permit plan check process

Fire Hazards

HS-B.1 Fire Hazards Review. The County shall review project proposals to identify potential fire hazards and to evaluate the effectiveness of preventive measures to reduce the risk to life and property.

HS-B.2 Minimize Fire Hazard Risk Design. The County shall ensure that development in high fire hazard areas is designed and constructed in a manner that minimizes the risk from fire hazards and meets all applicable state and County fire standards. Special consideration shall be given to the use of fire-resistant construction in the underside of eaves, balconies, unenclosed roofs and floors, and other similar horizontal surfaces in areas of steep slopes.

HS-B.3 Fire Risk Management. The County shall require that development in high fire-hazard areas have fire-resistant vegetation, cleared fire breaks separating communities or clusters of structures from native vegetation, or a long-term comprehensive vegetation and fuel management program. Fire hazard reduction measures shall be incorporated into the design of development projects in fire hazard areas.

HS-B.4 Foothill and Mountain Fire and Emergency Service Access. The County shall require that foothill and mountain subdivisions of more than four parcels provide for safe and ready access for fire and other emergency equipment, for routes of escape that would safely handle evacuations, and for roads and streets designed to be compatible with topography while meeting fire safety needs.

HS-B.5 Fire and Emergency Vehicle Access. The County shall require development to have adequate access for fire and emergency vehicles and equipment. All major subdivisions shall have a minimum of two points of ingress and egress.

HS-B.6 Fire Risk Management Coordination. The County shall work with local fire protection agencies, the California Department of Forestry and Fire Protection, and the US Forest Service to promote the maintenance of existing fuel breaks and emergency access routes for effective fire suppression and in managing wildland fire hazards.

Hazardous Materials

HS-F.1 Hazardous Materials Facilities. The County shall require that facilities that handle hazardous materials or hazardous wastes be designed, constructed, and operated in accordance with applicable hazardous materials and waste management laws and regulations.

HS-F.2 Hazardous Waste Applications. The County shall require that applications for discretionary development projects that will use hazardous materials or generate hazardous waste in large quantities include detailed information concerning hazardous waste reduction, recycling, and storage.

HS-F.3 Hazardous Materials Incident Response Plan. The County, through its Hazardous Materials Incident Response Plan, shall coordinate and cooperate with emergency response agencies to ensure adequate countywide response to hazardous materials incidents.

HS-F.4 Soil and Groundwater Contamination Reports. For redevelopment or infill projects or where past site uses suggest environmental impairment, the County shall require that an investigation be performed to identify the potential for soil or groundwater contamination. In the event soil or groundwater contamination is identified or could be encountered during site development, the County shall require a plan that identifies potential risks and actions to mitigate those risks before, during, and after construction.

HS-F.6 Timely Site Cleanup. The County shall work cooperatively with the State Department of Toxic Substances Control and Regional Water Quality Control Board to promote the timely and efficient cleanup of contaminated sites under the regulatory oversight of these agencies.

Kings County General Plan: Safety Element

The 2035 General Plan contains provisions for flood damage, seismic hazards, airport hazards, noise, fire hazards, emergency management, hazardous waste, and community safety. The Kettleman Hills hazardous waste management facility is approximately three miles west of Kettleman City. It accepts hazardous wastes from most of the counties in California and from surrounding states.

Pertinent provisions concerning fire, hazardous waste, and emergency management are described below.

HS Objective B1.5. Ensure adequate protection of County residents from new generations of toxic or hazardous waste substances.

HS Policy B1.5.1. Evaluate development applications to determine the potential for hazardous waste generation and be required to provide sufficient financial assurance that is available to the County to cover waste cleanup and site restoration in instances where the site has been abandoned or the business operator is unable to remove hazardous materials from the site.

HS Objective C2.2. Provide quality fire protection services throughout the County by the Kings County Fire Department, and Fire safety preventative measures to prevent unnecessary exposure of people and property to fire hazards in both County Local Responsibility Areas and State Responsibility Area.

HS Policy C2.2.3. Use the 1997 Uniform Code for the abatement of Dangerous Buildings. All new structures to be occupied shall be built to current Fire Code Standards.

HS Policy C2.2.4. Review development proposals according to California Department of Forestry and Fire Protection "Fire Hazard Severity Zone Maps" to determine whether a site is in a Very High Fire Hazard Severity Zone and subject to Wildland-Urban Interface Fire Area Building Standards and defensible space requirements as adopted under Senate Bill 1595 and effective January 1, 2009.

HS Objective C2.3. Emergency Operations Center remains prepared, organized and capable of responding to disasters or incidences of a significant nature or magnitude that require coordinated multi-agency response.

HS Policy C2.3.1. The Kings County Office of Emergency Management maintains and updates the County's Emergency Response Plan in coordination with responding County agencies that serve to perform Management, Operations, Planning and Intelligence, Logistics, and Administration and Finance functions.

HS Policy C2.3.2. The Kings County Emergency Service Coordinator continues to organize Emergency Operations Center training and exercises for relevant County Department staff to maintain readiness.

HS Objective C2.4. Ensure maintenance and upkeep of key emergency access routes, and critical facilities and infrastructure to minimize delays or disruptions in emergency response.

HS Policy C2.4.1. Prioritize the maintenance of Primary Access Routes, as defined by the County's Emergency Response Plan, which serve as established disaster evacuation routes.

HS Policy C2.4.3. Assess vulnerability of critical infrastructure and lifeline utilities, including water distribution systems, to identify and prioritize projects for multi-hazard risk reduction.

3.14.2 Affected Environment

Proposed Project

General Project Area

Current health and safety risks at the project site are related to grazing and dry farming. Common risks are accidents related to traffic and farm equipment and possible exposure to valley fever and anthrax.

Valley Fever

Soils in the study area may harbor the fungus that causes valley fever. People working in certain occupations, such as construction, agriculture, and archaeology, have an increased risk of exposure and disease because these jobs disturb soils where fungal spores are found. Between one and three cases of valley fever were reported per year in San Benito County in recent years (California Department of Public Health 2008). The fungus is prevalent in the San Joaquin Valley, several miles east of the project site.

Valley fever is a lung disease found in the southwestern United States and northwestern Mexico. It is caused by the fungus *Coccidioides imitis*, which grows in soils in areas of low rainfall, high summer temperatures, and moderate winter temperatures. The fungal spores become airborne when soil is disturbed, and inhaling spores infects susceptible individuals. Most cases are mild, and no specific course of treatment is necessary. In about five percent of cases of valley fever, pneumonia (infection of the lungs) results, while another five percent of patients develop lung cavities after their initial infection. Occasionally, these cavities rupture, causing chest pain and difficulty breathing, and require surgery (Valley Fever Center for Excellence 2012).

From 1991 to 1995, California experienced a large epidemic of valley fever in the San Joaquin Valley. Since 1995, cases of valley fever have been reported consistently to local health departments in California using Confidential Morbidity Reports. From 1995 to 2000, the number of reported valley fever cases in California averaged 2.5 per 100,000 population; from 2000 to 2006, the incidence rate more than tripled to 8.0 per 100,000 population. There were 4,000 cases in 2012 (California Department of Public Health 2013).

There is no prevention or vaccine for valley fever. Avoiding farming and construction activities associated with dust and airborne dirt of native desert soil is recommended. Some occupations require wearing masks (Valley Fever Center for Excellence 2012).

Anthrax

Anthrax is a naturally occurring disease of animals (e.g., sheep, goats, and cattle) caused by the bacterium *Bacillus anthracis*. The bacteria live in the soil in many parts of the world and form protective outer coats called spores, which enable them to withstand harsh or adverse conditions. Animals can contract anthrax by ingesting anthrax spores from the soil.

Anthrax in animals occurs worldwide but can be controlled by vaccination. Most outbreaks occur in areas where animals have previously died of anthrax, as the spores remain viable for many years. Spores over 35 years old have been able to cause the disease. Often, the outbreaks occur after climatic changes such as heavy rain, flooding, or drought. Climatic changes bring spores to the ground surface and may concentrate the spores. People may contract anthrax by contact with infected animals, and the disease in humans is potentially fatal (Centers for Disease Control 2012).

Risk of anthrax is only significant where there is a history of naturally occurring anthrax in the soil, and there is no history of naturally occurring anthrax in the Panoche Valley (San Benito County 2010c).

Other Diseases

Standing water and trash receptacles can increase numbers of mosquitos, other insects, and rodents which may carry diseases harmful to humans.

Residual Pesticides and Herbicides

Residual pesticides and herbicides could be present in the soil and groundwater in the region because of its history of agricultural land use.

Chemical Contaminants

No documented releases of environmental contaminants have been identified within one mile of the project site. Boron, a naturally occurring element found in rocks, soil, and water, has been found in wells on-site but not at levels likely to cause toxicity to humans (Environmental Assessment Specialists 2009).

Fire Risk

The proposed project site is in a moderate fire hazard severity zone (CAL FIRE 2010). Site topography is level to gently sloping, and grassland or patchy shrubland vegetation could serve as fuel. Two documented fires have occurred on the project site and the proposed off-site conservation lands. The 1995 Panoche Fire burned 485 acres on the project site and in the foothills of the conservation lands, and the 1986 Panoche Fire burned 1,497 acres of the project site and the foothills of the conservation lands. In addition, the 2008 Brown Fire burned 3,787 acres in the foothills northwest of the project site (San Benito County 2010c).

The site is served by the Fairview Fire Station in the city of Hollister, 35 miles northwest. The San Benito County Fire Department operates with five full-time

employees and 24 on-call firefighters; up to 26 additional state firefighters are available during fire season. Response time to the project site would be approximately 45 minutes to one hour, according to the County Fire Department (San Benito County 2010c).

PG&E Telecommunications Upgrades

The PG&E telecommunications upgrade sites are along the transmission line east from the project site at 13 locations, four in San Benito County and nine in Fresno County. The sites would be the locations of construction work to perform network upgrades along the existing Moss Landing-Panoche transmission line and to install microwave equipment on existing or new microwave towers. Following construction, O&M workers would access the sites, but no permanent workers would be stationed in these locations. Potential workplace hazards and wildfire risk are similar to those described for the project site and conservation lands.

Westlands CREZ

Current health and safety risks at the Westlands CREZ are accidents from traffic and farm equipment and possible exposure to valley fever.

Valley Fever

Soils may harbor the fungus that causes valley fever. People working in construction, agriculture, and archaeology have an increased risk of exposure and disease because these jobs result in soil disturbance and increase the likelihood of inhaling fungal spores. The fungus is prevalent in the western San Joaquin Valley, and reported cases have doubled in recent years, to more than 10 per year in both Fresno County and Kings County (California Department of Public Health 2013).

Most cases are mild, but in about five percent of cases of valley fever, pneumonia (infection of the lungs) results, while another five percent of patients develop lung cavities after their initial infection. Occasionally, these cavities rupture, causing chest pain and difficulty breathing and require surgery (Valley Fever Center for Excellence 2012).

From 1991 to 1995, California experienced a large epidemic of valley fever in the San Joaquin Valley; during 1995 to 2000, the number of reported valley fever cases in California averaged 2.5 per 100,000 population annually. However, from 2000 to 2006, the incidence rate more than tripled to 8.0 per 100,000 population, or a total of 4,000 cases in 2012 (California Department of Public Health 2013).

There is no prevention or vaccine at this time. Avoiding farming and construction activities associated with dust and airborne dirt of native desert soil is recommended. Some occupations require wearing masks (Valley Fever Center for Excellence 2012).

Residual Pesticides and Herbicides

Residual pesticides and herbicides could be present in the soil and groundwater in the region because of its history of agricultural land use.

Chemical Contaminants

The Westlands CREZ is considered a brownfield site due to the highly saline soil that reduced its productivity as farmland and contamination with selenium and other metals, as a result of past agricultural practice and drainage patterns in the Tulare Lake Basin (Westlands Water District 2013). There is potential for salts and inorganic contaminants to become airborne particulate during soil-disturbing activities; management to reduce dust spread would reduce any potential health risk from these activities.

Fire Risk

The proposed project site is not in a moderate or high fire-hazard severity zone (CAL FIRE 2007). Site topography is level; grassland or patchy shrubland vegetation could serve as fuel. The site is served by the Kettleman City Fire Station in Kettleman City, five miles south, and Station #7 in Lemoore Station, three miles northeast. The Kings County Fire Department operates with 60 firefighters and coordinates with additional state firefighters during fire season.

3.14.3 Environmental Impacts

This section describes how construction under the no action (no permit) alternative, Alternative A, Alternative B, and Alternative C would increase risks to the health and safety of the public and of construction workers. All activities associated with construction would be conducted in accordance with local, state, and federal regulations to protect the health and safety of employees and the general public.

For this EIS, a significant impact on public health or safety would occur if construction of the facility or PG&E telecommunication upgrades were to result in any of the following:

- Create a significant hazard to people or the environment through the routine transport, use, or disposal of hazardous materials or as a result of an accidental release of hazardous materials
- Expose people or structures to a risk of loss, injury, or death involving fires
- Cause a significant decline in levels of service for fire protection in the service area
- Create a significant hazard to people or the environment by mobilizing existing contamination or generating disease vectors

No Action (No Build) Alternative

Under the no action (no build) alternative, existing land uses at the proposed project site and on surrounding mitigation lands would continue. No telecommunication upgrades would occur. There would be no change to existing public health and safety conditions.

No Action (No Permit) Alternative

The following County-required measures were included as conditions of approval in the conditional use permit for the proposed project to reduce impacts on public health and safety and are considered part of the no action (no permit) alternative in this EIS. The full text of these measures is included in **Appendix C**, **Table C-1** and **Table C-2**. The impacts of the no action (no permit) alternative on public health and safety with incorporation of these measures is discussed below.

- **APM AQ-3.** The Applicant shall reduce fugitive dust emissions during construction through implementation of the following best management practices to be shown on grading and building plans:
  - Water graded/excavated areas and active unpaved roadways, unpaved staging areas, and unpaved parking areas at least three times daily or apply chemical soil stabilizers per manufacturer recommendations. Frequency should be based on the type of operations, soil and wind exposure
  - Apply chemical soil stabilizers or water on inactive construction areas (disturbed lands, including dirt stockpiles;
  - All disturbed soil areas not subject to revegetation shall be stabilized using approved chemical soil binders, jute netting, or gravel for temporary roads;
  - Gravel shall be placed on all perimeter roadways and driveways as soon as possible after grading for said roadways;
  - All trucks hauling dirt, sand, soil, or other loose materials shall be covered or shall maintain at least two feet of freeboard (minimum vertical distance between top of load and top of trailer) in accordance with California Vehicle Code Section 23114;
  - Install gravel track systems where vehicles enter and exit unpaved roads onto streets and inspect equipment tires to ensure free of soil prior to carry-out to paved roadways.
- **Mitigation Measure AQ-1.1. Reduce fugitive dust.** The Applicant shall implement the following measures to minimize nuisance impacts and to significantly reduce fugitive dust emissions, and the Applicant shall require all of the following measures to be shown on grading and building plans:

- Limit grading to 50 acres per day, and grading and excavation to 2.2 acres per day;
- Water graded/excavated areas and active unpaved roadways, unpaved staging areas, and unpaved parking areas at least three times daily or apply non-toxic chemical soil stabilization materials per manufacturer's recommendations. Frequency should be based on the type of operations, soil and wind exposure;
- Prohibit all grading activities during periods of high wind (sustained over 15 mph);
- Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days);
- Apply non-toxic binders (e.g., latex acrylic copolymer) or water to exposed areas after cut and fill operations, and hydro-seed area;
- Plant vegetative ground cover compliant with County-approved Landscape Plan in disturbed areas as soon as possible;
- Cover, enclose, or apply soil stabilizers to inactive storage piles or water three times daily;
- Install wheel washers at the entrance to construction sites for all exiting trucks; Track outs will be a minimum of 100 feet long or twice the length of the longest vehicle entering the site. Track out pads will be a combination of corrugated steel "rumble plates" at exits of track out pads and 6 inches thick of class 150 (4" minimum diameter) stone preceding rumble pads. Rumble pads and track out stone will be maintained and cleaned as necessary to remove any deposited materials. Vehicles entering and exiting the site will be free of excessive dirt and debris and will be cleaned as necessary to satisfy fugitive dust control requirements. All on site construction equipment will be required to be washed prior to delivery to the site and washed (utilizing high pressure washers) prior to demobilizing. Construction traffic on site and between sections of the site will utilize track out devices prior to crossing paved roads. Delivery vehicles (over road tractor trailers, concrete and aggregate trucks, and all other delivery vehicles) will be required to travel on established roadways and utilize established lay down areas at the Project site. Vehicle traffic for employees will travel to established parking areas and enter and exit over the track out devices as previously described. Trackout devices will be regularly maintained and all construction equipment entering the site will be inspected and any equipment observed not to

have been washed will not be permitted to enter the Project site.

- Use street sweepers, water trucks, or sprinkler systems in sufficient quantities to prevent airborne dust from leaving the site. Reclaimed (non-potable) water should be used whenever possible;
- All dirt stock pile areas shall be sprayed daily as needed;
- Permanent dust control measures identified in the approved project revegetation and landscape plans shall be implemented as soon as possible following completion of any soil disturbing activities;
- Exposed ground areas that are planned to be reworked at dates greater than one month after initial grading shall be sown with a fast germinating, non-invasive grass seed and watered until vegetation is established. Unless restricted in the biological resources mitigation measures, alternative methods for soil stabilization may be implemented, including but not limited to use of water to establish a crust, chemical stabilizers, and straw mulching;
- All disturbed soil areas not subject to revegetation shall be stabilized using approved chemical soil binders, jute netting, or gravel for temporary roads and any other methods approved in advance by the Monterey Bay Unified APCD;
- Gravel shall be placed on all roadways and driveways as soon as possible after grading for said roadways. In addition, building pads shall be laid as soon as possible after grading unless seeding, soil binders, or frequent water application are used;
- Vehicle speed for all construction vehicles shall not exceed 15 mph on any unpaved surface at the construction site;
- All trucks hauling dirt, sand, soil, or other loose materials shall be covered or shall maintain at least 2 feet of freeboard (minimum vertical distance between top of load and top of trailer) in accordance with California Vehicle Code Section 23114;
- Unpaved road travel shall be limited to the extent possible, for example, by limiting the travel to and from unpaved areas, by coordinating movement between work areas rather than to central staging areas, and by busing workers where feasible;
- Install wheel washers where vehicles enter and exit unpaved roads onto streets, or wash off trucks and equipment leaving the site, and inspect vehicle tires to ensure free of soil prior to

carry-out to paved roadways. Alternatively, use track outs as defined above; and

- Sweep streets at the end of each day, or as needed, if visible soil material is carried onto adjacent paved roads. Water sweepers with reclaimed water shall be used where feasible.

- **Mitigation Measure HZ-5.1. Cease work during Red Flag Warning.** During a Red Flag Warning issued for the zone encompassing the proposed project, all grading, welding, soldering, and smoking shall cease at the project site. In addition, vehicles shall remain on designated access roads or laydown areas cleared of vegetation.

- **Mitigation Measure PS-1.1. Develop and implement service agreement with firefighting entities (Supersedes APM PUS-5).** The Applicant shall enter into an agreement with a qualified firefighting entity (the Hollister Fire Department, CAL FIRE, or private providers). A fully executed agreement shall be submitted to the Department of Planning and Building, which documents the Applicant's agreement to pay the firefighting providers an agreed upon fee based on actual costs to fund additional personnel needed to serve the project site during construction.

  To address operational impacts, the Applicant shall ensure that either (a) a sufficient number of permanent employees are trained as volunteer fire fighters or (b) the Applicant will provide fire protection training to its permanent employees. This will allow the project's on-site work force to combat and be first responders to any potential fires occurring on-site or within the vicinity of the project site prior to back up by the appropriate fire department or entity.

- **Mitigation Measure HZ-7.1. Prohibit standing water.** In order to eliminate the risk of generating disease vectors at the site, during project construction and operations the Applicant shall ensure that open containers be inverted and construction ditches not be allowed to accumulate water. Construction and maintenance operations shall not generate standing water, except for stormwater management ponds and temporary water storage ponds. Naturally occurring depressions, drainages, and pools at the site shall not be drained or filled without 1,794 with the appropriate resource agency (San Benito County, U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, California Department of Fish and Game) and obtaining the appropriate permits.

- **Mitigation Measure HZ-7.2. Protect Workers and Public from Valley Fever.** The Applicant shall implement the following

measures to reduce the likelihood that construction workers and the public are infected with Valley Fever:

- The Applicant shall prepare a detailed informational brochure explaining Valley Fever, its cause, and its symptoms, and the populations most at risk for the disease. The brochure shall incorporate information provided the California Department of Public Health (DPH) (http://www.cdph.ca.gov/healthinfo/discond/Pages/Coccidioidomycosis.aspx) and shall be reviewed by a DPH for adequacy at least 30 days before the start of construction. The brochure will identify methods for controlling the spread of the illness, such as changing clothing daily, using respiratory protection, applying water the soil, and cleaning equipment and materials. The approved brochure shall be provided to all residents of the Panoche Valley and all families of students at the Panoche Elementary School.
- The Applicant shall make breathing protection gear available to all workers, at their request and at no cost to workers.
- As part of the Safe Worker Environmental Awareness Program, the Applicant shall educate workers to recognize the symptoms of Valley Fever, and to promptly report suspected symptoms of work-related Valley Fever to a supervisor.
- Sign will be posted onsite alerting visitors to the threat of this illness.

- **AMM BR-PGE-7**. During fire season in designated State Responsibility Areas, all motorized equipment will have federal or state approved spark arrestors; a backpack pump filled with water and a shovel will be carried on all vehicles; and fire-resistant mats and/or windscreens will be used when welding.
- **AMM BR-PGE-8**. During fire "red flag" conditions as determined by California Department of Forestry, welding will be curtailed, each fuel truck will carry a large fire extinguisher, and all equipment parking and storage areas will be cleared of all flammable materials.

Construction

Hazardous materials. Hazardous and flammable materials, including fuels, oils, lubricants, and solvents, would be required for the operation of construction equipment. Approximately one million solar panels would be required for the project. Small quantities of common hazardous materials, such as antifreeze and coolant, latex and oil-based paint, paint thinners and other solvents, cleaning products, and herbicides, would likely be used, as well as oil in the substation transformers.

As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the applicant-proposed measures and mitigation measures described above. Potential hazards from use of these materials would be limited by adhering to APM HAZ-1 in **Table C-1**, which is included as part of the no action (no permit) alternative. Application of this measure would ensure impacts are less than significant by providing a protocol to reduce the risk of exposure.

Minor spills on the project site could occur. In order to minimize the spills, construction personnel would be trained in handling and storing hazardous materials, in compliance with OSHA standards and APM HAZ-1, which is included as part of the no action (no permit) alternative. The project SPCC would address hazardous materials management during construction, including a hazardous materials inventory, emergency response procedures, training program information, and basic information on the location, type, quantity, and health risks of hazardous materials on the project site. Application of APM HAZ-1 and the SPCC would ensure impacts are less than significant by providing protocols to reduce the risk of exposure.

Hazards from exposure to toxic materials during solar panel installation would be minimized by adhering to APM HAZ-2 in **Table C-1**, which is included as part of the no action (no permit) alternative. Application of this measure would ensure impacts are less than significant by providing a protocol to reduce the risk of exposure.

If motor vehicle fuels or transformer fluids are spilled during transportation to the site, there could be impacts on soil, water, or vegetation. Motorists using public access routes could be exposed to these materials. Any large quantities of hazardous materials used during project construction would be transported by a licensed transporter during daylight hours, according to California Highway Patrol regulations. Application of this measure would ensure impacts are less than significant by reducing the risk of transport by inexperienced drivers and/or at nighttime hours when visibility is lower.

No additional mitigation measures were identified to further reduce these impacts.

Worker safety. Site-specific hazards, including electrocution, fire, accidents (slips, trips, or falls), fugitive dust inhalation, or disease transmission, could occur during construction. Health and safety procedures would be implemented, in accordance with OSHA standards, to minimize the risk of accidents or injuries. Safety planning and training sessions would occur to ensure that workers were prepared to address potential hazards. APM AQ-3 and Mitigation Measure AQ-1.1, which are included as part of the no action (no permit) alternative, would reduce emissions of fugitive dust. In addition, workers would be trained in the appropriate use of safety equipment and personal protective equipment. Application of these measures and worker training would ensure impacts are

less than significant by limiting potential sources of fugitive dust and providing workers with knowledge needed to perform their jobs more safely. No additional mitigation measures were identified to further reduce these impacts.

Contamination and disease vectors. Standing water would be prohibited at the site (see HZ-7.1, which is included as part of the no action (no permit) alternative) to reduce the risk of disease transmission from insects. In addition, a helipad would be available at the substation site for emergency use. Application of these measures would ensure impacts are less than significant by reducing areas where mosquitos and other insects could breed.

Project construction would disturb on-site soils and potentially cause valley fever fungal spores to become airborne, potentially putting construction personnel and wildlife at risk of contracting the disease. The potential for exposure to valley fever would be reduced through the dust suppression measures APM AQ-3 and Mitigation Measure AQ-1.1, which are included as part of the no action (no permit) alternative. Application of these measures would ensure impacts are less than significant by reducing dust that could carry valley fever fungal spores.

Construction would be a health risk to workers from inhaling naturally occurring anthrax spores in the soil; this risk is minor, as there is no history of naturally occurring anthrax in the Panoche Valley (San Benito County 2010c). Humans can also contract anthrax via contact with infected livestock. There would be no livestock on the project footprint during construction; therefore, construction personnel would not have the potential for exposure and there would be no impact from anthrax.

No additional mitigation measures were identified to further reduce these impacts.

Public safety. Construction sites can pose a safety hazard for members of the general public who access the site unauthorized. The project footprint and construction staging areas would be fenced to prevent access, and signs would be posted to warn of risks. In addition, security patrols would ensure that no unauthorized access occurs. Application of these measures would ensure impacts are less than significant.

Fire risk and protection. Grasslands on the project site could be ignited from welding sparks, from equipment malfunction, fuels, or other activities, such as workers who smoke. Grassland fires could pose a health and safety risk to personnel or lands in the vicinity of the project and to wildlife and habitat. As part of the no action (no permit) alternative, the applicant would ensure that vegetation is managed to minimize vegetative fuel buildup and would adhere to measure HZ-5.1 to reduce the likelihood of fire. Application of this measure would ensure impacts are less than significant by reducing vegetative fuel that could be burned in wildfires.

In addition, according to PS-1.1, which is included as part of the no action (no permit) alternative, the applicant would develop and implement a service agreement with a qualified fire-fighting entity. The agreement would require fire-safe practices to prevent accidental ignitions and would ensure that vegetation at the project site is maintained to minimize the risk that an ignition would result in a significant fire. Application of this measure would ensure impacts are less than significant by reducing the risk of ignition and fuels for wildfires.

No additional mitigation measures were identified to further reduce these impacts.

Residual pesticides and herbicides. Adhering to OSHA standards, combined with dust suppression, would limit the risk of worker exposure to residual pesticides and herbicides in project site soils. Application of this measure would ensure impacts are less than significant by reducing exposure to pesticides and herbicides. No additional mitigation measures were identified to further reduce these impacts.

Operational and Maintenance Activities

Hazardous materials management. During operational and maintenance activities, hazardous materials would consist primarily of petroleum products (fuels and lubricating oils) and motor vehicle fuel, with small quantities of additional common hazardous materials likely. Examples are antifreeze and used coolant, latex and oil-based paint, paint thinners and other solvents, cleaning products, and herbicides.

Minor hazardous material releases could occur due to improper handling or storage during operational and maintenance activities. Potential impacts related to such releases would be minimized by training personnel in handling and storing hazardous materials in compliance with OSHA standards. The site SPCC would ensure proper storage and treatment of hazardous materials during operation and procedures to follow in the event of an accidental release. In addition, vehicles and equipment would be maintained in accordance with WR-6.3, which is included as part of the no action (no permit) alternative. Because of these provisions, hazardous materials would represent only a minor risk to personnel and the environment during operational and maintenance activities. No additional mitigation measures were identified to further reduce these impacts.

Destructive acts. With regard to intentional destructive acts, the project footprint would be fenced and access would be restricted via a security gate. The applicant would provide 24-hour on-site security personnel to discourage acts of vandalism. Signs warning of electrical hazards would be posted. With these security measures in place, the risk of intentional destruction would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Wildland fires. Project area grasslands could be ignited from operational and maintenance activities such as welding sparks, fires from equipment failure, fuel spills, and other activities, such as workers who smoke, all of which pose a health and safety risk to personnel and the environment. All electrical equipment would be built to industry safety design standards, and substation equipment would be built on concrete foundations, reducing the risk of electrical fires at the site.

If PV panels were disconnected by trespassers or operations personnel, live wires could result in a wildfire ignition if they were to come in contact with vegetation. Vegetation at the project site would be maintained to ensure that an ignition would not pose a significant fire hazard. The agreement with the County Fire Department would include such measures as maintaining vegetation to minimize ignition risk and ceasing all nonemergency work during a red flag warning. Because these measures are included as part of the no action (no permit) alternative, operation-related wildland fire impacts would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Worker safety. During operational and maintenance activities, health and safety procedures would be implemented in accordance with OSHA standards to minimize the risk of accidents or injuries. With implementation of these measures, operation-related worker safety impacts would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Valley fever. Project operational and maintenance activities would minimally disturb on-site soils and would not create a risk of causing Valley Fever fungal spores to become airborne. As such, impacts would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Anthrax. Operational and maintenance personnel could contract anthrax through contact with infected sheep grazing on the project site. These animals would be vaccinated against anthrax (see APM HAZ-5, which is included as part of the no action (no permit) alternative), thereby reducing this hazard. With implementation of this measure, operation-related anthrax impacts would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

Public safety. The entire project site would be fenced and would not pose a threat to public safety. Signs would be posted in accordance with APM HAZ-6, which is included as part of the no action (no permit) alternative. This measure states provides that before energizing the project, the applicant would install electrical safety signs on all solar arrays in the immediate vicinity of wiring and electrical equipment, using weather-resistant and fade-proof materials, as required by applicable electrical code. Operational and maintenance activities

would have less than significant impacts on public safety. No additional mitigation measures were identified to further reduce these impacts.

PG&E Telecommunication Upgrades

Primary Telecommunication Upgrades. In conjunction with the proposed project, transmission line upgrades would be constructed along the Moss Landing-Panoche transmission line, between the project site and the Panoche Substation 17 miles east of the project site.

Fewer than 10 potential occupied residences are within 1,000 feet of the PG&E Moss Landing-Panoche transmission line right-of-way, so direct impacts from potential exposure of sensitive receptors to hazardous materials is low. No mitigation measures were identified to further reduce this impact. There is one known release of hazardous substances along the 17 miles of transmission line right-of-way: a leaking underground storage tank that is being remediated north of Panoche Road, approximately 500 feet northwest of a proposed pull/splice site.

The fire and emergency response times to remote locations where upgrade activities would occur vary from ten minutes to two hours via overland travel. Fire services would be provided by San Benito County Fire Department at sites in San Benito and by Fresno County Fire Department at sites in Fresno County. Measures to reduce fire risk are AMM BR-PGE-7 (fire prevention) and AMM BR-PGE-8 (fire prevention during red flag conditions), which are included as part of the no action (no permit) alternative. These measures would ensure direct impacts are less than significant by limiting potential sources of ignition. No additional mitigation measures were identified to further reduce these impacts.

Secondary Telecommunication Upgrades. Secondary telecommunication upgrades include collocating microwave equipment on existing towers at Panoche Mountain and Call Mountain and building a new microwave tower within the fence line of the existing Helm Substation. Measures to reduce fire risk are AMM BR-PGE-7 (fire prevention) and AMM BR-PGE-8 (fire prevention during red flag conditions), which are included as part of the no action (no permit) alternative. These measures would ensure that direct impacts are less than significant by limiting potential sources of ignition. No additional mitigation measures were identified to further reduce these impacts.

Alternative A (Applicant's Proposed Project)

Construction and Operational and Maintenance Activities

Direct and indirect impacts under Alternative A are the same as those described above for the no action (no permit) alternative. The applicant-proposed measures and County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and

indirect impacts would be less than significant. No additional mitigation measures were identified to further reduce impacts.

PG&E Telecommunication Upgrades

Less than significant direct impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative.

Alternative B (On-Site Alternative)

Construction and Operational and Maintenance Activities

Direct and indirect impacts under Alternative B are the same as those described above for the no action (no permit) alternative. The applicant-proposed measures and County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. No additional mitigation measures were identified to further reduce impacts.

PG&E Telecommunication Upgrades

Less than significant direct impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative.

Alternative C (Off-Site Alternative, Westlands CREZ)

Construction

Potential health and safety direct and indirect impacts are similar to those described under the no action (no permit) alternative. They include transportation of hazardous materials and potential for spills, wildfire risk, destructive acts, disease transmission, and exposure to Valley Fever. Measures similar to APMs HAZ-3 and HAZ-6 and Mitigation Measures AQ-1.1, HZ-5.1, HZ-7.1, PS-1.1, and WR-6.3, described under the no action (no permit) alternative, are recommended to minimize potential risks to on-site construction workers, off-site residents, and agricultural workers. The USACE does not have the authority to implement any of these measures, so their implementation is uncertain. Application of these measures would ensure impacts are less than significant by minimizing potential risks to on-site construction workers, off-site residents, and agricultural workers.

Operational and Maintenance Activities

Potential health and safety impacts from operational and maintenance activities would be similar to those described under the no action (no permit) alternative. They include transportation of hazardous materials and potential for spills, wildfire risk, destructive acts, disease transmission, and exposure to Valley Fever. Measures similar to APMs HAZ-3 and HAZ-6 and Mitigation Measures AQ-1.1, HZ-5.1, HZ-7.1, PS-1.1, and WR-6.3, described under the no action (no

permit) alternative, are recommended. The USACE does not have the authority to implement any of these measures, so their implementation is uncertain. Fire protection services would be provided by Kings County Fire Department stations in the vicinity of Westlands CREZ (Stratford, Kettleman City, and Avenal) under agreement with the project proponent (Westlands Water District 2013). With implementation of these measures, operation-related public health and safety impacts would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

3.14.4 Cumulative Impacts

No Action (No Permit) Alternative, Alternative A, and Alternative B

The geographic scope for public health and safety, including hazardous materials, is the proposed project site and the transportation routes along which construction supplies and equipment would travel. A second area of evaluation is the groundwater basins described in the **Section 3.9**, Hydrology and Water Quality cumulative effects section that would have the potential to be affected by accidental spills or leaks from equipment used in those areas.

Because there are no other projects proposed for the cumulative effects analysis area, the no action (no permit) alternative, Alternative A, and Alternative B would have no cumulative impacts on public health and safety, including hazardous materials. Project-specific direct and indirect impacts on public health and safety, including hazardous materials, would be minimized through the implementation of applicant-proposed measures and mitigation measures described above.

Alternative C

The geographic scope for public health and safety, including hazardous materials, for Alternative C is the Westlands CREZ and the transportation routes along which construction supplies and equipment would travel to reach the CREZ.

Eighteen utility-scale solar projects are reasonably foreseeable in the vicinity of Westlands CREZ, including development of the Westlands Solar Park over a 12-year period. These projects would cumulatively increase the amount of traffic, use of hazardous materials, and need for emergency services in the vicinity of the CREZ. Measures to reduce the risk from hazardous materials use and transportation and to minimize the need for emergency services at each project would be applied on an individual project basis, which would reduce potential cumulative effects. The USACE does not have authority to require mitigation measures for these cumulative projects, but as described above, their implementation is likely through the conditional use permitting process.

3.15 Traffic and Transportation

The region of influence for transportation is the local and regional transportation features that would be used for deliveries and employee access to the project site during construction.

3.15.1 Regulatory Environment

Code of Federal Regulations, Title 49, Subtitle B

Title 49, Subtitle B, regulations govern the transportation of hazardous materials. The US Department of Transportation's Office of Hazardous Materials Safety is the federal safety authority for the transportation of hazardous materials by air, rail, highway, and water. The Federal Motor Carrier Safety Administration is responsible for issuing, administering, and enforcing safety regulations for commercial motor vehicles.

California Department of Transportation Level of Service Standards

The California Department of Transportation (CalTrans) target level of service (LOS) for state highway facilities is at the transition between LOS C and LOS D. In cases where this is not feasible, CalTrans recommends that the lead agency consult with it to determine the appropriate target level of service (CalTrans 2002). The CalTrans Transportation Concept Report for Highway 25 indicates that LOS C or better is considered acceptable for the segment from the Monterey/San Benito County Line to Fairview Road (CalTrans 2003). Lower LOS ratings would be considered unacceptable or subject to consultation and review by CalTrans on a case-by-case basis.

California Code of Regulations, Title 27 California Vehicle Code

Division 15, Chapters 1 through 5 (Size, Weight, and Load) are regulations pertaining to licensing, size, weight, and load of vehicles operated on highways.

California Street and Highway Code Sections 660-711, 670-695

California Street and Highway Code Sections 660-711 and 670-695 require permits from CalTrans for any roadway encroachment during truck transportation and delivery, including regulations for the care and protection of state and county highways and provisions for the issuance of written permits. it requires permits for any load that exceeds CalTrans weight, length, or width standards for public roadways.

San Benito County General Plan

Per the Circulation Element of the Public Review Draft San Benito County 2035 General Plan, all County-maintained roads in San Benito County are judged by a LOS standard D for intersections and roadways (San Benito County 2013). Level of service status is gauged by the average flow of traffic—roads at LOS A experience regular free flow of traffic, while roads at LOS F experience regular traffic jams.

Fresno County General Plan

In accordance with the Transportation and Circulation Element of the Fresno County Draft Revised General Plan Policy Document (September 2014 Version), all County-maintained roads outside the sphere of influence of the cities of Fresno and Clovis strive to meet LOS C (Fresno County 2014a). LOS

status is gauged by the average flow of traffic—roads at LOS A experience regular free flow of traffic, while roads at LOS F experience regular traffic jams.

Fresno County Regional Bicycle and Recreational Trails Master Plan

Adopted in 2013, the Fresno County Regional Bicycle and Recreational Trails Master Plan "provides a comprehensive long-range view for the development of an extensive regional bikeway and recreational trails network that connects cities and unincorporated areas countywide" (Fresno County 2013).

Kings County General Plan

In accordance with the Circulation Element of the Kings County 2035 General Plan, level of service standard in the county shall be no lower than LOS E for urban areas and LOS D for rural areas. However, each local agency that owns and operates transportation facilities may select an level of service standard more stringent than the minimum standards (Kings County 2010a).

3.15.2 Affected Environment

Proposed Project

This document utilizes the concept of annual average daily traffic (AADT), calculated as the total yearly volume of traffic at a particular point on a road divided by 365 days.

Regional Transportation System

Regional roadways that may be used by construction and operational traffic are shown on **Figure 3-23**. They include Little Panoche Road, Panoche Road, Highway 25, and Interstate 5. Existing roadway and traffic conditions for these roads are described below.

Little Panoche Road

Classified as a rural major access road, Little Panoche Road provides ingress and egress at the project site. Little Panoche Road begins at Panoche Road near the project site boundary and runs north and northeast through mountainous terrain toward Interstate 5, approximately 20 miles northeast of the project site. This route has a traffic volume of approximately 66 vehicles per day (Hexagon Transportation Consultants, Inc. 2010).

The total roadway width varies from 16 to 20 feet; some segments have no shoulders and some have one-foot-wide unpaved shoulders (Hexagon Transportation Consultants, Inc. 2010). A five-mile segment of Little Panoche Road beginning four miles north of Panoche Road and traversing mountainous terrain is in very poor condition. No posted speed limit is present along the roadway. Pavement condition on the remainder of the road is generally fair (Hexagon Transportation Consultants, Inc. 2010).

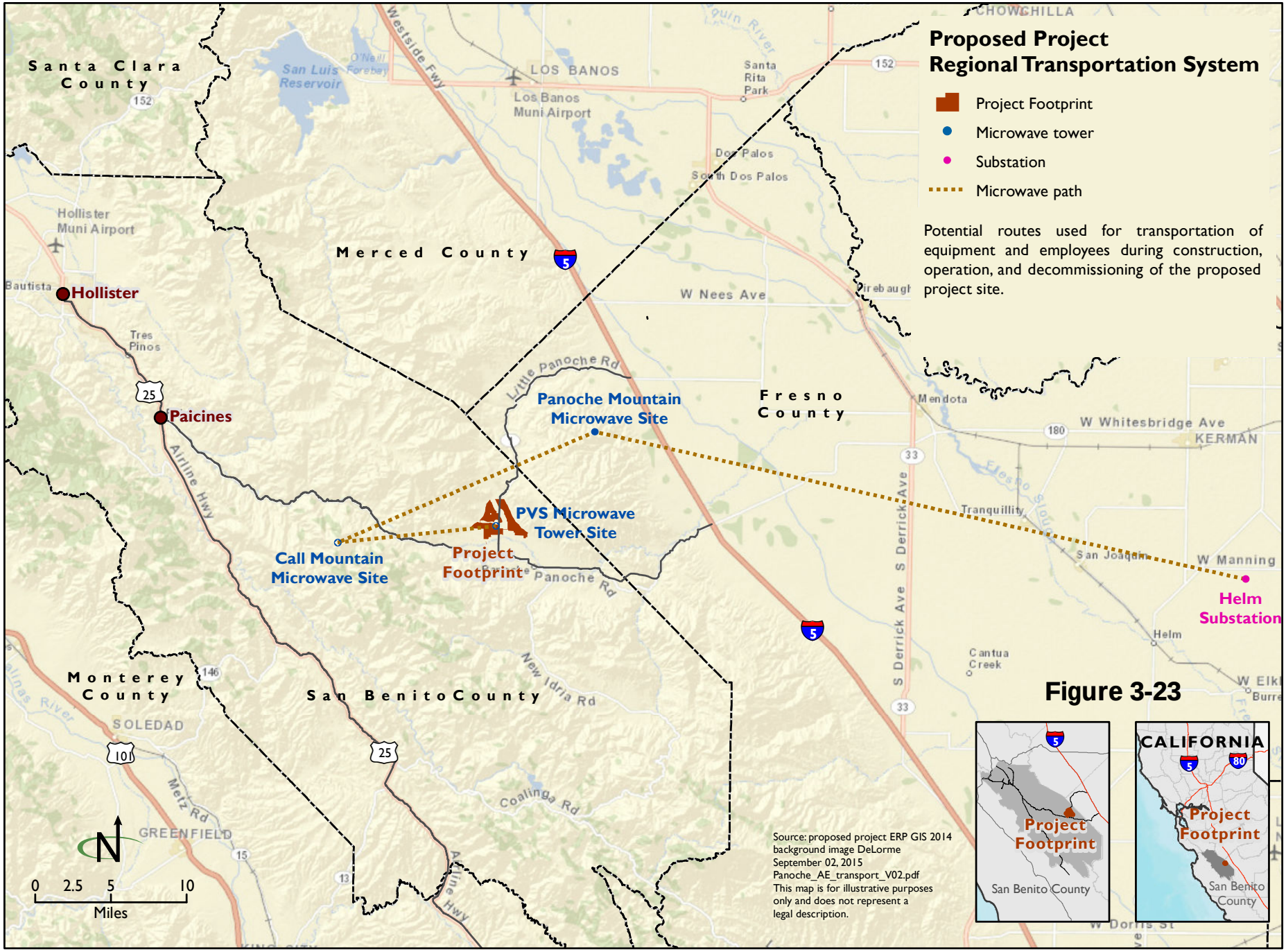
Proposed Project
Regional Transportation System
Project Footprint
Microwave tower
Substation
Microwave path
Potential routes used for transportation of equipment and employees during construction, operation, and decommissioning of the proposed project site.
Santa Clara County
Merced County
Fresno County
Monterey County
San Benito County
Hollister
Paicines
Panoche Mountain Microwave Site
PVS Microwave Tower Site
Call Mountain Microwave Site
Project Footprint
Helm Substation
LOS BANOS
Los Banos Muni Airport
Hollister Muni Airport
San Luis Reservoir
Westside Fwy
Airline Hwy
Little Panoche Rd
Panoche Rd
New Idria Rd
Coalinga Rd
S Derrick Ave
W Nees Ave
W Whitesbridge Ave
W Manning
KERMAN
Mendota
Tranquillity
San Joaquin
Helm
Cantua Creek
SOLEDAD
GREENFIELD
Metz Rd
Tres Pinos
Bautista
Dos Palos
South Dos Palos
Santa Rita Park
CHOWCHILLA
Firebaugh
W Elk
Burre
W Dorris St
0 2.5 5 10
Miles
Source: proposed project ERP GIS 2014
background image DeLorme
September 02, 2015
Panoche_AE_transport_V02.pdf
This map is for illustrative purposes only and does not represent a legal description.
CALIFORNIA
Project Footprint
San Benito County

Figure 3-23

The horizontal alignment is generally straight with very little vegetation, resulting in adequate sight distances along Little Panoche Road. Though there are sharp curves along the roadway, views from both lanes are unobstructed (Hexagon Transportation Consultants, Inc. 2010).

Numerous culverts traverse under Little Panoche Road. Most are in good condition and are buried at a sufficient depth (more than 12 inches of material between the top of the culvert and the top of the pavement). The culverts at mileposts 11.4 and 14.5 are in fair condition, and the culverts at mileposts 8.9 and 11.6 are within 12 inches of the top of pavement (Power Engineers 2010b).

Panoche Road

Classified as a rural major access road, Panoche Road, which is also known as County Highway J1, runs from State Route 25 in Paicines to Interstate 5 in Fresno County. For most of its route from Paicines to the intersection with Little Panoche Road, Panoche Road ranges from a straight to moderately curvy two-lane highway, with pavement widths that vary from 18 to 23 feet. However, for approximately one mile the road is reduced to one 14-foot-wide lane. Existing traffic volumes are very low, estimated at fewer than 400 vehicles per day and LOS is A (Hexagon Transportation Consultants, Inc. 2010).

There are also two one-lane bridge crossings and two locations with seasonal wet stream crossings (Power Engineers 2010b). At some points through the mountainous section of the roadway, the centerline striping is not visible, and slopes, rocks, and trees are immediately next to the roadway (Hexagon Transportation Consultants, Inc. 2010).

The pavement conditions vary, with some sections in poor condition and deteriorating (Hexagon Transportation Consultants, Inc. 2010).

Approximately six miles east of Little Panoche Road, the pavement ends and the unpaved roadway, now known as Jackass Grade, continues east for approximately 11 miles through mountainous terrain before resuming a paved surface and intersecting with Interstate 5. The horizontal alignment of the unpaved roadway is substandard for large trucks (Hexagon Transportation Consultants, Inc. 2010).

The roadway has portions of one-foot shoulders. In some areas there are clear zones of dirt, while slopes, rocks, and trees are next to the pavement in other areas (Hexagon Transportation Consultants, Inc. 2010).

Highway 25

Highway 25 is a state highway east of the project site, crossing through Paicines and running north to Hollister, eventually meeting Interstate 5 just south of Gilroy. Panoche Road intersects Highway 25 in Paicines. Annual average daily traffic north of this intersection is 1,900 vehicles per day, and south of the intersection annual average daily traffic is 760 vehicles per day (CalTrans 2013).

This segment is classified as LOS B during peak hours, which is better than the CalTrans goal of LOS C. Highway 25's functional classification is Urban Principal/Minor Arterial for a portion of its route and Rural Principal/Minor Arterial route for the other portion (CalTrans 2003).

Interstate 5

Interstate 5 is a north-south, four-lane divided highway approximately 18 miles east of the project site. Interstate 5 has interchanges at Panoche Road and Little Panoche Road. Annual average daily traffic between the Panoche Road and Little Panoche Road interchanges ranges from 34,000 to 35,500 vehicles per day (i.e., an average 34,000 to 35,500 vehicles per day travel on this section of Interstate 5 each day; CalTrans 2013). LOS is C (CalTrans 2008).

Additional Local Routes

On the project site is a network of unpaved routes that serve utility lines, scattered rural residences, open space, and agricultural lands.

Bicycling

The Panoche Valley Road Race is an annual competitive cycling event held in the spring. In 2012, the race attracted approximately 200 riders (Bloom 2012). It was not held in 2014. Stanford University's cycling team also hosts a separate collegiate cycling race each March, and approximately 200 riders participated in this race in 2014 (USA Cycling 2014). The course for both races includes Panoche Road and Little Panoche Road.

Airports

San Benito County is home to two public airports: the Hollister Municipal Airport and the Frazier Lake Airpark. Neither provides commercial passenger traffic. Hollister Municipal Airport is the closest public airport to the project site, approximately 40 miles west.

PG&E Telecommunications Upgrades

Primary telecommunication service would be provided by an OPGW installed on the Panoche-Moss Landing 230-Kv transmission line. This transmission line parallels Panoche Road for a portion of its route. Unimproved roads lead to many of the existing towers.

Secondary telecommunication service would be provided by four microwave towers, three of which would be outside the project site. The microwave path would start at a new microwave tower installed in the project switching station. This tower would be accessed via Little Panoche Road. The microwave path would then travel to an existing CAL FIRE microwave tower at Call Mountain. This tower is accessed via a series of unimproved local roads.

From Call Mountain, the microwave path would travel to the existing Panoche Mountain tower, accessed via unimproved roads on BLM-administered lands. The microwave path would continue to a tower at PG&E's Helm Substation.

The substation is accessed via West Manning Avenue in rural Fresno County, approximately 12 miles east of the city of San Joaquin.

Westlands CREZ

Regional roadways that may be used by construction and operational traffic are shown on **Figure 3-24** and are described below.

Interstate 5

The Westlands CREZ can be accessed via Exit 309 near Kettleman City or Exit 319 south of the city of Huron. Average annual average daily traffic near Exit 309 ranges from 34,500 to 37,000 vehicles per day, and annual average daily traffic near Exit 319 ranges from 34,500 to 42,500 vehicles per day (CalTrans 2013).

State Route 41

Though outside the CREZ, State Route 41 is a principal arterial road that parallels the Westland CREZ's southeastern border. Annual average daily traffic on State Route 41 near the CREZ ranges from 5,732 to 6,500 vehicles per day (CalTrans 2013). The level of service is B or C, depending on the route segment (Kings County 2010a).

State Route 198

State Route 198 is a four-lane, principal arterial highway directly north of the CREZ. It traverses Kings County in an east-west direction, connecting Hanford with Interstate 5 and other destinations. Annual average daily traffic at its intersection with Avenal Cutoff Road ranges from 11,100 to 18,000 vehicles per day (CalTrans 2013). The level of service is B (Kings County 2010a).

Laurel Avenue

Laurel Avenue is a two-lane paved road classified as a major collector operating at LOS B. Annual average daily traffic on Laurel Avenue, between Stratford and the Avenal Cutoff Road, is 910 vehicles per day (Kings County 2010a).

Nevada Avenue

Nevada Avenue is a two-lane paved road classified as a major collector operating at LOS B. Annual average daily traffic is 390 vehicles per day (Kings County 2010a).

Arenal Cutoff Road

Arenal Cutoff Road is a two-lane paved road classified as a minor arterial operating at LOS C. Annual average daily traffic is 5,150 vehicles per day (Kings County 2010a).

Additional Local Routes

In the CREZ is a network of unpaved routes that serve utility lines, scattered rural residences, open space, and fallow agricultural lands.

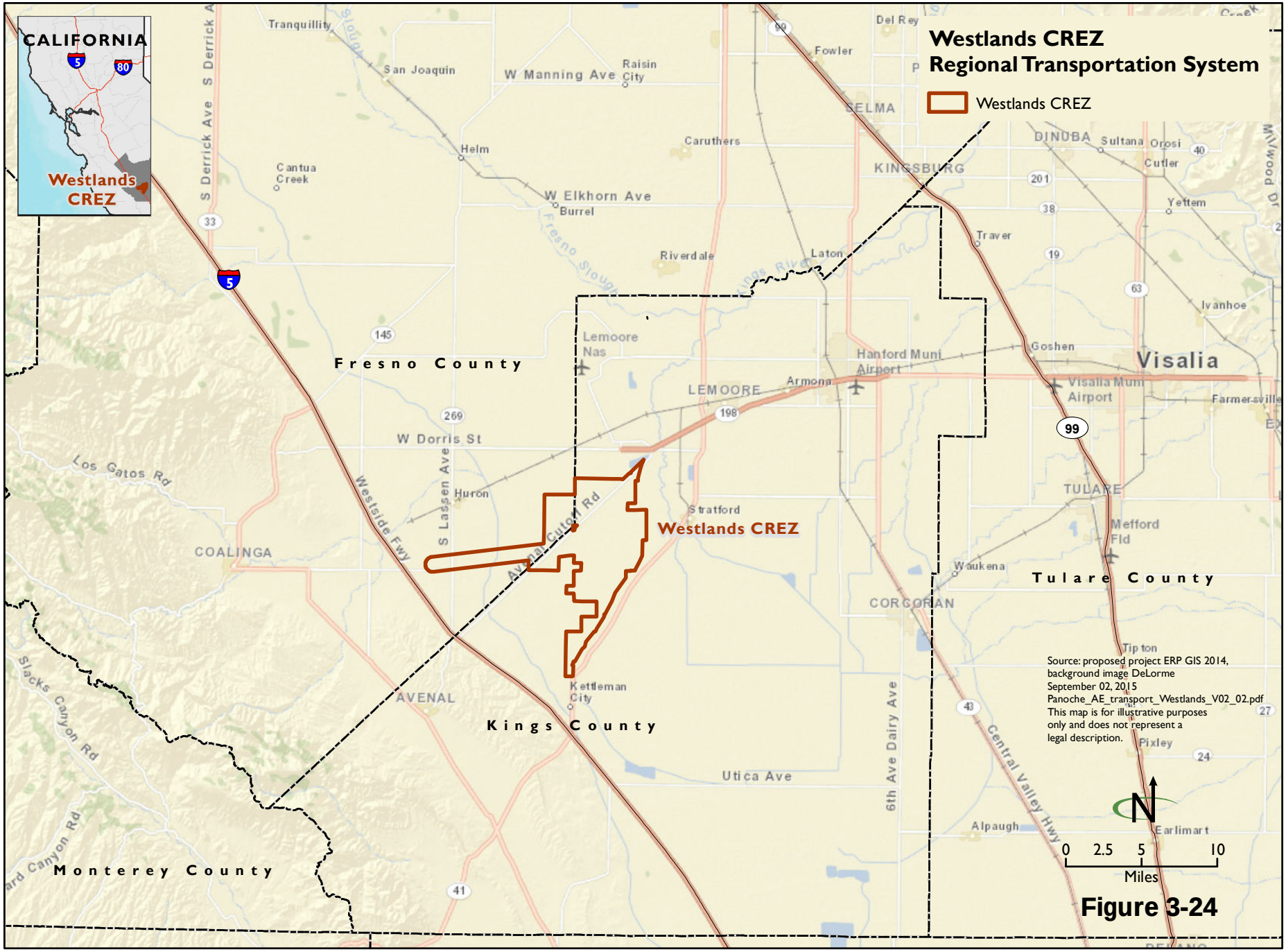
Westlands CREZ
Regional Transportation System
Westlands CREZ
CALIFORNIA
Westlands CREZ
Fresno County
Kings County
Tulare County
Monterey County
Visalia
Tulare
Lemoore
Hanford
Corcoran
Kettleman City
Stratford
Avenal
Coalinga
Huron
Laton
Riverdale
Armona
Lemoore Nas
Hanford Muni Airport
Visalia Muni Airport
Mefford Fld
Tipton
Pixley
Earlimart
Alpaugh
Waukena
Goshen
Ivanhoe
Farmersville
Yettem
Traver
Orosi
Sultana
Cutler
Dinuba
Kingsburg
Selma
Fowler
Del Rey
Caruthers
Burrel
Helm
Raisin City
San Joaquin
Tranquillity
Cantua Creek
W Manning Ave
W Elkhorn Ave
W Dorris St
S Derrick Ave
S Lassen Ave
Westside Fwy
Los Gatos Rd
Slacks Canyon Rd
Utica Ave
6th Ave Dairy Ave
Central Valley Hwy
Fresno Slough
Kings River
Source: proposed project ERP GIS 2014, background image DeLorme
September 02, 2015
Panoche_AE_transport_Westlands_V02_02.pdf
This map is for illustrative purposes only and does not represent a legal description.
0 2.5 5 10
Miles

Figure 3-24

Public Transportation

Kings Area Rural Transit provides public bus service in Kings County. The Hanford-Avenal route travels along Highway 41; the nearest stop to the Westlands CREZ is in Stratford. A separate route provides service between Naval Air Station Lemoore, the city of Lemoore, and Hanford (Kings Area Rural Transit 2013).

Fresno County Rural Transit Agency's Huron Transit route offers scheduled and on-demand transit service in Huron and surrounding towns and cities (Fresno County Rural Transit Agency 2014).

Bicycling

The Avenal Cutoff Road is listed as a bikeway in the county plan (Kings County 2010a) and has wide paved shoulders for cyclists. The Fresno County Regional Bicycle and Recreational Trails Master Plan identifies West Jayne Road and the old railroad tracks going through Huron as a planned rural bikeway and a planned multiple purpose bikeway, respectively (Fresno County 2013).

Airports

There are several private airstrips within five miles of the Westlands CREZ. The closest public airport is the Hanford Municipal Airport, approximately 15 miles from the northeast corner of the Westlands CREZ.

3.15.3 Environmental Impacts

This section discusses the transportation impacts that may occur from physical changes to roads, construction activities, introduction of construction-related traffic on local roads, or changes in traffic volumes created by either direct or indirect workforce changes in the area. As discussed in **Section 3.15.2**, the region of influence for transportation includes the local and regional transportation features that would be used for deliveries and employee access to the project area during construction. Transportation impacts would be considered significant if construction resulted in any of the following:

- Construction would create unsafe conditions on public roadways, such as limited access, inadequate parking, unsafe design features, reduced sight distance, slow vehicles, or damage to public roads
- The level of service on a project area roadway or intersection were degraded from an acceptable level to an unacceptable level as a direct result of project-related traffic
- The project would conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and nonmotorized travel and relevant components of the circulation system, including intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit

The operations of the project area roadway segments are characterized using the concept of level of service, the term used to denote the different operating conditions on a given roadway segment under various traffic volume loads. It is a qualitative measure used to describe a quantitative analysis. It takes into account such factors as roadway geometries, signal phasing, speed, travel delay, freedom to maneuver, and safety. Level of service provides an index to the operational qualities of a roadway segment or an intersection. Level of service designations range from A through F, with LOS A representing the best operating conditions and LOS F representing the worst. Level of service designation is reported differently for signalized and unsignalized intersections, as well as for roadway segments.

None of the alternatives evaluated would impact any of the following transportation features:

- Parking—The proposed project would be constructed on a large site in a rural area with no designated street parking and no residential, commercial, or industrial population centers. The applicant would provide adequate space to park personal vehicles expected at the project site each day during construction; therefore, there would be no impacts related to parking capacity.
- Airports—No airports are within three miles of the proposed project; therefore, the site poses no risk of obstruction hazard.
- Bicycling—The proposed project is in rural areas and would not impact any designated bicycle routes.
- Public transportation—The proposed project does not include any elements or features that would conflict with any policies, plans, or programs supporting public transportation.

No Action (No Build) Alternative

Under the no action (no build) alternative, existing land uses at the proposed project site and on surrounding mitigation lands would continue. No telecommunication upgrades would occur. Therefore, traffic and transportation conditions would remain the same as those currently experienced.

No Action (No Permit) Alternative

The following County-required measures were included as conditions of approval in the conditional use permit for the proposed project to reduce impacts on traffic and transportation and are considered part of the no action (no permit) alternative in this EIS. The full text of these measures is included in **Appendix C**, **Table C-2** and **Table C-3**. The impacts of the no action (no permit) alternative on traffic and transportation with incorporation of these measures is discussed below.

- **Mitigation Measure LU-1.1. Establish construction liaison.** The Applicant shall provide a toll-free general phone number and the name and contact information for a local public liaison to all property owners within a one-mile radius of the project's boundaries. The toll-free access number and the identified local public liaison shall act as points of contact between property owners and construction crews. The local public liaison shall be available both in person and by phone, as necessary, for at least 30 days prior to the start of any construction-related activities and for up to one year following construction. During construction, the local public liaison shall respond to all construction-related questions and concerns within 72 hours. Post-construction responses shall be made within 1 week.

  The Applicant shall provide summary documentation of all comments and concerns communicated to the liaison monthly for the duration of construction and for one year following the completion of construction. The compliance documentation shall include the name and address of the person (if known) contacting the local public liaison, the date of contact, and what actions were taken to rectify and/or address the comments or concerns expressed. The compliance documentation shall be submitted to the County of San Benito Planning and Building Department on a quarterly basis throughout the duration of construction and for one year following construction.

- **Mitigation Measure LU-1.2. Provide advance notice of construction.** Prior to and during construction, the Applicant shall give at least 30 days advance notice of the start of any construction-related activities for each phase (Phases 1 through 5) to all residences located within 5 miles of the project phase boundary, the Principal of the Panoche Elementary School, and the Bureau of Land Management Hollister Field Office. The notification shall include the toll-free general phone number and contact information for the local public liaison (Mitigation Measure LU-1.1, Establish construction liaison). Notification shall be provided by: (1) mailing notices to all property within a five-mile radius of the project site's boundaries; (2) placing notices in local newspapers; (3) mailing to the Principal of the Panoche Elementary School; (4) website posting with a link from the County website, and (4) signs shall be posted at the project site in areas accessible to the public. The announcement shall state where and when construction would occur; provide tips on reducing noise intrusion (e.g., closing windows facing the planned construction); and provide a point of contact for any noise complaints. The Applicant shall provide to the Department of Planning and Building within 72 hours of any complaints received a

report that documents the complaints and the strategy for resolution of any noise complaints.

- **Mitigation Measure TR-1.1. Prepare and implement Traffic Control Plan.** Prior to the start of construction and decommissioning, the Applicant shall submit a Traffic Control Plan (TCP) to San Benito County for its review and approval and to Caltrans. The TCP shall include the following components and requirements that the Applicant shall implement:
  - Define the locations of project access points and location and timing of any temporary lane closures;
  - Identify and make provision for circumstances requiring the use of flag persons, warning signs, lights, barricades, cones, and etcetera to provide safe work areas in the vicinity of the project site and to warn, control, protect, and expedite vehicular and pedestrian traffic;
  - Implement traffic control (flag persons, signage, barricades, cones, etc.) along all roadway segments that have substandard width (less than 18 feet);
  - Include signage placed along all proposed construction haul routes and alternate haul routes at appropriate intervals notifying drivers of the presence of construction traffic on those roadways;
  - Restrict use of Panoche Road from SR-25 to private automobiles and trucks with no more than two axles, only;
  - Address the potential for construction related traffic to impede emergency response vehicles (in conjunction with Mitigation Measure PS-1.1 [Develop and implement service agreement with San Benito County Fire Department]) and present a specific training and information program for construction workers to ensure awareness of emergency procedures from project-related accidents or wildfires;
  - Preclude all construction traffic (personal vehicles and all trucks) from using the unpaved portion of Panoche Road from Interstate 5 to the project site. The TCP shall include a Truck and Bus Safety Plan that ensures:
  - Construction deliveries (including heavy/combination trucks with more than two axles and single-unit trucks with two axles) would be restricted to traveling to and from the project site via Interstate 5 and Little Panoche Road only and would be precluded from using Panoche Road or SR-25;

- That construction material and equipment deliveries requiring pilot cars are limited to traveling along Little Panoche Road during daylight hours;
- All construction truck and bus drivers are informed of and required to adhere to the designated traffic haul routes.
- The measures included in the TCP shall be consistent with any applicable guidelines outlined in the Standard Specifications for Public Works Construction, the U.S. Department of Transportation's Manual on Uniform Traffic Control Devices, and the Work Area Traffic Control Handbook.

- **Mitigation Measure TR-1.2. Rehabilitate, protect and monitor roadway pavement, bridges and culverts.** Prior to the start of construction and decommissioning, the Applicant shall:
  - Implement pavement repairs required to achieve a traffic index of 7.0 on Little Panoche Road between Interstate 5 and Panoche Road, and along Panoche Road between Highway 25 and Little Panoche Road if required;;
  - Rehabilitate roadway striping along Little Panoche Road between Interstate 5 and Panoche Road, and along Panoche Road between Highway 25 and Little Panoche Road if required.
  - Repair sections of deteriorated pavement along Little Panoche Road between Interstate 5 and Panoche Road, including the 4.1 through 5.5 mile segment of Little Panoche Road, in accordance with applicable loading standards and to the satisfaction of the County of San Benito Department of Public Works;

  During construction the applicant shall require its contractor to:

  - Coordinate with the affected jurisdictions (Caltrans, San Benito and Fresno), and implement appropriate wheel load weight distribution to ensure bridge and culvert crossing are adequately protected.
  - Monitor the two culverts along Little Panoche Road that are not located at sufficient depths weekly throughout construction activities for damage to the culverts themselves or dips in the pavement. In the event of any damage that impairs culvert function or presents safety hazards to vehicle travel, project deliveries shall be postponed until the damage is repaired. Any repairs shall be the responsibility of the Applicant.
  - In addition to any other local and State requirements relating to oversized loads, the hauling contractor shall place a ¾-inch-thick section of steel plate over the pavement above the culverts prior to hauling the transformers to the project site.

- Conduct ongoing monitoring and evaluation of pavement conditions on Panoche Road between Highway 25 and Little Panoche Road, and on Little Panoche Road between Interstate 5 and Panoche Road at appropriate intervals (as determined by the County of San Benito Department of Public Works) throughout the five-year construction period and undertake roadway repairs as necessary to ensure it safely accommodates the projected construction traffic load.

- **Mitigation Measure TR-1.3. Repair roadway damage.** The Applicant shall restore all public roads, easements, rights-of- way and infrastructure (such as signs, utility poles, and cattle guards) within the public road rights-of-way (including Interstate 5 access ramps on Little Panoche Road, Little Panoche Road between Interstate 5 and Panoche Road, Panoche Road between State Route 25 and Little Panoche Road, and State Route 25 between Hollister and Panoche Road) that have been damaged due to project-related construction or decommissioning activities or traffic. Restoration shall be to roadway conditions that existed prior to commencement of construction or decommissioning and shall be undertaken in a timely manner, in consultation with the County of San Benito and Caltrans and Fresno (if applicable), as appropriate.

  At least 30 days prior to construction or decommissioning, the Applicant shall photograph or video record all construction route public roads, easements, and right-of-way segment(s), intersections, and shall provide the County of San Benito, the County of Fresno if applicable), and Caltrans (if applicable) with a copy of these images.

  Within 60 days of completion of construction or decommissioning, the project owner shall meet with the County of San Benito, the County of Fresno (if applicable), and Caltrans (if applicable) to identify sections of public right-of-way to be repaired. At that time, the project owner shall establish a schedule to complete the repairs and to receive approval for the action(s). Following completion of any public right-of-way repairs, the project owner shall provide a letter signed by the County of San Benito, the County of Fresno, and Caltrans stating their satisfaction with the repairs.

- **Mitigation Measure TR-1.4. Ensure Traffic Safety.** The Applicant shall ensure traffic safety through a two pronged approach: first, the development of a mandatory Traffic Safety Plan (TSP) including the components defined below, and second, a flexible response program throughout construction implemented by the Applicant in coordination with County, the California Highway Patrol (CHP), and the San Benito County Sheriff. These two sets of actions will ensure: (a) the ability of emergency service providers to access the Panoche Valley region during project construction, and

(b) the safety of the public and project traffic using regional roads during peak construction traffic conditions.

- **AMM TR-1. Develop and Implement Traffic Control Plan.** The PG&E Traffic Control Plan shall include the following:
  - Demonstration of compliance with the California Joint Utility Traffic Control Manual;
  - The dates of any planned road closures (full or partial);
  - A plan for providing public notice of anticipated road closures and traffic delays; and
  - Measures to ensure that no traffic delays exceed 30 minutes (e.g., using flaggers and signage, timing road closures to minimize impacts on traffic).

Construction

The no action (no permit) alternative would take approximately 18 months to construct. Construction would occur from sunrise to sunset, seven days a week, although some activities would occur during nighttime hours.

Trip generation during construction is based on the estimated number of workers and types of equipment used during each phase of construction. Construction equipment would be delivered to the site at the start of the activity for which the equipment is required and would be hauled out on completion of the activity. Construction materials would be delivered and the waste would be removed generally throughout the day and throughout the entire construction period.

Most construction vehicle trips would be made by construction workers traveling to and from the site. The number of on-site construction workers is expected to average approximately 20 to 50 for nighttime activities and 100 to 500 for daytime activities. There would be a peak of approximately 550 employees per day (Hexagon Transportation Consultants, Inc. 2014).

As part of the no action (no permit) alternative, the applicant would encourage carpooling to and from the primary workforce areas of Hollister, San Benito County, and Fresno County that are located between 10 and 60 miles from the proposed project site. Because the applicant cannot predict the number of workers who would choose to carpool, the traffic impacts analysis conservatively assumes that workers would drive their personal vehicles to the project site at a carpool rate of 1.2 workers per vehicle (Hexagon Transportation Consultants, Inc. 2014).

Peak daily round trips are expected to be approximately 550 vehicles from 5:00 to 7:00 a.m. during the arrival of employees for the day work shift and from 2:30 to 4:00 p.m. during the departure and arrivals of employees from shift

change. Based on existing traffic count data, the identified peak project traffic would not coincide with the peak existing traffic along surrounding roadways.

The expected truck traffic generated by the no action (no permit) alternative would mainly be from those delivering solar panels, materials, and equipment to the site. Approximately 100 large trucks would access the site daily to deliver materials and equipment. The trucks would arrive at the site evenly distributed between 6:00 a.m. and 6:00 p.m.; thus, the proposed project would generate an estimated 200 daily truck trips, with a maximum of 18 truck trips occurring during any one hour between 6:00 a.m. and 6:00 p.m.

Overall, the no action (no permit) alternative is estimated to generate 1,150 daily trips, with 16 (8 inbound and 8 outbound) trips occurring during the typical a.m. and p.m. peak hours. The project would generate the greatest amount of traffic, 448 trips, between 6:00 and 7:00 a.m., which falls outside of the typical morning commute period (Hexagon Transportation Consultants, Inc. 2014).

The types and estimated daily trips anticipated to be generated by the no action (no permit) alternative during construction are presented in **Table 3-58.**

Table 3-58
Project Trips and Origins

	Approximate Distance[1]	Daily Trips
Employees	10-60 miles	550
Employee Daily Trips[2]	—	950
Daily Material Delivery	40-100 miles	200
Total Daily Trips		**1,150**

Source: Hexagon Transportation Consultants, Inc. 2014
[1]Distances assumed from a city of residence, port of entry, or manufacturing site to the project.
[2]Assumes carpool rate of 1.2 employees per vehicle.

Approximately 5 percent of the workers would travel from Panoche Valley (up to five miles), 75 percent would travel from Hollister (approximately 45 miles), and 20 percent would travel from San Benito County, Santa Clara County, and Fresno County (up to 60 miles). Construction traffic would access the project site via Little Panoche Road from Interstate 5. Routes for trucks hauling materials and construction equipment would primarily follow the Interstate 5 corridor to Little Panoche Road, allowing for safer travel by larger container trucks and wide-load trucks carrying heavy equipment. Approximately 40 percent of personnel traffic would also follow this route. The remaining personnel traffic would come in from the west on Panoche Road via State Route 25 (Hexagon Transportation Consultants, Inc. 2014).

Indirect impacts on transportation during construction are described below; there would be no direct impacts on transportation during construction.

Conditions on public roadways. During construction, transportation systems in the proposed project area would be directly impacted by an increase in traffic due to an influx of construction workers and the delivery of construction equipment and materials. The applicant would direct project-related commuter traffic to use State Route 25 and truck traffic (including oversized loads that would require permits) to use Interstate 5. Panoche Road and Little Panoche Road would provide direct access to the project site. As described above, most truck deliveries would access the site via Interstate 5 and Little Panoche Road. Smaller deliveries may arrive to the site via Hollister or via county roads.

Construction equipment and material deliveries would occur throughout the construction period and would include various sizes of trucks, tractors, trailers, dozers, trenching machines, welders, and generators. Most of the heavy construction equipment would be delivered from storage yards to construction sites on lowboy trucks or trailers. Construction equipment would be left on-site overnight when feasible or, where overnight storage is infeasible, at the contractor yards or at other storage yards in the area.

As part of the CEQA EIR certification and project approval process, the applicant committed to implementing the mitigation measures described above. To mitigate short-term transportation impacts from materials and equipment deliveries, the applicant would prepare a traffic control plan, as required under Mitigation Measure TR-1.1 and included as part of the no action (no permit) alternative. In accordance with the conditions of this plan, construction deliveries (including heavy/combination trucks with more than two axles and single-unit trucks with two axles) would be restricted to traveling to and from the project site via Interstate 5 and Little Panoche Road only and would be precluded from using Panoche Road or State Route 25; construction material and equipment deliveries requiring pilot cars are limited to traveling along Little Panoche Road during daylight hours; all construction truck drivers are informed of and required to adhere to the designated traffic haul routes.

Construction of the project substation or underground utility road crossings may require temporary closure or partial closure of roadways around the project site. Substation equipment and cranes would be delivered to the site on wide-load trailers that would require pilot cars. This may result in increased traffic delays along Little Panoche Road. Throughout construction, there would be only a few round-trip deliveries via oversize trucks. However, to reduce the potential for delays to existing traffic on Little Panoche Road, the traffic control plan restricts oversize trucks requiring pilot cars to traveling along Little Panoche Road during daylight hours. Application of this measure would ensure impacts are less than significant.

To ensure that any temporary construction-related lane closures would not result in direct impacts from congestion, the traffic control plan included as part of the no action (no permit) alternative requires provisions to facilitate safe

work areas and to warn, protect, and expedite vehicular traffic. Accordingly, the only construction traffic that would be using Panoche Road would be personal vehicles and trucks with no more than two axles. Overall, because of the low volume of existing traffic on roadways that would be used by project-related traffic and the traffic controls required under Mitigation Measure TR-1.1 (and included as part of the no action (no permit) alternative), short-term impacts from construction traffic would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

The increase in the number of vehicles on the roads, especially during the peak construction worker arrival and departure timeframes, could increase the potential for vehicular accidents (construction workers and the public) in the project area. The increased potential for vehicular accidents would be confined to the construction process timeframe and would be most pronounced during those times of the day when project-related traffic is at its highest. As part of the CEQA EIR certification and project approval process, the applicant committed to preparing and implementing a traffic safety plan (see Mitigation Measure TR-1.4). This plan includes measures to mitigate potential impacts on emergency response agencies. Implementing this plan would also ensure the ability of emergency service providers to access the region during construction and to ensure the safety of all motorists during peak use of the regional roadways. Because Mitigation Measure TR-1.4 has been incorporated in the no action (no permit) alternative, the short-term impacts on emergency vehicle operators' ability to respond to emergencies on the roadways in the project area would be less than significant and would not impact motorist safety. No additional mitigation measures were identified to further reduce this impact.

Heavy trucks, such as 18-wheel semi-trailers, produce disproportionate wear and tear on the roadway system. As described above, the construction of the project would result in additional truck trips on Little Panoche Road. The pavement along a five-mile segment, beginning four miles north of Panoche Road, is deteriorating; the addition of large trucks associated with the proposed project would worsen the pavement conditions. As part of the CEQA EIR certification and project approval process, the applicant committed to implementing Mitigation Measures TR-1.2 and TR-1.3. Under these measures, the applicant will rehabilitate damaged pavement prior to construction and restore all public roads, easements, rights-of-way, and infrastructure that have been damaged due to project-related construction. Because roadways will be restored to pre-project conditions, impacts would be less than significant. No additional mitigation measures were identified to further reduce this impact.

Construction traffic also has the potential to damage culverts along area roadways. As part of the CEQA EIR certification and project approval process, the applicant committed to implementing Mitigation Measure TR-1.2, which requires the contractor to monitor weekly the two culverts located at insufficient depths throughout construction for damage to the culverts

themselves or dips in the pavement. It also requires the contractor to place a steel plate over the pavement above the culverts before transporting any transformers to the site. Implementing these actions would prevent significant road and culvert damage from heavy truck traffic during construction. Because this measure has been incorporated into the no action (no permit) alternative evaluated in this EIS, impacts would be less than significant. No additional mitigation measures were identified to further reduce this impact.

Level of service. Traffic volume data collected along Panoche and Little Panoche Roads showed volumes of existing traffic that were well below capacity. The project is projected to add between 580 daily trips to Little Panoche Road and 570 daily trips to Panoche Road. Though the project would increase traffic along each of the roadways, the increase would have little effect on roadway operations and would still be well within the roadway capacities (Hexagon Transportation Consultants, Inc. 2014). Panoche and Little Panoche Roads would likely remain at LOS A. As a result, impacts would be less than significant. No mitigation measures were identified to further reduce this impact.

LOS calculations were performed for those intersections identified to be of critical importance. The two key intersections analyzed in the traffic study were the intersection of State Route 25 and Panoche Road and the intersection of Little Panoche Road and Panoche Road. Results of the level of service analysis indicate that both study intersections currently operate and are projected to continue to operate at LOS A conditions during the morning, evening, and midday peak hours under existing and project conditions (Hexagon Transportation Consultants, Inc. 2014). Therefore, impacts would be less than significant. No mitigation measures were identified to further reduce this impact.

Construction-related traffic would not decrease the current level of service on area roadways; however, individual drivers would experience temporary delays along Panoche Road from trenching. Such closures could disrupt traffic flow and could lead to traffic congestion. These indirect impacts would be temporary and intermittent (i.e., occurring only occasionally during the construction process). Because the no action (no permit) alternative would not affect the LOS of local roadways, and because the applicant committed to identifying the location and length of time of roadway closures (TR-1.1) and to ensuring that potential delays are less than 30 minutes (TR-1.4), impacts would be less than significant. No mitigation measures were identified to further reduce this impact.

Construction may temporarily interfere with public access in the project area. As part of the CEQA EIR certification and project approval process, the applicant committed to implementing Mitigation Measure LU-1.1, which requires the applicant to establish a construction liaison to respond to construction-related questions and concerns, and Mitigation Measure LU-1.2, which requires the applicant to provide advance notice of construction activities. Keeping the

public informed of construction activities would result in less than significant impacts on public access in the project area during construction. No additional mitigation measures were identified to further reduce this impact.

Compliance with plans and policies. To avoid potential loading impacts on bridge and culvert crossings on Little Panoche Road, the applicant committed to implementing Mitigation Measure TR-1.2, which requires the selected transport/hauling contractor to coordinate with the affected jurisdictions (e.g., Caltrans, San Benito County, and Fresno County) to implement appropriate wheel load weight distribution. Moreover, the hauling contractor would be required to comply with state regulations relating to truck weight, including obtaining permits for oversized loads, which would further minimize potential impacts on bridge and culvert crossings. Application of these measures would ensure impacts are less than significant. No additional mitigation measures were identified to further reduce this impact.

Operational and Maintenance Activities

The workforce for operations, maintenance, and security purposes is estimated to be up to 50 full-time workers, including both operational and maintenance personnel and security personnel working in 8-hour shifts 24 hours per day. The no action (no permit) alternative would generate up to 100 daily trips; the timing of the trips would correspond with the beginning and end of each shift. It is possible that some truck trips to and from the site would occur when on-site equipment needs replacing. However, operation of the project would not require regularly scheduled truck trips. The traffic generated by the project during operation would not adversely affect traffic operations on the surrounding local roadways and intersections. Therefore, impacts on transportation would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

PG&E Telecommunication Upgrades

Primary Telecommunication Upgrades. The OPGW installation along the 17-mile segment would be completed in approximately 12 to 16 weeks, and at any one location the construction would take from 2 to 3 weeks. Panoche Road, as well as unimproved roads along the transmission line corridor, would be used to install the OPGW, and PG&E would implement the same methods in executing the work that it employs when maintaining its own electrical system.

Direct temporary effects during OPGW installation include increased traffic on existing roadways. There may be infrequent and localized disruptions of vehicle traffic as construction personnel access wire pulling, tensioning, and splicing sites. During construction, heavy and light vehicles would access the area, transporting equipment and personnel to work sites using existing roads. Helicopters would be used to transport electrical workers to the towers, deliver materials, and assist in pulling the OPGW from tower to tower. Because

localized impacts on traffic would be short term, temporary, and intermittent, impacts would be less than significant.

Overhead crossings of public roadways or existing transmission or distribution lines would require the use of temporary guard structures at seven crossings to mitigate potential events, such as a sock line or conductor falling onto the road surface. To ensure that any short-term construction-related activities would not directly impact congestion, as part of the no action (no permit) alternative, PG&E has committed to developing a traffic control plan to demonstrate compliance with the California Joint Utility Traffic Control Manual; to provide the dates of and public noticing procedures for full and partial road closures; and to outline the measures that would be taken to ensure that traffic delays do not exceed 30 minutes (see AMM TR-1). With implementation of this plan, short-term impacts on the surrounding transportation system and public access during primary upgrade actions would be less than significant.

Secondary Telecommunication Upgrades. Temporary indirect impacts are increased construction-related traffic on Little Panoche Road and unimproved local roads and roads on BLM-administered lands when constructing telecommunication upgrades. There may be infrequent and localized short-term disruptions of vehicle traffic as construction personnel access tower sites on Call and Panoche Mountains and at Helm Substation. During construction, heavy and light vehicles would access the areas, transporting equipment and personnel to work sites using existing roads.

To ensure that any temporary construction-related activities would be less than significant, a traffic control plan would be developed and implemented as part of the no action (no permit) alternative, as described above for primary upgrade actions. Short-term impacts on the surrounding transportation system and public access during telecommunication upgrades at Call Mountain, Panoche Mountain, and Helm Substation would be less than significant.

Alternative A (Applicant's Proposed Project)

Construction and Operational and Maintenance Activities

The indirect impacts on transportation are the same as those described under the no action (no permit) alternative. There would be no direct impacts on transportation. The County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, indirect impacts would be less than significant. No additional mitigation measures were identified to further reduce impacts.

PG&E Telecommunication Upgrades

Less than significant indirect impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative.

Alternative B (On-site Alternative)

Construction and Operational and Maintenance Activities

The indirect impacts on transportation are the same as those described under the no action (no permit) alternative. There would be no direct impacts on transportation. The applicant-proposed measures and County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, indirect impacts would be less than significant. No additional mitigation measures were identified to further reduce impacts.

PG&E Telecommunication Upgrades

Less than significant indirect impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative.

Alternative C (Off-Site Alternative, Westlands CREZ)

Construction

As no specific site within the larger 35,000-acre Westlands CREZ has been identified for development, the transportation analysis for this alternative describes the general transportation-related impacts of constructing and operating a 2,506-acre solar facility similar to the one proposed under the no action (no permit) alternative and Alternatives A and B. Because the Westlands CREZ solar facility would be similar in size to the no action (no permit) alternative, the trip generation and distribution are likely to be similar to the no action (no permit) alternative.

The two primary state highways that would be used to access the Westlands CREZ are Highway 41 and Highway 198. Highway 41 between Interstate 5 and Highway 198 operates at a LOS B and LOS C (Kings County 2010a). Average annual daily traffic on State Route 41 near the Westlands CREZ ranges from 5,732 to 6,500 vehicles per day (CalTrans 2013). Highway 198 operates at LOS B in the vicinity of the CREZ (Kings County 2010a). Highway 198 is a two-lane highway at the Fresno County line and becomes a four-lane highway as it continues into Kings County. Interstate 5, the nearest major highway to the Westlands CREZ, can be accessed via Exit 309 near Kettleman City or Exit 319 south of Huron. Average annual daily traffic near Exit 309 ranges from 34,500 to 37,000 vehicles per day, and AADT near Exit 319 ranges from 34,500 to 42,500 vehicles per day (CalTrans 2013).

Indirect impacts on transportation during construction are described below; there would be no direct impacts on transportation during construction.

<u>Traffic</u>. During construction, transportation systems around the Westlands CREZ would be indirectly impacted by an increase in traffic due to an influx of construction workers and the delivery of construction equipment and materials.

Construction equipment and material would be delivered throughout construction. To mitigate short-term transportation impacts from materials and equipment deliveries, a traffic control plan should be prepared to identify any road restrictions for delivery vehicles, including designated haul routes and oversized vehicle requirements. The USACE does not have the authority to implement this mitigation measure. It is likely that it would be required, though, through the county approval process of a conditional use permit.

While an in-depth traffic study would be required for the Westlands CREZ alternative to determine impacts on specific roadway segments and intersections, the primary access routes operate at an acceptable LOS and would likely avoid use of smaller roads within residential areas. A traffic control plan is recommended to ensure that any temporary construction-related lane closures would not result in direct impacts related to congestion. The traffic control plan should require provisions to facilitate safe work areas and to warn, protect, and expedite vehicular traffic. The USACE does not have the authority to implement this mitigation measure. It is likely that it would be required, however, prior to obtaining county approval for construction because this is a common requirement for projects that may disrupt traffic flow. With implementation of a traffic control plan, construction-related traffic would not likely decrease the current level of service on area roadways. Overall, given the well-developed roadway network, proximity to Interstate 5, and traffic controls that would be required by the traffic control plan, short-term impacts from construction traffic would likely be less than significant.

Due to increased daily construction traffic, there is the potential for impediment of emergency response vehicles on the local and regional roads in the project area. The increase in the number of vehicles on the roads, especially during the peak construction worker arrival and departure timeframes, could increase the potential for vehicular accidents (construction workers and the public) in the project area. The potential increase in traffic accidents could directly impact local emergency response agencies.

To mitigate potential impacts on emergency response agencies, a traffic safety plan should be prepared and implemented to ensure the ability of emergency service providers to access the region during construction and to ensure the safety of motorists (construction workers and the public) during peak use of the regional roadways. This plan should also consider agricultural equipment that may use local roadways. The USACE does not have the authority to implement this mitigation measure. It is likely that it would be required, though, prior to obtaining county approval for construction because this is a common requirement to mitigate safety risks. By implementing this plan, the short-term impacts on emergency providers' ability to respond to emergencies on regional roadways would be less than significant and would result in less than significant adverse impacts on motorist safety during construction.

Access. Construction may temporarily interfere with public access in the project area, resulting in short-term localized impacts. The applicant should establish a construction liaison to respond to construction-related questions and concerns and would provide advance notice of construction. The USACE does not have the authority to implement this mitigation measure. It is likely that it would be required, though, prior to obtaining county approval for construction because this is a common requirement for projects that may impact public access. This would result in less than significant impacts on public access in the project area during construction.

Road conditions. Project-generated traffic, especially heavy truck traffic, would accelerate the rate of deterioration of public roads traveled. Construction of the project would result in additional truck trips on local roads. The hauling contractor would be required to comply with state regulations relating to truck weight, including obtaining permits for oversized loads, which would further minimize potential impacts on bridge and culvert crossings. Before the start of and during construction, the applicant should coordinate with affected jurisdictions and implement appropriate measures to rehabilitate roadways and to protect and monitor roadway pavement and bridges and culverts. The USACE does not have the authority to implement this mitigation measure. It is likely that it would be required, though, prior to obtaining county approval for construction because this is a common requirement for projects that may damage public roads.

While the contribution of project construction traffic to road deterioration would likely be minimal because project-generated traffic would be a small portion of total traffic, impacts on certain local roads could be more pronounced. Following construction, the applicant should restore all public roads, easements, rights-of-way, and infrastructure (such as signs and utility poles) within the public road rights-of-way that have been damaged due to project-related construction traffic. The USACE does not have the authority to implement this mitigation measure. It is likely that it would be required, though, prior to obtaining county approval for construction because this is a common requirement for projects that may damage public roads. Implementation of this measure would ensure that direct impacts on roads, bridges, and culverts would be less than significant.

Operational and Maintenance Activities

The workforce for operations, maintenance, and security purposes would be substantially less than during construction and would generate substantially fewer average daily trips. The traffic generated by the project during operation would not adversely affect traffic operations on the surrounding local roadways and intersections. Therefore, long-term impacts on transportation would be less than significant. No additional mitigation measures were identified to further reduce these impacts.

3.15.4 Cumulative Impacts

No Action (No Permit) Alternative, Alternative A, and Alternative B

The study area for the transportation cumulative effects analysis for the no action (no permit) alternative and Alternatives A and B is the regional road network described above. This includes Panoche Road, Little Panoche Road, Highway 25, Interstate 5, and other roads used to access the proposed project site and telecommunication upgrade sites.

No cumulative projects have been identified in San Benito County. Construction periods for projects in adjacent counties may overlap with the proposed project, but construction workers are not expected to use the same roads to access their work sites. The only possible exception is Interstate 5, but the high annual average daily traffic on this route and the relatively small number of employees using it ensure that impacts would be negligible and would not affect its level of service. Therefore, there would be no effects beyond the direct and indirect effects disclosed in **Section 3.15.3**.

Vehicle and maintenance equipment would not produce a cumulative transportation impact, given the low number of vehicles needed for these activities.

Alternative C

The cumulative effects analysis study area for transportation under Alternative C is the regional road network in and surrounding the Westlands CREZ. This includes State Routes 41 and 198, Interstate 5, and county and private roads. The cumulative analysis considers existing access and traffic levels along with increases associated with the proposed project and other planned and reasonably foreseeable projects in the area.

The cumulative analysis study area is characterized by a network of county roads connected by state highways. Interstate 5 is west of the Westlands CREZ and provides access to the broader region. State Routes 41 and 198 parallel the CREZ boundary and provide principal access to nearby towns and cities. The CREZ itself is bisected by a series of two-lane paved county roads. Annual average daily traffic ranges from 42,500 vehicles on Interstate 5 to 390 vehicles on Nevada Avenue within the Westlands CREZ (CalTrans 2013; Kings County 2010a). The level of service for the regional road network is either B or C, depending on the road (CalTrans 2013; Kings County 2010a).

The development of a 2,506-acre solar facility in the Westlands CREZ would introduce additional vehicles to the regional road network. Delivery truck and employee traffic routes could overlap with the proposed 24,000-acre Westlands Solar Park. Overlap, particularly along State Routes 41 and 198 near Lemoore, would be most prominent during construction. There is also the potential for overlapping transportation patterns with projects near Lemoore. Temporary increases in traffic, along with any accompanying degradation in road surface

associated with the proposed project, would be mitigated by implementing measures such as traffic control plans and repairing damaged pavement. The Corps does not have authority to require these measures. As described above in **Section 3.15.3**, their implementation is likely, thus minimizing cumulative effects on transportation.

CHAPTER 4
OTHER STATUTORY REQUIREMENTS

This section describes growth-inducing impacts, irreversible and irretrievable commitments of resources, and the relationship between short-term uses of the environment and long-term productivity of the proposed project under Alternatives A and B and the no action (no permit) alternative. The no action (no build) alternative would have no growth-inducing impacts, irreversible or irretrievable commitments of resources, or short-term uses of the environment.

4.1 GROWTH-INDUCING IMPACTS

NEPA implementing regulations at 40 CFR Section 1508.8(b) require that EIS preparers discuss growth-inducing impacts of a project. The discussion must address how a proposed project may remove obstacles to growth or encourage or facilitate other activities that could significantly impact the environment, either individually or cumulatively. Typically, the growth-inducing potential of a proposed project would be considered significant if it were to foster growth or a concentration of population above what is assumed in local and regional land use plans or in projections made by regional planning authorities. Significant growth impacts could also occur if a project were to add infrastructure or service capacity that could accommodate growth levels that exceed those permitted by local or regional plans and policies.

Alternatives A and B and the no action (no permit) alternative would not result in growth-inducing impacts related to population, housing, services, or infrastructure. They also would not have growth-inducing impacts related to future energy development in eastern San Benito County given land use, contractual, and biological impediments to additional utility-scale projects in the Panoche Valley. These impediments include the availability of land and federal, state, and local permitting requirements related to sensitive species.

The PG&E telecommunication upgrades would not result in growth-inducing impacts.

4.2 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

A resource commitment is considered irreversible when direct and indirect impacts from its use limit future use options. Irreversible commitments apply primarily to nonrenewable resources, such as cultural resources, and also to those resources that are renewable only over long periods, such as soil productivity. A resource commitment is considered irretrievable when the use or consumption of the resource is neither renewable nor recoverable for future use. Irretrievable commitment applies to the loss of production, harvest, or natural resources.

Alternatives A and B and the no action (no permit) alternative would not result in a large commitment of nonrenewable resources. Land would be disturbed during construction. There would be some loss of vegetation, habitats, and wildlife resources. Cattle grazing would be excluded from the project footprint. Land not needed for operation and maintenance of the facilities would be reclaimed immediately after construction. At the end of the useful life of the proposed project, developed lands could be reclaimed as well.

Project construction would require the irretrievable commitment of fossil fuels (diesel and gasoline), oils, and lubricants used by construction equipment and by workers commuting to the site. Construction materials and some equipment that may not be productively recycled would be consumed by the proposed project.

Cultural resources are by their nature irreplaceable, so altering or eliminating any such resource would represent an irreversible and irretrievable commitment, if such a resource were uncovered. No irretrievable commitment of biological resources would occur, as no species would become extinct. In addition, the applicant would conserve approximately 24,176 acres of Valley Floor and off-site habitat for affected species, providing protected and potentially enhanced habitat for species even if the project footprint was not used by wildlife. Conservation easements would be in perpetuity; therefore, certain future uses of those lands would be precluded if the uses were to conflict with the goals for which the easements had been created, even after the proposed project is decommissioned.

Alternatives A and B and the no action (no permit) alternative would increase the availability of electricity generated from renewable sources. Measures listed in **Appendix C** would be implemented to ensure that all natural resources are conserved to the maximum extent practicable.

4.3 THE RELATIONSHIP BETWEEN SHORT-TERM USES OF THE ENVIRONMENT AND LONG-TERM PRODUCTIVITY

This section compares the potential temporary effects of the proposed project to the potential effects on its long-term productivity. The USACE must consider the degree to which a proposed project or alternatives would sacrifice a

resource value that might benefit the environment in the long term for some temporary value to the applicant or the public.

Implementing Alternatives A and B and the no action (no permit) alternative would require the use of environmental resources for constructing the PV arrays, the substation, the switching station, access roads, inverters, the operations and maintenance facility, and collection lines. Construction-related surface disturbance would occur for temporary staging areas, building foundations, and some site preparation in areas of steeper grade.

The effects from these activities are soil disturbance, increased erosion potential, water use, vehicle and equipment emissions, fugitive dust, and habitat disturbance. Applicant-proposed measures and mitigation measures in **Appendix C** would minimize disturbances and reclaim or improve vegetation cover, soil, and wildlife habitat on these lands. To the extent that disturbances can be reclaimed, other productive use of these lands would not be precluded in the long term. Regional economies could experience temporary benefits from expenditures and employment opportunities during construction of the proposed project and long-term benefits from expenditures, employment opportunities, and tax revenue over the life of the project.

Land within the project footprint would be lost to other productive uses. There would be some loss of vegetation, soil, and quality of habitat available for wildlife. The PV arrays would cause aesthetic impacts. Aesthetic resources would be affected on the project site for the life of these facilities or their successors. If no longer needed, these lands could be restored to pre-project conditions. Full recovery of these lands and restoration of any lost habitat or associated wildlife is possible but not assured.

Alternatives A and B and the no action (no permit) alternative would increase the availability of electricity generated from renewable energy sources. Implementing these alternatives would contribute toward meeting California's Renewable Portfolio Standards, described in **Section 1.4**, Project Purpose and Need. Overall, the proposed project's use of the environment has low adverse impact on the maintenance and enhancement of long-term productivity, as the development of a solar facility on the project site is unlikely to physically preclude other uses if the facility is decommissioned in the future. Implementing the no action (no permit) alternative would have no impact on areas designated as waters of the U.S.

CHAPTER 5
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CHAPTER 7
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7.1 EXECUTIVE SUMMARY REFERENCES

There are no Executive Summary references.

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7.5 CHAPTER 4-9 REFERENCES

There are no Chapter 4-9 references.

CHAPTER 8
GLOSSARY

100-Year Flood. A stream flow caused by a discharge that is exceeded, on the average, only once in 100 years. A 100-year flood has a one percent chance of occurrence in any given year.

Adverse modification (Proposed definition). A direct or indirect alteration that appreciably diminishes the conservation value of critical habitat for listed species. Such alterations may include, but are not limited to, effects that preclude or significantly delay the development of the physical or biological features that support the life-history needs of the species for recovery.

Air Quality Standard. The specified average concentration of an air pollutant in ambient air during a specified time period, at or above which level the public health may be at risk. National ambient air quality standards have been set for the following criteria pollutants: carbon monoxide, nitrogen dioxide, ozone, sulfur dioxide, lead, and two categories of particulate matter (particulate matter with an aerodynamic diameter of 10 microns or less [PM_{10}] and particulate matter with an aerodynamic diameter of 2.5 microns or less [$PM_{2.5}$]).

Ambient Air. Any unconfined portion of the atmosphere; the outside air.

Ambient Noise Level. Noise from all sources, near and far. Ambient noise level constitutes the normal or existing level of environmental noise at a given location.

A-weighted Decibel (dBA). The A-weighted decibel scale representing the relative insensitivity of the human ear to low-pitched sounds; decibels are logarithmic units that compare the wide range of sound intensives to which the human ear is sensitive.

Baseline. A set of existing conditions against which change is to be described and measured.

Biota. Living organisms.

Carbon dioxide equivalents (CO_2e). Greenhouse gas emissions are tracked as carbon dioxide equivalents, with one gram of carbon dioxide molecule counting as one and other greenhouse gas molecules counting as some multiple.

Carbon Monoxide (CO). A colorless, odorless, toxic gas produced by incomplete combustion of carbon in fossil fuels.

Cultural Resource. Places or objects important for scientific, historical, and religious reasons to cultures, communities, and individuals.

Cumulative Impacts. The impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Decibel (dB). A logarithmic unit which measures the pressure levels of sounds.

Emission. Unwanted substances released by human activity into air or water.

Fault. A fracture or zone of fractures in rock strata which have undergone movement that displaces the sides relative to each other, usually in a direction parallel to the fracture. Abrupt movement on faults is a cause of most earthquakes.

Fugitive Dust. Airborne soil particles resulting from direct surface disturbance, such as from construction equipment, or from natural sources, such as wind.

Generation-Tie (gen-tie). Transmission line connecting a generator to the electric grid.

Invertebrate. Animals that lack a spinal column.

Inverter. Inverters take the direct current (DC) output of the panels and convert it to alternating current (AC) for delivery to the transmission grid via the project's medium-voltage collection system, substation, and switchyard.

Jeopardy. When an action is reasonably expected, directly or indirectly, to diminish a species' numbers, reproduction, or distribution so that the likelihood of survival and recovery in the wild is appreciably reduced.

Key Observation Point (KOP). One or a series of points on a travel route or at a use area where the view of the Proposed Project would be most revealing.

Kilovolt (kV). A measure of electric voltage, one thousand volts.

Leq. Energy-equivalent sound level; average level of sound determined over a specific period of time.

Level of Service (LOS). A measure of roadway congestion, ranging from A (free-flowing) to F (highly congested).

Liquefaction. The process of making or becoming liquid (soils).

Megawatt (MW). A measure of electric power equal to 1,000 kilowatts or 1,000,000 watts.

Modified Mercalli Intensity (MMI). A subjective numerical index describing the severity of an earthquake in terms of its observed effects on humans, man-made structures, and the earth's surface.

Monitoring Station. A mobile or fixed site equipped to measure instantaneous or average ambient air pollutant concentrations.

Nitrogen Oxides. A gaseous mixture of nitric oxide (NO) and nitrogen dioxide (NO_2) and symbolically represented as NO_3.

NO_2. Nitrogen dioxide. A molecule of one nitrogen and two oxygen atoms. Results usually from further oxidation of nitric oxide (NO) in the atmosphere. Ozone accelerates the conversion.

Nonnative plant species. Those species that evolved in one region of the world but were moved by humans to another region. Often, these species thrive in the new environment and have a competitive advantage, allowing them to quickly spread in new territories because they are no longer controlled by their natural predators.

Noxious weeds. Any living stage (including seeds and reproductive parts) of a parasitic or other plant of a kind which is of foreign origin, is new to or not widely prevalent in the US, and can directly or indirectly injure crops, other useful plants, livestock, poultry or other interests of agriculture, including irrigation, navigation, fish and wildlife resources, or the public health.

Ozone. A molecule of three oxygen atoms - O_3. A colorless gas formed by a complex series of chemical and photochemical reaction of reactive organic gases, principally hydrocarbons, with the oxides of nitrogen, which is harmful to the public health, the biota, and some materials.

Particulate Matter (particulates). Very fine sized solid matter or droplets, typically averaging one micron or smaller in diameter. Also called "aerosol."

Parts per billion (ppb). A measure of the amount of one substance found in a second, which is the carrier.

Parts per million (ppm). Parts per million, a measure of the amount of one substance found in a second, which is the carrier.

Photovoltaic (PV) Array. An interconnected system of photovoltaic modules that function as a single electricity-producing unit.

Photovoltaic (PV) Module. The smallest assembly of solar cells and ancillary parts, such as interconnections and terminals, intended to generate direct current power under unconcentrated sunlight.

Photovoltaic (PV). Direct conversion of light into electricity.

PM_{10} . Particulate matter less than 10 microns in size, which is small enough to be inhaled deeply into the lungs and cause disease.

$PM_{2.5}$. Particulate matter less than 2.5 microns in size, which is small enough to be inhaled.

Prevention of Significant Deterioration (PSD). A Federal set of limits on emissions of sulfur oxide and particulates to protect air quality in non-urban area.

Right-of-way (ROW). An easement, lease, permit, or license across an area or strip of land to allow access or to allow a utility to pass through public or private lands.

Riparian. Area along the banks of a river or lake supporting specialized plant and animal species.

Sensitive Receptor. Land uses adjacent to or within proximity to the Proposed Project that could be impacted by construction, operation, and maintenance activities.

Shrink-Swell Potential. The expansion or contraction of primarily clay-rich soils during alternating wetting and drying cycles.

Skylining. Extending above the horizon line.

Substrate. Geologic term describing soil or geologic layers underlying the ground surface.

Sulfates. Compounds in air or water that contain four oxygen atoms for each sulfur atom. See SO_x.

Sulfur dioxide (SO_2). A corrosive and poisonous gas produced from the complete combustion of sulfur in fuels.

Sulfur Oxide (SO_x). The group of compounds formed during combustion or thereafter in the atmosphere of sulfur compounds in the fuel, each having various levels of oxidation, ranging from two oxygen atoms for each sulfur atom to four oxygen atoms.

Terrestrial. Related to or living on land. Terrestrial biology deals with upland areas as opposed to shorelines or coastal habitats.

Vernal pool. Seasonal depressional wetlands that occur under the Mediterranean climate conditions of the West Coast. They are covered by shallow water for variable periods from winter to spring, but may be completely dry for most of the summer and fall. Beneath vernal pools lies either bedrock or a hard clay [or mineral] layer in the soil that helps keep water in the pool.

Visual Sensitivity. Consideration of people's uses of various environments and their concerns for maintenance of scenic quality and open-space values; examples of areas of high visual sensitivity would be areas visible from scenic highways, wilderness areas, parks, and recreational water bodies.

Watershed. The area contained within a drainage divide above a specified point on a stream.

Wetland. Lands transitional between obviously upland and aquatic environments. Wetlands are generally highly productive environments with abundant fish, wildlife, aesthetic, and natural resource values. For this reason, coupled with the alarming rate of their destruction, they are considered valuable resources, and several regulations and laws have been implemented to protect them.

Wilderness study area (WSA). A roadless area on BLM-administered lands found to have wilderness characteristics, as described in Section 2(c) of the Wilderness Act of 1964, during the BLM inventory process in the 1980s and provided to the President and Congress in 1991.

Williamson Act. A state program administered by the County of San Luis Obispo under the California Land Conservation Act of 1965. The program provides an opportunity for landowners to voluntary place their property into a 10-year agricultural preserve in exchange for reduced property taxes. Beginning on the first year following the execution of a 10-year contract, a year is automatically added for each year that elapses to maintain an ongoing 10-year term unless a notice of nonrenewal is served. Once a notice of nonrenewal is served on a contract with 10 years remaining, it takes 9 to 10 years for the contract to expire. Contracts can be cancelled if they meet the findings of the County's Rules of Procedure to Implement the California Land Conservation Act of 1965 (June 1972).

CHAPTER 9
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